Overview

S7-300

- The modular mini PLC system for the low and mid-performance ranges
- With comprehensive range of modules for optimum adaptation to the automation task
- Flexible use through simple implementation of distributed structures and versatile networking
- User-friendly handling and uncomplicated design without a fan
- Can be expanded without problems when the tasks increase
- Powerful thanks to a range of integrated functions

S7-300F

- Fail-safe automation system for plants with increased safety requirements for production technology
- Based on S7-300
- Additional ET 200S and ET 200M distributed I/O stations complete with safety-related modules can be connected
- Safety-related communication via PROFIBUS DP with PROFIsafe profile
- Standard modules can be used in addition for non-safety-relevant applications

Availability

As part of our established product portfolio,
the SIMATIC S7-300/ET 200M system families will generally be available until 2023.
Following the product phase-out declaration, products will be available as spare parts for another ten years.

Technical specifications

General technical specifications SIMATIC S7-300	
Degree of protection	IP20 according to IEC 60 529
Ambient temperature	
• For horizontal installation	0 to 60 °C
• For vertical installation	0 to 40 °C
Relative humidity	10 to 95%, non-condensing, corresponds to relative humidity (RH), stress level 2 acc. to IEC 61131, Part 2
Air pressure	From 1080 to 795 hPa (corresponds to an altitude of -1000 to +2000 m)
Insulation	
• < 50 V	500 V DC test voltage
• < 150 V	2500 V DC test voltage
• < 250 V	4000 V DC test voltage
Electromagnetic compatibility	Requirements of the EMC directive; interference immunity according to IEC 61000-6-2
• Pulse-shaped disturbance variables	Test according to: Electrostatic discharge according to IEC 61000-4-2, burst pulses according to IEC 61000-4-4, energy single pulse (surge) according to IEC 61000-4-5,
• Sinusoidal disturbance variables	Test according to: HF irradiation according to IEC 61000-4-3, HF decoupling according to IEC 61000-4-6
• Emission of radio interference	Interference emission according to EN 50081-2 Test according to: Emitted interference of electromagnetic fields according to EN 55016: Limit value class A, (measured at a distance of 10 m) Interference emission via AC mains according to EN 55011: Limit value class A, Group 1
Mechanical strength	
• Vibrations	Frequency range 10 Hz ≤ f ≤ 58 Hz • Continuous: 0.0375 mm amplitude • Occasionally 0.75 mm amplitude Frequency range 58 Hz ≤ f ≤ 150 Hz • Continuous: 0.5 g constant acceleration • Occasionally 1 g constant acceleration Testing according to IEC 60068-2-6 Tested with: 5 Hz ≤ f ≤ 9 Hz, constant amplitude 3.5 mm; 9 Hz ≤ f ≤ 150 Hz, constant acceleration 1 g; Duration of oscillation: 10 frequency passes per axis in each direction of the 3 mutually perpendicular axes
• Shock	Testing according to IEC 60068-2-27 Tested with: Half-sine wave: strength of shock 15 g peak value, 11 ms duration; Shock direction: 3 shocks each in ± direction in each of the 3 mutually vertical axes

Technical specifications

General technical specifications SIPLUS S7-300	
Ambient temperature range	-40/-25 ... +60/70 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical data	The technical data of the standard product applies except for the environmental conditions.
Ambient conditions	
Extended range of environmental conditions	
• with reference to ambient temperature, air pressure and altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
• At cold restart, min.	0° C
Relative humidity	
• with condensation, max.	100 %; RH incl. bedewing/frost (no commissioning in bedewed state)
Resistance	
• to biologically active substances/ compliance with EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (except fauna); the supplied plug covers must remain in place on the unused interfaces during operation.
• to chemically active substances/ compliance with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray in accordance with EN 60068-2-52 (severity 3); the supplied plug covers must remain in place on the unused interfaces during operation.
• to mechanically active substances, compliance with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust; the supplied plug covers must remain in place on unused interfaces during operation.

Overview CPU 312

- The entry level CPU in Totally Integrated Automation (TIA)
- For smaller applications with moderate processing performance requirements

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 314

- For plants with medium program scope requirements
- High processing power in binary and floating-point arithmetic

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 315-2 DP

- The CPU with medium to large program memory and quantity structures for optional use of SIMATIC engineering tools
- High processing power in binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- PROFIBUS DP master/slave interface
- For comprehensive I/O expansion
- For configuring distributed I/O structures
- Isochronous mode on PROFIBUS

SIMATIC Micro Memory Card required for operation of CPU.

Standard CPUs

Overview CPU 315-2 PN/DP

- The CPU with mid-range program memory and quantity frameworks
- High processing power in binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Component-based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component-based Automation (CBA)
- Integrated web server with the option of creating user-defined web pages
- Combined MPI/PROFIBUS DP master/slave interface
- Isochronous mode on PROFIBUS and PROFINET

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 317-2 DP

- The CPU with a large program memory and quantity framework for demanding applications
- For cross-industry automation tasks in series machine, special machine and plant construction
- Used as central controller in production lines with central and distributed I/O
- High processing power in binary and floating-point arithmetic
- 2 PROFIBUS DP master/slave interfaces
- For comprehensive I/O expansion
- For configuring distributed I/O structures
- Isochronous mode on PROFIBUS
- Optionally supports the use of SIMATIC engineering tools

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 317-2 PN/DP

- The CPU with a large program memory and quantity framework for demanding applications
- For cross-industry automation tasks in series machine, special machine and plant construction
- Used as central controller in production lines with central and distributed I/O
- High processing power in binary and floating-point arithmetic
- PROFINET interface with 2-port switch
- PROFINET I/O Controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as intelligent PROFINET device under a SIMATIC or third-party PROFINET I/O Controller
- Distributed intelligence in Component Based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)
- Integrated web server with the option of creating user-defined web pages
- Combined MPI/PROFIBUS DP master/slave interface
- Isochronous mode on PROFIBUS and PROFINET
- Optionally supports the use of SIMATIC engineering tools

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 319-3 PN/DP

- The CPU with high command processing performance, large program memory and quantity framework for demanding applications
- For cross-industry automation tasks in series machine, special machine and plant construction
- Used as central controller in production lines with central and distributed I/O on PROFIBUS and PROFINET
- PROFINET I/O controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET I/O controller
- PROFINET interface with 2-port switch
- Isochronous mode on PROFIBUS or PROFINET
- Integrated web server with the option of creating user-defined web pages
- Distributed intelligence in Component Based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)
- Optionally supports the use of SIMATIC engineering tools

SIMATIC Micro Memory Card required for operation of the CPU.

Standard CPUs

Ordering data	Article No.
CPU 312 32 KB work memory, supply voltage 24 V DC, MPI; MMC required	**6ES7312-1AE14-0AB0**
CPU 314 128 KB work memory, supply voltage 24 V DC, MPI; MMC required	**6ES7314-1AG14-0AB0**
CPU 315-2 DP 256 KB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface; MMC required	**6ES7315-2AH14-0AB0**
CPU 315-2 PN/DP 384 KB work memory, 24 V DC supply voltage, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	**6ES7315-2EH14-0AB0**
CPU 317-2 DP 1 MB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface; MMC required	**6ES7317-2AK14-0AB0**
CPU 317-2 PN/DP 1 MB work memory, 24 V DC supply voltage, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	**6ES7317-2EK14-0AB0**
CPU 319-3 PN/DP 2 MB work memory, 24 V DC supply voltage, combined MPI/PROFIBUS DP master/slave interface, PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	**6ES7318-3EL01-0AB0**
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
Slot number plates	**6ES7912-0AA00-0AA0**

	Article No.
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**
PROFIBUS bus components	
PROFIBUS DP RS 485 bus connector	
• With 90° cable outlet, max. transfer rate 12 Mbps	
- Without programming device interface	**6ES7972-0BA12-0XA0**
- With programming device interface	**6ES7972-0BB12-0XA0**
• With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbps	
- Without programming device interface, 1 unit	**6ES7972-0BA52-0XA0**
- Without programming device interface, 100 units	**6ES7972-0BA52-0XB0**
- With programming device interface, 1 unit	**6ES7972-0BB52-0XA0**
- With programming device interface, 100 units	**6ES7972-0BB52-0XB0**
• With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6GK1500-0EA02**
PROFIBUS FastConnect bus cable Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1830-0EH10**
RS 485 repeater for PROFIBUS Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	**6ES7972-0AA02-0XA0**

Ordering data

	Article No.
PROFINET bus components	
IE FC TP standard cable GP 2x2 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval; Sold by the meter	**6XV1840-2AH10**
FO standard cable GP (50/125) Standard cable, splittable, UL approval, sold by the meter	**6XV1873-2A**
SCALANCE X204-2 Industrial Ethernet Switch Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**
Compact Switch Module CSM 377 Unmanaged switch for connecting SIMATIC S7-300, ET 200M and up to three other stations to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module incl. electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**

	Article No.
IE FC RJ45 plugs RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 plug 145 145° cable outlet	
1 unit	**6GK1901-1BB30-0AA0**
10 units	**6GK1901-1BB30-0AB0**
50 units	**6GK1901-1BB30-0AE0**
IE FC RJ45 plug 180 180° cable outlet	
1 unit	**6GK1901-1BB10-2AA0**
10 units	**6GK1901-1BB10-2AB0**
50 units	**6GK1901-1BB10-2AE0**
PROFIBUS/PROFINET bus components For establishing MPI/PROFIBUS/PROFINET communication	See Industry Mall

Technical specifications

Article number	**6ES7312-1AE14-0AB0** CPU312, 32KB	**6ES7314-1AG14-0AB0** CPU314, 128 KB	**6ES7315-2AH14-0AB0** CPU315-2DP, 256 KB	**6ES7315-2EH14-0AB0** CPU315-2 PN/DP, 384 KB
General information				
Product function				
• Isochronous mode			Yes	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with				
• Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218	STEP 7 V5.5 or higher
Supply voltage				
Rated value (DC)	24 V	24 V	24 V	24 V
Memory				
Work memory				
• integrated	32 kbyte	128 kbyte	256 kbyte	384 kbyte
• expandable	No	No	No	No
Load memory				
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times				
for bit operations, typ.	0.1 µs	0.06 µs	0.05 µs	0.05 µs
for word operations, typ.	0.24 µs	0.12 µs	0.09 µs	0.09 µs
for fixed point arithmetic, typ.	0.32 µs	0.16 µs	0.12 µs	0.12 µs
for floating point arithmetic, typ.	1.1 µs	0.59 µs	0.45 µs	0.45 µs

Technical specifications

Article number	**6ES7312-1AE14-0AB0** CPU312, 32KB	**6ES7314-1AG14-0AB0** CPU314, 128 KB	**6ES7315-2AH14-0AB0** CPU315-2DP, 256 KB	**6ES7315-2EH14-0AB0** CPU315-2 PN/DP, 384 KB
Counters, timers and their retentivity				
S7 counter				
• Number	256	256	256	256
IEC counter				
• present	Yes	Yes	Yes	Yes
S7 times				
• Number	256	256	256	256
IEC timer				
• present	Yes	Yes	Yes	Yes
Data areas and their retentivity				
Flag				
• Size, max.	256 byte	256 byte	2 048 byte	2 048 byte
Address area				
I/O address area				
• Inputs	1 024 byte	1 024 byte	2 048 byte	2 048 byte
• Outputs	1 024 byte	1 024 byte	2 048 byte	2 048 byte
Process image				
• Inputs, adjustable	1 024 byte	1 024 byte	2 048 byte	2 048 byte
• Outputs, adjustable	1 024 byte	1 024 byte	2 048 byte	2 048 byte
Time of day				
Clock				
• Hardware clock (real-time)		Yes	Yes	Yes
• Software clock	Yes			
Operating hours counter				
• Number	1	1	1	1
1. Interface				
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types				
• RS 485	Yes	Yes	Yes	Yes
Protocols				
• MPI	Yes	Yes	Yes	Yes
• PROFIBUS DP master	No	No	No	Yes
• PROFIBUS DP slave	No	No	No	Yes
• Point-to-point connection	No	No	No	No
PROFIBUS DP master				
• Number of DP slaves, max.				124
2. Interface				
Interface type			Integrated RS 485 interface	
Interface types				
• RJ 45 (Ethernet)				Yes
• RS 485			Yes	
• Number of ports				2
Protocols				
• MPI			No	No
• PROFINET IO Controller				Yes; Also simultaneously with IO-Device functionality
• PROFINET IO Device				Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA				Yes
• PROFIBUS DP master			Yes	No
• PROFIBUS DP slave			Yes	No
PROFIBUS DP master				
• Number of DP slaves, max.			124; Per station	

Technical specifications

Article number	**6ES7312-1AE14-0AB0**	**6ES7314-1AG14-0AB0**	**6ES7315-2AH14-0AB0**	**6ES7315-2EH14-0AB0**
	CPU312, 32KB	CPU314, 128 KB	CPU315-2DP, 256 KB	CPU315-2 PN/DP, 384 KB
PROFINET IO Controller				
Services				
- Number of connectable IO Devices, max.				128
- Of which IO devices with IRT, max.				64
- Number of IO Devices with IRT and the option "high flexibility"				128
- Number of connectable IO Devices for RT, max.				128
Protocols				
Open IE communication				
• TCP/IP				Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.				8
• ISO-on-TCP (RFC1006)				Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.				8
• UDP				Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.				8
Web server				
• supported				Yes
Communication functions				
PG/OP communication	Yes	Yes	Yes	Yes
Data record routing	No	No	Yes	Yes
Global data communication				
• supported	Yes	Yes	Yes	Yes
S7 basic communication				
• supported	Yes	Yes	Yes	Yes
S7 communication				
• supported	Yes	Yes	Yes	Yes
S5 compatible communication				
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections				
• overall	6	12	16	16
Ambient conditions				
Ambient temperature during operation				
• min.	0 °C	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C	60 °C
Configuration				
Programming				
Programming language				
- LAD	Yes	Yes	Yes	Yes
- FBD	Yes	Yes	Yes	Yes
- STL	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes
- CFC		Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes	Yes
Know-how protection				
• User program protection/ password protection	Yes	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm	130 mm
Weights				
Weight, approx.	270 g	280 g	290 g	340 g

Technical specifications

Article number	**6ES7317-2AK14-0AB0**	**6ES7317-2EK14-0AB0**	**6ES7318-3EL01-0AB0**
	CPU317-2 DP, 1 MB	CPU317-2 PN/DP, 1 MB	CPU319-3 PN/DP, 2 MB
General information			
Product function			
• Isochronous mode		Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via 2nd PROFIBUS DP or PROFINET interface
Engineering with			
• Programming package	STEP 7 as of V5.5 + SP1 or STEP 7 V5.2 + SP1 or higher with HSP 202	STEP 7 V5.5 or higher	STEP 7 V5.5 or higher
Supply voltage			
Rated value (DC)	24 V	24 V	24 V
Memory			
Work memory			
• integrated	1 024 kbyte	1 024 kbyte	2 048 kbyte
• expandable	No	No	No
Load memory			
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times			
for bit operations, typ.	0.025 µs	0.025 µs	0.004 µs
for word operations, typ.	0.03 µs	0.03 µs	0.01 µs
for fixed point arithmetic, typ.	0.04 µs	0.04 µs	0.01 µs
for floating point arithmetic, typ.	0.16 µs	0.16 µs	0.04 µs
Counters, timers and their retentivity			
S7 counter			
• Number	512	512	2 048
IEC counter			
• present	Yes	Yes	Yes
S7 times			
• Number	512	512	2 048
IEC timer			
• present	Yes	Yes	Yes
Data areas and their retentivity			
Flag			
• Size, max.	4 096 byte	4 096 byte	8 192 byte
Address area			
I/O address area			
• Inputs	8 192 byte	8 192 byte	8 192 byte
• Outputs	8 192 byte	8 192 byte	8 192 byte
Process image			
• Inputs, adjustable	8 192 byte	8 192 byte	8 192 byte
• Outputs, adjustable	8 192 byte	8 192 byte	8 192 byte
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes
Operating hours counter			
• Number	4	4	4
1. Interface			
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types			
• RS 485	Yes	Yes	Yes
Protocols			
• MPI	Yes	Yes	Yes
• PROFIBUS DP master	Yes	Yes	Yes
• PROFIBUS DP slave	Yes; A DP slave at both interfaces simultaneously is not possible	Yes	Yes; A DP slave at both interfaces simultaneously is not possible
• Point-to-point connection	No	No	No
PROFIBUS DP master			
• Number of DP slaves, max.	124	124	124

Technical specifications

Article number	**6ES7317-2AK14-0AB0**	**6ES7317-2EK14-0AB0**	**6ES7318-3EL01-0AB0**
	CPU317-2 DP, 1 MB	CPU317-2 PN/DP, 1 MB	CPU319-3 PN/DP, 2 MB
2. Interface			
Interface type	Integrated RS 485 interface		Integrated RS 485 interface
Interface types			
• RJ 45 (Ethernet)		Yes	
• RS 485	Yes		Yes
• Number of ports		2	
Protocols			
• MPI	No	No	No
• PROFINET IO Controller		Yes; Also simultaneously with IO-Device functionality	No
• PROFINET IO Device		Yes; Also simultaneously with IO Controller functionality	No
• PROFINET CBA		Yes	No
• PROFIBUS DP master	Yes	No	Yes
• PROFIBUS DP slave	Yes; A DP slave at both interfaces simultaneously is not possible	No	Yes; A DP slave at both interfaces simultaneously is not possible
PROFIBUS DP master			
• Number of DP slaves, max.	124		124
PROFINET IO Controller			
Services			
- Number of connectable IO Devices, max.		128	
- Of which IO devices with IRT, max.		64	
- Number of IO Devices with IRT and the option "high flexibility"		128	
- Number of connectable IO Devices for RT, max.		128	
3. Interface			
Interface types			
• RJ 45 (Ethernet)			Yes
• Number of ports			2
Protocols			
• MPI			No
• PROFINET IO Controller			Yes; Also simultaneously with I-Device functionality
• PROFINET IO Device			Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA			Yes
• PROFIBUS DP master			No
• PROFIBUS DP slave			No
PROFINET IO Controller			
Services			
- Number of connectable IO Devices, max.			256
- Of which IO devices with IRT, max.			64
- Number of IO Devices with IRT and the option "high flexibility"			256
- Number of connectable IO Devices for RT, max.			256
Protocols			
Open IE communication			
• TCP/IP		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
• ISO-on-TCP (RFC1006)		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
• UDP		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
Web server			
• supported		Yes	Yes

Technical specifications

Article number	**6ES7317-2AK14-0AB0** CPU317-2 DP, 1 MB	**6ES7317-2EK14-0AB0** CPU317-2 PN/DP, 1 MB	**6ES7318-3EL01-0AB0** CPU319-3 PN/DP, 2 MB
Communication functions			
PG/OP communication	Yes	Yes	Yes
Data record routing	Yes	Yes	Yes
Global data communication			
• supported	Yes	Yes	Yes
S7 basic communication			
• supported	Yes	Yes	Yes
S7 communication			
• supported	Yes	Yes	Yes
S5 compatible communication			
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections			
• overall	32	32	32
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Configuration			
Programming			
Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- STL	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
- CFC	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes
Know-how protection			
• User program protection/ password protection	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions			
Width	40 mm	40 mm	120 mm
Height	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm
Weights			
Weight, approx.	360 g	340 g	1 250 g

Overview SIPLUS CPU 314

- For plants with medium requirements on the program scope
- High processing performance in binary and floating-point arithmetic

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 315-2 DP

- The CPU with medium to large program memory and quantity structures for optional use of SIMATIC engineering tools
- High processing performance in binary and floating-point arithmetic
- PROFIBUS DP master/slave interface
- For comprehensive I/O expansion
- For configuring distributed I/O structures

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS S7-300 standard CPUs

Overview SIPLUS CPU 315-2 PN/DP

- The CPU with medium-sized program memory and quantity frameworks
- High processing performance in binary and floating-point arithmetic
- Used as central controller in production lines with central and distributed I/O
- Component Based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)
- PROFINET IO Controller for operating distributed I/O on PROFINET
- PROFINET interface with 2-port switch
- Combined MPI/PROFIBUS DP master/slave interface
- Isochronous mode on PROFIBUS

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 317-2 PN/DP

- The CPU with a large program memory and quantity framework for demanding applications
- Distributed intelligence in Component Based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)
- PROFINET I/O Controller for operating distributed I/O on PROFINET
- For cross-industry automation tasks in series machine, special machine and plant construction
- Used as central controller in production lines with central and distributed I/O
- For comprehensive I/O expansion
- For configuring distributed I/O structures
- High processing performance in binary and floating-point arithmetic
- Combined MPI/PROFIBUS DP master/slave interface
- Optionally supports the use of SIMATIC engineering tools

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data	Article No.
SIPLUS S7-300 CPU 314	
For industrial applications with extended ambient conditions	
CPU, 128 KB work memory, supply voltage 24 V DC, MPI; MMC required	
Extended temperature range and exposure to media	**6AG1314-1AG14-7AB0**
SIPLUS S7-300 CPU 315-2 DP	
For industrial applications with extended ambient conditions	
CPU, 256 KB work memory , supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface; MMC required	
Extended temperature range and exposure to media	**6AG1315-2AH14-7AB0**
SIPLUS S7-300 CPU 315-2 PN/DP	
For industrial applications with extended ambient conditions	
CPU, 384 KB work memory, supply voltage 24 V DC, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	
Extended temperature range and exposure to media	**6AG1315-2EH14-7AB0**
SIPLUS S7-300 CPU 317-2 PN/DP	
For industrial applications with extended ambient conditions	
CPU, 1 MB work memory, supply voltage 24 V DC, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface; MMC required	
Extended temperature range and exposure to media	**6AG1317-2EK14-7AB0**
Accessories	
Mandatory	
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**

	Article No.
For communication within the application	
PROFIBUS DP RS 485 bus connector	
(extended temperature range and exposure to media)	
With 90° cable outlet, max. transfer rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA12-2XA0**
• With programming device interface	**6AG1972-0BB12-2XA0**
With angled cable outlet, max. transmission rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA42-7XA0**
• With programming device interface	**6AG1972-0BB42-7XA0**
With insulation displacement terminals, max. transfer rate 12 Mbps	
• With programming device interface, grounding via control cabinet cover	**6AG1972-0BB70-7XA0**
(Extended temperature range)	
With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6AG1500-0EA02-2AA0**
IE FC RJ45 plug 180	
(extended temperature range and exposure to media)	
180° cable outlet	
• 1 unit	**6AG1901-1BB10-7AA0**
SIPLUS SCALANCE XC-200 Industrial Ethernet Switches	
Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM	
Extended temperature range and exposure to media	
Switches with PROFINET delivery state	
• **SIPLUS SCALANCE XC206-2 (ST/BFOC)** with six RJ45 ports 10/100 Mbps and two ST/BFOC ports 100 Mbps	**6AG1206-2BB00-7AC2**
PROFIBUS FastConnect bus cable	**6XV1830-0EH10**
Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	
RS 485 repeater for PROFIBUS	**6AG1972-0AA02-7XA0**
(extended temperature range and exposure to media)	
Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	
IE FC TP standard cable GP 2x2	**6XV1840-2AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter	
FO standard cable GP (50/125)	**6XV1873-2A**
Standard cable, splittable, UL approval, sold by the meter	

SIPLUS S7-300 standard CPUs

Ordering data

	Article No.
For commissioning	
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**
Consumables	
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
Slot number plates	**6ES7912-0AA00-0AA0**

	Article No.
Documentation	
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Technical specifications

Article number	**6AG1314-1AG14-7AB0**	**6AG1315-2AH14-7AB0**
Based on	**6ES7314-1AG14-0AB0**	**6ES7315-2AH14-0AB0**
	SIPLUS S7-300 CPU314	SIPLUS S7-300 CPU 315-2DP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Technical specifications

Article number	**6AG1315-2EH14-7AB0** **6ES7315-2EH14-0AB0** SIPLUS S7-300 CPU315-2PN/DP	**6AG1317-2EK14-7AB0** **6ES7317-2EK14-0AB0** SIPLUS S7-300 CPU317-2PN/DP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; @ 60°C for UL/ATEX/FM use
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) //
	Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
		Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) //
		Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) //
		Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)

Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Compact CPUs

Overview CPU 312C

- The compact CPU with integral digital inputs/outputs
- For small applications with increased processing performance requirements
- With technological functions

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 313C-2 PtP

- The compact CPU with integrated digital inputs/outputs as well as second serial interface
- For plants with high processing performance and response time requirements
- With technological functions

SIMATIC Micro Memory Card required for operation of the CPU.

Overview CPU 313C

- The compact CPU with integral digital and analog inputs/outputs
- For plants with high processing performance and response time requirements
- With technological functions

SIMATIC Micro Memory Card required for operation of the CPU.

Overview 313C-2 DP

- The compact CPU with integral digital inputs/outputs and PROFIBUS DP master/slave interface
- For plants with high processing performance and response time requirements
- With technological functions
- For tasks with special functions
- For connecting distributed I/Os

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 314C-2 PtP

- The compact CPU with integrated digital and analog inputs/outputs as well as second serial interface
- For plants with high processing performance and response time requirements
- With technological functions

SIMATIC Micro Memory Card required for operation of the CPU.

Overview CPU 314C-2 DP

- The compact CPU with integral digital and analog inputs/outputs and PROFIBUS DP master/slave interface
- With technological functions
- For plants with high processing performance and response time requirements
- For connecting distributed I/Os

SIMATIC Micro Memory Card required for operation of the CPU.

Overview CPU 314C-2 PN/DP

- The compact CPU with integral digital and analog inputs/outputs and technological functions
- High processing performance in binary and floating-point arithmetic
- For connecting distributed I/O via PROFIBUS and PROFINET
- Combined MPI/PROFIBUS DP master/slave interface
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as an intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET IO controller
- Component-based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component-based Automation (CBA)
- Integrated web server with the option of creating user-defined web pages
- Isochronous mode on PROFINET

SIMATIC Micro Memory Card required for operation of CPU.

Compact CPUs

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Ordering data	Article No.
CPU 312C Compact CPU, 64 KB work memory, 24 V DC supply voltage, 10 DI/6 DQ integrated, integrated functions, MPI; including slot number labels; MMC required	**6ES7312-5BF04-0AB0**
CPU 313C Compact CPU, 128 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ, 4 AI/2 AQ integrated, integrated functions, MPI; MMC required	**6ES7313-5BG04-0AB0**
CPU 313C-2 PtP Compact CPU, 128 KB work memory, 24 V DC supply voltage, 16 DI/16 DQ integrated, integrated functions, MPI, RS 422/485 interface; MMC required	**6ES7313-6BG04-0AB0**
CPU 313C-2 DP Compact CPU, 128 KB work memory, 24 V DC supply voltage, 16 DI/16 DQ integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; MMC required	**6ES7313-6CG04-0AB0**
CPU 314C-2 PtP Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24DI/16DQ/4AI/2AQ integrated, integrated functions, MPI, RS 422/485 interface; MMC required	**6ES7314-6BH04-0AB0**
CPU 314C-2 DP Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ/4 AI/2 AQ integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; MMC required	**6ES7314-6CH04-0AB0**
CPU 314C-2 PN/DP Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ/4 AI/2 AQ integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; PROFINET IO controller/ I-Device interface, MMC required	**6ES7314-6EH04-0AB0**
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
Point-to-point link cable For connection to CPU 31xC-2 PtP	
5 m	**6ES7902-3AB00-0AA0**
10 m	**6ES7902-3AC00-0AA0**
50 m	**6ES7902-3AG00-0AA0**

	Article No.
Front connector (1 unit) For compact CPUs 40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
SIMATIC TOP connect	See page page 5/242; for information about which components can be used for the respective module, see Industry Mall
Front door, elevated design For compact CPUs; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labeling strips in petrol	**6ES7328-7AA20-0AA0**
Slot number plates	**6ES7912-0AA00-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
Labeling strips 10 units, spare part	**6ES7392-2XX00-0AA0**
Label cover 10 units, spare part	**6ES7392-2XY00-0AA0**
Labeling sheets for machine inscription For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**

Ordering data	Article No.
PROFIBUS DP RS 485 bus connector	
• With 90° cable outlet, max. transfer rate 12 Mbps	
- Without programming device interface	**6ES7972-0BA12-0XA0**
- With programming device interface	**6ES7972-0BB12-0XA0**
• With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbps	
- Without programming device interface, 1 unit	**6ES7972-0BA52-0XA0**
- Without programming device interface, 100 units	**6ES7972-0BA52-0XB0**
- With programming device interface, 1 unit	**6ES7972-0BB52-0XA0**
- With programming device interface, 100 units	**6ES7972-0BB52-0XB0**
• With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6GK1500-0EA02**
PROFIBUS FastConnect bus cable Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1830-0EH10**
RS 485 repeater for PROFIBUS Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	**6ES7972-0AA02-0XA0**
PROFINET bus components	
IE FC TP standard cable GP 2x2 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval; Sold by the meter: Max. delivery unit 1000 m Minimum order quantity 20 m	**6XV1840-2AH10**
FO standard cable GP (50/125) Standard cable, splittable, UL approval, sold by the meter Max. delivery unit 1000 m Minimum order quantity 20 m	**6XV1873-2A**

	Article No.
SCALANCE X204-2 Industrial Ethernet Switch Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**
Compact Switch Module CSM 377 Unmanaged switch for connecting SIMATIC S7-300, ET 200M and up to three other stations to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module incl. electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**
IE FC RJ45 plugs RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 plug 180	
180° cable outlet	
1 unit	**6GK1901-1BB10-2AA0**
10 units	**6GK1901-1BB10-2AB0**
50 units	**6GK1901-1BB10-2AE0**
PROFIBUS/PROFINET bus components For establishing MPI/PROFIBUS/PROFINET communication	See Industry Mall

Technical specifications

Article number	**6ES7312-5BF04-0AB0**	**6ES7313-5BG04-0AB0**	**6ES7313-6BG04-0AB0**	**6ES7313-6CG04-0AB0**
	CPU312C, 10DI/6DO, 64 KB	CPU313C, 24DI/16DO/5AI/2AO, 128 KB	CPU313C-2 PTP, 16DI/16DO, 128 KB	CPU313C-2 DP, 16DI/16DO, 128 KB
Engineering with				
• Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203	STEP 7 as of V5.5 + SP1 or STEP 7 V5.3 + SP2 or higher with HSP 204	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
Supply voltage				
Rated value (DC)	24 V	24 V	24 V	24 V
Memory				
Work memory				
• integrated	64 kbyte	128 kbyte	128 kbyte	128 kbyte
• expandable	No	No	No	No
Load memory				
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times				
for bit operations, typ.	0.1 µs	0.07 µs	0.07 µs	0.07 µs
for word operations, typ.	0.24 µs	0.15 µs	0.15 µs	0.15 µs
for fixed point arithmetic, typ.	0.32 µs	0.2 µs	0.2 µs	0.2 µs
for floating point arithmetic, typ.	1.1 µs	0.72 µs	0.72 µs	0.72 µs
Counters, timers and their retentivity				
S7 counter				
• Number	256	256	256	256
IEC counter				
• present	Yes	Yes	Yes	Yes
S7 times				
• Number	256	256	256	256
IEC timer				
• present	Yes	Yes	Yes	Yes
Data areas and their retentivity				
Flag				
• Size, max.	256 byte	256 byte	256 byte	256 byte
Address area				
I/O address area				
• Inputs	1 024 byte	1 024 byte	1 024 byte	2 048 byte
• Outputs	1 024 byte	1 024 byte	1 024 byte	2 048 byte
Process image				
• Inputs, adjustable	1 024 byte	1 024 byte	1 024 byte	2 048 byte
• Outputs, adjustable	1 024 byte	1 024 byte	1 024 byte	2 048 byte
Time of day				
Clock				
• Hardware clock (real-time)		Yes	Yes	Yes
• Software clock	Yes			
Operating hours counter				
• Number	1	1	1	1
Digital inputs				
integrated channels (DI)	10	24	16	16
Digital outputs				
integrated channels (DO)	6	16	16	16
Analog inputs				
integrated channels (AI)	0	5; 4x current/voltage, 1x resistance	0	0
Input ranges				
• Voltage		Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ		
• Current		Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω		
• Resistance thermometer		Yes; Pt 100 / 10 MΩ		
• Resistance		Yes; 0 Ω to 600 Ω / 10 MΩ		

Technical specifications

Article number	**6ES7312-5BF04-0AB0**	**6ES7313-5BG04-0AB0**	**6ES7313-6BG04-0AB0**	**6ES7313-6CG04-0AB0**
	CPU312C, 10DI/6DO, 64 KB	CPU313C, 24DI/16DO/5AI/2AO, 128 KB	CPU313C-2 PTP, 16DI/16DO, 128 KB	CPU313C-2 DP, 16DI/16DO, 128 KB
Analog outputs				
integrated channels (AO)	0	2	0	0
Output ranges, voltage				
• 0 to 10 V		Yes		
• -10 V to +10 V		Yes		
Output ranges, current				
• 0 to 20 mA		Yes		
• -20 mA to +20 mA		Yes		
• 4 mA to 20 mA		Yes		
1. Interface				
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types				
• RS 485	Yes	Yes		Yes
Protocols				
• MPI	Yes	Yes	Yes	Yes
• PROFIBUS DP master	No	No	No	No
• PROFIBUS DP slave	No	No	No	No
• Point-to-point connection	No	No	No	No
2. Interface				
Interface type			Integrated RS 422/ 485 interface	Integrated RS 485 interface
Interface types				
• RS 485			Yes; RS 422 / 485 (X.27)	Yes
Protocols				
• MPI			No	No
• PROFINET IO Controller			No	No
• PROFINET IO Device			No	No
• PROFINET CBA			No	No
• PROFIBUS DP master			No	Yes
• PROFIBUS DP slave			No	Yes
PROFIBUS DP master				
• Number of DP slaves, max.				124
Communication functions				
PG/OP communication	Yes	Yes	Yes	Yes
Data record routing	No	No	No	Yes
Global data communication				
• supported	Yes	Yes	Yes	Yes
S7 basic communication				
• supported	Yes	Yes	Yes; Server	Yes
S7 communication				
• supported	Yes	Yes	Yes	Yes
S5 compatible communication				
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections				
• overall	6	8	8	8
Integrated Functions				
Frequency measurement	Yes	Yes	Yes	Yes
• Number of frequency meters	2; up to 10 kHz (see "Technological Functions" manual)	3; up to 30 kHz (see "Technological Functions" manual)	3; up to 30 kHz (see "Technological Functions" manual)	3; up to 30 kHz (see "Technological Functions" manual)
controlled positioning	No	No	No	No
integrated function blocks (closed-loop control)	No	Yes; PID controller (see "Technological Functions" manual)	Yes; PID controller (see "Technological Functions" manual)	Yes; PID controller (see "Technological Functions" manual)
PID controller	No	Yes	Yes	Yes
Number of pulse outputs	2; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)	3; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)	3; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)	3; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz	2.5 kHz	2.5 kHz	2.5 kHz

Technical specifications

Article number	**6ES7312-5BF04-0AB0** CPU312C, 10DI/6DO, 64 KB	**6ES7313-5BG04-0AB0** CPU313C, 24DI/16DO/5AI/2AO, 128 KB	**6ES7313-6BG04-0AB0** CPU313C-2 PTP, 16DI/16DO, 128 KB	**6ES7313-6CG04-0AB0** CPU313C-2 DP, 16DI/16DO, 128 KB
Ambient conditions				
Ambient temperature during operation				
• min.	0 °C	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C	60 °C
Configuration				
Programming				
Programming language				
- LAD	Yes	Yes	Yes	Yes
- FBD	Yes	Yes	Yes	Yes
- STL	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes
- CFC		Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes	Yes
Know-how protection				
• User program protection/ password protection	Yes	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions				
Width	80 mm	120 mm	80 mm	80 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm	130 mm
Weights				
Weight, approx.	410 g	660 g	500 g	500 g

Article number	**6ES7314-6BH04-0AB0** CPU314C-2PTP, 24DI/16DO/5AI/2AO, 192 KB	**6ES7314-6CH04-0AB0** CPU314C-2DP, 24DI/16DO/5AI/2AO, 192 KB	**6ES7314-6EH04-0AB0** CPU314C-2PN/DP, 24DI/16DO/4AI/2AO, 192KB
General information			
Product function			
• Isochronous mode			Yes; For PROFINET only
Engineering with			
• Programming package	STEP 7 as of V5.5 + SP1 or STEP 7 V5.3 + SP2 or higher with HSP 204	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203	STEP 7 V5.5 or higher with HSP 191
Supply voltage			
Rated value (DC)	24 V	24 V	24 V
Memory			
Work memory			
• integrated	192 kbyte	192 kbyte	192 kbyte
• expandable	No	No	No
Load memory			
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times			
for bit operations, typ.	0.06 µs	0.06 µs	0.06 µs
for word operations, typ.	0.12 µs	0.12 µs	0.12 µs
for fixed point arithmetic, typ.	0.16 µs	0.16 µs	0.16 µs
for floating point arithmetic, typ.	0.59 µs	0.59 µs	0.59 µs
Counters, timers and their retentivity			
S7 counter			
• Number	256	256	256
IEC counter			
• present	Yes	Yes	Yes
S7 times			
• Number	256	256	256
IEC timer			
• present	Yes	Yes	Yes

Technical specifications

Article number	**6ES7314-6BH04-0AB0**	**6ES7314-6CH04-0AB0**	**6ES7314-6EH04-0AB0**
	CPU314C-2PTP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2DP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2PN/DP, 24DI/16DO/4AI/2AO, 192KB
Data areas and their retentivity			
Flag			
• Size, max.	256 byte	256 byte	256 byte
Address area			
I/O address area			
• Inputs	1 024 byte	2 048 byte	2 048 byte
• Outputs	1 024 byte	2 048 byte	2 048 byte
Process image			
• Inputs, adjustable	1 024 byte	2 048 byte	2 048 byte
• Outputs, adjustable	1 024 byte	2 048 byte	2 048 byte
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes
Operating hours counter			
• Number	1	1	1
Digital inputs			
integrated channels (DI)	24	24	24
Digital outputs			
integrated channels (DO)	16	16	16
Analog inputs			
integrated channels (AI)	5; 4x current/voltage, 1x resistance	5; 4x current/voltage, 1x resistance	5; 4x current/voltage, 1x resistance
Input ranges			
• Voltage	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
• Current	Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω	Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω	Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω
• Resistance thermometer	Yes; Pt 100 / 10 MΩ	Yes; Pt 100 / 10 MΩ	Yes; Pt 100 / 10 MΩ
• Resistance	Yes; 0 Ω to 600 Ω / 10 MΩ	Yes; 0 Ω to 600 Ω / 10 MΩ	Yes; 0 Ω to 600 Ω / 10 MΩ
Analog outputs			
integrated channels (AO)	2	2	2
Output ranges, voltage			
• 0 to 10 V	Yes	Yes	Yes
• -10 V to +10 V	Yes	Yes	Yes
Output ranges, current			
• 0 to 20 mA	Yes	Yes	Yes
• -20 mA to +20 mA	Yes	Yes	Yes
• 4 mA to 20 mA	Yes	Yes	Yes
1. Interface			
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types			
• RS 485	Yes	Yes	Yes
Protocols			
• MPI	Yes	Yes	Yes
• PROFIBUS DP master	No	No	Yes
• PROFIBUS DP slave	No	No	Yes
• Point-to-point connection	No	No	No
PROFIBUS DP master			
• Number of DP slaves, max.			124

Technical specifications

Article number	**6ES7314-6BH04-0AB0**	**6ES7314-6CH04-0AB0**	**6ES7314-6EH04-0AB0**
	CPU314C-2PTP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2DP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2PN/DP, 24DI/16DO/4AI/2AO, 192KB
2. Interface			
Interface type	Integrated RS 422/ 485 interface	Integrated RS 485 interface	
Interface types			
• RJ 45 (Ethernet)			Yes
• RS 485	Yes; RS 422 / 485 (X.27)	Yes	
• Number of ports			2
Protocols			
• MPI	No	No	No
• PROFINET IO Controller	No	No	Yes; Also simultaneously with IO-Device functionality
• PROFINET IO Device	No	No	Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA	No	No	Yes
• PROFIBUS DP master	No	Yes	No
• PROFIBUS DP slave	No	Yes	No
PROFIBUS DP master			
• Number of DP slaves, max.		124	
PROFINET IO Controller			
Services			
- Number of connectable IO Devices, max.			128
- Of which IO devices with IRT, max.			64
- Number of IO Devices with IRT and the option "high flexibility"			128
- Number of connectable IO Devices for RT, max.			128
Protocols			
Open IE communication			
• TCP/IP			Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.			8
• ISO-on-TCP (RFC1006)			Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.			8
• UDP			Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.			8
Web server			
• supported			Yes
Communication functions			
PG/OP communication	Yes	Yes	Yes
Data record routing	No	Yes	Yes
Global data communication			
• supported	Yes	Yes	Yes
S7 basic communication			
• supported	Yes	Yes	Yes
S7 communication			
• supported	Yes	Yes	Yes
S5 compatible communication			
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections			
• overall	12	12	12

Technical specifications

Article number	**6ES7314-6BH04-0AB0**	**6ES7314-6CH04-0AB0**	**6ES7314-6EH04-0AB0**
	CPU314C-2PTP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2DP, 24DI/16DO/5AI/2AO, 192 KB	CPU314C-2PN/DP, 24DI/16DO/4AI/2AO, 192KB
Integrated Functions			
Frequency measurement	Yes	Yes	Yes
• Number of frequency meters	4; up to 60 kHz (see "Technological Functions" manual)	4; up to 60 kHz (see "Technological Functions" manual)	4; up to 60 kHz (see "Technological Functions" manual)
controlled positioning	Yes	Yes	Yes
integrated function blocks (closed-loop control)	Yes; PID controller (see "Technological Functions" manual)	Yes; PID controller (see "Technological Functions" manual)	Yes; PID controller (see "Technological Functions" manual)
PID controller	Yes	Yes	Yes
Number of pulse outputs	4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)	4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)	4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz	2.5 kHz	2.5 kHz
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Configuration			
Programming			
Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- STL	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
- CFC	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes
Know-how protection			
• User program protection/ password protection	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions			
Width	120 mm	120 mm	120 mm
Height	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm
Weights			
Weight, approx.	680 g	680 g	730 g

SIPLUS S7-300 compact CPUs

Overview SIPLUS CPU 312C

- The compact CPU with integral digital inputs/outputs
- For small applications with increased processing performance requirements
- With technological functions

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 313C-2 DP

- The compact CPU with integral digital inputs/outputs and PROFIBUS DP master/slave interface
- With technological functions
- For tasks with special functions
- For connecting distributed I/O

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 313C

- The compact CPU with integrated digital and analog inputs/outputs
- For plants with high processing performance and response time requirements
- With technological functions

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the corresponding standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 314C-2 PtP

- The compact CPU with integrated digital and analog inputs/outputs as well as second serial interface
- For plants with high processing performance and response time requirements
- With technological functions

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 314C-2 DP

- The compact CPU with integral digital and analog inputs/ outputs and PROFIBUS DP master/slave interface
- With technological functions
- For tasks with special functions
- For connecting distributed I/O

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 314C-2 PN/DP

- The compact CPU with integral digital and analog inputs/ outputs and technological functions
- High processing performance in binary and floating-point arithmetic
- For connecting distributed I/O via PROFIBUS and PROFINET
- Combined MPI/PROFIBUS DP master/slave interface
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET I-Device for connecting the CPU as intelligent PROFINET device under a SIMATIC or non-Siemens PROFINET I/O controller
- Component based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component based Automation (CBA)
- Integrated web server with the option of creating user-defined web pages
- Isochronous mode on PROFINET

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS S7-300 compact CPUs

Ordering data	Article No.
SIPLUS S7-300 CPU 312C	
For industrial applications with extended ambient conditions	
Compact CPU, 64 KB work memory, supply voltage 24 V DC, 10 DI/6 DO integrated, integrated functions, MPI; including slot number labels; MMC required	
Extended temperature range and exposure to media	**6AG1312-5BF04-7AB0**
SIPLUS S7-300 CPU 313C	
For industrial applications with extended ambient conditions	
Compact CPU, 128 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ, 4 AI/2 AQ integrated, integrated functions, MPI; MMC required	
Extended temperature range and exposure to media	**6AG1313-5BG04-7AB0**
SIPLUS S7-300 CPU 313C-2 DP	
For industrial applications with extended ambient conditions	
Compact CPU, 128 KB work memory, supply voltage 24 V DC, 16 DI/16 DO integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; MMC required	
Extended temperature range and exposure to media	**6AG1313-6CG04-7AB0**
SIPLUS S7-300 CPU 314C-2 PtP	
For industrial applications with extended ambient conditions	
Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24DI/16DQ/4AI/2AQ integrated, integrated functions, MPI, RS 422/485 interface; MMC required	
Extended temperature range and exposure to media	**6AG1314-6BH04-7AB0**
SIPLUS S7-300 CPU 314C-2 DP	
For industrial applications with extended ambient conditions	
Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ/4 AI/2 AQ integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; MMC required	
Extended temperature range and exposure to media	**6AG1314-6CH04-7AB0**
SIPLUS S7-300 CPU 314C-2 PN/DP	
For industrial applications with extended ambient conditions	
Compact CPU, 192 KB work memory, 24 V DC supply voltage, 24 DI/16 DQ/4 AI/2 AQ integrated, integrated functions, MPI, PROFIBUS DP master/slave interface; PROFINET IO controller/ I-Device interface, MMC required	
Extended temperature range and exposure to media	**6AG1314-6EH04-7AB0**
Accessories	
Mandatory	
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**
Front connector (1 unit)	
For compact CPUs	
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
For communication within the application	
PROFIBUS DP RS 485 bus connector	
(extended temperature range and exposure to media)	
With 90° cable outlet, max. transfer rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA12-2XA0**
• With programming device interface	**6AG1972-0BB12-2XA0**
With angled cable outlet, max. transmission rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA42-7XA0**
• With programming device interface	**6AG1972-0BB42-7XA0**
(Extended temperature range)	
With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6AG1500-0EA02-2AA0**
IE FC RJ45 plug 180	
(extended temperature range and exposure to media)	
180° cable outlet	
• 1 unit	**6AG1901-1BB10-7AA0**

Ordering data

	Article No.
SIPLUS SCALANCE XC-200 Industrial Ethernet Switches	
Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM	
Extended temperature range and exposure to media	
Switches with PROFINET delivery state	
• **SIPLUS SCALANCE XC206-2 (ST/BFOC)** with six RJ45 ports 10/100 Mbps and two ST/BFOC ports 100 Mbps	**6AG1206-2BB00-7AC2**
PROFIBUS FastConnect bus cable	**6XV1830-0EH10**
Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	
IE FC TP standard cable GP 2x2	**6XV1840-2AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval;	
Sold by the meter: Max. delivery unit 1000 m Minimum order quantity 20 m	
FO standard cable GP (50/125)	**6XV1873-2A**
Standard cable, splittable, UL approval, sold by the meter: max. delivery unit 1 000 m minimum order quantity 20 m	
RS 485 repeater for PROFIBUS	**6AG1972-0AA02-7XA0**
(extended temperature range and exposure to media)	
Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	
Point-to-point link cable	
For connection to CPU 31xC-2 PtP	
5 m	**6ES7902-3AB00-0AA0**
10 m	**6ES7902-3AC00-0AA0**
50 m	**6ES7902-3AG00-0AA0**

	Article No.
For commissioning	
MPI cable	**6ES7901-0BF00-0AA0**
For connection of SIMATIC S7 and programming device via MPI; length 5 m	
USB A2 PC adapter	**6GK1571-0BA00-0AA0**
For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	
Consumables	
Front door, elevated design	**6ES7328-7AA20-0AA0**
For compact CPUs; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labeling strips in petrol	
Power supply connector	**6ES7391-1AA00-0AA0**
10 units, spare part	
Slot number plates	**6ES7912-0AA00-0AA0**
Labeling strips	**6ES7392-2XX00-0AA0**
10 units, spare part	
Label cover	**6ES7392-2XY00-0AA0**
10 units, spare part	
Labeling sheets for machine inscription	
For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current Manual Collection DVD and the three subsequent updates	

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Technical specifications

Article number	**6AG1312-5BF04-7AB0**	**6AG1313-5BG04-7AB0**
Based on	**6ES7312-5BF04-0AB0**	**6ES7313-5BG04-0AB0**
	SIPLUS S7-300 CPU312C	SIPLUS S7-300 CPU313C
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Technical specifications

Article number	**6AG1313-6CG04-7AB0**	**6AG1314-6BH04-7AB0**
Based on	**6ES7313-6CG04-0AB0**	**6ES7314-6BH04-0AB0**
	SIPLUS S7-300 CPU313C-2DP	SIPLUS S7-300 CPU314C-2 PtP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating		
• Coatings for printed circuit board assemblies acc. to EN 61086		Yes; Class 2 for high availability
• Military testing according to MIL-I-46058C, Amendment 7		Yes; Discoloration of coating possible during service life
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A		Yes; Conformal coating, Class A

Technical specifications

Article number	**6AG1314-6CH04-7AB0**	**6AG1314-6EH04-7AB0**
Based on	**6ES7314-6CH04-0AB0**	**6ES7314-6EH04-0AB0**
	SIPLUS S7-300 CPU314C-2DP	SIPLUS S7-300 CPU314C-2PN/DP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; @ 60°C for UL/ATEX/FM use
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hP
	a (-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa
	(+2 000 m ... +3 500 m) //
	Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa
	(+3 500 m ... +5 000 m)
		Tmin ... Tmax at 1 140 hPa ... 795 hPa
		(-1 000 m ... +2 000 m) //
		Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa
		(+2 000 m ... +3 500 m) //
		Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa
		(+3 500 m ... +5 000 m)

Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview CPU 315F-2 DP

- Based on the SIMATIC CPU 315-2 DP
- For constructing a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements to SIL 3 acc. to IEC 61508 and PL e acc. to ISO 13849.1
- Distributed fail-safe I/O modules can be connected locally via the integrated PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules can also be centrally connected
- Central and distributed use of standard modules for non safety-oriented applications

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 315F-2 PN/DP

- Based on CPU 315-2 PN/DP
- The CPU with medium-sized program memory and quantity structures for setting up a fail-safe automation system in plants with increased safety requirements
- Complies with safety requirements to SIL 3 acc. to IEC 61508 and PL e acc. to ISO 13849.1
- Distributed fail-safe I/O modules can be locally connected via the integrated PROFINET interface (PROFIsafe) and/or via the integrated PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules can also be connected centrally
- Central and distributed use of standard modules for non safety-oriented applications
- Component Based Automation (CBA) on PROFINET
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET interface with 2-port switch
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 317F-2 PN/DP

- The fail-safe CPU with a large program memory and quantity framework for demanding applications
- For constructing a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements to SIL 3 acc. to IEC 61508 and PL e acc. to ISO 13849.1
- Fail-safe I/O modules can be connected in a distributed configuration to both integral PROFIBUS DP interfaces (PROFIsafe)
- Fail-safe ET 200M I/O modules can also be connected centrally
- Central and distributed use of standard modules for non safety-oriented applications

SIMATIC Micro Memory Card required for operation of CPU.

Fail-safe CPUs

Overview CPU 317F-2 PN/DP

- Based on CPU 317-2 PN/DP
- The fail-safe CPU with a large program memory and quantity framework for demanding applications; for setting up a fail-safe automation system in plants with increased safety requirements.
- Complies with safety requirements to SIL 3 acc. to IEC 61508 and PL e acc. to ISO 13849.1
- Distributed fail-safe I/O modules can be locally connected via the integrated PROFINET interface (PROFIsafe) and/or via the integrated PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules
- can also be connected centrally
- Central and distributed use of standard modules for non safety-oriented applications
- Component-based Automation (CBA) on PROFINET
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET interface with 2-port switch
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component-based Automation (CBA)

SIMATIC Micro Memory Card required for operation of CPU.

Overview CPU 319F-3 PN/DP

- The fail-safe CPU with high-performance command processing, large program memory and large quantity structure for demanding applications
- For constructing a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements to SIL 3 acc. to IEC 61508 and PL e acc. to 13849.1
- Distributed fail-safe I/O modules can be locally connected via the integrated PROFINET interface (PROFIsafe) and/or via the integrated PROFIBUS DP interface (PROFIsafe);
- Fail-safe ET 200M I/O modules can also be connected centrally
- Standard modules for non-safety-related applications can be operated centrally and locally
- Distributed intelligence in Component Based Automation (CBA) on PROFINET
- Isochronous mode on PROFIBUS
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)

SIMATIC Micro Memory Card required for operation of CPU.

Ordering data	Article No.
CPU 315F-2 DP CPU for SIMATIC S7-300F; 384 KB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface, incl. slot number labels; MMC required	**6ES7315-6FF04-0AB0**
CPU 315F-2 PN/DP CPU for SIMATIC S7-300F; 512 KB work memory, 24 V DC supply voltage; MPI/PROFIBUS DP master/slave interface; Industrial Ethernet/PROFINET interface; incl. slot number labels; MMC required	**6ES7315-2FJ14-0AB0**
CPU 317F-2 DP 1.5 MB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface, MMC required	**6ES7317-6FF04-0AB0**
CPU 317F-2 PN/DP 1.5 MB work memory, supply voltage 24 V DC, MPI/PROFIBUS DP master/slave interface, Industrial Ethernet/ PROFINET interface; MMC required	**6ES7317-2FK14-0AB0**
CPU 319F-3 PN/DP 2.5 MB work memory, supply voltage 24 V DC, combined MPI/PROFIBUS DP master/slave interface, PROFIBUS DP master/slave interface, Ethernet/PROFINET interface; MMC required	**6ES7318-3FL01-0AB0**
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit) Windows 10 Professional/Enterprise (64-bit) Windows Server 2008 R2 SP1 (64-bit) Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit) STEP 7 from V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco I/O Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user, license key for download[1]; email address required for delivery	**6ES7833-1FA17-0YH5**
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
Slot number plates	**6ES7912-0AA00-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

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Ordering data

	Article No.
PROFIBUS bus components	
PROFIBUS DP RS 485 bus connector	
• With 90° cable outlet, max. transfer rate 12 Mbps	
- Without programming device interface	**6ES7972-0BA12-0XA0**
- With programming device interface	**6ES7972-0BB12-0XA0**
• With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbps	
- Without programming device interface, 1 unit	**6ES7972-0BA52-0XA0**
- Without programming device interface, 100 units	**6ES7972-0BA52-0XB0**
- With programming device interface, 1 unit	**6ES7972-0BB52-0XA0**
- With programming device interface, 100 units	**6ES7972-0BB52-0XB0**
• With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6GK1500-0EA02**
PROFIBUS FastConnect bus cable Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1830-0EH10**
RS 485 repeater for PROFIBUS Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	**6ES7972-0AA02-0XA0**
PROFINET bus components	
IE FC TP standard cable GP 2x2 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval; Sold by the meter	**6XV1840-2AH10**
FO standard cable GP (50/125) Standard cable, splittable, UL approval, sold by the meter	**6XV1873-2A**

	Article No.
SCALANCE X204-2 Industrial Ethernet Switch Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**
Compact Switch Module CSM 377 Unmanaged switch for connecting SIMATIC S7-300, ET 200M and up to three other stations to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module incl. electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**
IE FC RJ45 plugs RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 plug 145	
145° cable outlet	
1 unit	**6GK1901-1BB30-0AA0**
10 units	**6GK1901-1BB30-0AB0**
50 units	**6GK1901-1BB30-0AE0**
IE FC RJ45 plug 180	
180° cable outlet	
1 unit	**6GK1901-1BB10-2AA0**
10 units	**6GK1901-1BB10-2AB0**
50 units	**6GK1901-1BB10-2AE0**
PROFIBUS/PROFINET bus components For establishing MPI/PROFIBUS/ PROFINET communication	See Industry Mall

Technical specifications

Article number	**6ES7315-6FF04-0AB0** CPU315F, 384KB	**6ES7315-2FJ14-0AB0** CPU315F-2 PN/DP, 512 KB	**6ES7317-6FF04-0AB0** CPU317F-2DP, 1.5 MB	**6ES7317-2FK14-0AB0** CPU317F-2 PN/DP, 1.5 MB	**6ES7318-3FL01-0AB0** CPU319F-3 PN/DP, 2.5 MB
General information					
Product function					
• Isochronous mode	Yes	Yes; Via PROFIBUS DP or PROFINET interface		Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via 2nd PROFIBUS DP or PROFINET interface
Engineering with					
• Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218 + Distributed Safety	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 202 + Distributed Safety	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4
Supply voltage					
Rated value (DC)	24 V	24 V	24 V	24 V	24 V

Technical specifications

Article number	**6ES7315-6FF04-0AB0** CPU315F, 384KB	**6ES7315-2FJ14-0AB0** CPU315F-2 PN/DP, 512 KB	**6ES7317-6FF04-0AB0** CPU317F-2DP, 1.5 MB	**6ES7317-2FK14-0AB0** CPU317F-2 PN/DP, 1.5 MB	**6ES7318-3FL01-0AB0** CPU319F-3 PN/DP, 2.5 MB
Memory					
Work memory					
• integrated	384 kbyte	512 kbyte	1 536 kbyte	1 536 kbyte	2 560 kbyte
• expandable	No	No	No	No	No
Load memory					
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times					
for bit operations, typ.	0.05 µs	0.05 µs	0.025 µs	0.025 µs	0.004 µs
for word operations, typ.	0.09 µs	0.09 µs	0.03 µs	0.03 µs	0.01 µs
for fixed point arithmetic, typ.	0.12 µs	0.12 µs	0.04 µs	0.04 µs	0.01 µs
for floating point arithmetic, typ.	0.45 µs	0.45 µs	0.16 µs	0.16 µs	0.04 µs
Counters, timers and their retentivity					
S7 counter					
• Number	256	256	512	512	2 048
IEC counter					
• present	Yes	Yes	Yes	Yes	Yes
S7 times					
• Number	256	256	512	512	2 048
IEC timer					
• present	Yes	Yes	Yes	Yes	Yes
Data areas and their retentivity					
Flag					
• Size, max.	2 048 byte	2 048 byte	4 096 byte	4 096 byte	8 192 byte
Address area					
I/O address area					
• Inputs	2 048 byte	2 048 byte	8 192 byte	8 192 byte	8 192 byte
• Outputs	2 048 byte	2 048 byte	8 192 byte	8 192 byte	8 192 byte
Process image					
• Inputs, adjustable	2 048 byte	2 048 byte	8 192 byte	8 192 byte	8 192 byte
• Outputs, adjustable	2 048 byte	2 048 byte	8 192 byte	8 192 byte	8 192 byte
Time of day					
Clock					
• Hardware clock (real-time)	Yes	Yes	Yes	Yes	Yes
Operating hours counter					
• Number	1	1	4	4	4
1. Interface					
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types					
• RS 485	Yes	Yes	Yes	Yes	Yes
Protocols					
• MPI	Yes	Yes	Yes	Yes	Yes
• PROFIBUS DP master	No	Yes	Yes	Yes	Yes
• PROFIBUS DP slave	No	Yes	Yes; A DP slave at both interfaces simultaneously is not possible	Yes	Yes; A DP slave at both interfaces simultaneously is not possible
• Point-to-point connection	No	No	No	No	No
PROFIBUS DP master					
• Number of DP slaves, max.		124	124	124	124

Technical specifications

Article number	6ES7315-6FF04-0AB0	6ES7315-2FJ14-0AB0	6ES7317-6FF04-0AB0	6ES7317-2FK14-0AB0	6ES7318-3FL01-0AB0
	CPU315F, 384KB	CPU315F-2 PN/DP, 512 KB	CPU317F-2DP, 1.5 MB	CPU317F-2 PN/DP, 1.5 MB	CPU319F-3 PN/DP, 2.5 MB
2. Interface					
Interface type	Integrated RS 485 interface		Integrated RS 485 interface		Integrated RS 485 interface
Interface types					
• RJ 45 (Ethernet)		Yes		Yes	
• RS 485	Yes		Yes		Yes
• Number of ports		2		2	
Protocols					
• MPI	No	No	No	No	No
• PROFINET IO Controller		Yes; Also simultaneously with IO-Device functionality		Yes; Also simultaneously with IO-Device functionality	No
• PROFINET IO Device		Yes; Also simultaneously with IO Controller functionality		Yes; Also simultaneously with IO Controller functionality	No
• PROFINET CBA		Yes		Yes	No
• PROFIBUS DP master	Yes	No	Yes	No	Yes
• PROFIBUS DP slave	Yes	No	Yes; A DP slave at both interfaces simultaneously is not possible	No	Yes; A DP slave at both interfaces simultaneously is not possible
PROFIBUS DP master					
• Number of DP slaves, max.	124; Per station		124		124
PROFINET IO Controller					
Services					
- Number of connectable IO Devices, max.		128		128	
- Of which IO devices with IRT, max.		64		64	
- Number of IO Devices with IRT and the option "high flexibility"		128		128	
- Number of connectable IO Devices for RT, max.		128		128	
3. Interface					
Interface types					
• RJ 45 (Ethernet)					Yes
• Number of ports					2
Protocols					
• MPI					No
• PROFINET IO Controller					Yes; Also simultaneously with I-Device functionality
• PROFINET IO Device					Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA					Yes
• PROFIBUS DP master					No
• PROFIBUS DP slave					No
PROFINET IO Controller					
Services					
- Number of connectable IO Devices, max.					256
- Of which IO devices with IRT, max.					64
- Number of IO Devices with IRT and the option "high flexibility"					256
- Number of connectable IO Devices for RT, max.					256

Technical specifications

Article number	6ES7315-6FF04-0AB0	6ES7315-2FJ14-0AB0	6ES7317-6FF04-0AB0	6ES7317-2FK14-0AB0	6ES7318-3FL01-0AB0
	CPU315F, 384KB	CPU315F-2 PN/DP, 512 KB	CPU317F-2DP, 1.5 MB	CPU317F-2 PN/DP, 1.5 MB	CPU319F-3 PN/DP, 2.5 MB
Protocols					
Open IE communication					
• TCP/IP		Yes; via integrated PROFINET interface and loadable FBs		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		8		16	32
• ISO-on-TCP (RFC1006)		Yes; via integrated PROFINET interface and loadable FBs		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		8		16	32
• UDP		Yes; via integrated PROFINET interface and loadable FBs		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		8		16	32
Web server					
• supported		Yes; only read function		Yes	Yes
Communication functions					
PG/OP communication	Yes	Yes	Yes	Yes	Yes
Data record routing	Yes	Yes	Yes	Yes	Yes
Global data communication					
• supported	Yes	Yes	Yes	Yes	Yes
S7 basic communication					
• supported	Yes	Yes	Yes	Yes	Yes
S7 communication					
• supported	Yes	Yes	Yes	Yes	Yes
S5 compatible communication					
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections					
• overall	16	16	32	32	32
Ambient conditions					
Ambient temperature during operation					
• min.	0 °C	0 °C	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C
Configuration					
Programming					
Programming language					
- LAD	Yes	Yes	Yes	Yes	Yes
- FBD	Yes	Yes	Yes	Yes	Yes
- STL	Yes	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes	Yes
- CFC	Yes	Yes	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes	Yes	Yes
Know-how protection					
• User program protection/ password protection	Yes	Yes	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions					
Width	40 mm	40 mm	40 mm	40 mm	120 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm	130 mm	130 mm
Weights					
Weight, approx.	290 g	340 g	360 g	340 g	1 250 g

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Overview SIPLUS CPU 315F-2 DP

- For configuring a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements up to SIL 3 according to IEC 61508 and up to Cat. 4 according to EN 954-1
- Distributed fail-safe I/O modules can be connected through the integral PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules are also centrally connectable
- The standard modules for non-safety applications can be operated both centrally and locally

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 315F-2 PN/DP

- The CPU with a medium sized program memory and quantity structures to build a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements up to SIL 3 according to IEC 61508, PL e in accordance with ISO 13849 and up to Cat. 4 of EN 954-1
- The fail-safe I/O modules can be locally connected to the integrated PROFINET interface (PROFIsafe) and/or to the integrated PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules are also centrally connectable
- The standard modules for non-safety applications can be operated both centrally and locally
- Component Based Automation (CBA) on PROFINET
- PROFINET IO controller for operating distributed I/O on PROFINET
- PROFINET interface with 2-port switch
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 317F-2 DP

- The fail-safe CPU with a large program memory and quantity framework for demanding applications
- For configuring a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements up to SIL 3 according to IEC 61508 and up to Cat. 4 according to EN 954-1
- Fail-safe I/O modules can be connected in a distributed configuration to both integral PROFIBUS DP interfaces (PROFIsafe)
- Fail-safe ET 200M I/O modules are also centrally connectable
- The standard modules for non-safety applications can be operated both centrally and locally

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Overview SIPLUS CPU 317F-2 PN/DP

- The failsafe CPU with a large program memory and quantity structures for demanding applications to build a fail-safe automation system for plants with increased safety requirements
- Complies with safety requirements up to SIL 3 according to IEC 61508, PL e in accordance with ISO 13849-1 and up to category 4 of EN 954-1
- The fail-safe I/O modules can be locally connected via the integrated PROFINET interface (PROFIsafe) and/or via the integrated PROFIBUS DP interface (PROFIsafe)
- Fail-safe ET 200M I/O modules are also centrally connectable
- The standard modules for non-safety applications can be operated both centrally and locally
- Component Based Automation (CBA) on PROFINET
- PROFINET IO Controller for operating distributed I/O on PROFINET
- PROFINET interface with 2-port switch
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)

SIMATIC Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS S7-300 fail-safe CPUs

Ordering data	Article No.
SIPLUS S7-300 CPU 315F-2 DP	
For industrial applications with extended ambient conditions	
CPU for SIPLUS S7-300F; 384 KB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface; incl. slot number labels; MMC required	
Extended temperature range and exposure to media	**6AG1315-6FF04-2AB0**
SIPLUS S7-300 CPU 315F-2 PN/DP	
For industrial applications with extended ambient conditions	
CPU for SIPLUS S7-300F; 512 KB work memory, supply voltage 24 V DC, MPI/PROFIBUS DP master/slave interface, Industrial Ethernet/PROFINET interface; incl. slot number labels	
Extended temperature range and exposure to media	**6AG1315-2FJ14-2AB0**
SIPLUS S7-300 CPU 317F-2 DP	
For industrial applications with extended ambient conditions	
CPU for SIPLUS S7-300F, 1.5 MB work memory, supply voltage 24 V DC, MPI, PROFIBUS DP master/slave interface; MMC required	
Extended temperature range and exposure to media	**6AG1317-6FF04-2AB0**
SIPLUS S7-300 CPU 317F-2 PN/DP	
For industrial applications with extended ambient conditions	
CPU for SIPLUS S7-300F, 1.5 MB work memory, supply voltage 24 V DC, MPI/PROFIBUS DP master/slave interface; Industrial Ethernet/ PROFINET interface; MMC required	
Extended temperature range and exposure to media	**6AG1317-2FK14-2AB0**
Accessories	
Mandatory	
SIMATIC Micro Memory Card	
64 KB	**6ES7953-8LF31-0AA0**
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
4 MB	**6ES7953-8LM32-0AA0**
8 MB	**6ES7953-8LP31-0AA0**

	Article No.
For communication within the application	
PROFIBUS DP RS 485 bus connector	
(extended temperature range and exposure to media)	
With 90° cable outlet, max. transfer rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA12-2XA0**
• With programming device interface	**6AG1972-0BB12-2XA0**
With angled cable outlet, max. transmission rate 12 Mbps	
• Without programming device interface	**6AG1972-0BA42-7XA0**
• With programming device interface	**6AG1972-0BB42-7XA0**
(Extended temperature range)	
With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6AG1500-0EA02-2AA0**
RS 485 repeater for PROFIBUS	**6AG1972-0AA02-7XA0**
(extended temperature range and exposure to media)	
Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	
IE FC RJ45 plug 180	
(extended temperature range and exposure to media)	
180° cable outlet	
• 1 unit	**6AG1901-1BB10-7AA0**
SIPLUS SCALANCE XC-200 Industrial Ethernet Switches	
Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM	
Extended temperature range and exposure to media	
Switches with PROFINET delivery state	
• **SIPLUS SCALANCE XC206-2 (ST/BFOC)** with six RJ45 ports 10/100 Mbps and two ST/BFOC ports 100 Mbps	**6AG1206-2BB00-7AC2**
PROFIBUS FastConnect bus cable	**6XV1830-0EH10**
Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	
IE FC TP standard cable GP 2x2	**6XV1840-2AH10**
4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/ IE FC RJ45 plug; PROFINET-compatible; with UL approval;	
Sold by the meter	
FO standard cable GP (50/125)	**6XV1873-2A**

Ordering data	Article No.
For commissioning	
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit) Windows 10 Professional/Enterprise (64-bit) Windows Server 2008 R2 SP1 (64-bit) Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit) STEP 7 from V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user, software, documentation and license key for download[1]; e-mail address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco I/O Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user, license key for download[1]; email address required for delivery	**6ES7833-1FA17-0YH5**

	Article No.
Consumables	
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
Slot number plates	**6ES7912-0AA00-0AA0**
Documentation	
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Technical specifications

Article number	**6AG1315-6FF04-2AB0**	**6AG1315-2FJ14-2AB0**
Based on	**6ES7315-6FF04-0AB0**	**6ES7315-2FJ14-0AB0**
	SIPLUS S7-300 CPU 315F-2DP	SIPLUS S7-300 CPU315F-2PN/DP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C	-25 °C; = Tmin
• max.	60 °C	60 °C; = Tmax
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Technical specifications

Article number	**6AG1317-6FF04-2AB0**	**6AG1317-2FK14-2AB0**
Based on	**6ES7317-6FF04-0AB0**	**6ES7317-2FK14-0AB0**
	SIPLUS S7-300 CPU317F-2DP	SIPLUS S7-300 CPU317F-2PN/DP
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	60 °C; = Tmax	60 °C; = Tmax
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview CPU 315T-3 PN/DP

- SIMATIC CPU with integral technology/motion control functionality
- With full standard CPU 315-2 PN/DP functionality (except for CBA)
- For cross-industry automation tasks in series machine, special machine and plant construction
- Ideal for synchronized motion, such as coupling to a virtual/real master, gear synchronization, cam disk, path interpolation, or print mark compensation
- 3D path interpolation with different kinematics
- Position and pressure-regulated hydraulic axes
- Used as central controller in production lines with central and distributed I/O
- With integrated I/O for high-speed technology functions (e.g. camming, reference point acquisition)
- PROFIBUS DP (DRIVE) interface for isochronous connection of drive components
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- One common S7 user program for control and motion control tasks (no additional programming language necessary for motion control)
- "S7 Technology" option package required (version V4.2 SP3 and higher)

SIMATIC Micro Memory Card (8 MB) required for operation of the CPU.

Overview CPU 317T-3 PN/DP

- SIMATIC CPU with integral technology/motion control functionality
- With full standard CPU 317-2 PN/DP functionality (except for CBA)
- For cross-industry automation tasks in series machine, special machine and plant construction
- Ideal for synchronized motion, such as coupling to a virtual/real master, gear synchronization, cam disk, path interpolation, or print mark compensation
- 3D path interpolation with different kinematics
- Position and pressure-regulated hydraulic axes
- Used as central controller in production lines with central and distributed I/O
- With integrated I/O for high-speed technology functions (e.g. camming, reference point acquisition)
- PROFIBUS DP (DRIVE) interface for isochronous connection of drive components
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- One common S7 user program for control and motion control tasks (no additional programming language necessary for motion control)
- "S7 Technology" option package required (version V4.2 SP3 and higher)

SIMATIC Micro Memory Card (8 MB) required for operation of the CPU.

Overview CPU 317TF-3 PN/DP

- Fail-safe SIMATIC CPU 317TF-3 PN/DP with integral technology/motion control functionality
- Spare-part-compatible successor to the CPU 317TF-2 DP (Article No. 6ES7317-6TF14-0AB0)
- With full functionality of the standard CPU 317-2 PN/DP and CPU 317F-2 PN/DP (except for CBA)
- For cross-industry automation tasks in series machine, special machine and plant construction
- Ideal for synchronized motion, such as coupling to a virtual/real master, gear synchronization, cam disk, path interpolation, or print mark compensation
- 3D path interpolation with different kinematics
- Position and pressure-regulated hydraulic axes
- Used as central controller in production lines with central and distributed I/O
- With integrated I/O for high-speed technology functions (e.g. camming, reference point acquisition)
- PROFIBUS DP (DRIVE) interface for isochronous connection of drive components
- PROFINET interface with 2-port switch
- PROFINET IO controller for operating distributed I/O on PROFINET
- One common S7 user program for control and motion control tasks (no additional programming language necessary for motion control)
- "S7 Technology" option package required
- "S7 Distributed Safety" option package required (version V4.2 SP3 and higher)

SIMATIC Micro Memory Card (8 MB) required for operation of the CPU.

Ordering data

	Article No.
CPU 315T-3 PN/DP 384 KB work memory, 24 V DC supply voltage, MPI, PROFIBUS DP master/slave interface, PROFIBUS DP(DRIVE) interface, Ethernet/PROFINET interface with 2-port switch; with technology/Motion Control functions; MMC required	**6ES7315-7TJ10-0AB0**
CPU 317T-3 PN/DP 1024 KB work memory, 24 V DC supply voltage, MPI, PROFIBUS DP master/slave interface, PROFIBUS DP(DRIVE) interface, Ethernet/PROFINET interface with 2-port switch; with technology/Motion Control functions; MMC required	**6ES7317-7TK10-0AB0**
CPU 317TF-3 PN/DP 1.5 MB work memory, 24 V DC supply voltage, MPI, PROFIBUS DP master/slave interface, PROFIBUS DP(DRIVE) interface, Ethernet/PROFINET interface with 2-port switch; with technology/Motion Control functions; MMC required	**6ES7317-7UL10-0AB0**

	Article No.
S7-Technology V4.2 Task: Option package for configuring and programming technology tasks with SIMATIC S7 CPU 31xT and SIMATIC S7 CPU 317TF Requirement: STEP 7 V5.6 and higher Type of delivery: On DVD Incl. documentation for CPU 31xT, CPU 317TF (included on DVD)	
Floating license	**6ES7864-1CC42-0YA5**
Floating license for 1 user; license key download without software or documentation[1]; email address required for delivery	**6ES7864-1CC42-0XH5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

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Ordering data	Article No.
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 from V5.5 SP1; Please also note the operating systems that have been released for the STEP 7 version used	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**
SIMATIC Micro Memory Card 8 MB	**6ES7953-8LP31-0AA0**
MPI cable For connection of SIMATIC S7 and programming device via MPI; length 5 m	**6ES7901-0BF00-0AA0**
Front connector 40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Slot number plates	**6ES7912-0AA00-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

	Article No.
Power supply connector 10 units, spare part	**6ES7391-1AA00-0AA0**
Labeling strips 10 units, spare part	**6ES7392-2XX00-0AA0**
Label cover 10 units, spare part	**6ES7392-2XY00-0AA0**
Labeling sheets for machine inscription For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**
USB A2 PC adapter For connecting a programming device/PC or Notebook to PROFIBUS or MPI; USB cable included in scope of delivery	**6GK1571-0BA00-0AA0**
PROFIBUS bus components	
PROFIBUS DP RS 485 bus connector	
• With 90° cable outlet, max. transfer rate 12 Mbps	
- Without programming device interface	**6ES7972-0BA12-0XA0**
- With programming device interface	**6ES7972-0BB12-0XA0**
• With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbps	
- Without programming device interface, 1 unit	**6ES7972-0BA52-0XA0**
- Without programming device interface, 100 units	**6ES7972-0BA52-0XB0**
- With programming device interface, 1 unit	**6ES7972-0BB52-0XA0**
- With programming device interface, 100 units	**6ES7972-0BB52-0XB0**
• With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS	**6GK1500-0EA02**
PROFIBUS FastConnect bus cable Standard type with special design for quick mounting, 2-wire, shielded, sold by the meter, max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1830-0EH10**
RS 485 repeater for PROFIBUS Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure	**6ES7972-0AA02-0XA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Ordering data

	Article No.
PROFINET bus components	
IE FC TP standard cable GP 2x2 4-wire, shielded TP installation cable for connection to IE FC RJ45 Outlet/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter	**6XV1840-2AH10**
FO standard cable GP (50/125) Standard cable, splittable, UL approval, sold by the meter	**6XV1873-2A**
SCALANCE X204-2 Industrial Ethernet Switch Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**
Compact Switch Module CSM 377 Unmanaged switch for connecting SIMATIC S7-300, ET 200M and up to three other stations to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module incl. electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**

	Article No.
IE FC RJ45 plugs RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables	
IE FC RJ45 plug 180 180° cable outlet	
1 unit	**6GK1901-1BB10-2AA0**
10 units	**6GK1901-1BB10-2AB0**
50 units	**6GK1901-1BB10-2AE0**
PROFIBUS/PROFINET bus components For establishing MPI/PROFIBUS/PROFINET communication	See Industry Mall

Technical specifications

Article number	**6ES7315-7TJ10-0AB0** CPU315T-3 PN/DP, 384KB	**6ES7317-7TK10-0AB0** CPU317T-3 PN/DP, 1024KB	**6ES7317-7UL10-0AB0** CPU317TF-3 PN/DP, 1,5 MB
General information			
Product function			
• Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with			
• Programming package	STEP 7 V5.5 SP2 or higher and S7-Technology option package V4.2 SP3	STEP 7 V5.5 SP2 or higher and S7-Technology option package V4.2 SP3	STEP 7 V5.5 SP2 or higher; S7-Technology option package V4.2 SP3 or higher, Distributed Safety V5.4 SP5 or higher, S7-F Configuration Pack V5.5 SP10 or higher
Supply voltage			
Rated value (DC)	24 V	24 V	24 V
Memory			
Work memory			
• integrated	384 kbyte	1 024 kbyte	1 536 kbyte
• expandable	No	No	No
Load memory			
• Plug-in (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte
CPU processing times			
for bit operations, typ.	0.05 µs	0.025 µs	0.025 µs
for word operations, typ.	0.09 µs	0.03 µs	0.03 µs
for fixed point arithmetic, typ.	0.12 µs	0.04 µs	0.04 µs
for floating point arithmetic, typ.	0.45 µs	0.16 µs	0.16 µs

Technical specifications

Article number	**6ES7315-7TJ10-0AB0**	**6ES7317-7TK10-0AB0**	**6ES7317-7UL10-0AB0**
	CPU315T-3 PN/DP, 384KB	CPU317T-3 PN/DP, 1024KB	CPU317TF-3 PN/DP, 1,5 MB
Counters, timers and their retentivity			
S7 counter			
• Number	256	512	512
IEC counter			
• present	Yes	Yes	Yes
S7 times			
• Number	256	512	512
IEC timer			
• present	Yes	Yes	Yes
Data areas and their retentivity			
Flag			
• Size, max.	2 048 byte	4 096 byte	4 096 byte
Address area			
I/O address area			
• Inputs	2 048 byte	8 192 byte	8 192 byte
• Outputs	2 048 byte	8 192 byte	8 192 byte
Process image			
• Inputs, adjustable	2 048 byte	8 192 byte	8 192 byte
• Outputs, adjustable	2 048 byte	8 192 byte	8 192 byte
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes
Operating hours counter			
• Number	1	4	4
Digital outputs			
Integrated high-speed cams			
• Switching accuracy (+/-)	70 µs	70 µs	70 µs
1. Interface			
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types			
• RS 485	Yes	Yes	Yes
Protocols			
• MPI	Yes	Yes	Yes
• PROFIBUS DP master	Yes	Yes	Yes
• PROFIBUS DP slave	Yes	Yes	Yes
• Point-to-point connection	No	No	No
PROFIBUS DP master			
• Number of DP slaves, max.	124	124	124
2. Interface			
Interface type	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Interface types			
• RS 485	Yes	Yes	Yes
Protocols			
• MPI	No	No	No
• PROFIBUS DP master	Yes; DP(DRIVE)-Master	Yes; DP(DRIVE)-Master	Yes; DP(DRIVE)-Master
• PROFIBUS DP slave	No	No	No
PROFIBUS DP master			
• Number of DP slaves, max.	64	64	64
3. Interface			
Interface types			
• RJ 45 (Ethernet)	Yes	Yes	Yes
• Number of ports	2	2	2
Protocols			
• MPI	No	No	No
• PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality	Yes; Also simultaneously with IO-Device functionality	Yes; Also simultaneously with IO-Device functionality
• PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality	Yes; Also simultaneously with IO Controller functionality	Yes; Also simultaneously with IO Controller functionality
• PROFIBUS DP master	No	No	No
• PROFIBUS DP slave	No	No	No

Technical specifications

Article number	**6ES7315-7TJ10-0AB0**	**6ES7317-7TK10-0AB0**	**6ES7317-7UL10-0AB0**
	CPU315T-3 PN/DP, 384KB	CPU317T-3 PN/DP, 1024KB	CPU317TF-3 PN/DP, 1,5 MB
PROFINET IO Controller			
Services			
- Number of connectable IO Devices, max.	128	128	128
- Of which IO devices with IRT, max.	64	64	64
- Number of connectable IO Devices for RT, max.	128	128	128
Protocols			
Open IE communication			
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	8	16	16
• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	8	16	16
• UDP	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	8	16	16
Web server			
• supported	Yes	Yes	Yes
Communication functions			
PG/OP communication	Yes	Yes	Yes
Data record routing	Yes	Yes	Yes
Global data communication			
• supported	Yes	Yes	Yes
S7 basic communication			
• supported	Yes	Yes	Yes
S7 communication			
• supported	Yes	Yes	Yes
S5 compatible communication			
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Number of connections			
• overall	16	32	32
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Configuration			
Programming			
Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- STL	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
- CFC	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes
Know-how protection			
• User program protection/ password protection	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions			
Width	120 mm	120 mm	120 mm
Height	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm
Weights			
Weight, approx.	640 g	640 g	640 g

SM 321 digital input modules

Overview

- Digital inputs
- For connecting standard switches and two-wire proximity switches (BEROs)

Ordering data

	Article No.
SM 321 digital input modules	
Incl. labeling strips, bus connector	
16 inputs, 24 V DC	**6ES7321-1BH02-0AA0**
16 inputs, 24 V DC, sourcing input	**6ES7321-1BH50-0AA0**
32 inputs, 24 V DC	**6ES7321-1BL00-0AA0**
64 inputs, 24 V DC, source-sinking input	**6ES7321-1BP00-0AA0**
Note: 6ES7392-4...0-0AA0 connecting cable and 6ES7392-1.N00-0AA0 terminal blocks necessary.	
16 inputs, 24 to 48 V DC	**6ES7321-1CH00-0AA0**
16 inputs, 48 to 125 V DC	**6ES7321-1CH20-0AA0**
16 inputs, 24 V DC, for isochronous mode	**6ES7321-1BH10-0AA0**
32 inputs, 120 V AC	**6ES7321-1EL00-0AA0**
8 inputs, 120/230 V AC	**6ES7321-1FF01-0AA0**
8 inputs, 120/230 V AC, single root	**6ES7321-1FF10-0AA0**
16 inputs, 120/230 V AC	**6ES7321-1FH00-0AA0**
16 inputs, 24 V DC, for isochronous mode, diagnostics-capable	**6ES7321-7BH01-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**

	Article No.
S7-300 connecting cable	
For 64-channel modules; 2 units	
1 m	**6ES7392-4BB00-0AA0**
2.5 m	**6ES7392-4BC50-0AA0**
5 m	**6ES7392-4BF00-0AA0**
Terminal block	
For 64-channel modules; 2 units	
With screw contacts	**6ES7392-1AN00-0AA0**
With spring-loaded contacts	**6ES7392-1BN00-0AA0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
SIMATIC TOP connect	See page 5/242
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XY10-0AA0**

Ordering data

	Article No.
Labeling sheets for machine inscription	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7321-1BH02-0AA0**	**6ES7321-1BH50-0AA0**	**6ES7321-1BL00-0AA0**	**6ES7321-1BP00-0AA0**	**6ES7321-1BH10-0AA0**
	SM321, 16DI, DC24V	SM321, 16DI, DC24V, Source Input	SM321, 32DI, DC24V	SM321, 64 DI, DC 24V, 3MS, P/M reading	SM321,16DI,DC24V, 0.05ms Input Delay.
Supply voltage					
Load voltage L+					
• Rated value (DC)	24 V	24 V	24 V	24 V	24 V
Input current					
from backplane bus 5 V DC, max.	10 mA	10 mA	15 mA	100 mA	110 mA
Power loss					
Power loss, typ.	3.5 W	3.5 W	6.5 W	7 W	3.8 W
Digital inputs					
Number of digital inputs	16	16	32	64	16
Input characteristic curve in accordance with IEC 61131, type 1	Yes	Yes	Yes	Yes	Yes
Input voltage					
• Type of input voltage	DC	DC	DC	DC	DC
• Rated value (DC)	24 V	24 V	24 V	24 V	24 V
• for signal "0"	-30 to +5 V	-5 to +30V	-30 to +5 V	-30 to +5 V	-30 to +5 V
• for signal "1"	13 to 30V	-13 to -30V	13 to 30V	13 to 30V	13 to 30V
Input current					
• for signal "1", typ.	7 mA	7 mA	7 mA	4.2 mA	7 mA
Input delay (for rated value of input voltage)					
for standard inputs					
- parameterizable	No	No	No	No	No
- at "0" to "1", min.	1.2 ms	1.2 ms	1.2 ms	1.2 ms	25 µs
- at "0" to "1", max.	4.8 ms	4.8 ms	4.8 ms	4.8 ms	75 µs
Cable length					
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m

Technical specifications

Article number	**6ES7321-1BH02-0AA0**	**6ES7321-1BH50-0AA0**	**6ES7321-1BL00-0AA0**	**6ES7321-1BP00-0AA0**	**6ES7321-1BH10-0AA0**
	SM321, 16DI, DC24V	SM321, 16DI, DC24V, Source Input	SM321, 32DI, DC24V	SM321, 64 DI, DC 24V, 3MS, P/M reading	SM321,16DI,DC24V, 0.05ms Input Delay.
Encoder					
Connectable encoders					
• 2-wire sensor	Yes	Yes	Yes	No	Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA	1.5 mA		1.5 mA
Interrupts/diagnostics/ status information					
Alarms	No	No	No	No	No
Diagnostics function	No	No	No	No	No
Alarms					
• Diagnostic alarm	No	No	No	No	No
• Hardware interrupt	No	No	No	No	No
Connection method					
required front connector	20-pin	20-pin	40-pin	Cable: 6ES7392-4Bxx0-0AA0 terminal blocks: 6ES7392-1xN00-0AA0	20-pin
Dimensions					
Width	40 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	112 mm	120 mm
Weights					
Weight, approx.	200 g	200 g	260 g	230 g	200 g

Article number	**6ES7321-7BH01-0AB0**	**6ES7321-1CH00-0AA0**	**6ES7321-1CH20-0AA0**	**6ES7321-1FH00-0AA0**
	SM321, 16DI, 24V DC	SM321, 16 DI, AC/DC 24-48V, 1ch/common	SM321, 16DI, DC48-125V	SM321, 16 DI, 120/230V AC
Supply voltage				
Load voltage L+				
• Rated value (DC)	24 V	24 V	48 V	
Load voltage L1				
• Rated value (AC)		24 V		230 V; 120/230 V AC; all load voltages must have the same phase.
Input current				
from load voltage L+ (without load), max.	90 mA			
from backplane bus 5 V DC, max.	130 mA	100 mA	40 mA	29 mA
Encoder supply				
Number of outputs	2			
Output current				
• Rated value	120 mA			
Power loss				
Power loss, typ.	4 W	1.5 W; at 24 V; 2,8 W at 48 V	4.3 W	4.9 W
Digital inputs				
Number of digital inputs	16	16	16	16
Input characteristic curve in accordance with IEC 61131, type 1		Yes	Yes	Yes
Input characteristic curve in accordance with IEC 61131, type 2	Yes			
Input voltage				
• Type of input voltage	DC	AC/DC	DC	AC
• Rated value (DC)	24 V	24 V; DC 24 or 48 V	48 V; 48 V DC to 125 V DC	
• Rated value (AC)		24 V; 24 V AC or 48 V AC (0 ... 63 Hz)		230 V; 120/230 V AC (47 ... 63 Hz)
• for signal "0"	-30 to +5 V	-5V AC to +5V AC	-146 V DC to +15 V DC	0 to 40V
• for signal "1"	13 to 30V	14V AC to 60V AC	30 V DC to 146 V DC	79 to 264V
Input current				
• for signal "1", typ.	7 mA	2.7 mA	3.5 mA	6.5 mA; (120 V, 60 Hz), 16 mA (230 V, 50 Hz)

Technical specifications

Article number	**6ES7321-7BH01-0AB0**	**6ES7321-1CH00-0AA0**	**6ES7321-1CH20-0AA0**	**6ES7321-1FH00-0AA0**
	SM321, 16DI, 24V DC	SM321, 16 DI, AC/DC 24-48V, 1ch/common	SM321, 16DI, DC48-125V	SM321, 16 DI, 120/230V AC
Input delay (for rated value of input voltage)				
for standard inputs				
- parameterizable	Yes; 0.1 / 0.5 / 3 / 15 / 20 ms	No	No	No
- at "0" to "1", min.		16 ms	0.1 ms	25 ms
- at "0" to "1", max.		16 ms	3.5 ms	25 ms
Cable length				
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m
Encoder				
Connectable encoders				
• 2-wire sensor	Yes	Yes	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA	1 mA	1 mA	2 mA
Interrupts/diagnostics/ status information				
Alarms	Yes	No	No	No
Diagnostics function	Yes; Parameterizable	No	No	No
Alarms				
• Diagnostic alarm	Yes; Parameterizable	No	No	No
• Hardware interrupt	Yes; Parameterizable	No	No	No
Connection method				
required front connector	20-pin	40-pin	20-pin	20-pin
Dimensions				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	120 mm
Weights				
Weight, approx.	200 g	260 g	200 g	240 g

Article number	**6ES7321-1EL00-0AA0**	**6ES7321-1FF01-0AA0**	**6ES7321-1FF10-0AA0**
	SM321, 32DI, AC120V	SM321, 8DI, AC120/230V	SM321, 8 DI, AC/DC 120/230V, 1ch/common
Load voltage L1			
• Rated value (AC)	120 V	230 V; 120/230 V AC	230 V; 120/230 V AC; all load voltages must have the same phase.
Input current			
from backplane bus 5 V DC, max.	16 mA	29 mA	100 mA
Power loss			
Power loss, typ.	4 W	4.9 W	4.9 W
Digital inputs			
Number of digital inputs	32	8	8
Input characteristic curve in accordance with IEC 61131, type 1		Yes	Yes
Input characteristic curve in accordance with IEC 61131, type 2	Yes		
Input voltage			
• Type of input voltage	AC	AC	AC
• Rated value (AC)	120 V; 47 ... 63 Hz	230 V; 120/230 V AC (47 ... 63 Hz)	120 V; 120/230 V AC (47 ... 63 Hz)
• for signal "0"	0 to 20V	0 to 40V	0 to 40V
• for signal "1"	74 to 132V	79 to 264V	79 to 264V
Input current			
• for signal "1", typ.	21 mA	6.5 mA; (120 V); 11 mA (230 V)	7.5 mA; (120 V); 17.3 mA (230 V)
Input delay (for rated value of input voltage)			
for standard inputs			
- parameterizable	No	No	No
- at "0" to "1", max.	15 ms	25 ms	25 ms
Cable length			
• shielded, max.	1 000 m	1 000 m	1 000 m

Technical specifications

Article number	**6ES7321-1EL00-0AA0** SM321, 32DI, AC120V	**6ES7321-1FF01-0AA0** SM321, 8DI, AC120/230V	**6ES7321-1FF10-0AA0** SM321, 8 DI, AC/DC 120/230V, 1ch/common
Encoder			
Connectable encoders			
• 2-wire sensor	Yes	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	4 mA	2 mA	2 mA
Interrupts/diagnostics/ status information			
Alarms	No	No	No
Diagnostics function	No	No	No
Alarms			
• Diagnostic alarm	No	No	No
• Hardware interrupt	No	No	No
Connection method			
required front connector	40-pin	20-pin	40-pin
Dimensions			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	300 g	240 g	240 g

Overview

- Digital outputs
- For connecting solenoid valves, contactors, low-power motors, lamps and motor starters

Ordering data

SM 322 digital output modules	
incl. labeling strips, bus connector	
8 outputs, 24 V DC, 2 A	**6ES7322-1BF01-0AA0**
16 outputs, 24 V DC, 0.5 A	**6ES7322-1BH01-0AA0**
16 outputs, 24 V DC, 0.5 A, high speed	**6ES7322-1BH10-0AA0**
32 outputs, 24 V DC, 0.5 A	**6ES7322-1BL00-0AA0**
64 outputs, 24 V DC, 0.3 A	**6ES7322-1BP00-0AA0**
Note: 6ES7392-4...0-0AA0 connection cable and 6ES7392-1.N00-0AA0 terminal blocks necessary.	
64 outputs, 24 V DC, 0.3 A, sinking output	**6ES7322-1BP50-0AA0**
Note: 6ES7392-4...0-0AA0 connection cable and 6ES7392-1.N00-0AA0 terminal blocks necessary.	
8 outputs, 24 V DC, 0.5 A, diagnostics-capable	**6ES7322-8BF00-0AB0**
16 outputs, 24/48 V DC, 0.5 A	**6ES7322-5GH00-0AB0**
8 outputs, 48 to 125 V DC, 1.5 A	**6ES7322-1CF00-0AA0**
8 outputs, 120/230 V AC, 1 A	**6ES7322-1FF01-0AA0**
8 outputs, 120/230 V AC, 2 A	**6ES7322-5FF00-0AB0**
16 outputs, 120/230 V AC, 1 A	**6ES7322-1FH00-0AA0**
32 outputs, 120 V AC, 1 A	**6ES7322-1FL00-0AA0**
8 outputs, relay contacts, 2 A	**6ES7322-1HF01-0AA0**
8 outputs, relay contacts, 5 A	**6ES7322-1HF10-0AA0**
8 outputs, relay contacts, 5 A, with RC filter, overvoltage protection	**6ES7322-5HF00-0AB0**
16 outputs, relay contacts, 8 A	**6ES7322-1HH01-0AA0**

Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
S7-300 connecting cable	
For 64-channel modules; 2 units	
1 m	**6ES7392-4BB00-0AA0**
2.5 m	**6ES7392-4BC50-0AA0**
5 m	**6ES7392-4BF00-0AA0**
Terminal block	
For 64-channel modules; 2 units	
With screw contacts	**6ES7392-1AN00-0AA0**
With spring-loaded contacts	**6ES7392-1BN00-0AA0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors	
SIMATIC TOP connect	See page 5/242
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Set of fuses for SM 322	
10 fuses 8 A quick-response, 2 fuse holders; for 6ES7322-1FF01-0AA0, 6ES7322-1FH00-0AA0	**6ES7973-1HD00-0AA0**
10 fuses 6.3 A; for 6ES7322-1CF00-0AA0	**6ES7973-1GC00-0AA0**

SM 322 digital output modules

Ordering data

	Article No.
Labeling strips	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Labeling sheets for machine inscription	
for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**
for modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX10-0AA0**
light-beige	**6ES7392-2BX10-0AA0**
yellow	**6ES7392-2CX10-0AA0**
red	**6ES7392-2DX10-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7322-1BH01-0AA0** SM322, 16DO 24V DC, 0,5A	**6ES7322-1BH10-0AA0** SM322 High Speed, 16DO 24V DC, 0.5A	**6ES7322-1BL00-0AA0** SM322, 32DO 24V DC, 0,5A	**6ES7322-1BP00-0AA0** SM322 64DA, DC24V, 0,3A P-write	**6ES7322-1BP50-0AA0** SM322 64DO, DC24V, 0.3A M-write	**6ES7322-8BF00-0AB0** SM322, 8DO, 24V DC, 0,5A
Supply voltage						
Load voltage L+						
• Rated value (DC)	24 V	24 V	24 V	24 V	24 V	24 V
Input current						
from load voltage L+ (without load), max.	80 mA	110 mA	160 mA	75 mA	75 mA	90 mA
from backplane bus 5 V DC, max.	80 mA	70 mA	110 mA	100 mA	100 mA	70 mA
Power loss						
Power loss, typ.	4.9 W	5 W	6.6 W	6 W	6 W	5 W
Digital outputs						
Number of digital outputs	16	16	32	64	64	8
Short-circuit protection	Yes; Electronic	Yes; Electronic	Yes; Electronic	Yes; Electronic	Yes; Electronic	Yes; Electronic
Limitation of inductive shutdown voltage to	L+ (-53 V)	L+ (-53 V)	L+ (-53 V)	L+ (-53 V)	M+ (45 V)	L+ (-45 V)
Switching capacity of the outputs						
• on lamp load, max.	5 W	5 W	5 W	5 W	5 W	5 W
Load resistance range						
• lower limit	48 Ω	48 Ω	48 Ω	80 Ω	80 Ω	48 Ω
• upper limit	4 kΩ	4 kΩ	4 kΩ	10 kΩ	10 kΩ	3 kΩ
Output voltage						
• for signal "1", min.	L+ (-0.8 V)	L+ (-0.8 V)	L+ (-0.8 V)	L+ (-0.5 V)	M+ (0.5 V)	L+ (-0.8 to -1.6 V)
Output current						
• for signal "1" rated value	0.5 A	0.5 A	0.5 A	0.3 A	0.3 A	0.5 A
• for signal "0" residual current, max.	0.5 mA	0.5 mA	0.5 mA	0.1 mA		0.5 mA

Technical specifications

Article number	**6ES7322-1BH01-0AA0**	**6ES7322-1BH10-0AA0**	**6ES7322-1BL00-0AA0**	**6ES7322-1BP00-0AA0**	**6ES7322-1BP50-0AA0**	**6ES7322-8BF00-0AB0**
	SM322, 16DO 24V DC, 0,5A	SM322 High Speed, 16DO 24V DC, 0.5A	SM322, 32DO 24V DC, 0,5A	SM322 64DA, DC24V, 0,3A P-write	SM322 64DO, DC24V, 0.3A M-write	SM322, 8DO, 24V DC, 0,5A
Switching frequency						
• with resistive load, max.	100 Hz	1 000 Hz	100 Hz	100 Hz	100 Hz	100 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	2 Hz
• on lamp load, max.	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz
Total current of the outputs (per group)						
horizontal installation						
- up to 40 °C, max.	4 A	4 A	4 A	1.6 A	1.6 A	4 A
- up to 60 °C, max.	3 A	3 A	3 A	1.2 A	1.2 A	3 A
vertical installation						
- up to 40 °C, max.	2 A	2 A	2 A	1.6 A	1.6 A	4 A
Cable length						
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
Interrupts/diagnostics/ status information						
Alarms	No	No	No	No	No	
Diagnostics function	No	No	No	No	No	Yes; Parameterizable
Alarms						
• Diagnostic alarm	No	No	No	No	No	Yes; Parameterizable
Connection method						
required front connector	20-pin	20-pin	40-pin	Cable: 6ES7392-4Bxx0-0AA0 terminal blocks: 6ES7392-1xN00-0AA0	Cable: 6ES7392-4Bxx0-0AA0 terminal blocks: 6ES7392-1xN00-0AA0	20-pin
Dimensions						
Width	40 mm	40 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	112 mm	112 mm	120 mm
Weights						
Weight, approx.	190 g	200 g	260 g	230 g	230 g	210 g

Article number	**6ES7322-5GH00-0AB0**	**6ES7322-1CF00-0AA0**	**6ES7322-1BF01-0AA0**	**6ES7322-1FF01-0AA0**	**6ES7322-5FF00-0AB0**	**6ES7322-1FH00-0AA0**
	SM322, 16DO, AC/DC24-48V, 0,5A	SM322, 8DO, 48-125V DC, 1,5A	SM322, 8DO, 24V DC, 2A	SM322, 8DO, 120/230V AC, 1A	SM322, 8DO, AC120/230V, 2A	SM322, 16DO, 120/230V AC, 1A
Supply voltage						
Load voltage L+						
• Rated value (DC)	24 V	48 V; 48 V DC to 125 V DC	24 V			
Load voltage L1						
• Rated value (AC)				230 V; 120/230 V AC	230 V; 120/230 V AC	230 V; 120/230 V AC
Input current						
from supply voltage L+, max.	200 mA					
from load voltage L+ (without load), max.		2 mA	60 mA			
from load voltage L1 (without load), max.				2 mA	2 mA	2 mA
from backplane bus 5 V DC, max.	100 mA	100 mA	40 mA	100 mA	100 mA	200 mA
Power loss						
Power loss, typ.	2.8 W	7.2 W	6.8 W	8.6 W	8.6 W	8.6 W
Digital outputs						
Number of digital outputs	16	8	8	8	8	16
Short-circuit protection	No; to be provided externally	Yes; Electronic	Yes; Electronic	Yes; Fuse 8 A, 250 V; per group	Yes; to be provided externally; fuse 3.15 A / 250 V, quick response	Yes; Fuse 8 A, 250 V; per group
Limitation of inductive shutdown voltage to		M (-1 V)	L+ (-48 V)			

Technical specifications

Article number	6ES7322-5GH00-0AB0	6ES7322-1CF00-0AA0	6ES7322-1BF01-0AA0	6ES7322-1FF01-0AA0	6ES7322-5FF00-0AB0	6ES7322-1FH00-0AA0
	SM322, 16DO, AC/DC24-48V, 0,5A	SM322, 8DO, 48-125V DC, 1,5A	SM322, 8DO, 24V DC, 2A	SM322, 8DO, 120/230V AC, 1A	SM322, 8DO, AC120/230V, 2A	SM322, 16DO, 120/230V AC, 1A
Switching capacity of the outputs						
• on lamp load, max.	2.5 W	15 W; 15 W (48 V) or 40 W (125 V)	10 W	50 W	50 W	50 W
Load resistance range						
• lower limit			12 Ω			
• upper limit			4 kΩ			
Output voltage						
• for signal "1", min.	L+ (-0.25 V)	L+ (-1.2 V)	L+ (-0.8 V)	L1 (-1.5 V)	L1 (-8.5 V)	
Output current						
• for signal "1" rated value	0.5 A	1.5 A	2 A	2 A	2 A	1 A
• for signal "0" residual current, max.	10 µA	0.5 mA	0.5 mA	2 mA	2 mA	2 mA
Switching frequency						
• with resistive load, max.	10 Hz	25 Hz	100 Hz	10 Hz	10 Hz	10 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	0.5 Hz	10 Hz	10 Hz	1 Hz	1 Hz	1 Hz
Total current of the outputs (per group)						
horizontal installation						
- up to 40 °C, max.	0.5 A; 8 A per module	6 A	4 A	4 A	8 A	4 A
- up to 50 °C, max.		4 A				
- up to 60 °C, max.	0.5 A; 8 A per module	3 A	4 A	2 A	4 A	2 A
vertical installation						
- up to 40 °C, max.	0.5 A; 8 A per module	4 A	4 A	2 A	4 A	2 A
Cable length						
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
Interrupts/diagnostics/ status information						
Alarms		No	No	No		
Diagnostics function	Yes; Parameterizable	No	No	Yes; Fuse blown or load voltage missing	Yes; Parameterizable	Yes; Fuse blown or load voltage missing
Alarms						
• Diagnostic alarm	Yes; Parameterizable	No	No	No	Yes; Parameterizable	No
Connection method						
required front connector	40-pin	20-pin	20-pin	20-pin	40-pin	20-pin
Dimensions						
Width	40 mm	40 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm
Weights						
Weight, approx.	260 g	250 g	190 g	275 g	275 g	275 g

Article number	6ES7322-1FL00-0AA0	6ES7322-1HF01-0AA0	6ES7322-1HF10-0AA0	6ES7322-5HF00-0AB0	6ES7322-1HH01-0AA0
	SM322, 32DO, 120/230V AC, 1A	SM322, 8DA, 24V DC/2A or 230V AC/2A	SM322, 8DA, 24V DC/5A OR 230V AC/5A	SM322, 8DO Relay, 24VDC, 120-230V AC, 5A	SM322, 16DO Relay
Supply voltage					
Load voltage L+					
• Rated value (DC)		24 V	120 V	24 V	120 V
Load voltage L1					
• Rated value (AC)	120 V; 120/230 V AC		230 V	230 V	230 V
Input current					
from supply voltage L+, max.		160 mA	125 mA	160 mA	250 mA
from load voltage L1 (without load), max.	10 mA				
from backplane bus 5 V DC, max.	190 mA	40 mA	40 mA	100 mA	100 mA

Technical specifications

Article number	6ES7322-1FL00-0AA0	6ES7322-1HF01-0AA0	6ES7322-1HF10-0AA0	6ES7322-5HF00-0AB0	6ES7322-1HH01-0AA0
	SM322, 32DO, 120/230V AC, 1A	SM322, 8DA, 24V DC/2A or 230V AC/2A	SM322, 8DA, 24V DC/5A OR 230V AC/5A	SM322, 8DO Relay, 24VDC, 120-230V AC, 5A	SM322, 16DO Relay
Power loss					
Power loss, typ.	25 W	3.2 W	3.2 W	3.5 W	4.5 W
Digital outputs					
Number of digital outputs	32	8; Relays	8; Relays	8; Relays	16; Relays
Short-circuit protection	No	No	No; to be provided externally	No; to be provided externally	No
Switching capacity of the outputs					
• on lamp load, max.	50 W	50 W	1 500 W; 230 V AC	1 500 W; 230 V AC	50 W; 230 V AC
Output voltage					
• for signal "1", min.	L1 (-0.8 V)				
Output current					
• for signal "1" rated value	1 A	2 A	5 A	5 A	2 A
• for signal "0" residual current, max.	2 mA				
Switching frequency					
• with resistive load, max.	10 Hz	2 Hz	2 Hz	2 Hz	1 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	1 Hz	2 Hz	2 Hz	2 Hz	1 Hz
• mechanical, max.		10 Hz	10 Hz	10 Hz	10 Hz
Total current of the outputs (per group)					
horizontal installation					
- up to 40 °C, max.	4 A				
- up to 60 °C, max.	3 A		5 A	5 A	8 A
vertical installation					
- up to 40 °C, max.	4 A		5 A	5 A	8 A
Relay outputs					
• Rated supply voltage of relay coil L+ (DC)		24 V; 110 mA	24 V		24 V
• Contact connection (internal)		Yes; SIOV-CU4032 K275G	No	Yes; 330 Ohm, 0.1uF	No
• Number of operating cycles, max.		300 000; 230 V AC: 100 000; 120 V AC: 200 000; 24 V DC: 300 000 (at 2 A)	300 000; 300 000 (24 V DC, at 2 A); 200 000 (120 V AC, at 3 A); 100 000 (230 V AC, at 3 A)	100 000; 100 000 (24 V DC, at 5 A), 100 000 (230 V AC, at 5 A)	100 000; 50 000 (24 V DC, at 2 A); 700 000 (120 V AC, at 2 A); 100 000 (230 V AC, at 2 A)
Switching capacity of contacts					
- with inductive load, max.		2 A; 2 A (230 V AC), 2 A (24 V DC)	3 A; 3 A (230 V DC), 2 A (24 V AC)	5 A; 5 A (230 V DC), 5 A (24 V AC)	2 A; 2 A (230 V AC), 2 A (24 V DC)
- with resistive load, max.		2 A	8 A; 8 A (230 V DC), 5 A (24 V AC)	5 A; 5 A (230 V DC), 5 A (24 V AC)	2 A; 2 A (230 V AC), 2 A (24 V DC)
- Thermal continuous current, max.		3 A	8 A	5 A	2 A
Cable length					
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
Interrupts/diagnostics/ status information					
Alarms	No	No	No	Yes	No
Diagnostics function	Yes; Fuse blown or load voltage missing	No	No	Yes; Parameterizable	No
Alarms					
• Diagnostic alarm	No	No	No	Yes; Parameterizable	No
Connection method					
required front connector	20-pin	20-pin	40-pin	40-pin	20-pin
Dimensions					
Width	80 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	117 mm	120 mm	120 mm	120 mm	120 mm
Weights					
Weight, approx.	500 g	190 g	320 g	320 g	250 g

SM 323/SM 327 digital input/output modules

Overview

- Digital inputs and outputs
- For connection of switches, 2-wire proximity switches (BEROs), solenoid valves, contactors, low-power motors, lamps and motor starters

Ordering data

	Article No.
SM 323 digital input/output modules	
incl. labeling strips, bus connector	
8 inputs, 8 outputs	**6ES7323-1BH01-0AA0**
16 inputs, 16 outputs	**6ES7323-1BL00-0AA0**
SM 327 digital input/output modules	
incl. labeling strips, bus connector	
8 inputs, 8 inputs or outputs (can be configured)	**6ES7327-1BH00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	
SIMATIC TOP connect	See page 5/242
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XX10-0AA0**

	Article No.
Label cover	
10 units (spare part)	
for modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
for modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Labeling sheets for machine inscription	
for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**
for modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX10-0AA0**
light-beige	**6ES7392-2BX10-0AA0**
yellow	**6ES7392-2CX10-0AA0**
red	**6ES7392-2DX10-0AA0**
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7323-1BH01-0AA0**	**6ES7323-1BL00-0AA0**	**6ES7327-1BH00-0AB0**
	SM323, 8DI/8DO, DC24V, 0,5A	SM323, 16DI/DO, DC24V, 0,5A	SM327, 8DI/8DX, DC24V, 0,5A
Supply voltage			
Load voltage L+			
• Rated value (DC)	24 V	24 V	24 V
Input current			
from load voltage L+ (without load), max.	40 mA	80 mA	20 mA
from backplane bus 5 V DC, max.	40 mA	80 mA	60 mA
Power loss			
Power loss, typ.	3.5 W	6.5 W	3 W
Digital inputs			
Number of digital inputs	8	16	8; 8 hard-wired, 8 others individually parameterizable
Input characteristic curve in accordance with IEC 61131, type 1	Yes	Yes	Yes
Input voltage			
• Type of input voltage	DC	DC	DC
• Rated value (DC)	24 V	24 V	24 V
• for signal "0"	-30 to +5 V	-30 to +5 V	-30 to +5 V
• for signal "1"	13 to 30V	13 to 30V	+15 to +30 V
Input current			
• for signal "1", typ.	7 mA	7 mA	6 mA
Input delay (for rated value of input voltage)			
for standard inputs			
- at "0" to "1", min.	1.2 ms	1.2 ms	1.2 ms
- at "0" to "1", max.	4.8 ms	4.8 ms	4.8 ms
Cable length			
• shielded, max.	1 000 m	1 000 m	1 000 m
Digital outputs			
Number of digital outputs	8	16	8; can also be parameterized individually as DI
Short-circuit protection	Yes	Yes	Yes
Limitation of inductive shutdown voltage to	L+ (-53 V)	L+ (-48 V)	L+ (-54 V)
Switching capacity of the outputs			
• on lamp load, max.	5 W	5 W	5 W
Load resistance range			
• lower limit	48 Ω	48 Ω	48 Ω
• upper limit	4 kΩ	4 kΩ	4 kΩ
Output voltage			
• for signal "1", min.	L+ (-0.8 V)	L+ (-0.8 V)	L+ (-1.5 V)
Output current			
• for signal "1" rated value	0.5 A	0.5 A	0.5 A
• for signal "0" residual current, max.	0.5 mA	0.5 mA	0.5 mA
Switching frequency			
• with resistive load, max.	100 Hz	100 Hz	100 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	10 Hz	100 Hz	10 Hz
Total current of the outputs (per group)			
horizontal installation			
- up to 40 °C, max.	4 A	4 A	4 A
- up to 60 °C, max.	4 A	3 A	3 A
vertical installation			
- up to 40 °C, max.	4 A	2 A	2 A
Cable length			
• shielded, max.	1 000 m	1 000 m	1 000 m

Technical specifications

Article number	**6ES7323-1BH01-0AA0**	**6ES7323-1BL00-0AA0**	**6ES7327-1BH00-0AB0**
	SM323, 8DI/8DO, DC24V, 0,5A	SM323, 16DI/DO, DC24V, 0,5A	SM327, 8DI/8DX, DC24V, 0,5A
Encoder			
Connectable encoders			
• 2-wire sensor	Yes	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA	1.5 mA	1.5 mA
Interrupts/diagnostics/ status information			
Alarms	No	No	No
Diagnostics function	No	No	No
Connection method			
required front connector	20-pin	40-pin	20-pin
Dimensions			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	220 g	260 g	200 g

Overview

- Digital inputs
- For connection of switches and 2-wire proximity switches (BEROs)

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 321 digital input modules	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
16 inputs, 24 V DC	**6AG1321-1BH02-2AA0**
32 inputs, 24 V DC	**6AG1321-1BL00-2AA0**
16 inputs, 48 to 120 V DC	**6AG1321-1CH20-2AA0**
8 inputs, 120/230 V AC	**6AG1321-1FF01-2AA0**
8 inputs, 120/230 V AC, single root	**6AG1321-1FF10-7AA0**
16 inputs, 120/230 V AC	**6AG1321-1FH00-7AA0**
16 inputs, 24 V DC, diagnostics-capable	**6AG1321-7BH01-2AB0**
Exposure to media	
16 inputs, NAMUR, redundant design possible	**6AG1321-7TH00-4AB0**
For rolling stock railway applications	
Conforms to EN 50155	
16 inputs, 24 V DC	**6AG1321-1BH02-2AA0**
32 inputs, 24 V DC	**6AG1321-1BL00-2AA0**
16 inputs, 48 to 120 V DC	**6AG1321-1CH20-2AA0**
8 inputs, 120/230 V AC	**6AG1321-1FF01-2AA0**
16 inputs, 24 V DC, diagnostics-capable	**6AG1321-7BH01-2AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**

	Article No.
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	6AG1321-1BH02-2AA0	6AG1321-1BL00-2AA0	6AG1321-1CH20-2AA0	6AG1321-1FF01-2AA0	6AG1321-1FF10-7AA0
Based on	6ES7321-1BH02-0AA0	6ES7321-1BL00-0AA0	6ES7321-1CH20-0AA0	6ES7321-1FF01-0AA0	6ES7321-1FF10-0AA0
	SIPLUS SM321 16DE/24VDC	SIPLUS SM321 32DE/24VDC	SIPLUS SM 321 16DE/ DC 48-125 V	SIPLUS S7-300 SM321 8DE/120/230VAC	SIPLUS S7-300 SM321 8 DI
Ambient conditions					
Ambient temperature during operation					
• min.	-40 °C; = Tmin	-40 °C; = Tmin	-25 °C; = Tmin	-40 °C; = Tmin	-25 °C
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level					
• Installation altitude above sea level, max.	5 000 m	5 000 m	2 000 m	2 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance					
Use in stationary industrial systems					
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles					
- to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request		
- to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *		
- to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *	Yes; Class 5S3 incl. sand, dust; *	Yes; Class 5S3 incl. sand, dust; *		

Technical specifications

Article number	6AG1321-1BH02-2AA0	6AG1321-1BL00-2AA0	6AG1321-1CH20-2AA0	6AG1321-1FF01-2AA0	6AG1321-1FF10-7AA0
Based on	6ES7321-1BH02-0AA0	6ES7321-1BL00-0AA0	6ES7321-1CH20-0AA0	6ES7321-1FF01-0AA0	6ES7321-1FF10-0AA0
	SIPLUS SM321 16DE/24VDC	SIPLUS SM321 32DE/24VDC	SIPLUS SM 321 16DE/ DC 48-125 V	SIPLUS S7-300 SM321 8DE/120/230VAC	SIPLUS S7-300 SM321 8 DI
Use on ships/at sea					
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology					
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark					
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Article number	6AG1321-1FH00-7AA0	6AG1321-7BH01-2AB0	6AG1321-7TH00-4AB0
Based on	6ES7321-1FH00-0AA0	6ES7321-7BH01-0AB0	6ES7321-7TH00-0AB0
	SIPLUS S7-300 SM321 16DI	SIPLUS SM321 16DE/24VDC	SIPLUS PCS 7 SM321 16DE
Ambient conditions			
Ambient temperature during operation			
• min.	-40 °C; = Tmin	-25 °C; = Tmin	0 °C
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	60 °C
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)

Technical specifications

Article number	**6AG1321-1FH00-7AA0**	**6AG1321-7BH01-2AB0**	**6AG1321-7TH00-4AB0**
Based on	**6ES7321-1FH00-0AA0**	**6ES7321-7BH01-0AB0**	**6ES7321-7TH00-0AB0**
	SIPLUS S7-300 SM321 16DI	SIPLUS SM321 16DE/24VDC	SIPLUS PCS 7 SM321 16DE
Resistance			
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles			
- to biologically active substances according to EN 60721-3-5		Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	
- to chemically active substances according to EN 60721-3-5		Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	
- to mechanically active substances according to EN 60721-3-5		Yes; Class 5S3 incl. sand, dust; *	
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology			
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark			
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- Digital outputs
- For connecting solenoid valves, contactors, small-power motors, lamps and motor starters

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 322 digital output modules	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
8 outputs, 24 V DC, 2 A	**6AG1322-1BF01-2XB0**
16 outputs, 24 V DC, 0.5 A	**6AG1322-1BH01-2AA0**
32 outputs, 24 V DC, 0.5 A	**6AG1322-1BL00-2AA0**
8 outputs, 48 to 125 V DC, 1.5 A	**6AG1322-1CF00-7AA0**
8 outputs, 120/230 V AC, 1 A	**6AG1322-1FF01-7AA0**
16 outputs, 120/230 V AC, 1 A	**6AG1322-1FH00-7AA0**
8 outputs, relay contacts, 5 A	**6AG1322-1HF10-2AA0**
16 outputs, relay contacts, 8 A	**6AG1322-1HH01-2AA0**
8 outputs, 24 V DC, 0.5 A, diagnostics-capable	**6AG1322-8BF00-2AB0**
Exposure to media	
8 outputs, 120/230 V AC, 2 A	**6AG1322-5FF00-4AB0**
8 outputs, relay contacts, 5 A, with RC filter, overvoltage protection	**6AG1322-5HF00-4AB0**
For rolling stock railway applications	
Conforms to EN 50155	
16 outputs, 24 V DC, 0.5 A, high speed	**6AG1322-1BH01-2AA0**
32 outputs, 24 V DC, 0.5 A	**6AG1322-1BL00-2AA0**
8 outputs, relay contacts, 5 A	**6AG1322-1HF10-2AA0**
16 outputs, relay contacts, 8 A	**6AG1322-1HH01-2AA0**
8 outputs, 24 V DC, 0.5 A, diagnostics-capable	**6AG1322-8BF00-2AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**

	Article No.
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	6AG1322-1BF01-2XB0	6AG1322-8BF00-2AB0	6AG1322-1BH01-2AA0	6AG1322-1BL00-2AA0
Based on	6ES7322-1BF01-0XB0	6ES7322-8BF00-0AB0	6ES7322-1BH01-0AA0	6ES7322-1BL00-0AA0
	SIPLUS S7-300 SM322	SIPLUS SM322 8DA/24VDC	SIPLUS S7-300 SM322 16DA/24VDC 0.5A	SIPLUS S7-300 SM322 32DO/24VDC 0.5A
Ambient conditions				
Ambient temperature during operation				
• min.	-25 °C	-25 °C; = Tmin	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL use	70 °C; = Tmax; 60 °C @ UL/cUL use	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance				
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles				
- to biologically active substances according to EN 60721-3-5		Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
- to chemically active substances according to EN 60721-3-5		Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
- to mechanically active substances according to EN 60721-3-5		Yes; Class 5S3 incl. sand, dust; *	Yes; Class 5S3 incl. sand, dust; *	Yes; Class 5S3 incl. sand, dust; *
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *

Technical specifications

Article number	**6AG1322-1BF01-2XB0**	**6AG1322-8BF00-2AB0**	**6AG1322-1BH01-2AA0**	**6AG1322-1BL00-2AA0**
Based on	**6ES7322-1BF01-0XB0**	**6ES7322-8BF00-0AB0**	**6ES7322-1BH01-0AA0**	**6ES7322-1BL00-0AA0**
	SIPLUS S7-300 SM322	SIPLUS SM322 8DA/24VDC	SIPLUS S7-300 SM322 16DA/24VDC 0.5A	SIPLUS S7-300 SM322 32DO/24VDC 0.5A
Usage in industrial process technology				
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark				
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Article number	**6AG1322-1CF00-7AA0**	**6AG1322-1HF10-2AA0**	**6AG1322-5HF00-4AB0**	**6AG1322-1FF01-7AA0**
Based on	**6ES7322-1CF00-0AA0**	**6ES7322-1HF10-0AA0**	**6ES7322-5HF00-0AB0**	**6ES7322-1FF01-0AA0**
	SIPLUS SM322 8DA/48-125VDC	SIPLUS SM322 8DA - Relais	SIPLUS_SM322_8RO	SIPLUS S7-300 SM322 8DA/120/230VAC
Ambient conditions				
Ambient temperature during operation				
• min.	-25 °C	-25 °C; = Tmin	0 °C; = Tmin	-40 °C
• max.	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated tempera-ture range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	60 °C	60 °C; = Tmax	70 °C; = Tmax; for use on railway vehicles according to EN 50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/UL hazardous use applies
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	2 000 m	2 000 m	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Resistance				
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles				
- to biologically active substances according to EN 60721-3-5		Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request		
- to chemically active substances according to EN 60721-3-5		Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *		
- to mechanically active substances according to EN 60721-3-5		Yes; Class 5S3 incl. sand, dust; *		

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Technical specifications

Article number	6AG1322-1CF00-7AA0	6AG1322-1HF10-2AA0	6AG1322-5HF00-4AB0	6AG1322-1FF01-7AA0
Based on	6ES7322-1CF00-0AA0	6ES7322-1HF10-0AA0	6ES7322-5HF00-0AB0	6ES7322-1FF01-0AA0
	SIPLUS SM322 8DA/48-125VDC	SIPLUS SM322 8DA - Relais	SIPLUS_SM322_8RO	SIPLUS S7-300 SM322 8DA/120/230VAC
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology				
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark				
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Article number	6AG1322-5FF00-4AB0	6AG1322-1FH00-7AA0	6AG1322-1HH01-2AA0
Based on	6ES7322-5FF00-0AB0	6ES7322-1FH00-0AA0	6ES7322-1HH01-0AA0
	SIPLUS S7-300 SM322 8DO	SIPLUS S7-300 SM322 16DO	SIPLUS SM322
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C; = Tmin	-40 °C; = Tmin	-40 °C; = Tmin
• max.	60 °C; = Tmax	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m	5 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)

Technical specifications

Article number	**6AG1322-5FF00-4AB0**	**6AG1322-1FH00-7AA0**	**6AG1322-1HH01-2AA0**
Based on	**6ES7322-5FF00-0AB0**	**6ES7322-1FH00-0AA0**	**6ES7322-1HH01-0AA0**
	SIPLUS S7-300 SM322 8DO	SIPLUS S7-300 SM322 16DO	SIPLUS SM322
Resistance			
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles			
- to biologically active substances according to EN 60721-3-5			Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
- to chemically active substances according to EN 60721-3-5			Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
- to mechanically active substances according to EN 60721-3-5			Yes; Class 5S3 incl. sand, dust; *
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology			
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark			
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS S7-300 SM 323

Overview

- Digital inputs and outputs
- For connection of switches, 2-wire proximity switches (BEROs), solenoid valves, contactors, low-power motors, lamps and motor starters

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 323 digital input/output module	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
8 inputs, 8 outputs	**6AG1323-1BH01-2AA0**
For rolling stock railway applications	
Conforms to EN 50155	
8 inputs, 8 outputs	**6AG1323-1BH01-2AA0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**

	Article No.
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6AG1323-1BH01-2AA0**
Based on	**6ES7323-1BH01-0AA0**
	SIPLUS SM323 8DE/8DA
Ambient conditions	
Ambient temperature during operation	
• min.	-40 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles	
- to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
- to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
- to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *

Article number	**6AG1323-1BH01-2AA0**
Based on	**6ES7323-1BH01-0AA0**
	SIPLUS SM323 8DE/8DA
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

SM 331 analog input modules

Overview

- Analog inputs
- For connection of voltage and current sensors, thermocouples, resistors and resistance thermometers

Ordering data

	Article No.
SM 331 analog input modules	
Including labeling strips, bus connector, measuring range modules	
8 inputs, resolution 13 bits	**6ES7331-1KF02-0AB0**
8 inputs, resolution 9/12/14 bits	**6ES7331-7KF02-0AB0**
2 inputs, resolution 9/12/14 bits	**6ES7331-7KB02-0AB0**
8 inputs, enhanced resolution 16 bits	**6ES7331-7NF00-0AB0**
8 inputs, enhanced resolution 16 bits, 4-channel mode	**6ES7331-7NF10-0AB0**
8 inputs, resolution 14 bits, for isochronous mode	**6ES7331-7HF01-0AB0**
6 inputs, for thermal elements, resolution 16 bits	**6ES7331-7PE10-0AB0**
8 inputs, for thermal resistors	**6ES7331-7PF01-0AB0**
8 inputs, for thermoelements	**6ES7331-7PF11-0AB0**
Measuring range module for analog inputs	**6ES7974-0AA00-0AA0**
1 module for 2 analog inputs; 2 units (spare part)	
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG wires	
SIMATIC TOP connect	See page 5/242

	Article No.
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection element	**6ES7390-5AA00-0AA0**
80 mm wide, with 2 rows for 4 shield connection clamps each	
Shield connection clamps	
2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine labeling	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**

Ordering data

	Article No.		Article No.
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**	**SIMATIC Manual Collection update service for 1 year** Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

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Technical specifications

Article number	**6ES7331-7KF02-0AB0** SM331, 8AI, 9/12/14Bit	**6ES7331-7HF01-0AB0** SM331, 8AI, 14BIT, 0,052MS/channel	**6ES7331-1KF02-0AB0** SM331, 8AI, 13bit	**6ES7331-7KB02-0AB0** SM331, 2AI, 9/12/14Bit
Supply voltage				
Load voltage L+				
• Rated value (DC)	24 V	24 V		24 V
Input current				
from load voltage L+ (without load), max.	30 mA	50 mA		30 mA
from backplane bus 5 V DC, max.	50 mA	100 mA	90 mA	50 mA
Power loss				
Power loss, typ.	1 W	1.5 W	0.4 W	1 W
Analog inputs				
Number of analog inputs	8	8	8	2
• For resistance measurement	4		8	1
permissible input voltage for voltage input (destruction limit), max.	20 V; continuous; 75 V for max. 1 s (mark to space ratio 1:20)	20 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)	30 V; 12 V continuous, 30 V for max. 1 s	20 V; continuous; 75 V for max. 1 s (mark to space ratio 1:20)
permissible input current for current input (destruction limit), max.	40 mA	40 mA	40 mA	40 mA
Input ranges (rated values), voltages				
• 0 to +10 V	No	No	Yes	No
• 1 V to 5 V	Yes	Yes	Yes	Yes
• 1 V to 10 V	No		No	No
• -1 V to +1 V	Yes	Yes	Yes	Yes
• -10 V to +10 V	Yes	Yes	Yes	Yes
• -2.5 V to +2.5 V	Yes		No	Yes
• -250 mV to +250 mV	Yes		No	Yes
• -5 V to +5 V	Yes	Yes	Yes	Yes
• -50 mV to +50 mV	No		Yes	No
• -500 mV to +500 mV	Yes	Yes	Yes	Yes
• -80 mV to +80 mV	Yes	Yes	No	Yes
Input ranges (rated values), currents				
• 0 to 20 mA	Yes	Yes	Yes	Yes
• -10 mA to +10 mA	Yes		No	Yes
• -20 mA to +20 mA	Yes	Yes	Yes	Yes
• -3.2 mA to +3.2 mA	Yes		No	Yes
• 4 mA to 20 mA	Yes	Yes	Yes	Yes

Technical specifications

Article number	**6ES7331-7KF02-0AB0**	**6ES7331-7HF01-0AB0**	**6ES7331-1KF02-0AB0**	**6ES7331-7KB02-0AB0**
	SM331, 8AI, 9/12/14Bit	SM331, 8AI, 14BIT, 0,052MS/channel	SM331, 8AI, 13bit	SM331, 2AI, 9/12/14Bit
Input ranges (rated values), thermocouples				
• Type B	No		No	No
• Type C	No		No	
• Type E	Yes		No	Yes
• Type J	Yes		No	Yes
• Type K	Yes		No	Yes
• Type L	Yes		No	No
• Type N	Yes		No	Yes
• Type R	No		No	No
• Type S	No		No	No
• Type T	No		No	No
• Type U	No		No	No
• Type TXK/TXK(L) to GOST	No		No	No
Input ranges (rated values), resistance thermometer				
• Cu 10	No		No	No
• Ni 100	Yes; Standard		Yes; Standard/climate	Yes
• Ni 1000	No		Yes	No
• LG-Ni 1000	No		Yes; Standard/climate	No
• Ni 120	No		No	No
• Ni 200	No		No	No
• Ni 500	No		No	No
• Pt 100	Yes; Standard		Yes; Standard/climate	Yes
• Pt 1000	No		No	No
• Pt 200	No		No	No
• Pt 500	No		No	No
Input ranges (rated values), resistors				
• 0 to 150 ohms	Yes		No	Yes
• 0 to 300 ohms	Yes		No	Yes
• 0 to 600 ohms	Yes		Yes	Yes
• 0 to 6000 ohms	No		Yes	No
Thermocouple (TC)				
Temperature compensation				
- parameterizable	Yes		No	Yes
- internal temperature compensation	Yes		No	Yes
- external temperature compensation with compensations socket	Yes		No	Yes
- for definable comparison point temperature	Yes			Yes
Characteristic linearization				
• parameterizable	Yes		Yes	Yes
- for thermocouples	Type E, J, K, L, N		No	Type E, J, K, L, N
- for resistance thermometer	Pt100 (standard, climatic range), Ni100 (standard, climatic range)		yes; Pt100 standard/air con.; Ni100 standard/air con.; Ni1000 standard/air con.; LG-Ni1000 standard/air con.	Pt100 (standard, climatic range), Ni100 (standard, climatic range)
Cable length				
• shielded, max.	200 m; 50 m at 80 mV and thermocouples	200 m	200 m; max. 50 m at 50 mV	200 m; 50 m at 80 mV and thermocouples
Analog value generation for the inputs				
Integration and conversion time/ resolution per channel				
• Resolution with overrange (bit including sign), max.	15 bit; Unipolar: 9/12/12/14 bit; bipolar: 9 bit + sign/12 bit + sign/ 12 bit + sign/14 bit + sign	14 bit; Unipolar: 14 bit; bipolar: 13 bit + sign	13 bit	15 bit; Unipolar: 9/12/12/14 bit; bipolar: 9 bit + sign/12 bit + sign/ 12 bit + sign/14 bit + sign
• Integration time, parameterizable	Yes	Yes	Yes	Yes
• Basic conversion time (ms)		52 µs per channel		

Technical specifications

Article number	**6ES7331-7KF02-0AB0**	**6ES7331-7HF01-0AB0**	**6ES7331-1KF02-0AB0**	**6ES7331-7KB02-0AB0**
	SM331, 8AI, 9/12/14Bit	SM331, 8AI, 14BIT, 0,052MS/channel	SM331, 8AI, 13bit	SM331, 2AI, 9/12/14Bit
Analog value generation for the inputs (continued)				
• Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz	none / 400 / 60 / 50 Hz		400 / 60 / 50 / 10 Hz
Encoder				
Connection of signal encoders				
• for voltage measurement	Yes		Yes	Yes
• for current measurement as 2-wire transducer	Yes	Yes	Yes; with external supply	Yes
• for current measurement as 4-wire transducer	Yes	Yes	Yes	Yes
• for resistance measurement with two-wire connection	Yes		Yes	Yes
• for resistance measurement with three-wire connection	Yes		Yes	Yes
• for resistance measurement with four-wire connection	Yes		Yes	Yes
Errors/accuracies				
Operational error limit in overall temperature range				
• Voltage, relative to input range, (+/-)	1 %; ±1% (80 mV); ±0.6% (250 mV to 1 000 mV); ±0.8% (2.5 V to 10 V)	0.4 %	0.6 %; ±0.6 % (±5 V, 10 V, 1 to 5 V, 0 to 10 V); ±0.5 % (±50 mV, 500 mV, 1 V)	1 %; ±1% (80 mV); ±0.6% (250 mV to 1 000 mV); ±0.8% (2.5 V to 10 V)
• Current, relative to input range, (+/-)	0.7 %; From 3.2 to 20 mA	0.3 %	0.5 %; ±20 mA, 0 to 20 mA, 4 to 20 mA	0.7 %; From 3.2 to 20 mA
• Resistance, relative to input range, (+/-)	0.7 %; 150, 300, 600 Ohm		0.5 %; 0 to 6 kohms, 0 to 600 kohms	0.7 %; 150, 300, 600 Ohm
• Resistance thermometer, relative to input range, (+/-)	0.7 %; ±0.7 % (Pt100/ Ni100); ±0.8 % (Pt100 climate)		1 Kelvin (Pt100, Ni100, climatic; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climatic); 1.2 Kelvin (Pt100, Ni100, standard)	0.7 %; ±0.7 % (Pt100/ Ni100); ±0.8 % (Pt100 climate)
• Thermocouple, relative to input range, (+/-)	1.1 %; Type E, J, K, L, N			1.1 %; Type E, J, K, L, N
Basic error limit (operational limit at 25 °C)				
• Voltage, relative to input range, (+/-)	0.6 %; ±0.4 % (250 mV to 1 000 mV); ±0.6 % (2.5 mV to 10 mV); ±0.7 % (80 mV)	0.25 %	0.4 %; 0.4% (±5 V, 10 V, 1 to 5 V, 0 to 10 V); 0.3% (±50 mV, 500 mV, 1 V)	0.6 %; ±0.6% (80 mV, 2.5 V to 10 V); ±0.4% (250 mV to 1 000 mV)
• Current, relative to input range, (+/-)	0.5 %; 3.2 to 20 mA	0.2 %	0.3 %; ±20 mA, 0 to 20 mA, 4 to 20 mA	0.5 %; 3.2 to 20 mA
• Resistance, relative to input range, (+/-)	0.5 %; 150, 300, 600 Ohm		0.3 %; 0 to 6 kohms, 0 to 600 kohms	0.5 %; 150, 300, 600 Ohm
• Resistance thermometer, relative to input range, (+/-)	0.6 %; ±0.5% (Pt100/ Ni100), ±0.6% (Pt100 climate)		1 Kelvin (Pt100, Ni100, standard); 0.8 Kelvin (Pt100, Ni100, climatic; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climatic)	0.6 %; ±0.5% (Pt100/ Ni100), ±0.6% (Pt100 climate)
• Thermocouple, relative to input range, (+/-)	0.7 %; Type E, N, J, K, L			0.7 %; Type E, N, J, K, L
Interrupts/diagnostics/ status information				
Diagnostics function	Yes; Parameterizable	Yes	No	Yes; Parameterizable
Alarms				
• Diagnostic alarm	Yes; Parameterizable, channels 0 and 2	Yes; Parameterizable	No	Yes
• Limit value alarm	Yes; Parameterizable	Yes; Parameterizable, channels 0 and 2	No	Yes; Parameterizable, channel 0
Connection method				
required front connector	20-pin	20-pin	40-pin	20-pin
Dimensions				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	117 mm	117 mm	117 mm	120 mm
Weights				
Weight, approx.	250 g	230 g	250 g	250 g

Technical specifications

Article number	**6ES7331-7PF01-0AB0** SM331, 8AI, resistor, PT100/200/1000, .	**6ES7331-7PF11-0AB0** SM331, 8AI, 16BIT, Thermocouples	**6ES7331-7PE10-0AB0** SM331, 6AI, 16bit, Thermocouple	**6ES7331-7NF00-0AB0** SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA	**6ES7331-7NF10-0AB0** SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA
Supply voltage					
Load voltage L+					
• Rated value (DC)	24 V	24 V	24 V		24 V
Input current					
from load voltage L+ (without load), max.	240 mA	240 mA	150 mA		200 mA
from backplane bus 5 V DC, max.	100 mA	100 mA	100 mA	130 mA	100 mA
Power loss					
Power loss, typ.	4.6 W	3 W	2.2 W	0.6 W	3 W
Analog inputs					
Number of analog inputs	8	8	6	8	8
• For resistance measurement	8				
permissible input voltage for voltage input (destruction limit), max.	75 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)	75 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)	35 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)	50 V; Permanent	75 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)
permissible input current for current input (destruction limit), max.				32 mA	40 mA
Input ranges (rated values), voltages					
• 0 to +10 V	No	No	No	No	No
• 1 V to 5 V	No	No	No	Yes	Yes
• 1 V to 10 V	No	No	No	No	No
• -1 V to +1 V	No	No	Yes	No	No
• -10 V to +10 V	No	No	No	Yes	Yes
• -2.5 V to +2.5 V	No	No	No	No	No
• -250 mV to +250 mV	No	No	Yes	No	No
• -5 V to +5 V	No	No	No	Yes	Yes
• -50 mV to +50 mV	No	No	Yes	No	No
• -500 mV to +500 mV	No	No	Yes	No	No
• -80 mV to +80 mV	No	No	Yes	No	No
Input ranges (rated values), currents					
• 0 to 20 mA	No	No	No	Yes	Yes
• -10 mA to +10 mA	No	No	No	No	No
• -20 mA to +20 mA	No	No	No	Yes	Yes
• -3.2 mA to +3.2 mA	No	No	No	No	No
• 4 mA to 20 mA	No	No	No	Yes	Yes
Input ranges (rated values), thermocouples					
• Type B	No	Yes	Yes	No	No
• Type C	No	Yes	Yes	No	No
• Type E	No	Yes	Yes	No	No
• Type J	No	Yes	Yes	No	No
• Type K	No	Yes	Yes	No	No
• Type L	No	Yes	Yes	No	No
• Type N	No	Yes	Yes	No	No
• Type R	No	Yes	Yes	No	No
• Type S	No	Yes	Yes	No	No
• Type T	No	Yes	Yes	No	No
• Type U	No	Yes	Yes	No	No
• Type TXK/TXK(L) to GOST	No	Yes	Yes	No	No

Technical specifications

Article number	6ES7331-7PF01-0AB0	6ES7331-7PF11-0AB0	6ES7331-7PE10-0AB0	6ES7331-7NF00-0AB0	6ES7331-7NF10-0AB0
	SM331, 8AI, resistor, PT100/200/1000, .	SM331, 8AI, 16BIT, Thermocouples	SM331, 6AI, 16bit, Thermocouple	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA
Input ranges (rated values), resistance thermometer					
• Cu 10	Yes	No	No	No	No
• Ni 100	Yes	No	No	No	No
• Ni 1000	Yes	No	No	No	No
• LG-Ni 1000	Yes	No	No	No	No
• Ni 120	Yes	No	No	No	No
• Ni 200	Yes	No	No	No	No
• Ni 500	Yes	No	No	No	No
• Pt 100	Yes	No	No	No	No
• Pt 1000	Yes	No	No	No	No
• Pt 200	Yes	No	No	No	No
• Pt 500	Yes	No	No	No	No
Input ranges (rated values), resistors					
• 0 to 150 ohms	Yes	No	No	No	No
• 0 to 300 ohms	Yes	No	No	No	No
• 0 to 600 ohms	Yes	No	No	No	No
• 0 to 6000 ohms		No	No	No	No
Thermocouple (TC)					
Temperature compensation					
- parameterizable		Yes	Yes		
- internal temperature compensation		Yes	Yes		
- external temperature compensation with Pt100		Yes	Yes		
- external temperature compensation with compensations socket		Yes	Yes		
- for definable comparison point temperature		Yes	Yes		
Characteristic linearization					
• parameterizable	Yes	Yes	Yes		
- for thermocouples		Type B, E, J, K, L, N, R, S. T, U, C	Type B, E, J, K, L, N, R, S. T, U, C, TXK, XK(L)		
- for resistance thermometer	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)		No		
Cable length					
• shielded, max.	200 m	100 m	200 m	200 m	200 m
Analog value generation for the inputs					
Integration and conversion time/ resolution per channel					
• Resolution with overrange (bit including sign), max.	16 bit; Two's complement	16 bit; Two's complement	16 bit; Two's complement	16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/ 15 bit + sign/15 bit + sign/15 bit + sign	16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/ 15 bit + sign/15 bit + sign/15 bit + sign
• Integration time, parameterizable	Yes	Yes	Yes	Yes; 10/ 16.67/ 20/ 100 ms	Yes
• Basic conversion time (ms)	up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms	Up to 4 channels: 10 ms per module, 5 channels upwards: 190 ms per module	30 / 50 / 60 / 300 ms		10 ms (4-channel mode); 95/83/72/23 ms (8-channel mode)
• Integration time (ms)			10/ 16.67/ 20/ 100 ms		
• Interference voltage suppression for interference frequency f1 in Hz				400 / 60 / 50 / 10 Hz	400 / 60 / 50 Hz, combinations of 400, 60, 50 Hz

Technical specifications

Article number	6ES7331-7PF01-0AB0	6ES7331-7PF11-0AB0	6ES7331-7PE10-0AB0	6ES7331-7NF00-0AB0	6ES7331-7NF10-0AB0
	SM331, 8AI, resistor, PT100/200/1000, .	SM331, 8AI, 16BIT, Thermocouples	SM331, 6AI, 16bit, Thermocouple	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA
Encoder					
Connection of signal encoders					
• for voltage measurement			Yes	Yes	Yes
• for current measurement as 2-wire transducer				Yes; with external transmitter; possible with separate supply for transmitter	Yes; with external transmitter, current supply; possible with separate supply for transmitter
• for current measurement as 4-wire transducer				Yes	Yes
• for resistance measurement with two-wire connection	Yes; without resistance correction				
• for resistance measurement with three-wire connection	Yes				
• for resistance measurement with four-wire connection	Yes				
Errors/accuracies					
Operational error limit in overall temperature range					
• Voltage, relative to input range, (+/-)			Operating error at 0 ... 60 °C: ±0.12% @ ±25 mV, ±0.08% @ ±50 mV, ±0.6% @ ±80 mV, ±0.05% @ ±250 mV, ±0.05% @ 500 mV, ±0.05% @ ±1 V	0.1 %; At Ucm = 0 V or ±0.7 % at Ucm = 50 V	0.1 %
• Current, relative to input range, (+/-)				0.3 %; At Ucm = 0 V or ±0.9 % at Ucm = 50 V	0.1 %
• Resistance, relative to input range, (+/-)	0.1 %				
• Thermocouple, relative to input range, (+/-)		Type T: ±0.18%, Type U: ±0.15%, Type E: ±0.12%, Type J: ±0.12%, Type L: ±0.17%, Type K: ±0.15%, Type N: ±0.17%, Type R: ±0.08%, Type S: ±0.10%, Type B: ±0.13%, Type C: ±0.10%, TXK/XK(L): ±1.00% accuracy in the lower range of the characteristic curve	See manual for details		
Basic error limit (operational limit at 25 °C)					
• Voltage, relative to input range, (+/-)			See manual for details	0.05 %	0.05 %
• Current, relative to input range, (+/-)				0.05 %	0.05 %
• Resistance, relative to input range, (+/-)	0.05 %				
• Resistance thermometer, relative to input range, (+/-)	±0.5 K				

Technical specifications

Article number	**6ES7331-7PF01-0AB0**	**6ES7331-7PF11-0AB0**	**6ES7331-7PE10-0AB0**	**6ES7331-7NF00-0AB0**	**6ES7331-7NF10-0AB0**
	SM331, 8AI, resistor, PT100/200/1000, .	SM331, 8AI, 16BIT, Thermocouples	SM331, 6AI, 16bit, Thermocouple	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA	SM331,8AI,+/-5/10V, 1-5V,+/-20mA, 0/4-20mA
• Thermocouple, relative to input range, (+/-)		Type T: ±0.13%, Type U: ±0.08%, Type E: ±0.05%, Type J: ±0.04%, Type L: ±0.06%, Type K: ±0.04%, Type N: ±0.04%, Type R: ±0.03%, Type S: ±0.03%, Type B: ±0.05%, Type C: ±0.02%, TXK/XK(L): ±0.67 % accuracy in the lower range of the characteristic curve	See manual for details		
Interrupts/diagnostics/ status information					
Diagnostics function	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable
Alarms					
• Diagnostic alarm	Yes; Parameterizable per group	Yes; Parameterizable per group	Yes; channel by channel	Yes; Parameterizable	Yes; Parameterizable
• Limit value alarm	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable, channels 0 and 2	Yes; Parameterizable all channels (end of cycle interrupt is also supported across modules)
• Hardware interrupt	Yes; Parameterizable, channels 0 to 7	Yes; Parameterizable, channels 0 to 7	Yes; Parameterizable		Yes; Parameterizable, channels 0 to 7 (on exceeding limit value), at end of cycle
Connection method					
required front connector	40-pin	40-pin	40-pin	40-pin	40-pin
Dimensions					
Width	40 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	117 mm	117 mm
Weights					
Weight, approx.	272 g	272 g	272 g	272 g	272 g

SM 332 analog output modules

Overview

- Analog outputs
- For the connection of analog actuators

Ordering data

	Article No.
SM 332 analog output modules	
Incl. labeling strips, bus connector	
4 outputs, 11/12 bit	**6ES7332-5HD01-0AB0**
4 outputs, 16 bit	**6ES7332-7ND02-0AB0**
2 outputs, 11/12 bit	**6ES7332-5HB01-0AB0**
8 outputs, 11/12 bit	**6ES7332-5HF00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG wires	
SIMATIC TOP connect	See page 5/242
Bus connectors	
1 unit (spare part)	**6ES7390-0AA00-0AA0**
Shield connection element	**6ES7390-5AA00-0AA0**
80 mm wide, with 2 rows for 4 shield connection clamps each	
Shield connection clamps	
2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

	Article No.
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine labeling	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
For modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX10-0AA0**
Light beige	**6ES7392-2BX10-0AA0**
Yellow	**6ES7392-2CX10-0AA0**
Red	**6ES7392-2DX10-0AA0**
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7332-5HB01-0AB0**	**6ES7332-5HD01-0AB0**	**6ES7332-5HF00-0AB0**	**6ES7332-7ND02-0AB0**
	SM332, 2AA, U/I, 11/12Bit	SM332, 4AO, U/I, 11/12Bit	SM332, 8AA, U/I, 11/12Bit	SM332, 4AA, 0-10V, 0-5V, +/-10V,+/-20mA
Supply voltage				
Load voltage L+				
• Rated value (DC)	24 V	24 V	24 V	24 V
Input current				
from load voltage L+ (without load), max.	135 mA	240 mA	340 mA	290 mA
from backplane bus 5 V DC, max.	60 mA	60 mA	100 mA	120 mA
Power loss				
Power loss, typ.	3 W	3 W	6 W	3 W
Analog outputs				
Number of analog outputs	2	4	8	4; Isochronous mode
Voltage output, short-circuit protection	Yes	Yes	Yes	Yes
Voltage output, short-circuit current, max.	25 mA	25 mA	25 mA	40 mA
Current output, no-load voltage, max.	18 V	18 V	18 V	18 V
Output ranges, voltage				
• 0 to 10 V	Yes	Yes	Yes	Yes
• 1 V to 5 V	Yes	Yes	Yes	Yes
• -10 V to +10 V	Yes	Yes	Yes	Yes
Output ranges, current				
• 0 to 20 mA	Yes	Yes	Yes	Yes
• -20 mA to +20 mA	Yes	Yes	Yes	Yes
• 4 mA to 20 mA	Yes	Yes	Yes	Yes
Load impedance (in rated range of output)				
• with voltage outputs, min.	1 kΩ	1 kΩ	1 kΩ	1 kΩ
• with voltage outputs, capacitive load, max.	1 µF	1 µF	1 µF	1 µF
• with current outputs, max.	500 Ω	500 Ω	500 Ω	500 Ω
• with current outputs, inductive load, max.	10 mH	10 mH	10 mH	1 mH
Cable length				
• shielded, max.	200 m	200 m	200 m	200 m
Analog value generation for the outputs				
Integration and conversion time/ resolution per channel				
• Resolution with overrange (bit including sign), max.	12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit	12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit	12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit	16 bit
• Conversion time (per channel)	0.8 ms	0.8 ms	0.8 ms	200 µs; in isochronous mode 640 µs
Settling time				
• for resistive load	0.2 ms	0.2 ms	0.2 ms	0.2 ms
• for capacitive load	3.3 ms	3.3 ms	3.3 ms	3.3 ms
• for inductive load	0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	0.5 ms

Technical specifications

Article number	**6ES7332-5HB01-0AB0** SM332, 2AA, U/I, 11/12Bit	**6ES7332-5HD01-0AB0** SM332, 4AO, U/I, 11/12Bit	**6ES7332-5HF00-0AB0** SM332, 8AA, U/I, 11/12Bit	**6ES7332-7ND02-0AB0** SM332, 4AA, 0-10V, 0-5V, +/-10V,+/-20mA
Errors/accuracies				
Operational error limit in overall temperature range				
• Voltage, relative to output range, (+/-)	0.5 %	0.5 %	0.5 %	0.12 %
• Current, relative to output range, (+/-)	0.6 %	0.6 %	0.6 %	0.18 %
Basic error limit (operational limit at 25 °C)				
• Voltage, relative to output range, (+/-)	0.4 %	0.4 %	0.4 %	0.02 %
• Current, relative to output range, (+/-)	0.5 %	0.5 %	0.5 %	0.02 %
Interrupts/diagnostics/ status information				
Diagnostics function	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable
Alarms				
• Diagnostic alarm	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable	Yes; Parameterizable
Connection method				
required front connector	20-pin	20-pin	40-pin	20-pin
Dimensions				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	117 mm	117 mm	117 mm	117 mm
Weights				
Weight, approx.	220 g	220 g	272 g	220 g

Overview

- Analog inputs and outputs
- For the connection of analog sensors and actuators

Ordering data

	Article No.
SM 334 analog input/output modules	
Incl. labeling strips, bus connector	
4 inputs, 2 outputs	**6ES7334-0CE01-0AA0**
4 inputs, 2 outputs, resistance measurement, Pt 100	**6ES7334-0KE00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded terminals	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG wires	
SIMATIC TOP connect	See page 5/242
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection element	**6ES7390-5AA00-0AA0**
80 mm wide, with 2 rows for 4 shield connection clamps each	
Shield connection clamps	
2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

	Article No.
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine labeling	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7334-0CE01-0AA0**	**6ES7334-0KE00-0AB0**
	SM334, 4AI, 2AO, non isolated	SM334, 4AI/2AO, 0-10V f.PT100
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from supply and load voltage L+ (without load), max.	110 mA	80 mA
from backplane bus 5 V DC, max.	55 mA	60 mA
Power loss		
Power loss, typ.	3 W	2 W
Analog inputs		
Number of analog inputs	4	4
• For voltage measurement	4	2
• For resistance measurement		4
permissible input voltage for voltage input (destruction limit), max.	20 V	20 V; continuous; 75 V for max. 1 s (mark to space ratio 1:20)
permissible input current for current input (destruction limit), max.	40 mA	
Cycle time (all channels) max.	5 ms	85 ms
Input ranges (rated values), voltages		
• 0 to +10 V	Yes	Yes
Input ranges (rated values), currents		
• 0 to 20 mA	Yes	
Input ranges (rated values), resistance thermometer		
• Pt 100		Yes; only climatic range
Input ranges (rated values), resistors		
• 0 to 10000 ohms		Yes
Characteristic linearization		
• parameterizable		Yes
- for resistance thermometer		Pt100 (climate)
Cable length		
• shielded, max.	200 m	100 m
Analog outputs		
Number of analog outputs	2	2
Voltage output, short-circuit protection	Yes	Yes
Voltage output, short-circuit current, max.	11 mA	30 mA
Current output, no-load voltage, max.	15 V	
Output ranges, voltage		
• 0 to 10 V	Yes	Yes
Output ranges, current		
• 0 to 20 mA	Yes	
Load impedance (in rated range of output)		
• with voltage outputs, min.	5 kΩ	2.5 kΩ
• with voltage outputs, capacitive load, max.	1 µF	1 µF
• with current outputs, max.	300 Ω	
• with current outputs, inductive load, max.	1 mH	
Cable length		
• shielded, max.	200 m	100 m

Technical specifications

Article number	**6ES7334-0CE01-0AA0**	**6ES7334-0KE00-0AB0**
	SM334, 4AI, 2AO, non isolated	SM334, 4AI/2AO, 0-10V f.PT100
Analog value generation for the inputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	8 bit	12 bit
• Integration time, parameterizable	No	Yes
Analog value generation for the outputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	8 bit	12 bit
• Conversion time (per channel)	500 µs	500 µs
Settling time		
• for resistive load	0.3 ms	0.8 ms
• for capacitive load	3 ms	0.8 ms
• for inductive load	0.3 ms	
Encoder		
Connection of signal encoders		
• for voltage measurement	Yes	Yes
• for current measurement as 2-wire transducer	No	
• for current measurement as 4-wire transducer	Yes	
• for resistance measurement with two-wire connection		Yes
• for resistance measurement with three-wire connection		Yes
• for resistance measurement with four-wire connection		Yes
Errors/accuracies		
Operational error limit in overall temperature range		
• Voltage, relative to input range, (+/-)	0.9 %	0.7 %; 0 to 10V
• Current, relative to input range, (+/-)	0.8 %	
• Resistance, relative to input range, (+/-)		3.5 %
• Resistance thermometer, relative to input range, (+/-)		1 %
• Voltage, relative to output range, (+/-)	0.6 %	1 %
• Current, relative to output range, (+/-)	1 %	
Basic error limit (operational limit at 25 °C)		
• Voltage, relative to input range, (+/-)	0.7 %	0.5 %; 0 to 10V
• Current, relative to input range, (+/-)	0.6 %	
• Resistance, relative to input range, (+/-)		2.8 %
• Resistance thermometer, relative to input range, (+/-)		0.8 %
• Voltage, relative to output range, (+/-)	0.5 %	0.85 %
• Current, relative to output range, (+/-)	0.5 %	

Technical specifications

Article number	**6ES7334-0CE01-0AA0**	**6ES7334-0KE00-0AB0**
	SM334, 4AI, 2AO, non isolated	SM334, 4AI/2AO, 0-10V f.PT100
Interrupts/diagnostics/ status information		
Alarms	No	No
Diagnostics function	No	No
Connection method		
required front connector	20-pin	20-pin
Dimensions		
Width	40 mm	40 mm
Height	125 mm	125 mm
Depth	117 mm	117 mm
Weights		
Weight, approx.	285 g	200 g

Overview

- Analog inputs
- For connecting voltage sensors and current sensors, thermocouples, resistors and resistance thermometers

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 331 analog input modules	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
8 inputs, 13-bit resolution	**6AG1331-1KF02-7AB0**
2 inputs, 9/12/14-bit resolution	**6AG1331-7KB02-2AB0**
8 inputs, 9/12/14-bit resolution	**6AG1331-7KF02-2AB0**
8 inputs, enhanced 16-bit resolution	**6AG1331-7NF00-2AB0**
8 inputs, enhanced 16-bit resolution, 4-channel mode	**6AG1331-7NF10-2AB0**
Exposure to media	
8 inputs, for thermal resistors	**6AG1331-7PF01-4AB0**
8 inputs, for thermocouples	**6AG1331-7PF11-4AB0**
For rolling stock railway applications	
Conforms to EN 50155	
8 inputs, 9/12/14-bit resolution	**6AG1331-7KF02-2AB0**
8 inputs, enhanced 16-bit resolution	**6AG1331-7NF00-2AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	

	Article No.
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	6AG1331-1KF02-7AB0	6AG1331-7KB02-2AB0	6AG1331-7KF02-2AB0
Based on	6ES7331-1KF02-0AB0	6ES7331-7KB02-0AB0	6ES7331-7KF02-0AB0
	SIPLUS SM331 8AI	SIPLUS SM331 2AE	SIPLUS SM331 8AI
Ambient conditions			
Ambient temperature during operation			
• min.	-25 °C	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance			
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles			
- to biologically active substances according to EN 60721-3-5			Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
- to chemically active substances according to EN 60721-3-5			Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
- to mechanically active substances according to EN 60721-3-5			Yes; Class 5S3 incl. sand, dust; *
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology			
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark			
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Technical specifications

Article number	**6AG1331-7NF00-2AB0**	**6AG1331-7NF10-2AB0**	**6AG1331-7PF01-4AB0**	**6AG1331-7PF11-4AB0**
Based on	**6ES7331-7NF00-0AB0**	**6ES7331-7NF10-0AB0**	**6ES7331-7PF01-0AB0**	**6ES7331-7PF11-0AB0**
	SIPLUS S7-300 SM331 8AI - 40-pin	SIPLUS SM331 8AI - 40-pin	SIPLUS SM331 8AI	SIPLUS S7-300 SM331 8AI 40-pin
Ambient conditions				
Ambient temperature during operation				
• min.	-25 °C; = Tmin	-25 °C; = Tmin	0 °C; = Tmin	0 °C; = Tmin
• max.	70 °C; = Tmax; for use on railway vehicles according to EN 50155, the rated temperature range -25 ... +55 °C (T1) o r 60 °C @ UL/UL hazardous use applies	60 °C; = Tmax	60 °C; = Tmax	60 °C; = Tmax
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance				
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles				
- to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request			
- to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *			
- to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *			
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *

Technical specifications

Article number	**6AG1331-7NF00-2AB0**	**6AG1331-7NF10-2AB0**	**6AG1331-7PF01-4AB0**	**6AG1331-7PF11-4AB0**
Based on	**6ES7331-7NF00-0AB0**	**6ES7331-7NF10-0AB0**	**6ES7331-7PF01-0AB0**	**6ES7331-7PF11-0AB0**
	SIPLUS S7-300 SM331 8AI - 40-pin	SIPLUS SM331 8AI - 40-pin	SIPLUS SM331 8AI	SIPLUS S7-300 SM331 8AI 40-pin
Usage in industrial process technology				
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark				
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- Analog outputs
- For connection of analog actuators

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 332 analog output modules	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
2 outputs, 11/12-bit	**6AG1332-5HB01-2AB0**
4 outputs, 11/12-bit	**6AG1332-5HD01-7AB0**
8 outputs, 11/12-bit	**6AG1332-5HF00-2AB0**
Exposure to media	
4 outputs, 16-bit; only exposure to media	**6AG1332-7ND02-4AB0**
For rolling stock railway applications	
Conforms to EN 50155	
2 outputs, 11/12-bit	**6AG1332-5HB01-2AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	

	Article No.
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	

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Technical specifications

Article number	6AG1332-5HD01-7AB0	6AG1332-7ND02-4AB0	6AG1332-5HB01-2AB0	6AG1332-5HF00-2AB0
Based on	6ES7332-5HD01-0AB0	6ES7332-7ND02-0AB0	6ES7332-5HB01-0AB0	6ES7332-5HF00-0AB0
	SIPLUS S7-300 SM332 4AA U/I	SIPLUS S7-300 SM332 4AA	SIPLUS S7-300 SM332 2AO	SIPLUS S7-300 SM 332 8AO - 40pol
Ambient conditions				
Ambient temperature during operation				
• min.	-25 °C; = Tmin	0 °C; = Tmin	-25 °C; = Tmin	-25 °C
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	60 °C; = Tmax	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level				
• Installation altitude above sea level, max.	5 000 m	5 000 m	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance				
Use in stationary industrial systems				
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles				
- to biologically active substances according to EN 60721-3-5			Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request	
- to chemically active substances according to EN 60721-3-5			Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *	
- to mechanically active substances according to EN 60721-3-5			Yes; Class 5S3 incl. sand, dust; *	
Use on ships/at sea				
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *

Technical specifications

Article number	**6AG1332-5HD01-7AB0**	**6AG1332-7ND02-4AB0**	**6AG1332-5HB01-2AB0**	**6AG1332-5HF00-2AB0**
Based on	**6ES7332-5HD01-0AB0**	**6ES7332-7ND02-0AB0**	**6ES7332-5HB01-0AB0**	**6ES7332-5HF00-0AB0**
	SIPLUS S7-300 SM332 4AA U/I	SIPLUS S7-300 SM332 4AA	SIPLUS S7-300 SM332 2AO	SIPLUS S7-300 SM 332 8AO - 40pol
Usage in industrial process technology				
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark				
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS S7-300 SM 334

Overview

- Analog inputs and outputs
- For connection of analog sensors and actuators

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 334 analog input/output modules	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
4 inputs, 2 outputs; resistance measurement, Pt 100	**6AG1334-0KE00-7AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Consumables	
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	

	Article No.
Labeling strips	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XX10-0AA0**
Label cover	
10 units; spare part	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
For modules with 40-pin front connector	**6ES7392-2XY10-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6AG1334-0KE00-7AB0**
Based on	**6ES7334-0KE00-0AB0**
	SIPLUS S7-300 SM334 4AE 2AA
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *

Article number	**6AG1334-0KE00-7AB0**
Based on	**6ES7334-0KE00-0AB0**
	SIPLUS S7-300 SM334 4AE 2AA
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

SM 326 F-digital input modules - Safety Integrated

Overview

- Digital inputs for the fail-safe SIMATIC S7 systems
- For connecting:
  - Switches and 2-wire proximity switches
  - Sensors according to NAMUR and mechanical contacts, also for signals from hazardous areas
- With integral safety functions for fail-safe operation
- Can be used in fail-safe operation
  - Centrally: with S7-31xF-2 DP
  - Distributed in ET 200M: with SIMATIC IM 151-7 F-CPU, S7-31xF-2 DP, S7-416F-2 and S7-400F/FH
- In standard operation can be used in the same way as S7-300 modules

Ordering data

	Article No.
SM 326 F-digital input module	
24 inputs, 24 V DC	**6ES7326-1BK02-0AB0**
8 inputs, 24 V DC, NAMUR	**6ES7326-1RF01-0AB0**
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; Email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade	
From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user; license key for download[1]; Email address required for delivery	**6ES7833-1FA17-0YH5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Ordering data

	Article No.
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Active bus module	**6ES7195-7HC00-0XA0**
BM 1 x 80 for 1 module, 80 mm wide	
SITOP power supply module	**6ES7307-1EA01-0AA0**
For ET 200M; 120/230 V AC, 24 V DC, 5 A; Type PS 307-1E	
Front connector	
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, higher version, for F-modules	**6ES7328-7AA10-0AA0**
For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	

	Article No.
Labeling strips	**6ES7392-2XX20-0AA0**
For F-modules (spare part); 10 units	
Label cover	**6ES7392-2XY20-0AA0**
For F-modules (spare part); 10 units	
LK 393 cable guide	**6ES7393-4AA10-0AA0**
For F-modules; L+ and M connections; 5 units	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current Manual Collection DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7326-1RF01-0AB0** SM326, 8DE, DC24V, failsafe	**6ES7326-1BK02-0AB0** SM326, F-DI 24 X DC24V, failsafe
Supply voltage		
Rated value (DC)		24 V
Input current		
from load voltage L+ (without load), max.	160 mA	450 mA
from backplane bus 5 V DC, max.	90 mA	100 mA
Encoder supply		
Number of outputs	8	4; Isolated
Output current		
• Rated value		400 mA
Power loss		
Power loss, typ.	4.5 W	10 W
Digital inputs		
Number of digital inputs	8	24
Input voltage		
• Type of input voltage	DC	DC
• Rated value (DC)		24 V
• for signal "0"		-30 to +5 V
• for signal "1"		+11 to +30V
Input current		
• for signal "1", typ.	2.1 to 7 mA	10 mA
Input delay (for rated value of input voltage)		
for standard inputs		
- at "0" to "1", max.		3.4 ms
for NAMUR inputs		
- at "0" to "1", max.	1.2 to 3 ms	
- at "1" to "0", max.	1.2 to 3 ms	
Cable length		
• shielded, max.	200 m	200 m

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Technical specifications

Article number	**6ES7326-1RF01-0AB0**	**6ES7326-1BK02-0AB0**
	SM326, 8DE, DC24V, failsafe	SM326, F-DI 24 X DC24V, failsafe
Encoder		
Connectable encoders		
• 2-wire sensor		Yes; if short-circuit test is deactivated
- permissible quiescent current (2-wire sensor), max.		2 mA
Interrupts/diagnostics/ status information		
Diagnostics function		Yes
Alarms		
• Diagnostic alarm	Yes; Parameterizable	Yes
Ex(i) characteristics		
Module for Ex(i) protection	Yes	
maximum values for connecting terminals for gas group IIC		
• Uo (no-load voltage), max.	10 V	
• Io (short-circuit current), max.	13.9 mA	
• Po (power output), max.	33.1 mW	
• Co (permissible external capacity), max.	3 µF	
• Lo (permissible external inductivity), max.	80 mH	
• Um (voltage at non-intrinsically safe connecting terminals), max.	60 V DC/30 V AC	
Standards, approvals, certificates		
Highest safety class achievable in safety mode		
• acc. to DIN VDE 0801		AK 6
• acc. to EN 954	Cat. 4	Cat. 4
• SIL acc. to IEC 61508	SIL 2 (single-channel), SIL 3 (two-channel)	SIL 3
Ambient conditions		
Ambient temperature during operation		
• max.	60 °C	
Connection method		
required front connector	1x 40-pin	40-pin
Dimensions		
Width	80 mm	80 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	482 g	442 g

Overview

- Digital outputs for the fail-safe SIMATIC S7 systems
- Two versions (1 x switching to P/P potential, 1 x switching to P/M potential)
- For connecting solenoid valves, DC contactors and indicator lights
- With integral safety functions for fail-safe operation
- Can be used in fail-safe operation
  - Centrally: with S7-31xF DP, S7-31xF PN/DP
  - Distributed in ET 200M: with SIMATIC IM 151-7 F-CPU, S7-31xF-2 DP, S7-41xF-2 and S7-400F/FH

Ordering data

	Article No.
SM 326 F-digital output module	
10 outputs, 24 V DC, 2 A PP; width 40 mm	**6ES7326-2BF10-0AB0**
8 outputs, 24 V DC, 2 A PM; width 80 mm	**6ES7326-2BF41-0AB0**
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; Email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade	
From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user; license key for download[1]; Email address required for delivery	**6ES7833-1FA17-0YH5**
DIN rail for active bus modules	
For max. 5 active bus modules, for function "Insertion and removal"	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Active bus modules	
BM 2 x 40 for accepting 2 I/O modules each 40 mm wide	**6ES7195-7HB00-0XA0**
BM 1 x 80 for accepting 1 I/O module 80 mm wide	**6ES7195-7HC00-0XA0**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

SM 326 F-digital output modules - Safety Integrated

Ordering data

	Article No.
SITOP power supply module For ET 200M; 120/230 V AC, 24 V DC, 5 A; Type PS 307-1E	**6ES7307-1EA01-0AA0**
Front connector 40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, higher version, for F-modules For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	**6ES7328-7AA10-0AA0**
Labeling strips For F-modules (spare part), 10 units	**6ES7392-2XX20-0AA0**
Label cover For F-modules (spare part), 10 units	**6ES7392-2XY20-0AA0**

	Article No.
LK 393 cable guide For F-modules; L+ and M connections, 5 units	**6ES7393-4AA10-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Technical specifications

Article number	**6ES7326-2BF10-0AB0** SM326, F-DO10XDC24V/2A PP, failsafe	**6ES7326-2BF41-0AB0** SM 326, F-DO 8 X DC 24V/2A PM
Supply voltage		
Rated value (DC)	24 V; 1L+	24 V; 1L+
Load voltage L+		
• Rated value (DC)	24 V; 2L+, 3L+	24 V; 2L+, 3L+
Input current		
from supply voltage 1L+, max.	100 mA	75 mA
from load voltage 2L+ (without load), max.	100 mA	100 mA
from load voltage 3L+ (without load), max.	100 mA	100 mA
from backplane bus 5 V DC, max.	100 mA	100 mA
Power loss		
Power loss, typ.	6 W	12 W
Digital outputs		
Number of digital outputs	10	8
Short-circuit protection	Yes	Yes
Limitation of inductive shutdown voltage to		L+ (-33 V)
Switching capacity of the outputs		
• on lamp load, max.	5 W	5 W
Output voltage		
• for signal "1", min.	L+ (-1.0 V)	L+ (-1.0 V)
Output current		
• for signal "1" rated value	2 A	2 A
• for signal "0" residual current, max.	0.5 mA	0.5 mA
Switching frequency		
• with resistive load, max.	25 Hz	30 Hz
• with inductive load, max.	25 Hz	2 Hz
• on lamp load, max.	10 Hz	10 Hz

Technical specifications

Article number	**6ES7326-2BF10-0AB0**	**6ES7326-2BF41-0AB0**
	SM326, F-DO10XDC24V/2A PP, failsafe	SM 326, F-DO 8 X DC 24V/2A PM
Total current of the outputs (per group)		
horizontal installation		
- up to 40 °C, max.	10 A	7.5 A
- up to 60 °C, max.	6 A	5 A
vertical installation		
- up to 40 °C, max.	5 A	5 A
Cable length		
• shielded, max.	1 000 m	200 m; 200 m for SIL 3, AK 6, Cat 4
Interrupts/diagnostics/ status information		
Alarms		
• Diagnostic alarm	Yes	Yes; Parameterizable
Standards, approvals, certificates		
Highest safety class achievable in safety mode		
• acc. to DIN VDE 0801	AK 5 and 6	
• acc. to EN 954	Cat. 4	Cat. 4
• SIL acc. to IEC 61508	SIL 3	SIL 3
Connection method		
required front connector	40-pin	40-pin
Dimensions		
Width	40 mm	80 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	330 g	465 g

SM 336 F-analog input modules - Safety Integrated

Overview

- Analog inputs for fail-safe SIMATIC S7 systems
- Can be used in the ET 200M distributed I/O device with IM 153-2 HF as well as centrally with SIMATIC S7-31xF-2 DP
- Properties of the SM 336; F-AI 6 x 0/4 ... 20 mA HART:
  - 6 analog inputs with galvanic isolation between channels and backplane bus
  - Input ranges: 0 mA to 20 mA, 4 mA to 20 mA
  - Short-circuit-proof power supply of 2- or 4-wire transmitters via the module
  - External encoder supply possible
  - Can be used in safety mode
  - HART communication
  - Firmware update using HW Config
  - Identification data

Ordering data

	Article No.
SM 336 F-analog input module	
6 inputs, 15 bits, 0/4 ... 20 mA HART	**6ES7336-4GE00-0AB0**
S7 Distributed Safety V5.4 SP5 Update 2 programming tool	
Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; Email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade	
From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V17	
Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user; license key for download[1]; Email address required for delivery	**6ES7833-1FA17-0YH5**
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Active bus module BM 2x40	**6ES7195-7HB00-0XA0**
Bus module for accepting 2 I/O modules each 40 mm wide	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Ordering data

	Article No.
SITOP power supply module For ET 200M; 120/230 V AC, 24 V DC, 5 A; Type PS 307-1E	**6ES7307-1EA01-0AA0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Front door, higher version, for F-modules For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	**6ES7328-7AA10-0AA0**
Labeling strips For F-modules (spare part), 10 units	**6ES7392-2XX20-0AA0**
Label cover For F-modules (spare part), 10 units	**6ES7392-2XY20-0AA0**

	Article No.
LK 393 cable guide For F-modules; L+ and M connections, 5 units	**6ES7393-4AA10-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Technical specifications

Article number	**6ES7336-4GE00-0AB0** SM 336, f.AI 6 X 0/4 ... 20mA HART
Supply voltage	
Rated value (DC)	24 V
Load voltage L+	
• Rated value (DC)	24 V
Input current	
From power supply L+, typ.	150 mA
from backplane bus 5 V DC, max.	90 mA
Power loss	
Power loss, typ.	4.5 W
Analog inputs	
Number of analog inputs	6
permissible input current for current input (destruction limit), max.	40 mA
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
Cable length	
• shielded, max.	1 000 m
Analog value generation for the inputs	
Integration and conversion time/ resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit; 15 bit + sign
• Integration time (ms)	20 ms @ 50 Hz, 16.7 ms @ 60 Hz
• Interference voltage suppression for interference frequency f1 in Hz	f=n x (f1 ±0.5 %)
Encoder	
Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes

Article number	**6ES7336-4GE00-0AB0** SM 336, f.AI 6 X 0/4 ... 20mA HART
Errors/accuracies	
Operational error limit in overall temperature range	
• Current, relative to input range, (+/-)	0.2 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.1 %
Interrupts/diagnostics/ status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
• SIL acc. to IEC 61508	SIL 3
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	350 g

Safety protector

Overview

- Supports mixed operation of fail-safe signal modules in safety mode and S7-300 standard modules in an ET 200M distributed I/O device for achieving Cat. 4 or SIL 3.
- The safety protector is not required if the safety class or safety category to be achieved is less than SIL 3 or Cat. 4, respectively.

When Cat. 4/SIL 3 is required, the safety protector must be implemented in the following situations:

Application	Safety protector must be used
Central use after CPU 31xF-2 DP or CPU 31xF-2 PN/DP	
• Only fail-safe modules in the tier	Yes, behind the CPU
• Standard and fail-safe modules in the tier	Yes, after the last standard module and before the first fail-safe module
Central use after CPU 31xF-2 DP or CPU 31xF-2 PN/DP in an expansion rack	
• Only fail-safe modules in the tier	Yes, after the IM 36x
• Standard and fail-safe modules in the tier	Yes, after the last standard module and before the first fail-safe module
Distributed behind the IM 153-2 with copper connection	
• Only fail-safe modules in the station	Yes, after the IM 153-2
• Standard and fail-safe modules in the station	Yes, after the last standard module and before the first fail-safe module
Distributed behind the IM 153-2 with fiber-optic connection	
• Only fail-safe modules in the station	No
• Standard and fail-safe modules in the station	Yes, after the last standard module and before the first fail-safe module

Ordering data

	Article No.
Safety protector For simultaneous operation of fail-safe and standard modules in ET 200M	**6ES7195-7KF00-0XA0**
Bus safety protector For holding the safety protector in ET 200M	**6ES7195-7HG00-0XA0**

Technical specifications

Article number	**6ES7195-7KF00-0XA0** Safety Protector betw. F- and Std-Mod.
General information	
Product type designation	Safety protector
Weights	
Weight, approx.	10 g

Overview

- Digital inputs for the fail-safe SIPLUS S7 systems
- For connecting:
  - Switches and 2-wire proximity switches
  - Sensors according to NAMUR and mechanical contacts, also for signals from hazardous areas
- With integral safety functions for fail-safe operation
- Can be used in fail-safe operation
  - Centrally: with S7-31xF-2 DP
  - Distributed in ET 200M: with SIMATIC IM 151-7 F-CPU, S7-31xF-2 DP, S7-416F-2 and S7-400F/FH
- In standard operation can be used in the same way as S7-300 modules

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

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Ordering data

	Article No.
SIPLUS S7-300 SM 326 F-digital input	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
24 inputs, 24 V DC, fail-safe, with diagnostics interrupt	**6AG1326-1BK02-2AB0**
8 inputs, 24 V DC, NAMUR, fail-safe	**6AG1326-1RF01-4AB0**
Accessories	
Mandatory	
Front connector	
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Accessories for hot swapping function	
Active bus module	
BM 1 x 80 for 1 module, 80 mm wide	**6AG1195-7HC00-2XA0**

	Article No.
Consumables	
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Front door, elevated design, for F-modules	**6ES7328-7AA10-0AA0**
For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	
Labeling strips	**6ES7392-2XX20-0AA0**
For F-modules (spare part); 10 units	
Label cover	**6ES7392-2XY20-0AA0**
For F-modules (spare part); 10 units	
LK 393 cable guide	**6ES7393-4AA10-0AA0**
For F-modules; L+ and M connections; 5 units	

SIPLUS S7-300 SM 326 - Safety Integrated

Ordering data

	Article No.
Programming tools and documentation	
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user, license key for download[1]; email address required for delivery	**6ES7833-1FA17-0YA5**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Technical specifications

Article number	**6AG1326-1BK02-2AB0**	**6AG1326-1RF01-4AB0**
Based on	**6ES7326-1BK02-0AB0**	**6ES7326-1RF01-0AB0**
	SIPLUS S7-300 SM326F DI24	SIPLUS S7-300 SM326F DI8 NAMUR
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	0 °C; = Tmin
• max.	60 °C; = Tmax; *+70 °C where forced convection with a minimum air velocity of 0.7 m/s through the modules and rated voltage of 24 V ±5 % are ensured. If in the course of maintenance or automatic diagnosis it is determined that the admissible specified parameters have been exceeded, the modules should be subjected to a proof test (function check) by the manufacturer.	60 °C; = Tmax
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Technical specifications

Article number	**6AG1326-1BK02-2AB0**	**6AG1326-1RF01-4AB0**
Based on	**6ES7326-1BK02-0AB0**	**6ES7326-1RF01-0AB0**
	SIPLUS S7-300 SM326F DI24	SIPLUS S7-300 SM326F DI8 NAMUR
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS S7-300 SM 326 - Safety Integrated

Overview

- Digital outputs for the fail-safe SIMATIC S7 systems
- For connection of solenoid valves, DC contactors and indicator lights
- With integral safety functions for fail-safe operation
- Can be used in fail-safe mode
  - Centrally: with S7-31xF-2 DP
  - Distributed in ET 200M: with SIMATIC IM 151-7 F-CPU, S7-31xF-2 DP, S7-416F-2 and S7-400F/FH

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 326 F-digital output	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
10 outputs, 24 V DC, 2 A, fail-safe	**6AG1326-2BF10-2AB0**
8 outputs, 24 V DC, 2 A, fail-safe, source-sinking output	**6AG1326-2BF41-2AB0**
Accessories	
Mandatory	
Front connector	
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Accessories for hot swapping function	
Active bus module	
BM 2 x 40 for accepting 2 I/O modules, each 40 mm wide	**6AG1195-7HB00-7XA0**
BM 1 x 80 for 1 module, 80 mm wide	**6AG1195-7HC00-2XA0**

	Article No.
Consumables	
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Front door, elevated design, for F-modules	**6ES7328-7AA10-0AA0**
For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labeling strips in yellow	
Labeling strips	**6ES7392-2XX20-0AA0**
For F-modules (spare part); 10 units	
Label cover	**6ES7392-2XY20-0AA0**
For F-modules (spare part); 10 units	
LK 393 cable guide	**6ES7393-4AA10-0AA0**
For F-modules; L+ and M connections; 5 units	

Ordering data

	Article No.
Programming tools and documentation	
S7 Distributed Safety V5.4 SP5 Update 2 programming tool Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 from V5.5 SP1; Please also note the operating systems that have been released for the STEP 7 version used	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; email address required for delivery	**6ES7833-1FC02-0YH5**
S7 Distributed Safety upgrade From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**

	Article No.
STEP 7 Safety Advanced V17 Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral part of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user, license key for download[1]; email address required for delivery	**6ES7833-1FA17-0YH5**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Technical specifications

Article number	**6AG1326-2BF10-2AB0**	**6AG1326-2BF41-2AB0**
Based on	**6ES7326-2BF10-0AB0**	**6ES7326-2BF41-0AB0**
	SIPLUS S7-300 SM326F 10 DO	SIPLUS S7-300 SM326F DO8
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C	-25 °C
• max.	60 °C; = T max; *+70 °C when forced convection at a minimum air speed of 0.3 m/s through the modules is ensured. If in the course of maintenance or automatic diagnosis it is determined that the admissible specified parameters have been exceeded, the modules should be subjected to a proof test (function check) by the manufacturer.	60 °C
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Technical specifications

Article number	**6AG1326-2BF10-2AB0**	**6AG1326-2BF41-2AB0**
Based on	**6ES7326-2BF10-0AB0**	**6ES7326-2BF41-0AB0**
	SIPLUS S7-300 SM326F 10 DO	SIPLUS S7-300 SM326F DO8
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- Analog inputs for fail-safe SIPLUS S7 systems
- Applicable in the ET 200M distributed I/O device with IM 153-2 HF as well as centrally with SIPLUS S7-31xF-2 DP

- Properties of the SM 336; F-AI 6 x 0/4 ... 20 mA HART:
  - 6 analog inputs with galvanic isolation between channels and backplane bus
  - Input ranges: 0 mA to 20 mA, 4 mA to 20 mA
  - Short-circuit proof power supply of 2 or 4-wire transmitter via the module
  - External encoder supply possible
  - Applicable in safety mode
  - HART communication
  - Firmware update using HW Config
  - Identification data
  - Temperature range -25 ... +70 °C; (+70 °C when ensuring a forced convection with a minimal air velocity of 0.3 m/s through the module. If a violation of the permissible, specified parameters is detected during maintenance or by automatic diagnostics, the modules must be proof-tested by the manufacturer. Without this measure the temperature range is -25…60°C)

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 SM 336 F-analog input module	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
6 inputs, 15 bits, 0/4 ... 20 mA HART	**6AG1336-4GE00-2AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Accessories for hot swapping function	
Active bus module	
BM 2 x 40 for accepting 2 I/O modules, each 40 mm wide	**6AG1195-7HB00-7XA0**
Consumables	
DIN rail for active bus modules	
For max. 5 active bus modules or hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2 000 mm	**6ES7195-1GC00-0XA0**
Front door, elevated design, for F-modules	**6ES7328-7AA10-0AA0**
For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	
Labeling strips	**6ES7392-2XX20-0AA0**
For F-modules (spare part); 10 units	
Label cover	**6ES7392-2XY20-0AA0**
For F-modules (spare part); 10 units	
LK 393 cable guide	**6ES7393-4AA10-0AA0**
For F-modules; L+ and M connections; 5 units	
Programming tools and documentation	
S7 Distributed Safety V5.4 SP5 Update 2 programming tool	
Task: Configuration software for configuring fail-safe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco, ET 200SP Requirement: Windows 7 SP1 (64-bit), Windows 10 Professional/Enterprise (64-bit), Windows Server 2008 R2 SP1 (64-bit), Windows Server 2012 R2 (64-bit), Windows Server 2016 (64-bit); STEP 7 as of V5.5 SP1; Please also consider the operating systems that have been released for the used STEP 7 version	
Floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YA5**
Floating license for 1 user; software, documentation and license key for download[1]; e-mail address required for delivery	**6ES7833-1FC02-0YH5**

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

SIPLUS S7-300 SM 336 - Safety Integrated

Ordering data	Article No.
S7 Distributed Safety upgrade	
From V5.x to V5.4; floating license for 1 user; software and documentation on DVD; license key on USB flash drive	**6ES7833-1FC02-0YE5**
STEP 7 Safety Advanced V17	
Task: Engineering tool for configuring and programming fail-safe user programs for SIMATIC S7-1200 FC, S7-1500F, S7-1500F Software Controller, S7-300F, S7-400F, WinAC RTX F, ET 200SP F Controller and the fail-safe I/O ET 200SP, ET 200MP, ET 200S, ET 200M, ET 200iSP, ET 200pro and ET 200eco Requirement: STEP 7 Professional V17 Note: As of TIA Portal V16, the SIMATIC STEP 7 Safety software is an integral component of the SIMATIC STEP 7 product setup. The functionality of SIMATIC STEP 7 Safety is activated by means of the license key supplied in each case.	
Floating license for 1 user; license key on USB flash drive	**6ES7833-1FA17-0YA5**
Floating license for 1 user, license key for download[1]; e-mail address required for delivery	**6ES7833-1FA17-0YH5**
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC sensors, SIMATIC NET, SIMATIC PC-based automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

[1] For up-to-date information and download availability, see: http://www.siemens.com/tia-online-software-delivery

Technical specifications

Article number	**6AG1336-4GE00-2AB0**
Based on	**6ES7336-4GE00-0AB0** SIPLUS S7-300 SM336 F 6AI 15BIT
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin; Startup @ -25 °C
• max.	60 °C; = T max; *+70 °C when forced convection at a minimum air speed of 0.3 m/s through the modules is ensured. If in the course of maintenance or automatic diagnosis it is determined that the admissible specified parameters have been exceeded, the modules should be subjected to a proof test (function check) by the manufacturer.
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- Allows combined operation of fail-safe signal modules in safety mode and S7-300 standard modules in an ET 200M.
- The safety protector is not required if the safety class SIL 3 or safety category < Cat. 4 is to be achieved.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS F safety protector	
For the simultaneous operation of fail-safe and standard modules in the same ET 200M	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	**6AG1195-7KF00-2XA0**
Accessories	
SIPLUS ET 200M bus safety protector F	
For the simultaneous operation of fail-safe and standard modules in ET 200 M for the hot swapping function	
Extended temperature range and exposure to media	**6AG1195-7HG00-2XA0**

Technical specifications

Article number	**6AG1195-7KF00-2XA0**
Based on	**6ES7195-7KF00-0XA0**
	SIPLUS S7-300 safety protector
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	60 °C; = Tmax
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ex digital input modules

Overview

- Digital inputs for signals from the Ex field
- For the connection of intrinsically safe digital equipment from the Ex field
- 4 DI NAMUR
- 4 digital inputs in 4 channel modules (single-channel isolation)
- Connectable encoder in accordance with EN 60947-5-6 and NAMUR, optionally with wired or unwired mechanical contacts
- Diagnostics and diagnostics alarm programmable

Ordering data

	Article No.
Ex digital input module	
4 inputs, isolated, NAMUR	**6ES7321-7RD00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
Front door, elevated design	
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	**6ES7328-0AA00-7AA0**
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in Ex-hazard areas	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine inscription	
for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7321-7RD00-0AB0** SM321, 4DI, DC24V, HAZARDOUS AREAS
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
Input current	
from load voltage L+ (without load), max.	50 mA
from backplane bus 5 V DC, max.	80 mA
Power loss	
Power loss, typ.	1.1 W
Digital inputs	
Number of digital inputs	4
Number of NAMUR inputs	4
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	8.2 V; from internal power circuit supply
Input current	
• on wire-break, max.	0.1 mA
• on short-circuit, max.	8.5 mA
for NAMUR encoders	
- for signal "0"	0.35 to 1.2 mA
- for signal "1"	2.1 to 7 mA
Input delay (for rated value of input voltage)	
• Input frequency (with a time delay of 0.1 ms), max.	2 kHz
for NAMUR inputs	
- parameterizable	Yes; 0.1 / 0.5 / 3 / 15 / 20 ms (plus 0.25 ms preparation time)
Encoder	
Connectable encoders	
• NAMUR encoder	Yes; Two-wire connection
Interrupts/diagnostics/ status information	
Diagnostics function	Yes

Article number	**6ES7321-7RD00-0AB0** SM321, 4DI, DC24V, HAZARDOUS AREAS
Ex(i) characteristics	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
• Uo (no-load voltage), max.	10 V
• Io (short-circuit current), max.	14.1 mA
• Po (power output), max.	33.7 mW
• Co (permissible external capacity), max.	3 µF
• Lo (permissible external inductivity), max.	100 mH
Standards, approvals, certificates	
Use in hazardous areas	
• Test number PTB	Ex-96.D.2094X
Ambient conditions	
Ambient temperature during operation	
• max.	60 °C
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	230 g

Ex digital output modules

Overview

- Digital outputs for signals from the Ex field
- For the connection of intrinsically safe digital equipment from the Ex field
- 4 DO 24 V DC/10mA or 4 DO 15 V DC/20 mA
- 4 digital outputs in 4 channel modules (single-channel isolation)
- Diagnostics and diagnostics alarm programmable
- Substitute value behavior programmable

Ordering data

	Article No.
Ex digital output modules	
4 outputs, isolated, 24 V DC, 10 mA	**6ES7322-5SD00-0AB0**
4 outputs, isolated, 15 V DC, 20 mA	**6ES7322-5RD00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
Front door, elevated design	
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	**6ES7328-0AA00-7AA0**
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in Ex-hazard areas	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine inscription	
for modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7322-5SD00-0AB0** SM322, 4DO, 24V DC,10MA, HAZARDOUS AREAS	**6ES7322-5RD00-0AB0** SM322, 4DO, 15V DC,20MA, HAZARDOUS AREAS
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from load voltage L+ (without load), max.	160 mA	160 mA
from backplane bus 5 V DC, max.	85 mA	85 mA
Power loss		
Power loss, typ.	3 W	3 W
Digital outputs		
Number of digital outputs	4	4
Short-circuit protection	Yes; Electronic	Yes; Electronic
Load resistance range		
• upper limit	390 Ω; Two-wire connection	200 Ω; Two-wire connection
Output voltage		
• Rated value (DC)	24 V	15 V
Switching frequency		
• with resistive load, max.	100 Hz	100 Hz
Interrupts/diagnostics/ status information		
Diagnostics function	Yes	Yes
Ex(i) characteristics		
Module for Ex(i) protection	Yes	Yes
maximum values for connecting terminals for gas group IIC		
• Uo (no-load voltage), max.	25.2 V	15.75 V
• Io (short-circuit current), max.	70 mA	85 mA
• Po (power output), max.	440 mW	335 mW
• Co (permissible external capacity), max.	90 nF	500 nF
• Lo (permissible external inductivity), max.	6.7 mH	5 mH
Standards, approvals, certificates		
Use in hazardous areas		
• Test number PTB	Ex-96.D.2093X	Ex-96.D.2102X
Ambient conditions		
Ambient temperature during operation		
• max.	60 °C	60 °C
Connection method		
required front connector	20-pin	20-pin
Dimensions		
Width	40 mm	40 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	230 g	230 g

SIPLUS S7-300 Ex digital input modules

Overview

- Digital inputs for signals from the Ex field
- For the connection of intrinsically safe digital equipment from the Ex field
- 4 DI NAMUR
- 4 digital inputs in 4 channel modules (single-channel isolation)
- Connectable encoder in accordance with EN 60947-5-6 and NAMUR, optionally with wired or unwired mechanical contacts
- Programmable diagnostics and diagnostic interrupt

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 Ex digital input module	
Exposure to media	
4 inputs, isolated, NAMUR	**6AG1321-7RD00-4AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Consumables	
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2000 mm	**6ES7195-1GC00-0XA0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in hazardous areas	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	

	Article No.
Labeling sheets for machine inscription	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6AG1321-7RD00-4AB0**
Based on	**6ES7321-7RD00-0AB0**
	SIPLUS S7-300 SM 321 4DI NAMUR
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C; = Tmin
• max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Article number	**6AG1321-7RD00-4AB0**
Based on	**6ES7321-7RD00-0AB0**
	SIPLUS S7-300 SM 321 4DI NAMUR
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Ex analog input modules

Overview

- Analog inputs for signals from the Ex field
- For the connection of intrinsically safe analog equipment from the Ex field
- 8 or 4 analog inputs in 4 channel groups (single-channel isolation)
- Measurement type and range can be selected for each channel
- Diagnostics and diagnostics alarm programmable
- Programmable threshold alarm
- HART-compatible inputs (only 6ES7331-7RD00-0AB0)

Ordering data

	Article No.
Ex analog input modules	
4 inputs, isolated, 0/4 to 20 mA, 15 bit	**6ES7331-7RD00-0AB0**
8/4 inputs, isolated, for thermocouples and Pt100, Pt200, Ni100	**6ES7331-7SF00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
Front door, elevated design	
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	**6ES7328-0AA00-7AA0**
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in Ex-hazard areas	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine inscription	
for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Article number	**6ES7331-7RD00-0AB0** SIMATIC S7, SM 331 ANALOG INPUT	**6ES7331-7SF00-0AB0** SIMATIC S7, SM 331 ANALOG INPUT
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from load voltage L+ (without load), max.	250 mA	
from backplane bus 5 V DC, max.	60 mA	120 mA
Output voltage		
Power supply to the transmitters		
• Rated value (DC)	13 V; at 22 mA	
Power loss		
Power loss, typ.	3 W	0.6 W
Analog inputs		
Number of analog inputs	4	8; 8x thermocouples; 4x RTD thermoresistors
permissible input current for current input (destruction limit), max.	40 mA	
Input ranges (rated values), voltages		
• -1 V to +1 V		Yes
• -25 mV to +25 mV		Yes
• -250 mV to +250 mV		Yes
• -50 mV to +50 mV		Yes
• -500 mV to +500 mV		Yes
• -80 mV to +80 mV		Yes
Input ranges (rated values), currents		
• 0 to 20 mA	Yes	
• 4 mA to 20 mA	Yes	
Input ranges (rated values), thermocouples		
• Type B		Yes
• Type E		Yes
• Type J		Yes
• Type K		Yes
• Type L		Yes
• Type N		Yes
• Type R		Yes
• Type S		Yes
• Type T		Yes
• Type U		Yes
Input ranges (rated values), resistance thermometer		
• Ni 100		Yes
• Pt 100		Yes
• Pt 200		Yes
Cable length		
• shielded, max.	200 m	200 m; TC: 50 m
Analog value generation for the inputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	16 bit; 10 bit to 15 bit + sign	16 bit; 10 bit to 15 bit + sign
• Integration time, parameterizable	Yes; 2.5 to 100 ms	Yes; 2.5 to 100 ms
• Interference voltage suppression for interference frequency f1 in Hz	10 to 400 Hz	10 to 400 Hz
Encoder		
Connection of signal encoders		
• for current measurement as 2-wire transducer	Yes	Yes
• for current measurement as 4-wire transducer	Yes	Yes

Ex analog input modules

Technical specifications

Article number	**6ES7331-7RD00-0AB0** SIMATIC S7, SM 331 ANALOG INPUT	**6ES7331-7SF00-0AB0** SIMATIC S7, SM 331 ANALOG INPUT
Errors/accuracies		
Operational error limit in overall temperature range		
• Current, relative to input range, (+/-)	0.45 %	
• Resistance thermometer, relative to input range, (+/-)		0.04 %; 0.09 to 0.04%
Basic error limit (operational limit at 25 °C)		
• Current, relative to input range, (+/-)	0.1 %	
• Resistance thermometer, relative to input range, (+/-)		0.008 %; 0.018 ... 0.008%
Interrupts/diagnostics/ status information		
Diagnostics function	Yes	Yes
Ex(i) characteristics		
Module for Ex(i) protection	Yes	Yes
maximum values for connecting terminals for gas group IIC		
• Uo (no-load voltage), max.	25.2 V	5.9 V
• Io (short-circuit current), max.	68.5 mA	28.8 mA
• Po (power output), max.	431 mW	41.4 mW
• Co (permissible external capacity), max.	90 nF	43 µF
• Lo (permissible external inductivity), max.	7.5 mH	40 mH
Standards, approvals, certificates		
Use in hazardous areas		
• Test number PTB	Ex-96.D.2092X	Ex-96.D.2108X
Ambient conditions		
Ambient temperature during operation		
• max.	60 °C	60 °C
Connection method		
required front connector	20-pin	20-pin
Dimensions		
Width	40 mm	
Height	125 mm	
Depth	120 mm	
Weights		
Weight, approx.	290 g	210 g

Overview

- Analog outputs for signals from the Ex field
- For the connection of intrinsically safe analog equipment from the Ex field
- 4 analog outputs in 4 channel modules (single-channel isolation)
- Diagnostics and diagnostics alarm programmable

Ordering data

	Article No.
Ex analog output module	
4 outputs, isolated, 0/4 to 20 mA	**6ES7332-5RD00-0AB0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
Front door, elevated design	
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	**6ES7328-0AA00-7AA0**
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in hazardous areas	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine inscription	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Ex analog output modules

Technical specifications

Article number	**6ES7332-5RD00-0AB0** SIMATIC S7,SM 332 ANALOG OUTPUT
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
Input current	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	80 mA
Power loss	
Power loss, typ.	4 W
Analog outputs	
Number of analog outputs	4
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	70 mA
Current output, no-load voltage, max.	14 V
Output ranges, current	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
Load impedance (in rated range of output)	
• with current outputs, max.	500 Ω
Cable length	
• shielded, max.	200 m
Analog value generation for the outputs	
Integration and conversion time/ resolution per channel	
• Resolution with overrange (bit including sign), max.	15 bit
Errors/accuracies	
Operational error limit in overall temperature range	
• Current, relative to output range, (+/-)	0.55 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to output range, (+/-)	0.2 %

Article number	**6ES7332-5RD00-0AB0** SIMATIC S7,SM 332 ANALOG OUTPUT
Interrupts/diagnostics/ status information	
Diagnostics function	Yes
Ex(i) characteristics	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
• Uo (no-load voltage), max.	14 V
• Io (short-circuit current), max.	70 mA
• Po (power output), max.	440 mW
• Lo (permissible external inductivity), max.	6.6 mH
Standards, approvals, certificates	
Use in hazardous areas	
• Test number PTB	Ex-96.D.2026X
Ambient conditions	
Ambient temperature during operation	
• max.	60 °C
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	280 g

Overview

- Analog inputs for signals from the Ex field
- For the connection of intrinsically safe analog equipment from the Ex field
- 4 analog inputs in 4 channel groups (single-channel isolation)
- Measurement type and range can be selected for each channel
- Programmable diagnostics and diagnostic interrupt
- Programmable threshold alarm
- HART-compatible inputs (6AG1 331-7RD00-2AB0 only)

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

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Ordering data

	Article No.
SIPLUS S7-300 Ex analog input modules	
Extended temperature range and exposure to media	
4 inputs, isolated, 0/4 to 20 mA, 15 bit	**6AG1331-7RD00-2AB0**
Exposure to media	
8/4 inputs, isolated, for thermocouples and Pt100, Pt200, Ni100; medial exposure only	**6AG1331-7SF00-4AB0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Consumables	
DIN rail for active bus modules	
For max. 5 active bus modules for hot swapping function	
• Length 483 mm (19")	**6ES7195-1GA00-0XA0**
• Length 530 mm	**6ES7195-1GF30-0XA0**
• Length 620 mm	**6ES7195-1GG30-0XA0**
• Length 2000 mm	**6ES7195-1GC00-0XA0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
E.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors; circuit diagram and nameplates in petrol	
LK 393 cable guide	**6ES7393-4AA00-0AA0**
Mandatory for operation in hazardous areas	

	Article No.
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling sheets for machine inscription	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

SIPLUS S7-300 Ex analog input modules

Technical specifications

Article number	**6AG1331-7RD00-2AB0**	**6AG1331-7SF00-4AB0**
Based on	**6ES7331-7RD00-0AB0**	**6ES7331-7SF00-0AB0**
	SIPLUS S7-300 SM331 4AE	SIPLUS S7-300 SM331 20-pin
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	0 °C; = Tmin
• max.	60 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use, 70 °C only 4 wire	60 °C; = Tmax
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- One-channel intelligent counter module for simple counting tasks
- For direct connection of incremental encoders
- Comparison function with 2 specifiable comparison values
- Integrated digital outputs to output the response upon reaching the comparison value.
- Operating modes:
  - Continuous counting
  - One-shot counting
  - Periodic counting
- Special functions:
  - Set counter
  - Latch counter
- Start/stop counter with gate function

Note:

Incremental encoders and pre-assembled connecting cables for counting and positioning functions are offered under SIMODRIVE Sensor or Motion Connect 500.

http://www.siemens.com/simatic-technology

Ordering data

	Article No.
FM 350-1 counter module With 1 channel, max. 500 kHz; for incremental encoder	**6ES7350-1AH03-0AE0**
Coding plug - Range card for analog inputs Spare part	**6ES7974-0AA00-0AA0**
Front connector 20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Bus connectors 1 unit (spare part)	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Labeling sheets for machine inscription	See under "Accessories", page 5/257
Slot number label Spare part	**6ES7912-0AA00-0AA0**
Shield connection element 80 mm wide, with 2 rows for 4 terminals each	**6ES7390-5AA00-0AA0**
Shield connection clamps 2 units	
For 2 cables, diameter 2 mm to 6 mm	**6ES7390-5AB00-0AA0**
For 1 cable, diameter 3 mm to 8 mm	**6ES7390-5BA00-0AA0**
For 1 cable, diameter 4 mm to 13 mm	**6ES7390-5CA00-0AA0**
Connectable incremental encoders 6FX2 001-2...	Refer to the Industry Mall under SIMODRIVE Sensor or Motion Connect 500 (see also http://www.siemens.com/simatic-technology)

	Article No.
Signal cable	
Pre-assembled for HTL and TTL encoder, without D-sub connector, UL/DESINA	**6FX5002-2CA12-** ■■■ **0**
Length code:	
0 m	**1**
100 m	**2**
200 m	**3**
0 m	**A**
10 m	**B**
20 m	**C**
30 m	**D**
40 m	**E**
50 m	**F**
60 m	**G**
70 m	**H**
80 m	**J**
90 m	**K**
0 m	**A**
1 m	**B**
2 m	**C**
3 m	**D**
4 m	**E**
5 m	**F**
6 m	**G**
7 m	**H**
8 m	**J**
9 m	**K**

Technical specifications

Article number	**6ES7350-1AH03-0AE0** FM350-1, counter mod. up to 500KHZ
Supply voltage	
Auxiliary voltage 1L+, load voltage 2L+	
• Rated value (DC)	24 V
Input current	
from load voltage 1L+ (without load), max.	40 mA
from backplane bus 5 V DC, max.	160 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes; 5.2 V ±2 %
• Output current, max.	300 mA
24 V encoder supply	
• 24 V	Yes; 1L+ (-3 V)
• Output current, max.	400 mA
Power loss	
Power loss, typ.	4.5 W
Digital inputs	
Number of digital inputs	3
Functions	1 for gate start, 1 for gate stop, 1 for setting the counter
Input voltage	
• for signal "0"	-28.8 ... +5V
• for signal "1"	+11 to +28.8V
Input current	
• for signal "1", typ.	9 mA
Digital outputs	
Number of digital outputs	2
Short-circuit protection	Yes; Clocked electronically
Output voltage	
• for signal "0", max.	3 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA
• for signal "1" permissible range for 0 to 60 °C, max.	0.6 A

Article number	**6ES7350-1AH03-0AE0** FM350-1, counter mod. up to 500KHZ
Encoder	
Connectable encoders	
• Incremental encoder (symmetrical)	Yes; With 2 pulse trains offset by 90°
• Incremental encoder (asymmetrical)	Yes
• 24 V initiator	Yes
• 24 V directional element	Yes; 1 pulse train, 1 direction level
Counter	
Number of counter inputs	1; 32 bit or ±31 bit
Counter input 5 V	
• Terminating resistor	220 Ω
• Counting frequency, max.	500 kHz
Counter input 24 V	
• Input voltage for signal "0"	-28.8 ... +5V
• Input voltage for signal "1"	+11 to +28.8V
• Input current for signal "1", typ.	9 mA
• Counting frequency, max.	200 kHz
• Minimum pulse width	2.5 µs
Connection method	
required front connector	1x 20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	250 g

Overview

- 8-channel intelligent counter module for universal counting and measuring
- To directly connect 24 V incremental encoders, direction sensors, initiators or NAMUR encoders
- Check function with preselectable set points (number depends on mode)
- Integrated digital outputs to output the response when the setpoint is reached
- Operating modes:
  - Continuous/single/periodic counting
  - Frequency/speed measurement
  - Cycle duration measurement
  - Dosing

Note:

Incremental encoder and pre-assembled connecting cables for counter and positioning function are offered under SIMODRIVE Sensor and Motion Connect 500.

http://www.siemens.com/simatic-technology

Ordering data

	Article No.
FM 350-2 counter module With 8 channels, max. 20 kHz; for 24 V incremental encoders and NAMUR encoders; incl. configuration package and electronic documentation on CD	**6ES7350-2AH01-0AE0**
Front connector	
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Bus connectors 1 unit (spare part)	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX10-0AA0**
Labeling sheets for machine inscription	See under "Accessories", page 5/257
Slot number label Spare part	**6ES7912-0AA00-0AA0**

	Article No.
Shield connection element 80 mm wide, with 2 rows for 4 terminals each	**6ES7390-5AA00-0AA0**
Terminal elements 2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**
Signal cable	
Pre-assembled for HTL and TTL encoder, without sub D connector, UL/DESINA	**6FX5002-2CA12-** ■ ■ ■ **0**
Length code:	See FM 350-1, page 5/135

Technical specifications

Article number	**6ES7350-2AH01-0AE0** FM350-2, Counter Mod., 8 Channels, 20KHz
Supply voltage	
Auxiliary voltage 1L+, load voltage 2L+	
• Rated value (DC)	24 V
Input current	
from load voltage L+ (without load), max.	150 mA
from backplane bus 5 V DC, max.	100 mA
NAMUR encoder supply	
• 8.2 V	Yes
• Short-circuit protection	Yes
• Output current, max.	200 mA
Power loss	
Power loss, typ.	10 W
Digital inputs	
Number of digital inputs	8
Number of NAMUR inputs	8
Functions	1 each for gate start/ gate stop
Input voltage	
• for signal "0"	-3 to +5V
• for signal "1"	11 to 30.2 V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
• Input frequency, max.	20 kHz
for standard inputs	
- at "0" to "1", max.	50 µs
for NAMUR inputs	
- at "0" to "1", max.	50 µs
Cable length	
• shielded, max.	100 m
Digital outputs	
Number of digital outputs	8
Short-circuit protection	Yes
Limitation of inductive shutdown voltage to	L+ (-40 V)
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.5 mA
Switching frequency	
• with resistive load, max.	500 Hz
• with inductive load, max.	0.5 Hz
Total current of the outputs (per group)	
horizontal installation	
- up to 40 °C, max.	4 A
- up to 60 °C, max.	2 A
all other mounting positions	
- up to 40 °C, max.	2 A
Cable length	
• shielded, max.	600 m

Article number	**6ES7350-2AH01-0AE0** FM350-2, Counter Mod., 8 Channels, 20KHz
Encoder	
Connectable encoders	
• Incremental encoder (asymmetrical)	Yes
• 24 V initiator	Yes
• 24 V directional element	Yes
• NAMUR encoder	Yes; to DIN 19 234
• 2-wire sensor	Yes
Interrupts/diagnostics/ status information	
Diagnostics function	Yes; Diagnostic information readable
Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable
Counter	
Number of counter inputs	8; 32 bit or ±31 bit
Counter input 24 V	
• Input voltage for signal "0"	-3 to +5V
• Input voltage for signal "1"	11 to 30.2 V
• Input current for signal "1", typ.	9 mA
• Counting frequency, max.	20 kHz; Incremental encoder: 10 kHz
Connection method	
required front connector	1x 40-pin
Dimensions	
Width	80 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	460 g

Overview

- Two-channel positioning module for rapid-traverse/ creep-speed drives
- 4 digital outputs per channel for motor control
- Incremental or synchro-serial position decoding

Note:

SIMODRIVE Sensor/Motion Connect 500 feature position-measuring systems and preassembled connecting cables for counting and positioning functions.

http://www.siemens.com/simatic-technology

Ordering data

	Article No.
FM 351 positioning module For rapid traverse and creep speed drives	**6ES7351-1AH02-0AE0**
Front connectors	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Bus connectors 1 unit (spare part)	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Slot number label	**6ES7912-0AA00-0AA0**
Labeling sheets for machine inscription Spare part	See under "Accessories", page 5/257
Shield connection element 80 mm wide, with 2 rows for 4 terminals each	**6ES7390-5AA00-0AA0**
Shield connection clamp 2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

Ordering data

	Article No.								
Signal cables									
Preassembled for SSI absolute encoder, UL/DESINA	**6FX50**	■	**2-2CC11-**	■	■	■	■		
Preassembled for TTL encoder 6FX2001-1, UL/DESINA	**6FX50**	■	**2-2CD01-**	■	■	■	■		
Preassembled for TTL encoder 24 V, UL/DESINA	**6FX50**	■	**2-2CD24-**	■	■	■	■		
Not crimped		**0**							
Module end crimped, connector case supplied		**1**							
Motor end crimped, connector case supplied		**4**							
0 m				**1**					
100 m				**2**					
200 m				**3**					
0 m					**A**				
10 m					**B**				
20 m					**C**				
30 m					**D**				
40 m					**E**				
50 m					**F**				
60 m					**G**				
70 m					**H**				
80 m					**J**				
90 m					**K**				
0 m						**A**			
1 m						**B**			
2 m						**C**			
3 m						**D**			
4 m						**E**			
5 m						**F**			
6 m						**G**			
7 m						**H**			
8 m						**J**			
9 m						**K**			
0.0 m							**0**		
0.1 m							**1**		
0.2 m							**2**		
0.3 m							**3**		
0.4 m							**4**		
0.5 m							**5**		
0.6 m							**6**		
0.7 m							**7**		
0.8 m							**8**		

Technical specifications

Article number	**6ES7351-1AH02-0AE0** FM351 positioning Mod. rapid/creep Feed
Supply voltage	
Rated value (DC)	24 V
Load voltage L+	
• Rated value (DC)	24 V
Input current	
Current consumption, max.	350 mA
from backplane bus 5 V DC, max.	150 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes
• Output current, max.	350 mA
• Cable length, max.	32 m
24 V encoder supply	
• 24 V	Yes
• Output current, max.	400 mA; Per channel
• Cable length, max.	100 m
Power loss	
Power loss, typ.	7.9 W
Digital inputs	
Number of digital inputs	8
Functions	Reference cams, reversing cams, flying actual value setting, start/stop positioning
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	6 mA
Digital outputs	
Number of digital outputs	8
Functions	Rapid traverse, creep, run right, run left
Short-circuit protection	Yes
Output voltage	
• Rated value (DC)	24 V
• for signal "1", min.	UP - 0.8 V
Output current	
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA; with UPmax
• for signal "1" permissible range for 0 to 60 °C, max.	600 mA; with UPmax
• for signal "0" residual current, max.	0.5 mA

Article number	**6ES7351-1AH02-0AE0** FM351 positioning Mod. rapid/creep Feed
Encoder	
Connectable encoders	
• Incremental encoder (symmetrical)	Yes
• Incremental encoder (asymmetrical)	Yes
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA; on signal "0", max. 2 mA; on signal "1", max. 6 mA
Encoder signals, incremental encoder (symmetrical)	
• Trace mark signals	A, notA, B, notB
• Zero mark signal	N, notN
• Input voltage	5 V difference signal (phys. RS 422)
• Input frequency, max.	0.5 MHz
Encoder signals, incremental encoder (asymmetrical)	
• Trace mark signals	A, B
• Zero mark signal	N
• Input frequency, max.	50 kHz; 50 kHz for 25 m cable length; 25 kHz for 100 m cable length
Encoder signals, absolute encoder (SSI)	
• Input signal	5 V difference signal (phys. RS 422)
• Data signal	DATA, notDATA
• Clock signal	CL, notCL
• Telegram length, parameterizable	13 or 25 bit
• Clock frequency, max.	1.5 MHz
• Gray code	Yes
• Cable length, shielded, max.	200 m; At max. 188 kHz
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
Connection method	
required front connector	1x 20-pin
Dimensions	
Width	80 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	550 g

Overview

- Extremely high-speed electronic cam controller
- Low-cost alternative to mechanical cam controllers
- 32 cam tracks, 13 onboard digital outputs for direct output of actions
- Incremental or synchro-serial position decoding

Note:

SIMODRIVE Sensor/Motion Connect 500 feature position-measuring systems and preassembled connecting cables for counting and positioning functions.

http://www.siemens.com/simatic-technology

Ordering data

Ordering data	Article No.
FM352 electronic cam controller	**6ES7352-1AH02-0AE0**
Front connectors	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part)	
Labeling sheets for machine inscription	See under "Accessories", page 5/257
Slot number label	**6ES7912-0AA00-0AA0**
Spare part	
Shield connection element	**6ES7390-5AA00-0AA0**
80 mm wide, with 2 rows for 4 terminals each	
Shield connection clamps	
2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

Ordering data

Ordering data	Article No.								
Signal cable									
Pre-assembled for SSI absolute encoder, UL/DESINA	**6FX50**	■	**2-2CC11-**	■	■	■	■		
Pre-assembled for TTL encoder 6FX2001-1, UL/DESINA	**6FX50**	■	**2-2CD01-**	■	■	■	■		
Pre-assembled for TTL encoder 24 V, UL/DESINA	**6FX50**	■	**2-2CD24-**	■	■	■	■		
Not crimped		**0**							
Module end crimped, connector case supplied		**1**							
Motor end crimped, connector case supplied		**4**							
0 m				**1**					
100 m				**2**					
200 m				**3**					
0 m					**A**				
10 m					**B**				
20 m					**C**				
30 m					**D**				
40 m					**E**				
50 m					**F**				
60 m					**G**				
70 m					**H**				
80 m					**J**				
90 m					**K**				
0 m						**A**			
1 m						**B**			
2 m						**C**			
3 m						**D**			
4 m						**E**			
5 m						**F**			
6 m						**G**			
7 m						**H**			
8 m						**J**			
9 m						**K**			
0.0 m							**0**		
0.1 m							**1**		
0.2 m							**2**		
0.3 m							**3**		
0.4 m							**4**		
0.5 m							**5**		
0.6 m							**6**		
0.7 m							**7**		
0.8 m							**8**		

Technical specifications

Article number	**6ES7352-1AH02-0AE0** FM352 Electron. Cam-operated Control
Supply voltage	
Rated value (DC)	24 V
Input current	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	100 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes
• Output current, max.	300 mA
• Cable length, max.	32 m
24 V encoder supply	
• 24 V	Yes
• Output current, max.	300 mA
• Cable length, max.	100 m
Power loss	
Power loss, typ.	8.1 W
Digital inputs	
Number of digital inputs	4
Functions	Reference point switch, set floating actual value/length measurement, brake release, enable track output no. 3
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-30 to +5 V
• for signal "1"	+11 to +30V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	9 mA
Digital outputs	
Number of digital outputs	13
Functions	Cam track
Short-circuit protection	Yes
Output voltage	
• Rated value (DC)	24 V
• for signal "1", min.	UP - 0.8 V
Output current	
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA; with UPmax
• for signal "1" permissible range for 0 to 60 °C, max.	600 mA; with UPmax
• for signal "0" residual current, max.	0.5 mA

Article number	**6ES7352-1AH02-0AE0** FM352 Electron. Cam-operated Control
Encoder	
Connectable encoders	
• Incremental encoder (symmetrical)	Yes
• Incremental encoder (asymmetrical)	Yes
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA
Encoder signals, incremental encoder (symmetrical)	
• Trace mark signals	A, notA, B, notB
• Zero mark signal	N, notN
• Input voltage	5 V difference signal (phys. RS 422)
• Input frequency, max.	1 MHz
Encoder signals, incremental encoder (asymmetrical)	
• Trace mark signals	A, B
• Zero mark signal	N
• Input frequency, max.	50 kHz; 50 kHz for 25 m cable length; 25 kHz for 100 m cable length
Encoder signals, absolute encoder (SSI)	
• Data signal	DATA, notDATA
• Clock signal	CL, notCL
• Telegram length, parameterizable	13 or 25 bit
• Clock frequency, max.	1 MHz
• Gray code	Yes
• Cable length, shielded, max.	320 m; at max. 125 kHz
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
Connection method	
required front connector	1x 20-pin
Dimensions	
Width	80 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	550 g

Overview

- The FM 352-5 high-speed Boolean processor provides extremely fast binary control and also some of the fastest switching processes ever possible (cycle time: 1 µs).
- Programming is possible with LAD or FBD.
- The available set of statements comprises bit statements (partial statement set of STEP 7), timers, counters, frequency dividers, frequency generators, shift registers.
- 12 integral DI / 8 integral DO.
- 2 versions: sinking or sourcing digital outputs.
- 1 channel for connection of a 24-V incremental encoder, a 5-V incremental encoder (RS 422) or an SSI absolute encoder.

Micro Memory Card required for use of the FM 352-5

Note:

Displacement measuring systems and precut/pre-assembled cables for counting and positioning functions are available under SIMODRIVE Sensor or Motion Connect 500.

http://www.siemens.com/simatic-technology

Ordering data

	Article No.
FM 352-5 high-speed Boolean processor	
with sinking digital outputs	**6ES7352-5AH01-0AE0**
with sourcing digital outputs	**6ES7352-5AH11-0AE0**
Micro Memory Card	
128 KB	**6ES7953-8LG31-0AA0**
512 KB	**6ES7953-8LJ31-0AA0**
2 MB	**6ES7953-8LL31-0AA0**
Front connector	
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Signal cables	
To HTL and TTL encoders, preassembled, without Sub-D connector	**6FX5002-2CA12-** ■ ■ ■ **0**
To SSI absolute encoders 6FX2 001-5, preassembled, without Sub-D connector	**6FX5002-2CC12-** ■ ■ ■ ■
Length code:	
0 m	**1**
100 m	**2**
200 m	**3**
0 m	**A**
10 m	**B**
20 m	**C**
30 m	**D**
40 m	**E**
50 m	**F**
60 m	**G**
70 m	**H**
80 m	**J**
90 m	**K**
0 m	**A**
1 m	**B**
2 m	**C**
3 m	**D**
4 m	**E**
5 m	**F**
6 m	**G**
7 m	**H**
8 m	**J**
9 m	**K**
0.0 m	**0**
0.1 m	**1**
0.2 m	**2**
0.3 m	**3**
0.4 m	**4**
0.5 m	**5**
0.6 m	**6**
0.7 m	**7**
0.8 m	**8**

Technical specifications

Article number	**6ES7352-5AH01-0AE0**	**6ES7352-5AH11-0AE0**
	FM 352-5, Boolean Processor 12DE/8DA	FM 352-5 PNP, Boolean Processor 12DI/8DO
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from load voltage1L+, max.	150 mA; typ. 60 mA	150 mA; typ. 60 mA
from load voltage 2L+ (without load), max.	200 mA; typ. 60 mA, DI/DO supply	200 mA; typ. 60 mA, DI/DO supply
from load voltage 3L+ (with encoder), max.	600 mA; typ. 80 mA plus encoder supply	600 mA; typ. 80 mA plus encoder supply
from load voltage 3L+ (without load), max.	200 mA; typ. 80 mA	200 mA; typ. 80 mA
from backplane bus 5 V DC, typ.	135 mA	135 mA
Encoder supply		
5 V encoder supply		
• 5 V	Yes	Yes
• Short-circuit protection	Yes; Electronic overload protection; no protection on applying a normal or counter voltage.	Yes; Electronic overload protection; no protection on applying a normal or counter voltage.
• Output current, max.	250 mA	250 mA
24 V encoder supply		
• 24 V	Yes	Yes
• Short-circuit protection	Yes; Overvoltage and overheating protection if overloaded; diagnostics if output reaches temperature limit; no protection on applying a normal or counter voltage	Yes; Overvoltage and overheating protection if overloaded; diagnostics if output reaches temperature limit; no protection on applying a normal or counter voltage
• Output current, max.	400 mA	400 mA
Power loss		
Power loss, typ.	6.5 W	6.5 W
Memory		
Type of memory	RAM	RAM
Memory size	128 kbyte; required for operation, MMC	128 kbyte; required for operation, MMC
Digital inputs		
Number of digital inputs	8; Standard and up to 12 with 24 V DC encoder inputs as digital inputs	8; Standard and up to 12 with 24 V DC encoder inputs as digital inputs
Input voltage		
• Rated value (DC)	24 V	24 V
• for signal "0"	-30 to +5 V	-30 to +5 V
• for signal "1"	+11 to +30V	+11 to +30V
Input current		
• for signal "0", max. (permissible quiescent current)	1.5 mA	1.5 mA
• for signal "1", typ.	3.8 mA	3.8 mA
Input delay (for rated value of input voltage)		
• Input frequency (with a time delay of 0.1 ms), max.	200 kHz	200 kHz
• programmable digital filter delay	None, 5 µs, 10 µs, 15 µs, 20 µs, 50 µs, 1.6 ms	None, 5 µs, 10 µs, 15 µs, 20 µs, 50 µs, 1.6 ms
for standard inputs		
- at "0" to "1", max.	3 µs; typ. 1.5 µs	3 µs; typ. 1.5 µs
Cable length		
• shielded, max.	600 m	600 m

Technical specifications

Article number	**6ES7352-5AH01-0AE0**	**6ES7352-5AH11-0AE0**
	FM 352-5, Boolean Processor 12DE/8DA	FM 352-5 PNP, Boolean Processor 12DI/8DO
Digital outputs		
Number of digital outputs	8	8
Current-sinking	Yes	No
Current-sourcing	No	Yes
Short-circuit protection	Yes; Overvoltage protection, thermal protection	Yes; Overvoltage protection, thermal protection
Limitation of inductive shutdown voltage to	2M -45 V typ., (-40 V to -55 V); comment: no protection against inductive kickback >55 mJ	2M -45 V typ., (-40 V to -55 V); comment: no protection against inductive kickback >55 mJ
Switching capacity of the outputs		
• on lamp load, max.	5 W	5 W
Output voltage		
• Rated value (DC)	24 V	24 V
• for signal "0", max.	28.8 V	28.8 V
• for signal "1", max.	0.5 V	0.5 V
Output current		
• for signal "1" rated value	0.5 A; At 60 °C	0.5 A; At 60 °C
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA	5 mA
• for signal "1" permissible range for 0 to 60 °C, max.	600 mA	600 mA
• for signal "0" residual current, max.	1 mA	1 mA
Switching frequency		
• with resistive load, max.	100 kHz; 20 kHz at 0.5 A; 100 kHz at 0.25 A	100 kHz; 20 kHz at 0.5 A; 100 kHz at 0.25 A
• with inductive load, max.	2 Hz; 2 Hz at 0.5 A with external commutator diodes; 0.5 Hz at 0.5 A without external commutator diodes	2 Hz; 2 Hz at 0.5 A with external commutator diodes; 0.5 Hz at 0.5 A without external commutator diodes
• on lamp load, max.	10 Hz	10 Hz
Cable length		
• shielded, max.	600 m	600 m
Encoder		
Connectable encoders		
• Incremental encoder (symmetrical)	Yes	Yes
• Incremental encoder (asymmetrical)	Yes	Yes
• Absolute encoder (SSI)	Yes	Yes
• 2-wire sensor	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA
Encoder signals, incremental encoder (symmetrical)		
• Trace mark signals	A, notA, B, notB	A, notA, B, notB
• Zero mark signal	N, notN	N, notN
• Input voltage	5 V difference signal (phys. RS 422)	5 V difference signal (phys. RS 422)
• Input frequency, max.	500 kHz	500 kHz
• Cable length, shielded, max.	100 m; 100 m with 24 V supply and 500 kHz; 32 m with 5 V supply and 500 kHz	100 m; 100 m with 24 V supply and 500 kHz; 32 m with 5 V supply and 500 kHz
Encoder signals, incremental encoder (asymmetrical)		
• Trace mark signals	A, B	A, B
• Zero mark signal	N	N
• Input frequency, max.	200 kHz	200 kHz
• Cable length, shielded, max.	50 m; Cable length, HTL incremental encoder, Siemens, type 6FX2001-4: 50 kHz, 25 m shielded, max., 25 kHz, 50 m shielded, max.	50 m; Cable length, HTL incremental encoder, Siemens, type 6FX2001-4: 50 kHz, 25 m shielded, max., 25 kHz, 50 m shielded, max.

Technical specifications

Article number	**6ES7352-5AH01-0AE0**	**6ES7352-5AH11-0AE0**
	FM 352-5, Boolean Processor 12DE/8DA	FM 352-5 PNP, Boolean Processor 12DI/8DO
Encoder signals, absolute encoder (SSI)		
• Data signal	DATA, notDATA	DATA, notDATA
• Clock signal	CK, notCK	CK, notCK
• Telegram length, parameterizable	13 or 25 bit	13 or 25 bit
• Clock frequency, max.	1 MHz; 125 kHz, 250 kHz, 500 kHz or 1 MHz	1 MHz; 125 kHz, 250 kHz, 500 kHz or 1 MHz
• Cable length, shielded, max.	320 m; At 125 kHz	320 m; At 125 kHz
• Monoflop time	settable: 16/32/48/64 µs	settable: 16/32/48/64 µs
• Listening mode	Yes; one or two stations	Yes; one or two stations
• Multiturn	Yes; 25 bit message frame	Yes; 25 bit message frame
Encoder signal evaluation		
• Counting direction, forward	Yes	Yes
• Counting direction, backward	Yes	Yes
Response times		
Input- to output response time	5 V input to 24 V output, 0 filter: 1 to 4 µs (typ.); 24 V input to 24 V output, 0 filter: 2 to 6 µs (typ.)	5 V input to 24 V output, 0 filter: 1 to 4 µs (typ.); 24 V input to 24 V output, 0 filter: 2 to 6 µs (typ.)
Interfaces		
Point-to-point connection		
• Updating times	PLC interface: 1.7 ms	PLC interface: 1.7 ms
Interrupts/diagnostics/ status information		
Alarms		
• Diagnostic alarm	Yes; 1L, 2L, 3L missing; MMC error; output overload (8); encoder supply overload; differential wire break; parameterization errror; SSI message frame overflow	Yes; 1L, 2L, 3L missing; MMC error; output overload (8); encoder supply overload; differential wire break; parameterization errror; SSI message frame overflow
• Hardware interrupt	Yes; 8 available; for generation by user program	Yes; 8 available; for generation by user program
Counter		
Counting range, description	Counting range (16-bit counters): -32 768 to 32 767 (user-specific within this range); counting range (32-bit counters): -2 147 483 648 to 2 147 483 647 (user-specific within this range)	Counting range (16-bit counters): -32 768 to 32 767 (user-specific within this range); counting range (32-bit counters): -2 147 483 648 to 2 147 483 647 (user-specific within this range)
Counting range, lower limit	-2 147 483 648	-2 147 483 648
Counting range, upper limit	2 147 483 647	2 147 483 647
Counting mode		
• Counting mode, individual	Yes	Yes
• Counting mode, continuous	Yes	Yes
• Counting mode, periodic	Yes	Yes
Ambient conditions		
Ambient temperature during operation		
• min.	0 °C	0 °C
• max.	60 °C	60 °C
Configuration		
Programming		
• Program cycle time (scan)	1 µs	1 µs
Connection method		
required front connector	1x 40-pin	1x 40-pin
Dimensions		
Width	80 mm	80 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	434 g; Module weight: approx. 434 g (with 1L connection and without I/O connection or MMC); shipping weight: approx. 500 g (with bus and 1L connection and without I/O connection or MMC)	434 g; Module weight: approx. 434 g (with 1L connection and without I/O connection or MMC); shipping weight: approx. 500 g (with bus and 1L connection and without I/O connection or MMC)

Overview

- 4-channel closed-loop controller module for universal control tasks
- Can be used for temperature, pressure, flow and level controls
- Convenient online self-optimization for temperature controls
- Predefined controller structures
- 2 control algorithms
- 2 versions:
  - FM 355 C as continuous controller;
  - FM 355 S as step or pulse controller
- With 4 analog outputs (FM 355 C) or 8 digital outputs (FM 355 S) for direct control of the most common actuators
- Continuation of control mode also possible with CPU stop or failure

Ordering data

	Article No.
FM 355 C controller module With 4 analog outputs for 4 continuous controllers	**6ES7355-0VH10-0AE0**
FM 355 S controller module With 8 digital outputs for 4 step or pulse controllers	**6ES7355-1VH10-0AE0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Bus connectors 1 unit (spare part)	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Labeling sheets for machine inscription	See under "Accessories", page 5/257
Slot number label Spare part	**6ES7912-0AA00-0AA0**
Shield connection element 80 mm wide, with 2 rows for 4 terminals each	**6ES7390-5AA00-0AA0**
Shield connection clamps	
2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

Technical specifications

Article number	**6ES7355-0VH10-0AE0** Control unit FM355C, 4 chan.	**6ES7355-1VH10-0AE0** Control unit FM355S, 4 chan.
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from load voltage L+ (without load), max.	310 mA; Typ. 260 mA	270 mA; typ. 220 mA
from backplane bus 5 V DC, max.	75 mA; typ. 50 mA	75 mA; typ. 50 mA
Power loss		
Power loss, typ.	6.5 W	5.5 W
Digital inputs		
Number of digital inputs	8	8
Input characteristic curve in accordance with IEC 61131, type 2	Yes	Yes
Input voltage		
• Rated value (DC)	24 V	24 V
• for signal "0"	-3 to +5V	-3 to +5V
• for signal "1"	13 to 30V	13 to 30V
Input current		
• for signal "1", typ.	7 mA	7 mA
Cable length		
• shielded, max.	1 000 m	1 000 m

Technical specifications

Article number	**6ES7355-0VH10-0AE0**	**6ES7355-1VH10-0AE0**
	Control unit FM355C, 4 chan.	Control unit FM355S, 4 chan.
Digital outputs		
Number of digital outputs		8
Short-circuit protection		Yes; Electronic
Limitation of inductive shutdown voltage to		L+ (-1.5 V)
Switching capacity of the outputs		
• on lamp load, max.		5 W
Load resistance range		
• lower limit		240 Ω
• upper limit		4 kΩ
Output voltage		
• for signal "1", min.		L+ (-2.5 V)
Output current		
• for signal "1" rated value		100 mA
• for signal "1" permissible range for 0 to 60 °C, min.		5 mA
• for signal "1" permissible range for 0 to 60 °C, max.		150 mA
• for signal "0" residual current, max.		0.5 mA
Switching frequency		
• with resistive load, max.		100 Hz
• with inductive load, max.		0.5 Hz
• on lamp load, max.		100 Hz
Total current of the outputs (per group)		
all mounting positions		
- up to 60 °C, max.		400 mA
Cable length		
• shielded, max.		1 000 m
Analog inputs		
Number of analog inputs	4	4
permissible input voltage for voltage input (destruction limit), max.	30 V	30 V
permissible input current for current input (destruction limit), max.	40 mA	40 mA
Input ranges (rated values), voltages		
• 0 to +10 V	Yes	Yes
• -1.75 V to +11.75 V	Yes	Yes
• -80 mV to +80 mV	Yes	Yes
Input ranges (rated values), currents		
• 0 to 20 mA	Yes	Yes
• 0 to 23.5 mA	Yes	Yes
• -3.5 mA to +23.5 mA	Yes	Yes
• 4 mA to 20 mA	Yes	Yes
Input ranges (rated values), thermocouples		
• Type B	Yes	Yes
• Type J	Yes	Yes
• Type K	Yes	Yes
• Type R	Yes	Yes
• Type S	Yes	Yes
Input ranges (rated values), resistance thermometer		
• Pt 100	Yes	Yes

Technical specifications

Article number	**6ES7355-0VH10-0AE0**	**6ES7355-1VH10-0AE0**
	Control unit FM355C, 4 chan.	Control unit FM355S, 4 chan.
Thermocouple (TC)		
Temperature compensation		
- internal temperature compensation	Yes	Yes
- external temperature compensation with Pt100	Yes	Yes
Characteristic linearization		
• parameterizable	Yes	Yes
- for thermocouples	Type B, J, K, R, S	Type B, J, K, R, S
- for resistance thermometer	Pt100 (standard)	Pt100 (standard)
Cable length		
• shielded, max.	200 m; 50 m at 80 mV and thermocouples	200 m; 50 m at 80 mV and thermocouples
Analog outputs		
Number of analog outputs	4	
Voltage output, short-circuit protection	Yes	
Voltage output, short-circuit current, max.	25 mA	
Current output, no-load voltage, max.	18 V	
Output ranges, voltage		
• 0 to 10 V	Yes	
• -10 V to +10 V	Yes	
Output ranges, current		
• 0 to 20 mA	Yes	
• 4 mA to 20 mA	Yes	
Connection of actuators		
• for voltage output two-wire connection	Yes	
• for current output two-wire connection	Yes	
Load impedance (in rated range of output)		
• with voltage outputs, min.	1 kΩ	
• with voltage outputs, capacitive load, max.	1 µF	
• with current outputs, max.	500 Ω	
• with current outputs, inductive load, max.	1 mH	
Cable length		
• shielded, max.	200 m; 50 m at 80 mV and thermocouples	
Analog value generation for the inputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	14 bit; 12 bit or 14 bit, parameterizable	14 bit; 12 bit or 14 bit, parameterizable
Analog value generation for the outputs		
Settling time		
• for resistive load	0.1 ms	
• for capacitive load	3.3 ms	
• for inductive load	0.5 ms	

Technical specifications

Article number	**6ES7355-0VH10-0AE0**	**6ES7355-1VH10-0AE0**
	Control unit FM355C, 4 chan.	Control unit FM355S, 4 chan.
Encoder		
Connection of signal encoders		
• for voltage measurement	Yes	Yes
• for current measurement as 4-wire transducer	Yes	Yes
Connectable encoders		
• 2-wire sensor	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA
Errors/accuracies		
Operational error limit in overall temperature range		
• Voltage, relative to input range, (+/-)	0.6 %; ±0.6 to ±1%	0.6 %; ±0.6 to ±1%
• Current, relative to input range, (+/-)	0.6 %; ±0.6 to ±1%	0.6 %; ±0.6 to ±1%
• Resistance thermometer, relative to input range, (+/-)	0.6 %; ±0.6 to ±1%	0.6 %; ±0.6 to ±1%
• Voltage, relative to output range, (+/-)	0.5 %	
• Current, relative to output range, (+/-)	0.6 %	
Basic error limit (operational limit at 25 °C)		
• Voltage, relative to input range, (+/-)	0.4 %; 80 mV: ±0.6 %; 250 to 1 000 mV: ±0.4 %; 2.5 to 10 V: ±0.6 %; 3.2 to 20 mA: ±0.5 %	0.4 %; 80 mV: ±0.6 %; 250 to 1 000 mV: ±0.4 %; 2.5 to 10 V: ±0.6 %; 3.2 to 20 mA: ±0.5 %
• Current, relative to input range, (+/-)	0.4 %; ±0.4 to ±0.6 %	0.4 %; ±0.4 to ±0.6 %
• Resistance thermometer, relative to input range, (+/-)	0.4 %; ±0.4 to ±0.6 %	0.4 %; ±0.4 to ±0.6 %
• Voltage, relative to output range, (+/-)	0.3 %	
• Current, relative to output range, (+/-)	0.5 %	
Interrupts/diagnostics/ status information		
Substitute values connectable	Yes; Parameterizable	Yes; Parameterizable
Integrated Functions		
Control technology		
• Number of closed-loop controllers	4	4
Connection method		
required front connector	2x 20-pin	2x 20-pin
Dimensions		
Width	80 mm	80 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	470 g	470 g

Overview

- 4-channel closed-loop controller module specifically for temperature controls
- Including integrated and easy-to-use online self-optimization
- Heating and cooling controllers as well as combined controllers with heating and active cooling function feasible
- Ready-to-use controller structures
- 2 versions:
  - FM 355-2 C as a continuous controller;
  - FM 355-2 S as step or pulse controllers
- With 4 analog outputs (FM 355-2 C) or 8 digital outputs (FM 355-2 S) to directly control the most common final control elements
- Continuation of control mode also possible with CPU stop or failure

Ordering data

	Article No.
FM 355-2 C temperature controller module With 4 analog outputs for 4 continuous-action controllers	**6ES7355-2CH00-0AE0**
FM 355-2 S temperature controller module With 8 digital outputs for 4 step or pulse controllers	**6ES7355-2SH00-0AE0**
Front connector	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Bus connectors 1 unit (spare part)	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Labeling sheets for machine inscription	See under "Accessories", page 5/257
Slot number label Spare part	**6ES7912-0AA00-0AA0**
Shield connection element 80 mm wide, with 2 rows for 4 terminals each	**6ES7390-5AA00-0AA0**
Shield connection clamps 2 units	
For 2 cables with 2 mm to 6 mm diameter	**6ES7390-5AB00-0AA0**
For 1 cable with 3 mm to 8 mm diameter	**6ES7390-5BA00-0AA0**
For 1 cable with 4 mm to 13 mm diameter	**6ES7390-5CA00-0AA0**

Technical specifications

Article number	**6ES7355-2CH00-0AE0** TEMP.-Control unit FM355-2C, 4 chan.	**6ES7355-2SH00-0AE0** TEMP.-Control unit FM355-2S, 4 chan.
Supply voltage		
Load voltage L+		
• Rated value (DC)	24 V	24 V
Input current		
from load voltage L+ (without load), max.	310 mA; Typ. 260 mA	270 mA; typ. 220 mA
from backplane bus 5 V DC, max.	75 mA; typ. 50 mA	75 mA; typ. 50 mA
Power loss		
Power loss, typ.	6.5 W	5.5 W
Digital inputs		
Number of digital inputs	8	8
Input characteristic curve in accordance with IEC 61131, type 2	Yes	Yes
Input voltage		
• Rated value (DC)	24 V	24 V
• for signal "0"	-3 to +5V	-3 to +5V
• for signal "1"	13 to 30V	13 to 30V
Input current		
• for signal "1", typ.	7 mA	7 mA
Cable length		
• shielded, max.	1 000 m	1 000 m

Technical specifications

Article number	**6ES7355-2CH00-0AE0**	**6ES7355-2SH00-0AE0**
	TEMP.-Control unit FM355-2C, 4 chan.	TEMP.-Control unit FM355-2S, 4 chan.
Digital outputs		
Number of digital outputs		8
Short-circuit protection		Yes; Electronic
Limitation of inductive shutdown voltage to		L+ (-1.5 V)
Switching capacity of the outputs		
• on lamp load, max.		5 W
Load resistance range		
• lower limit		240 Ω
• upper limit		4 kΩ
Output voltage		
• for signal "1", min.		L+ (-2.5 V)
Output current		
• for signal "1" rated value		0.1 A
• for signal "1" permissible range for 0 to 60 °C, min.		5 mA
• for signal "1" permissible range for 0 to 60 °C, max.		150 mA
• for signal "0" residual current, max.		0.5 mA
Switching frequency		
• with resistive load, max.		100 Hz
• with inductive load, max.		0.5 Hz
• on lamp load, max.		100 Hz
Total current of the outputs (per group)		
all mounting positions		
- up to 60 °C, max.		400 mA
Cable length		
• shielded, max.		1 000 m
Analog inputs		
Number of analog inputs	4	4
permissible input voltage for voltage input (destruction limit), max.	20 V	20 V
permissible input current for current input (destruction limit), max.	40 mA	40 mA
Input ranges (rated values), voltages		
• 0 to +10 V	Yes	Yes
• -1.75 V to +11.75 V	Yes	Yes
Input ranges (rated values), currents		
• 0 to 20 mA	Yes	Yes
• 0 to 23.5 mA	Yes	Yes
• -3.5 mA to +23.5 mA	Yes	Yes
• 4 mA to 20 mA	Yes	Yes
Input ranges (rated values), thermocouples		
• Type B	Yes	Yes
• Type E	Yes	Yes
• Type J	Yes	Yes
• Type K	Yes	Yes
• Type R	Yes	Yes
• Type S	Yes	Yes
Input ranges (rated values), resistance thermometer		
• Pt 100	Yes	Yes

Technical specifications

Article number	**6ES7355-2CH00-0AE0**	**6ES7355-2SH00-0AE0**
	TEMP.-Control unit FM355-2C, 4 chan.	TEMP.-Control unit FM355-2S, 4 chan.
Thermocouple (TC)		
Temperature compensation		
- internal temperature compensation	Yes	Yes
- external temperature compensation with Pt100	Yes	Yes
Characteristic linearization		
• parameterizable	Yes	Yes
- for thermocouples	Type B, E, J, K, R, S	Type B, E, J, K, R, S
- for resistance thermometer	Pt100 (standard)	Pt100 (standard)
Cable length		
• shielded, max.	200 m; 50 m at 80 mV and thermocouples	200 m; 50 m at 80 mV and thermocouples
Analog outputs		
Number of analog outputs	4	
Voltage output, short-circuit protection	Yes	
Voltage output, short-circuit current, max.	25 mA	
Current output, no-load voltage, max.	18 V	
Output ranges, voltage		
• 0 to 10 V	Yes	
• -10 V to +10 V	Yes	
Output ranges, current		
• 0 to 20 mA	Yes	
• 4 mA to 20 mA	Yes	
Connection of actuators		
• for voltage output two-wire connection	Yes	
• for current output two-wire connection	Yes	
Load impedance (in rated range of output)		
• with voltage outputs, min.	1 kΩ	
• with voltage outputs, capacitive load, max.	1 µF	
• with current outputs, max.	500 Ω	
• with current outputs, inductive load, max.	1 mH	
Cable length		
• shielded, max.	200 m; 50 m at 80 mV and thermocouples	
Analog value generation for the inputs		
Integration and conversion time/ resolution per channel		
• Resolution with overrange (bit including sign), max.	14 bit	14 bit
Analog value generation for the outputs		
Settling time		
• for resistive load	0.1 ms	
• for capacitive load	3.3 ms	
• for inductive load	0.5 ms	
Encoder		
Connection of signal encoders		
• for voltage measurement	Yes	Yes
• for current measurement as 4-wire transducer	Yes	Yes
Connectable encoders		
• 2-wire sensor	Yes	Yes
- permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA

FM 355-2 temperature controller module

Technical specifications

Article number	**6ES7355-2CH00-0AE0** TEMP.-Control unit FM355-2C, 4 chan.	**6ES7355-2SH00-0AE0** TEMP.-Control unit FM355-2S, 4 chan.
Errors/accuracies		
Operational error limit in overall temperature range		
• Voltage, relative to input range, (+/-)	0.6 %; ±0.6 to ±0.7 %	0.06 %; ±0.06 to ±0.7%
• Current, relative to input range, (+/-)	0.6 %; ±0.6 to ±0.7 %	0.06 %; ±0.06 to ±0.7%
• Resistance thermometer, relative to input range, (+/-)	0.6 %; ±0.6 to ±0.7 %	0.06 %; ±0.06 to ±0.7%
• Voltage, relative to output range, (+/-)	0.5 %	
• Current, relative to output range, (+/-)	0.6 %	
Basic error limit (operational limit at 25 °C)		
• Voltage, relative to input range, (+/-)	0.04 %; ±0.04 to ±0.5 %	0.04 %; ±0.04 to ±0.5 %
• Current, relative to input range, (+/-)	0.04 %; ±0.04 to ±0.5 %	0.04 %; ±0.04 to ±0.5 %
• Resistance thermometer, relative to input range, (+/-)	0.04 %; ±0.04 to ±0.5 %	0.04 %; ±0.04 to ±0.5 %
• Voltage, relative to output range, (+/-)	0.4 %	
• Current, relative to output range, (+/-)	0.5 %	
Interrupts/diagnostics/ status information		
Substitute values connectable	Yes; Parameterizable	Yes; Parameterizable
Integrated Functions		
Control technology		
• Number of closed-loop controllers	4	4
Connection method		
required front connector	2x 20-pin	2x 20-pin
Dimensions		
Width	80 mm	80 mm
Height	125 mm	125 mm
Depth	120 mm	120 mm
Weights		
Weight, approx.	470 g	470 g

Overview

- Interface between max. 3 absolute-value sensors (SSI) and the CPU
- For provision of the displacement encoder values for further processing in STEP 7 programs
- Enables direct response of controller to encoder values in moving systems

Note:

Displacement measuring systems and precut/preassembled cables for counting and positioning functions are available under SIMODRIVE Sensor or Motion Connect 500.

http://www.siemens.com/simatic-technology

Ordering data

	Article No.
SM 338 POS input module For position sensing with 3 SSI encoders	**6ES7338-4BC01-0AB0**
Front connector 20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Front door, elevated design e.g. for 32-channel modules; for connecting 1.3 mm^2/16 AWG conductors	**6ES7328-0AA00-7AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Ordering data

	Article No.
Signal cable	
Pre-assembled for SSI absolute encoder 6FX2001-5, without D-sub connector, UL/DESINA	**6FX5002-2CC12-** ■ ■ ■ ■
0 m	**1**
100 m	**2**
200 m	**3**
0 m	**A**
10 m	**B**
20 m	**C**
30 m	**D**
40 m	**E**
50 m	**F**
60 m	**G**
70 m	**H**
80 m	**J**
90 m	**K**
0 m	**A**
1 m	**B**
2 m	**C**
3 m	**D**
4 m	**E**
5 m	**F**
6 m	**G**
7 m	**H**
8 m	**J**
9 m	**K**
0.0 m	**0**
0.1 m	**1**
0.2 m	**2**
0.3 m	**3**
0.4 m	**4**
0.5 m	**5**
0.6 m	**6**
0.7 m	**7**
0.8 m	**8**

Technical specifications

Article number	**6ES7338-4BC01-0AB0**
	SM 338, f. 3 SSI encoders
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
Input current	
from load voltage L+ (without load), max.	100 mA
from backplane bus 5 V DC, max.	160 mA
24 V encoder supply	
• 24 V	Yes; L+ (-0.8 V)
• Output current, max.	900 mA
Power loss	
Power loss, typ.	3 W
Digital inputs	
Input voltage	
• for signal "0"	-3 to +5V
• for signal "1"	11 to 30.2 V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
for standard inputs	
- at "0" to "1", min.	300 µs
Cable length	
• shielded, max.	600 m

Article number	**6ES7338-4BC01-0AB0**
	SM 338, f. 3 SSI encoders
Encoder	
Number of connectable encoders, max.	3
Connectable encoders	
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes
Encoder signals, absolute encoder (SSI)	
• Cable length, shielded, max.	320 m; 320 m at 125 kHz; 160 m at 250 kHz; 60 m at 500 kHz; 20 m at 1 MHz
Interrupts/diagnostics/ status information	
Alarms	
• Diagnostic alarm	Yes
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	235 g

Overview

- For connecting up to 4 drives with analog setpoint interface or pulse-direction interface to a controller
- Operation with isochronous PROFIBUS DP
- Connectable drives:
  - Electrical drives
  - Hydraulic drives
  - Stepper drives
- Can be used with:
  - SIMATIC CPU 41x-2 DP, CPU 31x-2 DP, CPU 31xT-2 DP, WinAC RTX 2008
  - SIMOTION C2xx, SIMOTION P320-4, SIMOTION D4x5-2
- Can also be used with external encoders

Ordering data

	Article No.
IM 174 PROFIBUS module PROFIBUS module for connecting analog drives and stepper drives to a controller	**6ES7174-0AA10-0AA0**
Setpoint cable	
for the connection between IM 174 and SIMODRIVE 611-A	**6FX2002-3AD01-** ■ ■ ■ ■
0 m	**1**
100 m	**2**
200 m	**3**
0 m	**A**
10 m	**B**
20 m	**C**
30 m	**D**
40 m	**E**
50 m	**F**
60 m	**G**
70 m	**H**
80 m	**J**
90 m	**K**
0 m	**A**
1 m	**B**
2 m	**C**
3 m	**D**
4 m	**E**
5 m	**F**
6 m	**G**
7 m	**H**
8 m	**J**
9 m	**K**
0.0 m	**0**
0.1 m	**1**
0.2 m	**2**
0.3 m	**3**
0.4 m	**4**
0.5 m	**5**
0.6 m	**6**
0.7 m	**7**
0.8 m	**8**

Technical specifications

Article number	**6ES7174-0AA10-0AA0** IM 174 for connecting analog Drives
Supply voltage	
Rated value (DC)	24 V
Input current	
Current consumption, max.	500 mA
from backplane bus 5 V DC, max.	100 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes
• Output current, max.	1.2 A
• Cable length, max.	25 m
24 V encoder supply	
• 24 V	Yes
• Output current, max.	1.4 A
• Cable length, max.	100 m
Absolute encoder (SSI) encoder supply	
• Absolute encoder (SSI)	Yes
• Short-circuit protection	Yes
Power loss	
Power loss, typ.	12 W
Digital inputs	
Number of digital inputs	10
Input voltage	
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
- at "0" to "1", min.	15 µs
Cable length	
• shielded, max.	100 m

Article number	**6ES7174-0AA10-0AA0** IM 174 for connecting analog Drives
Digital outputs	
Number of digital outputs	8
Short-circuit protection	Yes
Switching capacity of the outputs	
• with resistive load, max.	1 A
• on lamp load, max.	30 W
Output voltage	
• Rated value (DC)	24 V; L+
• for signal "1", min.	L+ (-3 V)
• for signal "1", max.	3 V
Output current	
• for signal "1" permissible range for 0 to 55 °C, min.	5 mA
• for signal "1" permissible range for 0 to 55 °C, max.	300 mA
• for signal "0" residual current, max.	0.4 mA
Switching frequency	
• with resistive load, max.	500 Hz
• with inductive load, max.	0.5 Hz
Relay outputs	
• Number of relay outputs	4
• Number of operating cycles, max.	50 000
Switching capacity of contacts	
- with resistive load, max.	1 A
Cable length	
• shielded, max.	600 m
Analog outputs	
Number of analog outputs	4
Output ranges, voltage	
• -10 V to +10 V	Yes
Analog value generation for the outputs	
Integration and conversion time/ resolution per channel	
• Resolution with overrange (bit including sign), max.	15 bit

Technical specifications

Article number	**6ES7174-0AA10-0AA0** IM 174 for connecting analog Drives
Encoder	
Number of connectable encoders, max.	4
Connectable encoders	
• Incremental encoder (symmetrical)	Yes
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes
- permissible quiescent current (2-wire sensor), max.	2 mA
Encoder signals, incremental encoder (symmetrical)	
• Trace mark signals	A, notA, B, notB
• Zero mark signal	N, notN
• Input voltage	5 V difference signal (phys. RS 422)
• Input frequency, max.	1 MHz
• Cable length, shielded, max.	35 m; 35 m at max. 500 kHz; 10 m at max. 1 MHz
Encoder signals, absolute encoder (SSI)	
• Input signal	5 V difference signal (phys. RS 422)
• Data signal	DATA, notDATA
• Clock signal	CL, notCL
• Telegram length, parameterizable	13, 21, 24 bit
• Clock frequency, max.	1.5 MHz; 187.5 KHz 1.5 MHz (parameterizable)
• Binary code	Yes
• Gray code	Yes
• Cable length, shielded, max.	250 m; 250 m at 187.5 kHz, 10 m at 1.5 MHz
Interrupts/diagnostics/ status information	
Alarms	
• Diagnostic alarm	Yes

Article number	**6ES7174-0AA10-0AA0** IM 174 for connecting analog Drives
Drive interface	
Number of drive interfaces	4
Analog drive	
Setpoint signal	
- Short-circuit proof	Yes; max. 45 mA, min. 3.3 kOhm load impedance
- Rated voltage range	-10.5 V to +10.5 V
- Output current	-3 to +3 mA
Output controller enable	
- Number of relay contacts	4
- Switching voltage, max.	30 V
- Switching current, max.	1 A
- Switching capacity, max.	30 V·A
- Number of switching cycles, min.	50 000; at 30 V DC, 1 A
- Cable length, shielded, max.	35 m
Stepper drive	
• Differential output voltage, min.	2 V; R = 100 Ohm
• Differential output voltage for signal "0", max.	1 V; For I = -20 mA
• Differential output voltage for signal "1", min.	3.7 V; 3.7 V at I = -20 mA; 4.5 V at I = -100 µA,
• Load resistance, min.	55 Ω
• Output current, max.	60 mA
• Pulse frequency	750 kHz
• Cable length, shielded, max.	50 m; in hybrid operation with analog axes 35 m, in asymmetrical transmission 10 m
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Connection method	
required front connector	40-pin
Dimensions	
Width	160 mm
Height	125 mm
Depth	118 mm
Weights	
Weight, approx.	1 kg

SIWAREX U

Overview

SIWAREX U is a versatile weighing module for all simple weighing and force measuring tasks. The compact module can be integrated into SIMATIC automation systems without any problems. Complete data access is then possible via the SIMATIC.

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Ordering data

	Article No.
SIWAREX U For SIMATIC S7 and ET 200M, incl. bus connector, weight 0.3 kg (0.661 lb)	
Single-channel version[1] for connecting one scale	**7MH4950-1AA01**
Two-channel version[2] for connecting two scales	**7MH4950-2AA01**
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	**7MH4900-1AK01**
SIWAREX U configuration package for PCS 7, version 8.0 Suitable for 7MH4950-xAA01 • Function block for CFC • Faceplate • Manual	**7MH4950-3AK62**
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: • SIWAREX FTC_L (Loss-in-weight)	**7MH4900-1AK61**
SIWATOOL connection cable From SIWAREX U/CS with serial PC interface, for 9-pin PC interfaces (RS 232), length 3 m (9.84 ft)	**7MH4607-8CA**
Installation material (mandatory)	
20-pin front connector with screw contacts Required for each SIWAREX module	**6ES7392-1AJ00-0AA0**
Shield connection element Sufficient for two SIWAREX U modules	**6ES7390-5AA00-0AA0**
Shield connection clamp Contents: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: • Scale connection • RS 485 interface • RS 232 interface	**6ES7390-5CA00-0AA0**
S7 DIN rail	
• 160 mm (6.30 inch)	**6ES7390-1AB60-0AA0**
• 480 mm (18.90 inch)	**6ES7390-1AE80-0AA0**
• 530 mm (20.87 inch)	**6ES7390-1AF30-0AA0**
• 830 mm (32.68 inch)	**6ES7390-1AJ30-0AA0**
• 2 000 mm (78.74 inch)	**6ES7390-1BC00-0AA0**
Accessories (optional)	
Labeling strips (10 units, spare part)	**6ES7392-2XX00-0AA0**
Remote displays (option) The digital remote displays can be connected directly to SIWAREX U through a TTY interface. The following remote displays can be used: S102, S302 Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.	
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	**7MH5001-0AA20**

[1] Compatible with 7MH4601-1AA01; supply of load cells changed to 6 V DC.

[2] Compatible with 7MH4601-1BA01; supply of load cells changed to 6 V DC.

Ordering data

	Article No.
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	**7MH5001-0AA00**
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	**7MH5001-0AA01**
SIWAREX IS Ex interface For intrinsically-safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
• With short-circuit current < 199 mA DC	**7MH4710-5BA**
• With short-circuit current < 137 mA DC	**7MH4710-5CA**
Cable (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	**7MH4702-8AG**
• For hazardous atmospheres. Sheath color: blue.	**7MH4702-8AF**

	Article No.
Commissioning	
Commissioning charge for one static scale with SIWAREX module (Flat charge for travel and setup must be ordered separately) Scope: • Recording of data • Checking of mechanical installation of the scale • Checking of electrical wiring and function • Static adjustment of the scale Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	**9LA1110-8SN50-0AA0**
Flat charge for travel and setup in Germany	**9LA1110-8RA10-0AA0**

Technical specifications

SIWAREX U	
Integration in automation systems	
• S7-300	Direct integration
• S7-1500	Through ET 200M
• S7-400 (H)	Through ET 200M
• PCS 7 (H)	Through ET 200M
• Automation systems from other vendors	Through ET 200M
• Stand-alone (without SIMATIC CPU)	Possible with IM 153-1
Communication interfaces	• SIMATIC S7 (P bus) • RS 232 • TTY
Connection of remote display (via serial TTY interface)	Gross, channel 1, 2 or default value 1, 2
Scale adjustment	Through SIMATIC (P bus) or PC using SIWATOOL U (RS 232)
Measuring properties	
Error limit according to DIN 1319-1 of full-scale value at 20 °C ± 10 K (68 °F ± 10 K)	0.05%
Internal resolution ADC	65 535
Data format weight values	2 bytes (fixed-point)
Number of measurements/second	50
Digital filter	0.05 ... 5 Hz (in 7 steps), mean value filter
Weighing functions	
Weight values	Gross
Limit values	2 (min./max.)
Zero-setting function	Per command
Load cells	Strain gauges in 4-wire or 6-wire system

SIWAREX U	
Load cell powering	
Supply voltage U_s (rated value)	6 V DC[1]
Max. supply current	≤ 150 mA per channel
Permissible load resistance	
• R_{Lmin}	> 40 Ω per channel
• R_{Lmax}	< 4 010 Ω
With Ex(i) interface	
• R_{Lmin}	> 87 Ω per channel
• R_{Lmax}	< 4 010 Ω
Permissible load cell characteristic	Up to 4 mV/V
Max. distance of load cells	• 500 m[2] • 150/500 m for gas group IIC • 500 m[2] for gas group IIB (see SIWAREX IS Manual)
Intrinsically-safe load cell powering	Optional (Ex interface) with SIWAREX IS
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	150 mA (single-channel) / 240 mA (dual-channel)
Current consumption on backplane bus	≤ 100 mA
Certification	ATEX 95, FM, cUL_{US} Haz. Loc.
IP degree of protection to DIN EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min\ (IND)}$ ... $T_{max\ (IND)}$ (operating temperature)	
• Horizontal installation	0 ... +60 °C (32 ... 140 °F)
• Vertical installation	0 ... +40 °C (32 ... 104 °F)
EMC requirements according to	According to NAMUR NE21, Part 1; EN 61326
Dimensions	40 × 125 × 130 mm (1.58 × 4.92 × 5.12 inch)

[1] Load cell supply changed to 6 V DC as compared to 7MH4601-1AA01 and 7MH4601-1BA01.

[2] Possible up to 1 000 m under certain conditions when using the recommended cable (accessories).

Overview

SIWAREX FTA (Flexible Technology, Automatic Weighing Instrument) is a versatile and flexible weighing module for industrial use. It can be used in both non-automatic and automatic weighing operation, for example the production of mixtures, and for filling, loading, monitoring and bag filling.

It has the corresponding scale approvals and is also suitable for weighing systems requiring official calibration.

The SIWAREX FTA function module is integrated in SIMATIC S7/PCS 7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

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Ordering data

	Article No.
SIWAREX FTA Legal-for-trade electronic weighing systems for automatic scales for S7-300 and ET 200M. EU type approval 3 x 6000 d Applications: Dosing, filling, bagging, loading. Note: Observe approval conditions for applications requiring official calibration. We recommend using our calibration set and contacting our SIWAREX hotline.	**7MH4900-2AA01**
SIPLUS FTA SIPLUS FTA -10 ... +60 °C with conformal coating based on 7MH4900-2AA01 Legal-for-trade electronic weighing system for automatic scales for S7-300 and ET 200M. EU type approval 3 x 6000 d Application areas: Dosing, filling, bagging, loading. Note: Observe approval conditions for applications requiring official calibration. We recommend using our calibration set and contacting our SIWAREX hotline.	**6AG1900-2AA01-4AA0**
SIWAREX FTA Equipment Manual Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTA "Getting Started" Sample software shows beginners how to program the scales in STEP 7. Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	**7MH4900-1AK01**

	Article No.
Configuration package SIWAREX FTA for SIMATIC PCS 7, Version 8.0 on CD-ROM • HSP hardware support package for integrating SIWAREX FTA/FTC in STEP 7 • Function block for CFC • Faceplate • Manual	**7MH4900-2AK63**
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: • SIWAREX FTC_L (Loss-in-weight)	**7MH4900-1AK61**
Calibration set for SIWAREX FTA For verification of up to 5 scales comprising: • 3 × inscription foils for ID label • 1 × protective film • Guidelines for verification, verification certificates and approvals, editable label, SIWAREX FTA Equipment Manual on CD-ROM	**7MH4900-2AY10**
SIWATOOL connection cable From SIWAREX FTA with serial PC interface, for 9-pin PC interfaces (RS 232) • 2 m long (6.56 ft) • 5 m long (16.40 ft)	 **7MH4702-8CA** **7MH4702-8CB**
Front connector, 40-pin Required for each SIWAREX module • With screw contacts • With spring-loaded terminals	 **6ES7392-1AM00-0AA0** **6ES7392-1BM01-0AA0**

SIWAREX FTA

Ordering data	Article No.
Shield connection element Sufficient for one SIWAREX FTA module	**6ES7390-5AA00-0AA0**
Shield connection clamp Contents: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: • Scale connection • RS 485 interface • RS 232 interface	**6ES7390-5CA00-0AA0**
S7 DIN rail	
• 160 mm (6.30 inch)	**6ES7390-1AB60-0AA0**
• 480 mm (18.90 inch)	**6ES7390-1AE80-0AA0**
• 530 mm (20.87 inch)	**6ES7390-1AF30-0AA0**
• 830 mm (32.68 inch)	**6ES7390-1AJ30-0AA0**
• 2 000 mm (78.74 inch)	**6ES7390-1BC00-0AA0**
MMC memory For data recording up to 32 MB, only for legal-for-trade applications R76, R51 and R107	**7MH4900-2AY21**
Remote displays (option) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTA via an RS 485 interface. Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.	
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting several junction boxes	**7MH5001-0AA20**
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	**7MH5001-0AA00**
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	**7MH5001-0AA01**

	Article No.
Ex interface SIWAREX IS For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
• With short-circuit current < 199 mA DC	**7MH4710-5BA**
• With short-circuit current < 137 mA DC	**7MH4710-5CA**
Cable (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	**7MH4702-8AG**
• For hazardous atmospheres. Sheath color: blue.	**7MH4702-8AF**
Commissioning	
Commissioning charge for one static scale with SIWAREX module (Flat charge for travel and setup must be ordered separately) Scope: • Recording of data • Checking of mechanical installation of the scale • Checking of electrical wiring and function • Static adjustment of the scale Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	**9LA1110-8SN50-0AA0**
Flat charge for travel and setup in Germany	**9LA1110-8RA10-0AA0**

Technical specifications

SIWAREX FTA	
Use in automation systems	
S7-300	Directly or via ET 200M
S7-1500	Through ET 200M
S7-400 (H)	Through ET 200M
PCS 7 (H)	Through ET 200M
Communication interfaces	
S7	Through backplane bus
RS 232	For SIWATOOL or printer connection
RS 485	For remote display or digital load cell
Module parameterization	Using SIMATIC S7
	Using SIWATOOL FTA software (RS 232)
Measuring properties	
EU type approval as non automatic weighing instrument, trade class III	3 x 6 000 d ≥ 0.5 µV/e
Internal resolution	16 million parts
Internal/external updating rate	400/100 Hz
Several parameterizable digital filters	Critically dampened, Bessel, Butterworth (0.05 ... 20 Hz), mean-value filter
Weighing functions	
Non automatic weighing instrument	OIML R76
Automatic weighing machine	OIML R51, R61, R107
Load cells	Strain gauges in 4-wire or 6-wire system
3 characteristic value ranges	1, 2 or 4 mV/V
Load cell powering	
Supply voltage U_S (rated value)	10.3 V DC
Max. supply current	184 mA
Permissible load cell resistance	
• R_{Lmin}	> 56 Ω > 87 Ω with Ex interface
• R_{Lmax}	≤ 4 010 Ω

SIWAREX FTA	
Max. distance of load cells	
When using the recommended cable:	
Standard	1 000 m (3 280 ft)
In hazardous area [1]	
• For gases of group IIC	300 m (984 ft)
• For gases of group IIB	1000 m (3 280 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approvals zone 2 and safety	ATEX 95, FM, cUL_{US} Haz. Loc.
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	500 mA
Current consumption on backplane bus	Typ. 55 mA
Inputs/outputs	
Digital inputs	7 DI electrically isolated
Digital outputs	8 DO electrically isolated
Counter input	Up to 10 kHz
Analog output	
• Current range	0/4 ... 20 mA
• Updating rate	100 Hz
Approvals	EU type approval (CE, OIML R76)
	EU prototype test according to MID (OIML R51, R61, R107)
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements	
$T_{min\ (IND)}$ ... $T_{max\ (IND)}$ (operating temperature)	
• Horizontal installation	-10 ... 60 °C (14 ... 140 °F)
• Vertical installation	-10 ... 40 °C (14 ... 104 °F)
EMC requirements	EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	80 × 125 × 130 mm (3.15 × 4.92 × 5.12 inch)
Weight	600 g (0.44 lb)

[1] For further details, see Ex interface, type SIWAREX IS.

SIWAREX FTC

Overview

The SIWAREX FTC (Flexible Technology for Continuous Weighing) is a versatile and flexible weighing module for belt scales, loss-in-weight feeders and solids flowmeters.
It can also be used to record weights and measure force.
The SIWAREX FTC function module is integrated in SIMATIC S7/PCS 7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

Ordering data

	Article No.
SIWAREX FTC Electronic weighing system for S7-300 and ET 200M. Applications: Belt scales, force measurement, loss-in-weight scales and solids flowmeters	**7MH4900-3AA01**
SIWAREX FTC_B Equipment Manual for belt scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC_L Equipment Manual for solids flowmeters and loss-in-weight scales Available in a range of languages Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for belt scales Sample software shows beginners how to program the scales in STEP 7 for belt scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for solids flowmeters Sample software shows beginners how to program the scales in STEP 7 for solids flowmeter mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTC "Getting Started" for loss-in-weight scales Sample software shows beginners how to program the scales in STEP 7 for loss-in-weight scale mode Free download on the Internet at: http://www.siemens.com/weighing/documentation	

	Article No.
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	**7MH4900-1AK01**
SIWAREX PCS 7 AddOn Library for PCS7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scale) • SIWAREX WP321 Classic faceplate and function block for: • SIWAREX FTC_L (Loss-in-weight)	**7MH4900-1AK61**
SIWATOOL connection cable from SIWAREX FTC with serial PC interface, for 9-pin PC interfaces (RS 232) • 2 m long (6.56 ft) • 5 m long (16.40 ft)	 **7MH4702-8CA** **7MH4702-8CB**
40-pin front connector with screw contacts Required for each SIWAREX module • With screw contacts • With spring-loaded terminals	 **6ES7392-1AM00-0AA0** **6ES7392-1BM01-0AA0**
Shield connection element Sufficient for one SIWAREX FTC module	**6ES7390-5AA00-0AA0**
Shield connection clamp Contents: 2 units (suitable for cable with diameter 4 ... 13 mm / 0.16 ... 0.51 inch) Note: One shield connection clamp is required for each of the following: • Scale connection • RS 485 interface • RS 232 interface	**6ES7390-5CA00-0AA0**

Ordering data	Article No.
S7 DIN rail	
• 160 mm (6.30 inch)	**6ES7390-1AB60-0AA0**
• 480 mm (18.90 inch)	**6ES7390-1AE80-0AA0**
• 530 mm (20.87 inch)	**6ES7390-1AF30-0AA0**
• 830 mm (32.68 inch)	**6ES7390-1AJ30-0AA0**
• 2 000 mm (78.74 inch)	**6ES7390-1BC00-0AA0**
MMC memory For data logging up to 32 MB, only for legal-for-trade applications R76, R51 and R107	**7MH4900-2AY21**
Remote display (optional) The Siebert S102 and S302 remote digital displays can be directly connected to the SIWAREX FTC via an RS 485 interface. (not suitable for belt scale mode) Siebert Industrieelektronik GmbH PO Box 1180 D-66565 Eppelborn Tel.: +49 6806/980-0 Fax: +49 6806/980-999 Internet: https://www.siebert-group.com/en/ Detailed information is available from the manufacturer.	
SIWAREX JB junction box, aluminum housing For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes.	**7MH5001-0AA20**
SIWAREX JB junction box, stainless steel housing For connecting up to 4 load cells in parallel.	**7MH5001-0AA00**
SIWAREX JB junction box, stainless steel housing (ATEX) For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	**7MH5001-0AA01**
Ex interface SIWAREX IS For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of load cells must be checked separately.	
• With short-circuit current < 199 mA DC	**7MH4710-5BA**
• With short-circuit current < 137 mA DC	**7MH4710-5CA**

	Article No.
Cable (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY For connecting SIWAREX electronic weighing systems to junction box (JB), extension box (EB) and Ex interface or between two EBs. For permanent installation. Occasional bending is possible. External diameter: approx. 10.8 mm (0.43 inch) Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F) Sold by the meter.	
• Sheath color: orange	**7MH4702-8AG**
• For hazardous atmospheres. Sheath color: blue.	**7MH4702-8AF**
Commissioning	
Commissioning charge for one belt scale with SIWAREX module (Flat charge for travel and setup must be ordered separately) Scope: • Recording of data • Checking of mechanical installation of the scale • Checking of electrical wiring and function • Dynamic adjustment of the scale Requirements: • Mechanical design functional • Modules electrically wired and tested • Calibration weights available • Free access to scale	**9LA1110-8SM50-0AA0**
Flat charge for travel and setup in Germany	**9LA1110-8RA10-0AA0**

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Technical specifications

SIWAREX FTC	
Use in automation systems	
S7-300	Directly or via ET 200M
S7-1500	Through ET 200M
S7-400 (H)	Through ET 200M
PCS 7 (H)	Through ET 200M
Communication interfaces	
S7	Through backplane bus
RS 232	For SIWATOOL or printer connection
RS 485	For remote display or digital load cell
Module parameterization	
	Using SIMATIC S7
	Using SIWATOOL FTC software (RS 232)
Measuring properties	
Accuracy according to EN 45501	3 x 6 000 d ≥ 0.5 µV/e
Internal resolution	+/- 8 million parts
Internal/external updating rate	400/100 Hz
Several parameterizable digital filters	Critically dampened, Bessel, Butterworth (0.05 ... 20 Hz), mean-value filter
Weighing functions	• Non automatic weighing instrument, force measurement • Belt scale • Loss-in-weight scale • Solids flowmeters
Load cells	Strain gauges in 4-wire or 6-wire system
3 characteristic value ranges	1, 2 or 4 mV/V
Load cell powering	
Supply voltage U_S (rated value)	10.3 V DC
Max. supply current	184 mA
Permissible load cell resistance • R_{Lmin} • R_{Lmax}	 > 56 Ω > 87 Ω with Ex interface ≤ 4 010 Ω

SIWAREX FTC	
Max. distance of load cells	
When using the recommended cable:	
Standard	1 000 m (3 280 ft)
In hazardous area [1)] • For gases of group IIC • For gases of group IIB	 300 m (984 ft) 1 000 m (3 280 ft)
Connection to load cells in Ex zone 1	Optionally via SIWAREX IS Ex interface
Ex approvals zone 2 and safety	ATEX 95, FM, cUL_{US} Haz. Loc.
Auxiliary power supply	
Rated voltage	24 V DC
Max. power consumption	500 mA
Current consumption on backplane bus	Typ. 55 mA
Inputs/outputs	
Digital inputs	7, electrically isolated
Digital outputs	8, electrically isolated
Counter input	Up to 10 kHz
Analog output • Current range • Updating rate	 0/4 ... 20 mA 100 Hz
Degree of protection according to EN 60529; IEC 60529	IP20
Climatic requirements $T_{min\ (IND)}$ ... $T_{max\ (IND)}$ (operating temperature) • Horizontal installation • Vertical installation	 -10 ... 60 °C (14 ... 140 °F) -10 ... 40 °C (14 ... 104 °F)
EMC requirements	EN 61326, EN 45501, NAMUR NE21, Part 1
Dimensions	80 × 125 × 130 mm (3.15 × 4.92 × 5.12 inch)
Weight	600 g (0.44 lb)

[1)] For further details, see Ex interface, type SIWAREX IS.

Overview

- Single-channel, intelligent counter module for simple counting tasks
- For direct connection of incremental encoders
- Comparison function with 2 definable comparison values
- Integrated digital outputs for output of the response on reaching the comparison value
- Operating modes:
  - Continuous counting
  - Single counting
  - Periodic counting
- Special functions:
  - Set counter
  - Latch counter
- Start/stop counter by gate function

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 FM 350-1 counter module	
With 1 channel, max. 500 kHz; for incremental encoder	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	**6AG1350-1AH03-2AE0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Consumables	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection element	**6ES7390-5AA00-0AA0**
80 mm wide, with 2 rows for 4 shield connection clamps each	
Shield connection clamps	
2 units	
For 1 cable, diameter 3 mm to 8 mm	**6ES7390-5BA00-0AA0**
For 1 cable, diameter 4 mm to 13 mm	**6ES7390-5CA00-0AA0**

	Article No.
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part), for modules with 20-pin front connector	
Slot number plates	**6ES7912-0AA00-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current Manual Collection DVD and the three subsequent updates	

Technical specifications

Article number	**6AG1350-1AH03-2AE0**
Based on	**6ES7350-1AH03-0AE0**
	SIPLUS S7-300 FM350-1
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *

Article number	**6AG1350-1AH03-2AE0**
Based on	**6ES7350-1AH03-0AE0**
	SIPLUS S7-300 FM350-1
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- 8-channel intelligent counter module for universal counting and measuring tasks
- For the direct connection of 24 V incremental encoders, directional encoders, initiators or NAMUR encoders
- Comparison function with predefined comparison values (number depending on operating mode)
- Integrated digital outputs for output of the response on reaching the comparison value
- Operating modes:
  - Continuous / single / periodic counting
  - Frequency and speed control
  - Period measurement
  - Dosing

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 FM 350-2 counter module	
With 8 channels, max. 20 kHz; for 24 V incremental encoders and NAMUR encoders; includes configuration package and electronic documentation on CD	
Exposure to media	**6AG1350-2AH01-4AE0**
Accessories	
Mandatory	
Front connector	
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Consumables	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection clamps	
2 units	
For 2 cables, diameter 2 mm to 6 mm	**6ES7390-5AB00-0AA0**
For 1 cable, diameter 3 mm to 8 mm	**6ES7390-5BA00-0AA0**
For 1 cable, diameter 4 mm to 13 mm	**6ES7390-5CA00-0AA0**

	Article No.
Label cover	**6ES7392-2XY10-0AA0**
10 units (spare part), for modules with 40-pin front connector	
Labeling strips	**6ES7392-2XX10-0AA0**
10 units (spare part), for modules with 40-pin front connector	
Slot number plates	**6ES7912-0AA00-0AA0**
Documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current Manual Collection DVD and the three subsequent updates	

Technical specifications

Article number	**6AG1350-2AH01-4AE0**
Based on	**6ES7350-2AH01-0AE0**
	SIPLUS S7-300 FM350-2
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C; = Tmin
• max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *

Article number	**6AG1350-2AH01-4AE0**
Based on	**6ES7350-2AH01-0AE0**
	SIPLUS S7-300 FM350-2
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

SIPLUS SIWAREX U electronic weighing system

SIPLUS SIWAREX U is a flexible weighing module for all simple weighing and force measuring tasks. The compact module can be integrated into SIPLUS automation systems without any problems.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS SIWAREX U electronic weighing system	
Article No.	**6AG1 950-2AA01-4AA0**
Article No. based on	**7MH4 950-2AA01**
Range of ambient temperature	0 ... +60 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical data	The technical data of the standard product applies except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning when condensation present

For technical documentation on SIPLUS, see:

http://www.siemens.com/siplus-extreme

Odering data

	Article No.
SIPLUS SIWAREX U	
Electronic weighing system for SIPLUS S7 and ET 200M, incl. bus connector	
Exposure to media	**6AG1950-2AA01-4AA0**
Accessories	
Mandatory	
Front connector	
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
Consumables	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection clamps	
2 units	
For 2 cables, diameter 2 mm to 6 mm	**6ES7390-5AB00-0AA0**
For 1 cable, diameter 3 mm to 8 mm	**6ES7390-5BA00-0AA0**
For 1 cable, diameter 4 mm to 13 mm	**6ES7390-5CA00-0AA0**

	Article No.
Labeling strips	**6ES7392-2XX00-0AA0**
10 units (spare part)	
Label cover	**6ES7392-2XY00-0AA0**
10 units (spare part)	
Slot number plates	**6ES7912-0AA00-0AA0**
SIWAREX JB junction box, aluminum housing	**7MH5001-0AA20**
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	
SIWAREX JB junction box, stainless steel housing	**7MH5001-0AA00**
For connecting up to 4 load cells in parallel	
SIWAREX JB junction box, stainless steel housing (ATEX)	**7MH5001-0AA01**
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	
Ex interface, type SIWAREX IS	
With ATEX approval, but without UL and FM approvals, for intrinsically safe connection of load cells	
Incl. Equipment Manual	
Suitable for SIWAREX U, CS, MS, FTA, FTC and CF weighing modules	
Approved for use in the EU	
• With short-circuit current < 199 mA DC	**7MH4710-5BA**
• With short-circuit current < 137 mA DC	**7MH4710-5CA**

SIPLUS SIWAREX U

Ordering data

	Article No.
Cables (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, orange sheath For connecting SIWAREX U, CS, MS, FTA, FTC and CF to the junction box (JB), extension box (EB) or Ex interface (Ex-I) or between two JBs; for fixed laying, occasional bending permitted, 10.8 mm (0.43 inch) outer diameter, for ambient temperature -40 ... +80 °C (-40 ... +176 °F)	**7MH4702-8AG**
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, blue sheath For connecting the junction box (JB) or extension box (EB) in a potentially explosive atmosphere to the Ex interface (Ex I), for fixed laying, occasional bending permitted, blue PVC insulating sheath, approx. 10.8 mm (0.43 inch) outer diameter, for ambient temperature -40 ... +80 °C (-40 ... +176 °F)	**7MH4702-8AF**

	Article No.
Configuration software	
SIWATOOL V4 & V7 Service and commissioning software for SIWAREX weighing modules	**7MH4900-1AK01**
SIWAREX U configuration package for PCS 7, version 8.0 Suitable for 7MH4950-xAA01 • Function block for the CFC chart • Faceplate • Manual	**7MH4950-3AK62**
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0 • Supports PROFINET APL faceplates and function blocks for: • SIWAREX U • SIWAREX FTA • SIWAREX FTC_B (belt scales) • SIWAREX WP321 Classic faceplate and function block for: • SIWAREX FTC_L (Loss-in-weight)	**7MH4900-1AK61**
Documentation	
SIMATIC Manual Collection Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current Manual Collection DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Overview

SIPLUS SIWAREX FTA (Flexible Technology, Automatic Weighing Instrument) is a versatile and flexible weighing module for industrial use. It can be used in both non-automatic and automatic weighing operation, for example the production of mixtures, and for filling, loading, monitoring and bag filling.

It has the corresponding scale approvals and is also suitable for legal-for-trade weighing systems.

The SIPLUS SIWAREX FTA function module is integrated in SIMATIC S7/PCS7 and uses the features of this modern automation system, such as integrated communication, diagnostics and configuration tools.

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the corresponding standard products. SIPLUS extreme specific information has been added.

SIPLUS SIWAREX FTA	
Article No.	**6AG1900-2AA01-4AA0**
Article No. based on	**7MH4900-2AA01**
Ambient temperature range	-25 … +70 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical specifications	The technical specifications of the standard product apply, except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning under condensation conditions.
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold, fungal and dry rot spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation!
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation!
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation!

Ordering data

	Article No.
SIPLUS SIWAREX FTA	**6AG1900-2AA01-4AA0**
Weighing electronics with official calibration capability for (automatic) scales for S7-300 and ET 200M EU type approval 3 x 6000 d Application areas: Proportioning, filling, bagging, loading. Notice: Observe approval conditions for applications with verification obligations. We recommend using our calibration set and contacting our SIWAREX hotline.	
Exposure to media	
Accessories	
Mandatory	
MMC memory	**7MH4900-2AY21**
For data recording up to 32 MB, only for R76, R51 and R107 applications with calibration capability	
Front connector	
40-pin	
• With screw connections	**6ES7392-1AM00-0AA0**
• With spring-loaded contacts	**6ES7392-1BM01-1AB0**

	Article No.
Consumables	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Shield connection clamps	
2 units; one shield connection clamp each is required for the weighing instrument connection, RS 485 interface and RS 232 interface	
For 1 cable, diameter 4 mm to 13 mm	**6ES7390-5CA00-0AA0**
Shield connection element	**6ES7390-5AA00-0AA0**
Sufficient for one SIWAREX FTA module	
SIWAREX JB junction box, aluminum housing	**7MH5001-0AA20**
For connecting up to 4 load cells in parallel, and for connecting multiple junction boxes	
SIWAREX JB junction box, stainless steel housing	**7MH5001-0AA00**
For connecting up to 4 load cells in parallel.	
SIWAREX JB junction box, stainless steel housing (ATEX)	**7MH5001-0AA01**
For parallel connection of up to 4 load cells (for zone allocation, see manual or type-examination certificate).	

SIPLUS SIWAREX FTA

Ordering data	Article No.
Ex interface, type SIWAREX IS	
For intrinsically safe connection of load cells. With ATEX approval (not UL/FM). Suitable for SIWAREX electronic weighing systems. Compatibility of the load cells must be checked separately.	
• With short-circuit current < 199 mA DC	**7MH4710-5BA**
• With short-circuit current < 137 mA DC	**7MH4710-5CA**
Cables (optional)	
Cable Li2Y 1 x 2 x 0.75 ST + 2 x (2 x 0.34 ST) – CY, orange sheath	
For connecting SIWAREX electronic weighing systems to junction boxes (JB), extension boxes (EB) and Ex interface or between two JBs. For permanent installation. Occasional bending is permitted.	
Outer diameter: approx. 10.8 mm (0.43 inch)	
Permissible ambient temperature -40 ... +80 °C (-40 ... +176 °F)	
Sold by the meter	
Sheath color: orange	**7MH4702-8AG**
For hazardous areas. Sheath color: blue	**7MH4702-8AF**
Configuration software	
SIWATOOL V4 & V7	**7MH4900-1AK01**
Service and commissioning software for SIWAREX weighing modules	
SIWAREX PCS 7 AddOn Library for PCS 7 V8.x and V9.0	**7MH4900-1AK61**
• Supports PROFINET	
APL faceplates and function blocks for:	
• SIWAREX U	
• SIWAREX FTA	
• SIWAREX FTC_B (belt scales)	
• SIWAREX WP321	
Classic faceplate and function block for:	
• SIWAREX FTC_L (loss in weight)	

Ordering data	Article No.
Calibration set for SIWAREX FTA	**7MH4900-2AY10**
For verification of up to 5 scales, comprising:	
• 3 x inscription foil for labeling	
• 1 x protective foil	
• Guidelines for verification, verification certificates and approvals, adaptable label, SIWAREX FTA Manual on CD-ROM	
SIWATOOL connection cable	
From SIWAREX FTA with serial PC interface, for 9-pin PC interfaces (RS 232)	
• 2 m long (6.56 ft)	**7MH4702-8CA**
• 5 m long (16.40 ft)	**7MH4702-8CB**
Documentation	
SIWAREX FTA Manual	
Available in a range of languages	
Free download from the Internet at: http://www.siemens.com/weighing/documentation	
SIWAREX FTA "Getting started"	
Sample software shows beginners how to program the scales in STEP 7.	
Free download on the Internet at: http://www.siemens.com/weighing/documentation	
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC Distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current Manual Collection DVD and the three subsequent updates	

Overview

- The economical complete solution for serial communication via point-to-point links.
- 3 versions with different transmission interfaces:
  - RS 232C (V.24)
  - 20 mA (TTY)
  - RS 422/RS 485 (X.27)
- Implemented protocols:
  - ASCII
  - 3964 (R) (not for RS 485)
  - Printer driver
- Simple parameterization via a parameterization tool integrated into STEP 7

Ordering data

	Article No.
CP 340 communications module	**6ES7340-1AH02-0AE0**
With one RS 232 C (V.24) interface	
RS 232 connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-1AB00-0AA0**
10 m	**6ES7902-1AC00-0AA0**
15 m	**6ES7902-1AD00-0AA0**
CP 340 communications module	**6ES7340-1BH02-0AE0**
With one 20 mA (TTY) interface	
20 mA (TTY) connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-2AB00-0AA0**
10 m	**6ES7902-2AC00-0AA0**
50 m	**6ES7902-2AG00-0AA0**
CP 340 communications module	**6ES7340-1CH02-0AE0**
With one RS 422/485 (X.27) interface	
RS 422/485 connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-3AB00-0AA0**
10 m	**6ES7902-3AC00-0AA0**
50 m	**6ES7902-3AG00-0AA0**

Technical specifications

Article number	**6ES7340-1AH02-0AE0**	**6ES7340-1BH02-0AE0**	**6ES7340-1CH02-0AE0**
	CP340 w. RS232C interface(V.24)	CP340 w. 20MA interface(TTY)	CP340 w. RS422/485 interface
General information			
Product type designation	CP 340	CP 340	CP 340
Supply voltage			
Rated value (DC)			
• 24 V DC	No; Power supply via backplane bus 5V	No; Power supply via backplane bus 5V	No; Power supply via backplane bus 5V
Input current			
from backplane bus 5 V DC, max.	165 mA	190 mA	165 mA
Power loss			
Power loss, typ.	0.6 W	0.85 W	0.6 W
Interfaces			
Interfaces/bus type	RS 232C (V.24)	20 mA (TTY)	
Number of interfaces	1; Isolated	1; Isolated	1; Isolated
Transmission rate, min.	2.4 kbit/s	2.4 kbit/s	2.4 kbit/s
Transmission rate, max.	19.2 kbit/s	19.2 kbit/s	19.2 kbit/s
Point-to-point connection			
• Cable length, max.	15 m	1 000 m; 100 m active, 1 000 m passive	1 200 m
• supported printers	HP-Deskjet, HP-Laserjet, IBM-Proprinter, user-defined	HP-Deskjet, HP-Laserjet, IBM-Proprinter, user-defined	HP-Deskjet, HP-Laserjet, IBM-Proprinter, user-defined
• Connector type	9-pin sub D connector	9-pin sub D socket	15-pin sub D socket
Integrated protocol driver			
- 3964 (R)	Yes	Yes	Yes
- ASCII	Yes	Yes	Yes
- RK 512	No	No	No
- customer-specific drivers reloadable	No	No	No
Telegram length, max.			
- 3964 (R)	1 024 byte	1 024 byte	1 024 byte
- ASCII	1 024 byte	1 024 byte	1 024 byte

Technical specifications

Article number	**6ES7340-1AH02-0AE0**	**6ES7340-1BH02-0AE0**	**6ES7340-1CH02-0AE0**
	CP340 w. RS232C interface(V.24)	CP340 w. 20MA interface(TTY)	CP340 w. RS422/485 interface
Transmission rate, 20 mA (TTY)			
- with 3964 (R) protocol, max.		19.2 kbit/s	
- with ASCII protocol, max.		9.6 kbit/s	
- with printer driver, max.		9.6 kbit/s	
Transmission rate, RS 422/485			
- with 3964 (R) protocol, max.			19.2 kbit/s
- with ASCII protocol, max.			9.6 kbit/s
- with printer driver, max.			9.6 kbit/s
Transmission speed, RS 232			
- with 3964 (R) protocol, max.	19.2 kbit/s		
- with ASCII protocol, max.	9.6 kbit/s		
- with printer driver, max.	9.6 kbit/s		
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Ambient temperature during storage/transportation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C
Software			
Block			
• FB length in RAM, max.	2 700 byte; Data communication, sending and receiving	2 700 byte; Data communication, sending and receiving	2 700 byte; Data communication, sending and receiving
Connection method			
Design of electrical connection for supply voltage	Over backplane bus	Over backplane bus	Over backplane bus
Dimensions			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	300 g	300 g	300 g

Overview

- For quick, high-performance serial data exchange via point-to-point coupling
- 3 versions with different transmission physics:
  - RS 232C (V.24),
  - 20 mA (TTY),
  - RS 422/RS 485 (X.27)
- Implemented protocols: ASCII, 3964 (R), RK 512
- The following protocols can also be loaded: Modbus RTU
- Simple parameter assignment using tool integrated in STEP 7

Ordering data

	Article No.
CP 341 communications module	**6ES7341-1AH02-0AE0**
With one RS 232 C (V.24) interface	
RS 232 connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-1AB00-0AA0**
10 m	**6ES7902-1AC00-0AA0**
15 m	**6ES7902-1AD00-0AA0**
CP 341 communications module	**6ES7341-1BH02-0AE0**
With one 20 mA (TTY) interface	
20 mA (TTY) connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-2AB00-0AA0**
10 m	**6ES7902-2AC00-0AA0**
50 m	**6ES7902-2AG00-0AA0**
CP 341 communications module	**6ES7341-1CH02-0AE0**
With one RS 422/485 (X.27) interface	
RS 422/485 connecting cable	
For linking to SIMATIC S7	
5 m	**6ES7902-3AB00-0AA0**
10 m	**6ES7902-3AC00-0AA0**
50 m	**6ES7902-3AG00-0AA0**
Loadable drivers for CP 341	
Modbus master (RTU format)	
• Single license	**6ES7870-1AA01-0YA0**
• Single license, without software or documentation	**6ES7870-1AA01-0YA1**
Modbus slave (RTU format)	
• Single license	**6ES7870-1AB01-0YA0**
• Single license, without software or documentation	**6ES7870-1AB01-0YA1**

Technical specifications

Article number	**6ES7341-1AH02-0AE0**	**6ES7341-1BH02-0AE0**	**6ES7341-1CH02-0AE0**
	CP 341 RS232C (V.24)	CP341 20mA-Interface (TTY)	CP341 RS422/485-Interface
General information			
Product type designation	CP 341	CP 341	CP 341
Supply voltage			
Rated value (DC)			
• 24 V DC	Yes	Yes	Yes
Input current			
from supply voltage L+, max.	100 mA	100 mA	100 mA
from backplane bus 5 V DC, max.	70 mA	70 mA	70 mA
Power loss			
Power loss, typ.	1.6 W	1.6 W	1.6 W
Interfaces			
Interfaces/bus type	RS 232C (V.24)	20 mA (TTY)	
Number of interfaces	1; Isolated	1; Isolated	1; Isolated
Transmission rate, min.	0.3 kbit/s	0.3 kbit/s	0.3 kbit/s
Transmission rate, max.	115.2 kbit/s	19.2 kbit/s	115.2 kbit/s

Technical specifications

Article number	**6ES7341-1AH02-0AE0**	**6ES7341-1BH02-0AE0**	**6ES7341-1CH02-0AE0**
	CP 341 RS232C (V.24)	CP341 20mA-Interface (TTY)	CP341 RS422/485-Interface
Point-to-point connection			
• Cable length, max.	15 m	1 000 m	1 200 m
• supported printers	Serial printers	Serial printers	Serial printers
• Connector type	9-pin sub D connector	9-pin sub D socket	15-pin sub D socket
Integrated protocol driver			
- 3964 (R)	Yes	Yes	Yes; not with RS 485
- ASCII	Yes	Yes	Yes
- RK 512	Yes	Yes	Yes; not with RS 485
Telegram length, max.			
- 3964 (R)	4 096 byte	4 096 byte	4 096 byte
- ASCII	4 096 byte	4 096 byte	4 096 byte
- RK 512	4 096 byte	4 096 byte	4 096 byte
Transmission rate, 20 mA (TTY)			
- with 3964 (R) protocol, max.		19.2 kbit/s	
- with ASCII protocol, max.		19.2 kbit/s	
- with printer driver, max.		19.2 kbit/s	
- with RK 512 protocol, max.		19.2 kbit/s	
Transmission rate, RS 422/485			
- with 3964 (R) protocol, max.			115.2 kbit/s
- with ASCII protocol, max.			115.2 kbit/s
- with printer driver, max.			115.2 kbit/s
- with RK 512 protocol, max.			115.2 kbit/s
Transmission speed, RS 232			
- with 3964 (R) protocol, max.	115.2 kbit/s		
- with ASCII protocol, max.	115.2 kbit/s		
- with printer driver, max.	115.2 kbit/s		
- with RK 512 protocol, max.	115.2 kbit/s		
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Ambient temperature during storage/transportation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C
Software			
Block			
• FB length in RAM, max.	6 100 byte; Data communication, sending and receiving	6 100 byte; Data communication, sending and receiving	6 100 byte; Data communication, sending and receiving
Connection method			
Design of electrical connection for supply voltage	3 screw-type terminals: L+, M, GND	3 screw-type terminals: L+, M, GND	3 screw-type terminals: L+, M, GND
Dimensions			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	300 g	300 g	300 g

Overview

- Drivers for Modbus protocol with RTU message format; communication as master or slave
- Downloadable onto CP 341 and CP 441-2 (6ES7 441-2AA05-0AE0)

Ordering data

	Article No.
Modbus Master V3.1	
Task: Communication via Modbus protocol with RTU format, SIMATIC S7 as master Requirement: CP 341 or CP 441-2; STEP 7 V4.02 and higher Delivery package: Driver program/documentation, English, German, French	
Single license	**6ES7870-1AA01-0YA0**
Single license, without software and documentation	**6ES7870-1AA01-0YA1**
Modbus Slave V3.1	
Task: Communication via Modbus protocol with RTU format, SIMATIC S7 as slave Requirement: CP 341 or CP 441-2; STEP 7 V4.02 and higher Delivery package: Driver program/documentation, English, German, French	
Single license	**6ES7870-1AB01-0YA0**
Single license, without software and documentation	**6ES7870-1AB01-0YA1**

	Article No.
SIMATIC Manual Collection	**6ES7998-8XC01-8YE0**
Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
SIMATIC Manual Collection update service for 1 year	**6ES7998-8XC01-8YE2**
Current "Manual Collection" DVD and the three subsequent updates	

Technical specifications

Parameterization software	**Loadable drivers for CP 441-2 and CP 341**
Type of license	Simple license, copy license
Target system	SIMATIC CP 341, SIMATIC CP 441-2

Technical specifications	**Modbus Master**
	• Modbus protocol with RTU format • Master/slave coupling: SIMATIC S7 is master • Function codes implemented: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 15, 16 • No V.24 control and signal lines • CRC polynomial: $x^{16} + x^{15} + x^2 + 1$ • Interfaces: TTY (20 mA); V.24 (RS 232 C); X.27 (RS 422/485) 2-wire or 4-wire • Receive mailbox specified on BRCV • Character delay time 3.5 characters or multiple thereof • Broadcast message possible
Adjustable parameters	• Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s) • Character frame • With/without RS 485 operation for 2-wire connections • With/without modem operation (ignore smudge characters) • Response monitoring time 100 ms to 25.5 s in steps of 100 ms • Factor for the character delay time 1-10 • Default setting of receive line when using the X.27 interface module

	Modbus slave
	• Modbus protocol with RTU format • Master/slave coupling: SIMATIC S7 is slave • Function codes implemented: 01, 02, 03, 04, 05, 06, 08, 15, 16 • No V.24 control and signal line • CRC polynomial: $x^{16} + x^{15} + x^2 + 1$ • Interfaces: TTY (20 mA), V.24 (RS 232C), X.27 (RS 422/485) 2-wire or 4-wire • Communications FB 180, instance DB 180 (use of a multi-instance) • Conversion of the Modbus data address to S7 data areas. Data areas which can be processed: DB, bit memories, outputs, inputs, timers, counters • Character delay time 3.5 characters or multiple thereof
Adjustable parameters	• Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s) • Character frame • Slave address of CP (1 to 255) • With/without RS 485 operation for 2-wire connection • With/without modem operation (ignore smudge characters) • Factor for the character delay time 1-10 • Number of work DB (for FB processing) • Enabling of memory areas for writing by the master • Default setting of receive line when using the X.27 interface module • Conversion of Modbus addresses to S7 data areas

Overview

The CP 343-2P communications processor is the AS-Interface master for the SIMATIC S7-300 and the ET 200M distributed I/O station, with user-friendly parameterizing options.

The CP 343-2 is the basic version of the module.

The CP 343-2P / CP 343-2 has the following characteristics:

- As many as 62 AS-Interface slaves can be connected
- Integrated analog value transmission
- Supports all AS-Interface master functions according to the AS-Interface Specification V3.0
- Status displays of operating states and indication of the readiness for operation of connected slaves by means of LEDs in the front panel
- Fault indications (including AS-Interface voltage fault, configuration fault) by means of LEDs in the front panel.
- Compact enclosure in the design of the SIMATIC S7-300
- Suitable for AS-Interface with 30-V voltage and AS-i Power24V (from product version 2/firmware version 3.1)
- Additionally for CP 343-2P: Supports the configuration of the AS-Interface-network with STEP 7 V5.2 and higher

Design

The CP 343-2P / CP 343-2 is connected like an I/O module to the S7-300. It has:

- Two terminal connections for connecting the AS-Interface cable directly.
- LEDs in the front panel for indicating the operating state and functional readiness of all connected and active slaves
- Pushbuttons for switching over the master operating state and for adopting the existing ACTUAL configuration of the AS-i slave as the TARGET configuration

Function

The CP 343-2P / CP 343-2 supports all specified functions of the extended AS-Interface Specification V3.0.

The CP 343-2P / CP 343-2 each occupy 16 bytes in the I/O address area of the SIMATIC S7-300. The digital I/O data of the standard slaves and A slaves is saved in this area. The digital I/O data of the B slaves and the analog I/O data can be accessed with the S7 system functions for read/write data records.

If required, master calls can be performed with the command interface, e.g. read/write parameters, read/write configuration.

For more information, see https://support.industry.siemens.com/cs/ww/en/view/51678777.

Notes on security

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens products and solutions only represent one component of such a concept.

For more information on Industrial Security, see http://www.siemens.com/industrialsecurity.

Configuration

All connected AS-Interface slaves are configured at the press of a button. No further configuration of the CP is required.

Additionally for CP 343-2P

The CP 343-2P also supports configuring of the AS-Interface network with STEP 7 V5.2 and higher. Specifying the AS-i configuration in HW-Config facilitates the setting of slave parameters and documentation of the plant. Uploading the ACTUAL configuration of an already configured AS-Interface network is also supported. The saved configuration cannot be overwritten at the press of a button and is therefore tamper-proof.

Benefits

- Shorter start-up times through simple configuration at the press of a button
- Design of flexible machine-related structures using the ET 200M distributed I/O system
- Enables diagnostics of the AS-Interface network
- Well suited also for complex applications thanks to connection options for 62 slaves and integral analog value processing
- Reduction of standstill and servicing times in the event of a fault thanks to the LED indicators:
  - Status of the AS-Interface network
  - Slaves connected and their readiness for operation
  - Monitoring of the AS-Interface voltage
- Lower costs for stock keeping and spare parts inventory because the CP can be used for the SIMATIC S7-300 and also for the ET 200M
- Additionally for CP 343-2P: Improved plant documentation and support for service assignments thanks to a description of the AS-Interface configuration in the STEP 7 project
- Simple operation with AS-Interface power supply unit (see https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/8200165?tree=CatalogTree) possible without restrictions
- Alternatively: No need for the AS-i power supply unit with AS-i Power24V. The AS-Interface cable is powered through an existing 24 V DC PELV power supply unit. An S22.5 AS-i data decoupling module (e.g. 3RK1901-1DE12-1AA0) is required for the decoupling, see https://mall.industry.siemens.com/mall/en/WW/Catalog/Products/10057533?tree=CatalogTree.

Application

The CP 343-2P / CP 343-2 is the AS-Interface master connection for the SIMATIC S7-300 and the ET 200M.

Through connection to AS-Interface it is possible to access max. 248 DI / 248 DQ per CP, using 62 A/B slaves with 4 DI / 4 DQ each.

With the integrated analog value processing, it is easy to transmit analog signals. Up to 62 analog slaves with an A/B address (each with up to two channels) or up to 31 analog slaves with a standard address (each with up to four channels) are possible per CP.

The CP 343-2P is the further development of the CP 343-2 and contains its entire functionality. An existing STEP 7 user program for a CP 343-2 can thus be used without restrictions with a CP 343-2P. It is only in STEP 7 HW-Config that the two modules are configured differently, with the CP 343-2P offering additional options. This is why the CP 343-2P is recommended.

Ordering data

Ordering data	Article No.
CP 343-2P communications processor • Device version with expanded configuration options for connection of SIMATIC S7-300 and ET 200M to AS-Interface • Configuration of the AS-i network using the SET key or STEP 7 • Without front connector • Corresponds to AS-Interface Specification V3.0 • Dimensions (W x H x D / mm): 40 x 125 x 120	**6GK7343-2AH11-0XA0**
CP 343-2 communications processor • Basic version for connection of SIMATIC S7-300 and ET 200M to AS-Interface • Configuration of the AS-i network using the SET key • Without front connector • Corresponds to AS-Interface Specification V3.0 • Dimensions (W x H x D / mm): 40 x 125 x 120	**6GK7343-2AH01-0XA0**
Accessories	
Front connector, 20-pin	
• With screw-type terminals	**6ES7392-1AJ00-0AA0**
• With spring-loaded terminals	**6ES7392-1BJ00-0AA0**
AS-Interface addressing unit V3.0 • For AS-Interface modules and sensors and actuators with integrated AS-Interface according to AS-i Specification V3.0 • For setting the AS-i address of standard slaves, and slaves with extended addressing mode (A/B slaves) • With input/output test function and many other commissioning functions • Battery operation with four type AA batteries (IEC LR6, NEDA 15) • Degree of protection IP40 • Dimensions (W × H × D / mm): 84 × 195 × 35 • Scope of supply: - Addressing unit with four batteries - Addressing cable, with M12 plug to addressing plug (hollow plug), length 1.5 m	**3RK1904-2AB02**

More information

More information
Manuals, see https://support.industry.siemens.com/cs/ww/en/ps/15754/man
For diagnostics during ongoing operation, diagnostics blocks with clearly arranged visualization on the SIMATIC HMI panel are available or can be downloaded free of charge via a web browser, see https://support.industry.siemens.com/cs/ww/en/view/61892138.
AS-Interface function block library for SIMATIC PCS 7 for easy connection of AS-Interface to PCS 7, see https://mall.industry.siemens.com/mall/en/ww/Catalog/Products/10046725?tree=CatalogTree.

Overview

DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

- PROFIBUS DP master or slave with electrical interface for connecting the SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)
- Communication services:
  - PROFIBUS DP
  - PG/OP communication (OP multiplexing)
  - S7 communication (client, server)
  - Open communication (SEND/RECEIVE)
- Easy configuration and programming over PROFIBUS
- Cross-network programming device communication through S7 routing
- Modules can be replaced without the need for a programming device

Ordering data

	Article No.
CP 342-5 communications processor	**6GK7342-5DA03-0XE0**
Communications processor for electrical connection of SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s, with electronic manual on CD-ROM	
Accessories	
PROFIBUS FastConnect RS 485 connection plug	
With 90° cable outlet; insulation displacement technology, max. transmission rate 12 Mbit/s	
• Without programming device interface	**6ES7972-0BA52-0XA0**
• With programming device interface	**6ES7972-0BB52-0XA0**
PROFIBUS bus connector IP20	
With connection to PPI, MPI, PROFIBUS	
• Without programming device interface	**6ES7972-0BA12-0XA0**
• With programming device interface	**6ES7972-0BB12-0XA0**
PROFIBUS FC Standard Cable	
2-core bus cable, shielded, special design for fast mounting, delivery unit: max. 1000 m, minimum order quantity 20 m, sold by the meter	**6XV1830-0EH10**
PROFIBUS bus terminal 12M	
Bus terminal for connection of PROFIBUS nodes at up to 12 Mbps with connecting cable	**6GK1500-0AA10**
SIMATIC S7-300 DM 370	**6ES7370-0AA01-0AA0**
Dummy module; used for module replacement	

Technical specifications

Article number	**6GK7342-5DA03-0XE0**
product type designation	CP 342-5
transfer rate	
transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 kbit/s ... 12 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	0
number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
• for power supply	1
type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS485)
• for power supply	4-pole terminal block

Article number	**6GK7342-5DA03-0XE0**
product type designation	CP 342-5
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.15 A
• from external supply voltage at DC at 24 V typical	0.25 A
power loss [W]	6.75 W

Technical specifications

Article number	**6GK7342-5DA03-0XE0**
product type designation	CP 342-5
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.3 kg
product features, product functions, product components general	
number of units	
• per CPU maximum	4
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	16
data volume	
• as user data per connection for open communication by means of SEND/RECEIVE blocks maximum	240 byte

Article number	**6GK7342-5DA03-0XE0**
product type designation	CP 342-5
performance data PROFIBUS DP	
service as DP master	
• DPV0	Yes
number of DP slaves	
• on DP master operable	124
data volume	
• of the address range of the inputs as DP master total	2 160 byte
• of the address range of the outputs as DP master total	2 160 byte
• of the address range of the inputs per DP slave	244 byte
• of the address range of the outputs per DP slave	244 byte
• of the address range of the diagnostic data per DP slave	240 byte
service as DP slave	
• DPV0	Yes
data volume	
• of the address range of the inputs as DP slave total	240 byte
• of the address range of the outputs as DP slave total	240 byte
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16
performance data multi-protocol mode	
number of active connections with multi-protocol mode	
• without DP maximum	32
• with DP maximum	28
performance data telecontrol	
protocol is supported	
• TCP/IP	No
product functions management, configuration, engineering	
configuration software	
• required	STEP 7 V5.1 SP2 or higher / STEP 7 Professional V12 (TIA Portal) or higher
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

- PROFIBUS DP master or slave with optical interface for connecting the SIMATIC S7-300 to PROFIBUS at up to 12 Mbps (including 45.45 Kbps)
- Direct connection to the optical PROFIBUS network via the integrated fiber-optic interface for plastic and PCF fiber-optic cables
- Communication services:
  - PROFIBUS DP
  - PG/OP communication (OP multiplexing)
  - S7 communication (client, server)
  - Open communication (SEND/RECEIVE)
- Easy configuration and programming over PROFIBUS
- Cross-network programming device communication through S7 routing
- Modules can be replaced without the need for a programming device

Ordering data

	Article No.
CP 342-5 FO communications processor	**6GK7342-5DF00-0XE0**
Communication processor for optical connection of SIMATIC S7-300 to PROFIBUS to 12 Mbps with electronic manual on CD-ROM	
Accessories	
PROFIBUS Plastic Fiber Optic, Simplex Connector/Polishing Set	**6GK1901-0FB00-0AA0**
100 simplex connectors and 5 polishing sets for assembling PROFIBUS plastic fiber optic cables for the optical PROFIBUS DP	
PROFIBUS Plastic Fiber Optic, stripping tool set	**6GK1905-6PA10**
Tools for removing the outer sheath or core sheath of plastic fiber optic cables	

Technical specifications

Article number	**6GK7342-5DF00-0XE0**
product type designation	CP 342-5 FO
transfer rate	
transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 kbit/s ... 12 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	0
number of electrical connections	
• for power supply	1
number of optical interfaces at the 1st interface acc. to PROFIBUS	2
design of the optical interface at the 1st interface acc. to PROFIBUS	Duplex socket
type of electrical connection	
• for power supply	4-pole terminal block

Article number	**6GK7342-5DF00-0XE0**
product type designation	CP 342-5 FO
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage	24 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.15 A
• from external supply voltage at DC at 24 V typical	0.25 A
power loss [W]	6 W

Technical specifications

Article number	**6GK7342-5DF00-0XE0**
product type designation	CP 342-5 FO
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module
width	40 mm
height	125 mm
depth	120 mm
net weight	0.3 kg
fastening method	
• S7-300 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	4
wire length	
• for PCF FOC maximum	300 m
• for POF FOC maximum	50 m
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	16
data volume	
• as user data per connection for open communication by means of SEND/RECEIVE blocks maximum	240 byte

Article number	**6GK7342-5DF00-0XE0**
product type designation	CP 342-5 FO
performance data PROFIBUS DP	
service as DP master	
• DPV0	Yes
number of DP slaves	
• on DP master operable	124
data volume	
• of the address range of the inputs as DP master total	2 160 byte
• of the address range of the outputs as DP master total	2 160 byte
• of the address range of the inputs per DP slave	244 byte
• of the address range of the outputs per DP slave	244 byte
• of the address range of the diagnostic data per DP slave	240 byte
service as DP slave	
• DPV0	Yes
data volume	
• of the address range of the inputs as DP slave total	240 byte
• of the address range of the outputs as DP slave total	240 byte
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16
performance data multi-protocol mode	
number of active connections with multi-protocol mode	
• without DP maximum	32
• with DP maximum	28
performance data telecontrol	
protocol is supported	
• TCP/IP	No
product functions management, configuration, engineering	
configuration software	
• required	STEP 7 V5.1 SP2 or higher / STEP 7 Professional V12 (TIA Portal) or higher
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

DP-M	DP-S	FMS	PG/OP	S7/S5	
		●	●	●	

Connection of SIMATIC S7-300 to PROFIBUS at up to 12 Mbit/s (including 45.45 Kbit/s)

- Communication services:
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
  - PROFIBUS FMS
- Easy configuration and programming over PROFIBUS
- Can be easily integrated into the S7-300 system
- Cross-network programming device communication through S7 routing
- Modules can be replaced without the need for a programming device

Ordering data

	Article No.
CP 343-5 communications processor Communications processor for connection of S7-300 to PROFIBUS, FMS, open communication, PG/OP and S7 communication; with electronic manual on CD-ROM	**6GK7343-5FA01-0XE0**
Accessories	
STEP 7 Version 5.7 Target system: SIMATIC S7-300/-400, SIMATIC C7 Requirements: Windows 10 Professional/ Enterprise, Windows Server 2016, Windows Server 2019 Type of delivery: English, German, French, Spanish, Italian; including license key on USB flash drive, with electronic documentation	
Floating license on DVD	**6ES7810-4CC12-0YA5**
Floating license, download[1]; software, license key and documentation as download; consignee email address required for delivery	**6ES7810-4CE12-0YB5**
Rental license for 50 hours; software and documentation on DVD, license key on USB flash	**6ES7810-4CC12-0YA6**
Rental license for 50 hours, download[1]; software, license key and documentation as download; consignee email address required for delivery	**6ES7810-4CE12-0YB6**
Upgrade floating license V5.3...5.6 to V5.7; on DVD	**6ES7810-4CC12-0YE5**
Upgrade floating license V5.3...V5.6 to V5.7, download[1]; software, license key and documentation as download; consignee email address required for delivery	**6ES7810-4CE12-0YE5**
Trial license STEP 7 V5.7; on DVD, runs for 21 days	**6ES7810-4CC12-0YA7**
PROFIBUS FastConnect RS485 bus connection plug With 90° cable outlet; insulation displacement technology, max. transfer rate 12 Mbit/s (1 unit)	
• Without programming device interface	**6ES7972-0BA52-0XA0**
• With programming device interface	**6ES7972-0BB52-0XA0**
PROFIBUS bus connector IP20 With connection to PPI, MPI, PROFIBUS	
• Without programming device interface	**6ES7972-0BA12-0XA0**
• With programming device interface	**6ES7972-0BB12-0XA0**
PROFIBUS bus terminal 12M Bus terminal for connection of PROFIBUS nodes at up to 12 Mbit/s with connecting cable	**6GK1500-0AA10**
SIMATIC S7-300 DM 370 Dummy module; used for module replacement	**6ES7370-0AA01-0AA0**

Technical specifications

Article number	**6GK7343-5FA01-0XE0**
product type designation	CP 343-5
transfer rate	
transfer rate	
• at the 1st interface acc. to PROFIBUS	9.6 kbit/s ... 12 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	0
number of electrical connections	
• at the 1st interface acc. to PROFIBUS	1
• for power supply	1
type of electrical connection	
• at the 1st interface acc. to PROFIBUS	9-pin Sub-D socket (RS485)
• for power supply	4-pole terminal block
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage	24 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.15 A
• from external supply voltage at DC at 24 V typical	0.25 A
power loss [W]	5 W
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	**6GK7343-5FA01-0XE0**
product type designation	CP 343-5
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.3 kg
fastening method	
• S7-300 rail mounting	Yes
product features, product functions, product components general	
number of units	
• per CPU maximum	4
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	16
data volume	
• as user data per connection for open communication by means of SEND/RECEIVE blocks maximum	240 byte
performance data FMS functions	
number of possible connections for FMS connection maximum	16
data volume of the variables	
• for READ job maximum	237 byte
• for WRITE and REPORT job maximum	233 byte
number of variables	
• configurable from server to FMS partner	256
• loadable from server to FMS partner	256
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16
performance data multi-protocol mode	
number of active connections with multi-protocol mode	48
performance data telecontrol	
protocol is supported	
• TCP/IP	No
product functions management, configuration, engineering	
configuration software	
• required	STEP 7 V5.1 SP3 or higher and NCM S7 for PROFIBUS
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
	●	●	●			●	●

Communications processor for connecting a SIMATIC S7-300 to Industrial Ethernet networks, also as PROFINET IO Device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication

Ordering data

	Article No.
CP 343-1 Lean communications processor For connecting SIMATIC S7-300 to Industrial Ethernet through TCP/IP and UDP, Multicast, S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, PROFINET IO Device, MRP, integrated 2-port switch ERTEC, comprehensive diagnostics facilities, module replacement without PG, SNMP, initial commissioning over LAN; with electronic manual on CD-ROM	**6GK7343-1CX10-0XE0**
Accessories	
IE FC RJ45 Plug 145 RJ45 plug connector 2 x 2 for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet	
• 1 pack = 1 unit	**6GK1901-1BB30-0AA0**
• 1 pack = 10 units	**6GK1901-1BB30-0AB0**
• 1 pack = 50 units	**6GK1901-1BB30-0AE0**
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/IE FC RJ45 Plug; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC Stripping Tool Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	**6GK1901-1GA00**
Compact Switch Module CSM 377 Unmanaged switch for connection of a SIMATIC S7-300 CPU, ET 200M, and up to three further nodes to Industrial Ethernet operating at 10/100 Mbit/s; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module including electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**

Technical specifications

Article number	**6GK7343-1CX10-0XE0**
product type designation	CP 343-1 Lean
transfer rate	
transfer rate	
• at the 1st interface	10 ... 100 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	2
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	2
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
type of electrical connection	
• for power supply	2-pole plugable terminal block
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage	24 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.2 A
• from external supply voltage at DC at 24 V typical	0.16 A
• from external supply voltage at DC at 24 V maximum	0.2 A
power loss [W]	5.8 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	**6GK7343-1CX10-0XE0**
product type designation	CP 343-1 Lean
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.22 kg
fastening method	
• S7-300 rail mounting	Yes
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	8
data volume	
• as user data per ISO on TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per UDP connection for open IE communication by means of SEND/RECEIVE blocks maximum	2 Kibyte
number of Multicast stations	8
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	4
service	
• of SIMATIC communication as server	Yes
performance data multi-protocol mode	
number of active connections with multi-protocol mode	12
performance data PROFINET communication as PN IO controller	
product function PROFINET IO controller	No

Technical specifications

Article number	**6GK7343-1CX10-0XE0**
product type designation	CP 343-1 Lean
performance data PROFINET communication as PN IO device	
product function PROFINET IO device	Yes
data volume	
• as user data for input variables as PROFINET IO device maximum	512 byte
• as user data for output variables as PROFINET IO device maximum	512 byte
• as user data for input variables for each sub-module as PROFINET IO device	240 byte
• as user data for output variables for each sub-module as PROFINET IO device	240 byte
• as user data for the consistency area for each sub-module	240 byte
number of submodules per PROFINET IO-Device	32
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP 7 V5.4 or higher / STEP 7 Professional V11 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/ location designation	Yes

Article number	**6GK7343-1CX10-0XE0**
product type designation	CP 343-1 Lean
product functions diagnostics	
product function web-based diagnostics	Yes
product functions switch	
product feature switch	Yes
product function	
• switch-managed	No
• with IRT PROFINET IO switch	No
• configuration with STEP 7	Yes
product functions redundancy	
product function	
• ring redundancy	Yes
• redundancy manager	No
protocol is supported Media Redundancy Protocol (MRP)	Yes
product functions security	
product function	
• password protection for Web applications	No
• ACL - IP-based	Yes
• ACL - IP-based for PLC/routing	No
• switch-off of non-required services	Yes
• blocking of communication via physical ports	Yes
• log file for unauthorized access	No
product functions time	
product function SICLOCK support	Yes
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

CP 343-1

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●			●	●

Communications processor for connecting a SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet networks, also as PROFINET IO Controller or IO Device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication

Ordering data

	Article No.
CP 343-1 communications processor For connection of SIMATIC S7-300 to Industrial Ethernet over ISO and TCP/IP; PROFINET IO Controller or PROFINET IO Device, MRP, integrated 2-port switch ERTEC; S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, with and without RFC 1006, multicast, DHCP, CPU clock synchronization via SIMATIC procedure and NTP, diagnostics, SNMP, access protection through IP access list, initialization over LAN 10/100 Mbps; with electronic manual on DVD	**6GK7343-1EX30-0XE0**
Accessories	
IE FC RJ45 plug 180 2 x 2 RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC RJ45 plug 145 RJ45 plug connector 2 x 2 for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet	
• 1 pack = 1 unit	**6GK1901-1BB30-0AA0**
• 1 pack = 10 units	**6GK1901-1BB30-0AB0**
• 1 pack = 50 units	**6GK1901-1BB30-0AE0**
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-core, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Compact Switch Module CSM 377 Unmanaged switch for connection of a SIMATIC S7-300 CPU, ET 200M, and up to three further nodes to Industrial Ethernet operating at 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module including electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**
SCALANCE X204-2 Industrial Ethernet switch Industrial Ethernet switches with integral SNMP access, Web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**

Technical specifications

Article number	**6GK7343-1EX30-0XE0**
product type designation	CP 343-1
transfer rate	
transfer rate	
• at the 1st interface	10 ... 100 Mbit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	2
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	2
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
type of electrical connection	
• for power supply	2-pole plugable terminal block
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage	24 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.2 A
• from external supply voltage at DC at 24 V typical	0.16 A
• from external supply voltage at DC at 24 V maximum	0.2 A
power loss [W]	5.8 W
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	**6GK7343-1EX30-0XE0**
product type designation	CP 343-1
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.22 kg
fastening method	
• S7-300 rail mounting	Yes
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	16
data volume	
• as user data per ISO connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per ISO on TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per UDP connection for open IE communication by means of SEND/RECEIVE blocks maximum	2 Kibyte
number of Multicast stations	16
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16
performance data multi-protocol mode	
number of active connections with multi-protocol mode	32
performance data PROFINET communication as PN IO controller	
number of PN IO devices on PROFINET IO controller operable total	32
number of external PN IO lines with PROFINET per rack	1
data volume	
• as user data for input variables as PROFINET IO controller maximum	1 Kibyte
• as user data for output variables as PROFINET IO controller maximum	1 Kibyte
• as user data for input variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for output variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for input variables per PN IO device for each sub-module as PROFINET IO controller maximum	240 byte
• as user data for output variables per PN IO device for each sub-module as PROFINET IO controller maximum	240 byte

Technical specifications

Article number	**6GK7343-1EX30-0XE0**
product type designation	CP 343-1
performance data PROFINET communication as PN IO device	
product function PROFINET IO device	Yes
data volume	
• as user data for input variables as PROFINET IO device maximum	512 byte
• as user data for output variables as PROFINET IO device maximum	512 byte
• as user data for input variables for each sub-module as PROFINET IO device	240 byte
• as user data for output variables for each sub-module as PROFINET IO device	240 byte
• as user data for the consistency area for each sub-module	240 byte
number of submodules per PROFINET IO-Device	32
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP 7 V5.4 SP2 or higher / STEP 7 Professional V11 (TIA Portal) or higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/ location designation	Yes

Article number	**6GK7343-1EX30-0XE0**
product type designation	CP 343-1
product functions diagnostics	
product function web-based diagnostics	Yes
product functions switch	
product feature switch	Yes
product function	
• switch-managed	No
• with IRT PROFINET IO switch	Yes
• configuration with STEP 7	Yes
product functions redundancy	
product function	
• ring redundancy	Yes
• redundancy manager	No
protocol is supported Media Redundancy Protocol (MRP)	Yes
product functions security	
product function	
• password protection for Web applications	No
• ACL - IP-based	Yes
• ACL - IP-based for PLC/routing	No
• switch-off of non-required services	Yes
• blocking of communication via physical ports	Yes
• log file for unauthorized access	No
product functions time	
product function SICLOCK support	Yes
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●	●	●	●	●

Communications processor for connecting the SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet networks, also as PROFINET IO controller and IO device.

The CP supports:

- PG/OP communication
- S7 communication
- Open communication (SEND/RECEIVE)
- PROFINET communication
- IT communication
- Security functionality, firewall and VPN

In addition, the CP 343-1 Advanced provides email functions and allows users to create their own Web pages - ideal support for maintenance and quality assurance. The Internet functions such as FTP even allow connection to the most diverse PC-based systems. This CP is therefore the bridge between the field level and the management level for the S7-300. The CP 343-1 Advanced connects seamlessly to the security structures of the office and IT world.

Ordering data

	Article No.
CP 343-1 Advanced communications processor	
For connecting the SIMATIC S7-300 CPU to Industrial Ethernet; 1 x 10/100/1 000 Mbps; 2 x 10/100 Mbps (IE SWITCH); RJ 45 ports; TCP; UDP; ISO; PROFINET IO-Controller and Device, S7 communication (client + server); open communication (SEND/RECEIVE); S7 routing; IP configuration via DHCP/block; extended web diagnostics; time synchronization; IP Access Control List; IP routing; FTP; email; PROFINET CBA; C-PLUG	
• With Security (Firewall + VPN) and PROFIenergy (Controller + Device)	**6GK7343-1GX31-0XE0**
Accessories	
IE FC RJ45 plug 180 2 x 2	
RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC RJ45 plug 145	
RJ45 plug connector 2 x 2 for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 145° cable outlet	
• 1 pack = 1 unit	**6GK1901-1BB30-0AA0**
• 1 pack = 10 units	**6GK1901-1BB30-0AB0**
• 1 pack = 50 units	**6GK1901-1BB30-0AE0**
IE FC RJ45 plug 4 x 2	
RJ45 plug connector for Industrial Ethernet (10/100/1 000 Mbps) with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB11-2AA0**
• 1 pack = 10 units	**6GK1901-1BB11-2AB0**
• 1 pack = 50 units	**6GK1901-1BB11-2AE0**
IE FC TP Standard Cable GP 2 x 2 (Type A)	**6XV1840-2AH10**
4-core, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	
IE FC TP Standard Cable GP 4 x 2	
8-core, shielded TP installation cable for connection to IE FC RJ45 Modular Outlet for universal applications; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	
• AWG22, for connection to IE FC RJ45 Modular Outlet	**6XV1870-2E**
• AWG24, for connection to IE FC RJ45 plug 4 x 2	**6XV1878-2A**

Ordering data

	Article No.
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Compact Switch Module CSM 377 Unmanaged switch for connection of a SIMATIC S7-300 CPU, ET 200M, and up to three further nodes to Industrial Ethernet operating at 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, LED diagnostics, S7-300 module including electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**
SCALANCE X204-2 Industrial Ethernet switch Industrial Ethernet switches with integral SNMP access, Web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports	**6GK5204-2BB10-2AA3**
SCALANCE X308-2 Industrial Ethernet switch 2 x 1000 Mbps SC ports, optical (multimode, glass), up to 750 m, 1 x 10/100/1000 Mbps RJ45 port, electrical 7 x 10/100 Mbps RJ45 ports, electrical	**6GK5308-2FL10-2AA3**

Technical specifications

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
transfer rate	
transfer rate	
• at the 1st interface	10 ... 1 000 Mbit/s
• at the 2nd interface	10 ... 100 Mbit/s
interfaces	
number of interface acc. to Industrial Ethernet	3
number of electrical connections	
• at the 1st interface acc. to Industrial Ethernet	1
• at the 2nd interface acc. to Industrial Ethernet	2
• for power supply	1
type of electrical connection	
• at the 1st interface acc. to Industrial Ethernet	RJ45 port
• at the 2nd interface acc. to Industrial Ethernet	RJ45 port
type of electrical connection	
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	Yes
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage 1 from backplane bus	5 V
supply voltage external	24 V
supply voltage external at DC rated value	24 V
relative positive tolerance at DC at 24 V	20 %
relative negative tolerance at DC at 24 V	15 %
consumed current	
• from backplane bus at DC at 5 V typical	0.14 A
• from external supply voltage at DC at 24 V typical	0.48 A
• from external supply voltage at DC at 24 V maximum	0.62 A
power loss [W]	14.7 W

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module
width	80 mm
height	125 mm
depth	120 mm
net weight	0.8 kg
fastening method	
• S7-300 rail mounting	Yes
performance data open communication	
number of possible connections for open communication by means of SEND/RECEIVE blocks maximum	16
data volume	
• as user data per ISO connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per ISO on TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per TCP connection for open communication by means of SEND/RECEIVE blocks maximum	8 Kibyte
• as user data per UDP connection for open IE communication by means of SEND/RECEIVE blocks maximum	2 Kibyte
number of Multicast stations	16

Technical specifications

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	16
performance data multi-protocol mode	
number of active connections with multi-protocol mode	48
performance data IT functions	
number of possible connections	
• as client by means of FTP maximum	10
• as server by means of FTP maximum	2
number of possible connections	
• as server by means of HTTP maximum	4
• as email client maximum	1
data volume as user data for email maximum	8 Kibyte
storage capacity of the user memory	
• as flash memory file system	28 Mibyte
• as RAM	30 Mibyte
number of possible write cycles of the flash memory cells	100 000
performance data PROFINET communication as PN IO controller	
product function PROFINET IO controller	Yes
number of PN IO devices on PROFINET IO controller operable total	128
number of PN IO IRT devices on PROFINET IO controller operable	128
number of external PN IO lines with PROFINET per rack	1
data volume	
• as user data for input variables as PROFINET IO controller maximum	4 Kibyte
• as user data for output variables as PROFINET IO controller maximum	4 Kibyte
• as user data for input variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for output variables per PN IO device as PROFINET IO controller maximum	1 433 byte
• as user data for input variables per PN IO device for each sub-module as PROFINET IO controller maximum	240 byte
• as user data for output variables per PN IO device for each sub-module as PROFINET IO controller maximum	240 byte

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
performance data PROFINET communication as PN IO device	
product function PROFINET IO device	Yes
data volume	
• as user data for input variables as PROFINET IO device maximum	1 024 byte
• as user data for output variables as PROFINET IO device maximum	1 024 byte
• as user data for input variables for each sub-module as PROFINET IO device	240 byte
• as user data for output variables for each sub-module as PROFINET IO device	240 byte
• as user data for the consistency area for each sub-module	240 byte
number of submodules per PROFINET IO-Device	32
performance data PROFINET CBA	
number of remote connection partners with PROFINET CBA	64
number of connections with PROFINET CBA total	1 000
data volume	
• as user data for digital inputs with PROFINET CBA maximum	8 Kibyte
• as user data for digital outputs with PROFINET CBA maximum	8 Kibyte
• as user data for arrays and data types in the case of acyclic transmission with PROFINET CBA maximum	8 Kibyte
• as user data for arrays and data types with PROFINET CBA with cyclical transfer maximum	250 byte
• as user data for arrays and data types with PROFINET CBA in the case of local interconnection maximum	2 400 byte
performance data PROFINET CBA remote interconnection with acyclic transfer	
update time of the remote interconnections in the case of acyclic transmission with PROFINET CBA	100 ms
number of remote connections to input variables in the case of acyclic transmission with PROFINET CBA maximum	128
number of remote connections to output variables in the case of acyclic transmission with PROFINET CBA maximum	128
data volume	
• as user data for remote interconnections with input variables in the case of acyclic transmission with PROFINET CBA	8 Kibyte
• as user data for remote interconnections with output variables in the case of acyclic transmission with PROFINET CBA	8 Kibyte

Technical specifications

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
performance data PROFINET CBA remote interconnection with cyclic transfer	
update time of the remote interconnections with PROFINET CBA with cyclical transfer	8 ms
number of remote connections to input variables with PROFINET CBA with cyclical transfer maximum	200
number of remote connections to output variables with PROFINET CBA with cyclical transfer maximum	200
data volume	
• as user data for remote interconnections with input variables with PROFINET CBA with cyclical transfer maximum	2 000 byte
• as user data for remote interconnections with output variables with PROFINET CBA with cyclical transfer maximum	2 000 byte
performance data PROFINET CBA HMI variables via PROFINET acyclic	
number of connectable HMI stations for HMI variables in the case of acyclic transmission with PROFINET CBA	3
update time of the HMI variables in the case of acyclic transmission with PROFINET CBA	500 ms
number of HMI variables in the case of acyclic transmission with PROFINET CBA maximum	200
data volume as user data for HMI variables in the case of acyclic transmission with PROFINET CBA maximum	8 Kibyte
performance data PROFINET CBA device-internal interconnections	
number of internal connections with PROFINET CBA maximum	256
data volume of the internal connections with PROFINET CBA maximum	2 400 byte
performance data PROFINET CBA interconnections to constants	
number of connections with constants with PROFINET CBA maximum	200
data volume as user data for interconnections with constants with PROFINET CBA maximum	4 096 byte
performance data PROFINET CBA PROFIBUS proxy functionality	
product function with PROFINET CBA PROFIBUS proxy functionality	No
performance data telecontrol	
protocol is supported	
• TCP/IP	Yes

Article number	**6GK7343-1GX31-0XE0**
product type designation	CP 343-1 Advanced
product functions management, configuration, engineering	
product function MIB support	Yes
protocol is supported	
• SNMP v1	Yes
• SNMP v3	Yes
• DCP	Yes
• LLDP	Yes
configuration software	
• required	STEP7 V5.5 SP2 HF1 or higher / STEP 7 Professional V12 (TIA Portal) or higher
• for PROFINET CBA required	SIMATIC iMap V3.0 SP4 and higher
identification & maintenance function	
• I&M0 - device-specific information	Yes
• I&M1 – higher level designation/ location designation	Yes
product functions diagnostics	
product function web-based diagnostics	Yes
product functions switch	
product feature switch	Yes
product function	
• switch-managed	No
• with IRT PROFINET IO switch	Yes
• configuration with STEP 7	Yes
product functions redundancy	
product function	
• ring redundancy	Yes
• redundancy manager	Yes
protocol is supported Media Redundancy Protocol (MRP)	Yes
product functions security	
firewall version	stateful inspection
product function with VPN connection	IPSec
type of encryption algorithms with VPN connection	AES-256, AES-192, AES-128, 3DES-168, DES-56
type of authentication procedure with VPN connection	Preshared key (PSK), X.509v3 certificates
type of hashing algorithms with VPN connection	MD5, SHA-1
number of possible connections with VPN connection	32
product function	
• password protection for Web applications	Yes
• ACL - IP-based	Yes
• ACL - IP-based for PLC/routing	Yes
• switch-off of non-required services	Yes
• blocking of communication via physical ports	Yes
• log file for unauthorized access	No
product functions time	
product function SICLOCK support	Yes
product function pass on time synchronization	Yes
protocol is supported	
• NTP	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

- Unmanaged switch for connecting a SIMATIC S7-300 with integral PROFINET interface or an Industrial Ethernet CP or SIMATIC ET 200M to an Industrial Ethernet in an electrical line, tree or star structure
- As many as three additional nodes can be connected
- As an unmanaged switch, the CSM 377 is used for integrating small machines into existing automation networks or for the stand-alone operation of the machines
- Simple, space-saving attachment to SIMATIC S7-300 DIN rail due to design as single-width module in SIMATIC S7-300 format
- Low-cost solution for implementing small, local Ethernet networks
- Rugged, industry-standard node connections with PROFINET-compliant RJ45 plug connectors that latch onto the enclosure to offer additional strain and bending relief

Ordering data

Ordering data	Article No.
Compact Switch Module CSM 377	
Unmanaged switch for connecting a SIMATIC S7-300, ET200 M and up to three further nodes to Industrial Ethernet with 10/100 Mbps; 4 x RJ45 ports; external 24 V DC power supply, diagnostics on LEDs, S7-300 module including electronic manual on CD-ROM	**6GK7377-1AA00-0AA0**
Accessories	
IE FC TP Standard Cable GP 2 x 2 (Type A)	
4-core, shielded TP installation cable for connection to IE FC outlet RJ45/ IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 plug 180 2 x 2	
RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool	**6GK1901-1GA00**
Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	

Technical specifications

Article number	**6GK7377-1AA00-0AA0**
product type designation	SCALANCE CSM 377
transfer rate	
transfer rate	10 Mbit/s, 100 Mbit/s
interfaces for communication integrated	
number of electrical connections	
• for network components or terminal equipment	4
number of 100 Mbit/s SC ports	
• for multimode	0
number of 1000 Mbit/s LC ports	
• for multimode	0
• for single mode (LD)	0
interfaces other	
number of electrical connections	
• for power supply	1
type of electrical connection	
• for power supply	2-pole terminal block

Article number	**6GK7377-1AA00-0AA0**
product type designation	SCALANCE CSM 377
supply voltage, current consumption, power loss	
type of voltage 1 of the supply voltage	DC
• supply voltage 1 rated value	24 V
• power loss [W] 1 rated value	1.6 W
• supply voltage 1 rated value	19.2 ... 28.8 V
• consumed current 1 maximum	0.07 A
• type of electrical connection 1 for power supply	2-pole terminal block
• product component 1 fusing at power supply input	Yes

CSM 377 unmanaged

Technical specifications

Article number	**6GK7377-1AA00-0AA0**
product type designation	SCALANCE CSM 377
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
design	SIMATIC S7-300 device design
width	40 mm
height	125 mm
depth	118 mm
net weight	0.2 kg
fastening method	
• 35 mm top hat DIN rail mounting	No
• wall mounting	No
• S7-300 rail mounting	Yes
• S7-1500 rail mounting	No
product functions management, configuration, engineering	
product function	
• multiport mirroring	No
product function switch-managed	No
product functions redundancy	
product function	
• Parallel Redundancy Protocol (PRP)/operation in the PRP-network	Yes
• Parallel Redundancy Protocol (PRP)/Redundant Network Access (RNA)	No

Article number	**6GK7377-1AA00-0AA0**
product type designation	SCALANCE CSM 377
standards, specifications, approvals	
standard	
• for FM	FM3611: Class 1, Divison 2, Group A, B, C, D / T.., CL.1, Zone 2, GP. IIC, T.. Ta
• for safety from CSA and UL	UL 508, CSA C22.2 No. 142
• for emitted interference	EN 61000-6-4:2001
• for interference immunity	EN 61000-6-2:2001
MTBF	144 y
standards, specifications, approvals CE	
certificate of suitability CE marking	Yes
standards, specifications, approvals hazardous environments	
standard for hazardous zone	EN 60079-15, II 3 G Ex nA II T.., KEMA 06 ATEX 0021 X
• from CSA and UL	UL 1604 and UL 2279-15 (Hazardous Location)
certificate of suitability	
• CCC for hazardous zone according to GB standard	Yes
standards, specifications, approvals other	
certificate of suitability	EN 61000-6-2:2001, EN 61000-6-4:2001
• C-Tick	Yes
• KC approval	No
standards, specifications, approvals marine classification	
Marine classification association	
• American Bureau of Shipping Europe Ltd. (ABS)	Yes
• French marine classification society (BV)	Yes
• Det Norske Veritas (DNV)	Yes
• Germanische Lloyd (GL)	No
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (NK)	Yes
• Polski Rejestr Statkow (PRS)	No
• Royal Institution of Naval Architects (RINA)	No

Overview

- SINAUT communications module TIM for SIMATIC S7-300 for use in a wide area network (WAN)
- IP communication via secure VPN (virtual private network) using the Internet
- Wireless communication via mobile wireless routers or wireless devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Frame buffer for seamless recording of data
- Simple configuration and operation without specialist IT knowledge

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Ordering data

	Article No.
TIM 3V-IE communications module With an RS 232 interface for SINAUT communication via a conventional WAN or an IP-based network (WAN or LAN)	**6NH7800-3BA00**
SINAUT Engineering Software V5.5 + SP3 On DVD, comprising • SINAUT Engineering Software V5.5 for the PG • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
Engineering Software STEP 7 Professional V17	
• SIMATIC STEP 7 Professional V17 floating license	**6ES7822-1AA07-0YA5**
• Upgrade SIMATIC STEP 7 Basic V11 ... V16 → V17 floating license	**6ES7822-0AA07-0YE5**
Accessories	
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval Sold by the meter; Max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Connecting cable For connecting a TIM (RS232) with the GSM modem MD720; also suitable for third-party modems or wireless devices with standard RS232 interface; Cable length 2.5 m	**6NH7701-5AN**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); Cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIM modules via their RS 232 interface without modems ("null modem"); cable length 6 m	**6NH7701-0AR**

TIM 3V-IE (for S7-300)

Technical specifications

Article number	**6NH7800-3BA00**
product type designation	TIM 3V-IE
transfer rate	
transfer rate	
• for Industrial Ethernet	10 ... 100 Mbit/s
• acc. to RS 232	50 ... 38 400 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• for external data transmission acc. to RS 232	1
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector (RS232)
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	No
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
relative symmetrical tolerance at DC	
• at 5 V	5 %
relative positive tolerance at DC at 24 V	5 %
relative negative tolerance at DC at 24 V	5 %
consumed current	
• from backplane bus at DC at 24 V maximum	0.2 A
• from external supply voltage at DC at 24 V maximum	0.2 A
power loss [W]	5.8 W
product extension optional backup battery	No

Article number	**6NH7800-3BA00**
product type designation	TIM 3V-IE
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.25 kg
product features, product functions, product components general	
number of units	
• per CPU maximum	1
• note	Number of TIM per S7-300
wire length	
• with RS 232 interface maximum	6 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	8
• with PG connections maximum	2
• with OP connections maximum	8
service	
• SINAUT ST7 via S7 communication	Yes
• PG/OP communication	Yes
performance data multi-protocol mode	
number of active connections with multi-protocol mode	12

Technical specifications

Article number	**6NH7800-3BA00**
product type designation	TIM 3V-IE
performance data telecontrol	
suitability for use	
• node station	No
• substation	Yes
• TIM control center	No
• note	RS232 and Industrial Ethernet can not be operated in parallel
protocol is supported	
• DNP3	No
• SINAUT ST1 protocol	Yes
• SINAUT ST7 protocol	Yes
product function data buffering if connection is aborted	Yes; 16,000 data messages
storage capacity	
• of S7 CPU work memory for TD7onCPU mode data blocks on CPU required	20 Kibyte
• of S7 CPU work memory for TD7onTIM mode data blocks on TIM required	0 Kibyte
• note	TD7onCPU: at least 20 KB, actual requirement determined by data volume and functional scope TD7onTIM: 0 bytes in most favorable case
product feature buffered message frame memory	No
transmission format	
• for SINAUT ST1 protocol with polling 11 bit	Yes
• for SINAUT ST1 protocol with spontaneous 10-bit or 11-bit	Yes
• for SINAUT ST7 protocol with multi-master polling 10-bit	Yes
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
operating mode for scanning of data transmission	
• with dedicated line/radio link with SINAUT ST1 protocol	Polling, polling with time slot procedure
• with dedicated line/radio link with SINAUT ST7 protocol	Polling, polling with time slot procedure, multi-master polling with time slot procedure
• with dial-up network with SINAUT ST1 protocol	spontaneous
• with dial-up network with SINAUT ST7 protocol	spontaneous
hamming distance	
• for SINAUT ST1 protocol	4
• for SINAUT ST7 protocol	4

Article number	**6NH7800-3BA00**
product type designation	TIM 3V-IE
product functions management, configuration, engineering	
configuration software	
• required	SINAUT ST7 ES
• for CPU configuring required SINAUT TD7 block library for CPU	Yes
• for PG configuring required SINAUT ST7 configuration software for PG	Yes
storage location of TIM configuration data	on the TIM
product functions security	
operating mode Virtual Private Network (VPN)	Yes; VPN operation as MSC client with MSC protocol and password protection only possible in conjunction with GPRS modem with MSC capability
type of authentication with Virtual Private Network PSK	Yes
product function	
• password protection for VPN	Yes
• MSC client via GPRS modem with MSC capability	Yes
protocol	
• is supported MSC protocol	No
key length for MSC with Virtual Private Network	128 bit
number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	0
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

TIM 3V-IE Advanced (for S7-300)

Overview

- SINAUT communications module TIM for SIMATIC S7-300 for use in wide area network (WAN) as station, node station, and control center
- IP communication via secure VPN (virtual private network) using the Internet
- Wireless communication via mobile wireless routers or wireless devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for seamless recording of data and support of redundant communication paths
- Simple configuration and operation without specialist IT knowledge

Ordering data

	Article No.
TIM 3V-IE Advanced communications module With an RS 232 interface and an RJ45 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)	**6NH7800-3CA00**
Accessories	
SINAUT Engineering Software V5.5 + SP3 On DVD, comprising • SINAUT ST7 Engineering Software V5.5 + SP3 for the PG • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
SINAUT ST7 Engineering Software Update from Version V5.0x to V5.5 SINAUT Engineering Software V5.5 upgrade; for owners of SINAUT Engineering Software Version V5.0 or higher	**6NH7997-0CA55-0GA0**
Engineering Software STEP 7 Professional V17	
• SIMATIC STEP 7 Professional V17 floating license	**6ES7822-1AA07-0YA5**
• Upgrade SIMATIC STEP 7 Basic V11 ... V16 → V17 floating license	**6ES7822-0AA07-0YE5**
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval Sold by the meter; Max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping o f Industrial Ethernet FC cables	**6GK1901-1GA00**
Connecting cable For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; Cable length 2.5 m	**6NH7701-5AN**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); Cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIM modules via their RS 232 interface without modems ("null modem"). Cable length 6 m	**6NH7701-0AR**

Technical specifications

Article number	**6NH7800-3CA00**
product type designation	TIM 3V-IE Advanced
transfer rate	
transfer rate	
• for Industrial Ethernet	10 ... 100 Mbit/s
• acc. to RS 232	50 ... 38 400 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• for external data transmission acc. to RS 232	1
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector (RS232)
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	No
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
relative symmetrical tolerance at DC	
• at 5 V	5 %
relative positive tolerance at DC at 24 V	5 %
relative negative tolerance at DC at 24 V	5 %
consumed current	
• from backplane bus at DC at 24 V maximum	0.2 A
• from external supply voltage at DC at 24 V maximum	0.2 A
power loss [W]	5.8 W
product extension optional backup battery	No

Article number	**6NH7800-3CA00**
product type designation	TIM 3V-IE Advanced
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.25 kg
product features, product functions, product components general	
number of units	
• note	Number of TIMs per S7-300: multiple, number depends on the connection resources of the S7-300 CPU
wire length	
• with RS 232 interface maximum	6 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	24
• with PG connections maximum	4
• with OP connections maximum	20
service	
• SINAUT ST7 via S7 communication	Yes
• PG/OP communication	Yes
performance data multi-protocol mode	
number of active connections with multi-protocol mode	24

TIM 3V-IE Advanced (for S7-300)

Technical specifications

Article number	**6NH7800-3CA00**
product type designation	TIM 3V-IE Advanced
performance data telecontrol	
suitability for use	
• node station	Yes
• substation	Yes
• TIM control center	Yes
• note	RS232 and Industrial Ethernet can be operated in parallel
protocol is supported	
• DNP3	No
• SINAUT ST1 protocol	Yes
• SINAUT ST7 protocol	Yes
product function data buffering if connection is aborted	Yes; 32,000 data messages
storage capacity	
• of S7 CPU work memory for TD7onCPU mode data blocks on CPU required	20 Kibyte
• of S7 CPU work memory for TD7onTIM mode data blocks on TIM required	0 Kibyte
• note	TD7onCPU: at least 20 KB, actual requirement determined by data volume and functional scope TD7onTIM: 0 bytes in most favorable case
product feature buffered message frame memory	No
transmission format	
• for SINAUT ST1 protocol with polling 11 bit	Yes
• for SINAUT ST1 protocol with spontaneous 10-bit or 11-bit	Yes
• for SINAUT ST7 protocol with multi-master polling 10-bit	Yes
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
operating mode for scanning of data transmission	
• with dedicated line/radio link with SINAUT ST1 protocol	Polling, polling with time slot procedure
• with dedicated line/radio link with SINAUT ST7 protocol	Polling, polling with time slot procedure, multi-master polling with time slot procedure
• with dial-up network with SINAUT ST1 protocol	spontaneous
• with dial-up network with SINAUT ST7 protocol	spontaneous
hamming distance	
• for SINAUT ST1 protocol	4
• for SINAUT ST7 protocol	4

Article number	**6NH7800-3CA00**
product type designation	TIM 3V-IE Advanced
product functions management, configuration, engineering	
configuration software	
• required	SINAUT ST7 ES
• for CPU configuring required SINAUT TD7 block library for CPU	Yes
• for PG configuring required SINAUT ST7 configuration software for PG	Yes
storage location of TIM configuration data	on the TIM
product functions security	
operating mode Virtual Private Network (VPN)	Yes
type of authentication with Virtual Private Network PSK	Yes
product function	
• password protection for VPN	Yes
• MSC client via GPRS modem with MSC capability	Yes
protocol	
• is supported MSC protocol	Yes
• with Virtual Private Network MSC is supported	TCP/IP
key length for MSC with Virtual Private Network	128 bit
number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	0
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

Overview

- SINAUT communications module TIM with four interfaces for SIMATIC S7-300 or as self-contained unit for the S7-400 for use in the wide area network (WAN)
- For universal use in a SINAUT station, node station and control center
- Internet communication via integrated MSC-VPN tunnel with direct connection to DSL router or operation via IPsec VPN with additional SIMATIC NET components
- Wireless communication via mobile wireless routers or wireless devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for seamless recording of data and support of redundant communication paths
- Simple configuration and operation without specialist IT knowledge

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Ordering data

	Article No.
TIM 4R-IE communications module With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)	**6NH7800-4BA00**
Accessories	
SINAUT Engineering Software V5.5 + SP3 On DVD, comprising • SINAUT ST7 Engineering Software V5.5 + SP3 for the PG • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
SINAUT ST7 Engineering Software Update from Version V5.0x to V5.5 SINAUT Engineering Software V5.5 upgrade; for owners of SINAUT Engineering Software Version V5.0 or higher	**6NH7997-0CA55-0GA0**
Engineering Software STEP 7 Professional V17	
• SIMATIC STEP 7 Professional V17 floating license	**6ES7822-1AA07-0YA5**
• Upgrade SIMATIC STEP 7 Basic V11 ... V16 → V17 floating license	**6ES7822-0AA07-0YE5**
Backup battery 3.6 V/2.3 Ah for TIM 4R-IE	**6ES7971-0BA00**
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval Sold by the meter; Max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Connecting cable For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; Cable length 2.5 m	**6NH7701-5AN**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); Cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIM modules via their RS 232 interface without modems ("null modem"). Cable length 6 m	**6NH7701-0AR**
SITOP compact 24 V/0.6 A Single-phase power supply with wide-range input 85 … 264 V AC/110 … 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design	**6EP1331-5BA00**

TIM 4R-IE (for S7-300/-400/PC)

Technical specifications

Article number	**6NH7800-4BA00**
product type designation	TIM 4R-IE
transfer rate	
transfer rate	
• for Industrial Ethernet	10 ... 100 Mbit/s
• acc. to RS 232	50 ... 38 400 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	2
number of electrical connections	
• for external data transmission acc. to RS 232	2
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector, RS232 switchable to RS485
• at interface 2 for external data transmission	9-pole D-sub connector, RS232 can be switched to RS485
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	Yes
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
consumed current	
• from backplane bus at DC at 24 V maximum	0.2 A
• from external supply voltage at DC at 24 V maximum	0.17 A
power loss [W]	4.6 W
product extension optional backup battery	Yes
type of battery	Lithium AA / 3.6 V / 2.3 Ah
backup current	
• typical	100 µA
• maximum	160 µA

Article number	**6NH7800-4BA00**
product type designation	TIM 4R-IE
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20
design, dimensions and weights	
module format	Compact module S7-300 double width
width	80 mm
height	125 mm
depth	120 mm
net weight	0.4 kg
product features, product functions, product components general	
number of units	
• note	Number of TIM 4R-IE per S7-300/S7-400: multiple, number depends on the connection resources of the CPU
wire length	
• with RS 232 interface maximum	6 m
• with RS 485 interface maximum	30 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	64
• with PG connections maximum	2
• with OP connections maximum	62
service	
• SINAUT ST7 via S7 communication	Yes
• PG/OP communication	Yes
performance data multi-protocol mode	
number of active connections with multi-protocol mode	128

Technical specifications

Article number	**6NH7800-4BA00**
product type designation	TIM 4R-IE
performance data telecontrol	
suitability for use	
• node station	Yes
• substation	Yes
• TIM control center	Yes
protocol is supported	
• DNP3	No
• SINAUT ST1 protocol	Yes
• SINAUT ST7 protocol	Yes
product function data buffering if connection is aborted	Yes; 56,000 data messages
storage capacity	
• of S7 CPU work memory for TD7onCPU mode data blocks on CPU required	20 Kibyte
• of S7 CPU work memory for TD7onTIM mode data blocks on TIM required	0 Kibyte
• note	TD7onCPU: at least 20 KB, actual requirement determined by data volume and functional scope TD7onTIM: 0 bytes in most favorable case
product feature buffered message frame memory	Yes
transmission format	
• for SINAUT ST1 protocol with polling 11 bit	Yes
• for SINAUT ST1 protocol with spontaneous 10-bit or 11-bit	Yes
• for SINAUT ST7 protocol with multi-master polling 10-bit	Yes
• for SINAUT ST7 protocol with polling or spontaneous 10-bit or 11-bit	Yes
operating mode for scanning of data transmission	
• with dedicated line/radio link with SINAUT ST1 protocol	Polling, polling with time slot procedure
• with dedicated line/radio link with SINAUT ST7 protocol	Polling, polling with time slot procedure, multi-master polling with time slot procedure
• with dial-up network with SINAUT ST1 protocol	spontaneous
• with dial-up network with SINAUT ST7 protocol	spontaneous
hamming distance	
• for SINAUT ST1 protocol	4
• for SINAUT ST7 protocol	4

Article number	**6NH7800-4BA00**
product type designation	TIM 4R-IE
product functions management, configuration, engineering	
configuration software	
• required	SINAUT ST7 ES
• for CPU configuring required SINAUT TD7 block library for CPU	Yes
• for PG configuring required SINAUT ST7 configuration software for PG	Yes
storage location of TIM configuration data	on internal TIM flash memory, or on TIM in optional C-PLUG, or on MMC of the S7-300 CPU if TIM installed in S7-300 controller
product functions security	
operating mode Virtual Private Network (VPN)	Yes
type of authentication with Virtual Private Network PSK	Yes
product function	
• password protection for VPN	Yes
• MSC client via GPRS modem with MSC capability	Yes
protocol	
• is supported MSC protocol	Yes
• with Virtual Private Network MSC is supported	TCP/IP
key length for MSC with Virtual Private Network	128 bit
number of possible connections	
• as MSC client with VPN connection	1
• as MSC server with VPN connection	128
product functions time	
product component hardware real time clock	Yes
product feature hardware real time clock w. battery backup	Yes
accuracy of the hardware real time clock per day maximum	4 s
time synchronization	
• from NTP-server	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

TIM 3V-IE DNP3 (for S7-300)

Overview

In a station for the S7-CPU, the communications module TIM 3V-IE DNP3 (TeleControl Interface Module) handles the data exchange with the assigned master system SIMATIC PCS 7 TeleControl V8.0 using the open DNP3 protocol. The module additionally supports master and node functionality.

- With the S7-300 housing, the module can be fully integrated into the S7-300 system
- The module has an RS232 interface for the connection of an external modem for data transmission via a conventional WAN or the connection of a Modbus RTU slave to an S7-300 system
- The RJ45 port is used for data transmission via IP-based networks

Ordering data

	Article No.
TIM 3V-IE DNP3 communications module With an RS 232 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)	**6NH7803-3BA00-0AA0**
SINAUT Engineering Software V5.5 + SP3 On DVD, comprising • SINAUT ST7 Engineering Software V5.5 for the PG • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
SINAUT ST7 Engineering Software Update from Version V5.0x to V5.5 SINAUT Engineering Software V5.5 upgrade; for owners of SINAUT Engineering Software Version V5.0 or higher	**6NH7997-0CA55-0GA0**
Accessories	
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval Sold by the meter; Max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Connecting cable For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; Cable length 2.5 m	**6NH7701-5AN**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); Cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIM modules via their RS 232 interface without modems ("null modem"). Cable length 6 m	**6NH7701-0AR**

Technical specifications

Article number	**6NH7803-3BA00-0AA0**
product type designation	TIM 3V-IE DNP3
transfer rate	
transfer rate	
• for Industrial Ethernet	10 ... 100 Mbit/s
• acc. to RS 232	9 600 ... 38 400 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	1
number of electrical connections	
• for external data transmission acc. to RS 232	1
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector (RS232)
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	No
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
consumed current	
• from backplane bus at DC at 24 V maximum	0.2 A
• from external supply voltage at DC at 24 V maximum	0.2 A
power loss [W]	5.8 W
product extension optional backup battery	No
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	**6NH7803-3BA00-0AA0**
product type designation	TIM 3V-IE DNP3
design, dimensions and weights	
module format	Compact module S7-300 single width
width	40 mm
height	125 mm
depth	120 mm
net weight	0.25 kg
product features, product functions, product components general	
number of units	
• note	Number of TIMs per S7-300: 1
wire length	
• with RS 232 interface maximum	6 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	3; only via LAN
• with PG connections maximum	2
• with OP connections maximum	1
service	
• PG/OP communication	Yes
performance data telecontrol	
suitability for use	
• node station	Yes
• substation	Yes
• TIM control center	Yes
protocol is supported	
• DNP3	Yes
• SINAUT ST1 protocol	No
• SINAUT ST7 protocol	No
• Modbus RTU	Yes
product function data buffering if connection is aborted	Yes; 64,000 data points with one master
number of DNP3 masters	
• for Ethernet maximum	8
• with RS 232 interface maximum	1
number of Modbus RTU slaves maximum	1
product functions management, configuration, engineering	
configuration software	
• required	SINAUT ST7 ES
storage location of TIM configuration data	on the CPU or TIM
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

TIM 4R-IE DNP3 (for S7-300/-400)

Overview

In a station for the S7-CPU, the communication module TIM 4R-IE DNP3 (TeleControl Interface Module) handles the data exchange with the assigned SIMATIC PCS7 TeleControl V8.0 master system using the open DNP3 protocol. In addition, the V3.0 module now also supports master and node functionality.

- With the double-width S7-300 housing, the module can be fully integrated into the S7-300 system
- Can be connected as a stand-alone module to a SIMATIC S7-400 and SIMATIC S7-400 H System
- Two RS 232/RS 485 interfaces support connection of an external modem for data transmission via a conventional WAN or of a Modbus RTU slave to an S7-300 system
- The module has two RJ45 interfaces for data transmission via IP-based networks
- By using physically separate connection paths, the module permits media redundancy without loss of data during the switchover

Ordering data

	Article No.
TIM 4R-IE DNP3 communications module With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 inter faces for SINAUT communication via IP-based networks (WAN or LAN)	**6NH7803-4BA00-0AA0**
Accessories	
SINAUT Engineering Software V5.5 + SP3 On DVD, comprising • SINAUT ST7 Engineering Software V5.5 + SP3 for the PG • SINAUT TD7 block library • Electronic manual in German and English	**6NH7997-0CA55-0AA0**
SINAUT ST7 Engineering Software Update from Version V5.0x to V5.5 SINAUT Engineering Software V5.5 upgrade; for owners of SINAUT Engineering Software Version V5.0 or higher	**6NH7997-0CA55-0GA0**
Backup battery 3.6 V/2.3 Ah for TIM 4R-IE DNP3	**6ES7971-0BA00**
IE FC TP Standard Cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**

	Article No.
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**
IE FC Stripping Tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Connecting cable For connecting a TIM (RS 232) with the GSM modem MD720-3; also suitable for third-party modems or radio equipment with standard RS 232 interface; Cable length 2.5 m	**6NH7701-5AN**
Connecting cable With one end open for connecting a TIM (RS 232) to a third-party modem or radio unit (RS 232); Cable length 2.5 m	**6NH7701-4BN**
Connecting cable For connecting two TIM modules via their RS 232 interface without modems ("null modem"). Cable length 6 m	**6NH7701-0AR**
SITOP compact 24 V/0.6 A Single-phase power supply with wide-range input 85 to 264 V AC/110 to 300 V DC, stabilized output voltage 24 V, rated output current value 0.6 A, slim design	**6EP1331-5BA00**

Technical specifications

Article number	**6NH7803-4BA00-0AA0**
product type designation	TIM 4R-IE DNP3
transfer rate	
transfer rate	
• for Industrial Ethernet	10 ... 100 Mbit/s
• acc. to RS 232	9 600 ... 115 200 bit/s
interfaces	
number of interfaces acc. to Industrial Ethernet	2
number of electrical connections	
• for external data transmission acc. to RS 232	2
• for power supply	1
type of electrical connection	
• of Industrial Ethernet interface	RJ45 port
type of electrical connection	
• at interface 1 for external data transmission	9 pin Sub-D-connector, RS232 switchable to RS485
• at interface 2 for external data transmission	9-pole D-sub connector, RS232 can be switched to RS485
• for power supply	2-pole plugable terminal block
design of the removable storage	
• C-PLUG	Yes
supply voltage, current consumption, power loss	
type of voltage of the supply voltage	DC
supply voltage	24 V
supply voltage	20.4 ... 28.8 V
supply voltage external at DC rated value	24 V
supply voltage external at DC rated value	20.4 ... 28.8 V
consumed current	
• from backplane bus at DC at 24 V maximum	0.2 A
• from external supply voltage at DC at 24 V maximum	0.17 A
power loss [W]	4.6 W
product extension optional backup battery	Yes
type of battery	Lithium AA / 3.6 V / 2.3 Ah
backup current	
• typical	100 µA
• maximum	160 µA
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
relative humidity	
• at 25 °C without condensation during operation maximum	95 %
protection class IP	IP20

Article number	**6NH7803-4BA00-0AA0**
product type designation	TIM 4R-IE DNP3
design, dimensions and weights	
module format	Compact module S7-300 double width
width	80 mm
height	125 mm
depth	120 mm
net weight	0.4 kg
product features, product functions, product components general	
number of units	
• note	Number of TIMs per S7-300 / S7-400: 1
wire length	
• with RS 232 interface maximum	6 m
• with RS 485 interface maximum	30 m
performance data S7 communication	
number of possible connections for S7 communication	
• maximum	5; only via LAN
• with PG connections maximum	2
• with OP connections maximum	1
service	
• PG/OP communication	Yes
performance data telecontrol	
suitability for use	
• node station	Yes
• substation	Yes
• TIM control center	Yes
protocol is supported	
• DNP3	Yes
• SINAUT ST1 protocol	No
• SINAUT ST7 protocol	No
• Modbus RTU	Yes
product function data buffering if connection is aborted	Yes; 200,000 data points with one master
number of DNP3 masters	
• for Ethernet maximum	8
• with RS 232 interface maximum	1
number of Modbus RTU slaves maximum	1
product functions management, configuration, engineering	
configuration software	
• required	SINAUT ST7 ES
storage location of TIM configuration data	on the CPU or TIM
product functions time	
product component hardware real time clock	Yes
product feature hardware real time clock w. battery backup	Yes
accuracy of the hardware real time clock per day maximum	4 s
time synchronization	
• from NTP-server	Yes
standards, specifications, approvals hazardous environments	
certificate of suitability CCC for hazardous zone according to GB standard	Yes

ASM 475

Overview

The ASM 475 is a powerful communications module for connecting the MOBY D, SIMATIC RF200, RF300 and SIMATIC MV400, MV500 identification systems to the S7-300 and ET 200M.

Ordering data

	Article No.
ASM 475 communications module	**6GT2002-0GA10**
For SIMATIC S7-300 and ET 200M, parameterizable	
Accessories	
Front connector (1 x per ASM 475)	
• with screw terminals	**6ES7392-1AJ00-0AA0**
• with spring-loaded terminals	**6ES7392-1BJ00-0AA0**
Shield connection element (80 mm wide for 2 x ASM 475)	**6ES7390-5AA00-0AA0**
Shield connection clamp (1 x per reader cable)	**6ES7390-5BA00-0AA0**
SIMATIC RF200 / RF300 / MV400 connecting cable Pre-assembled, between ASM 475 and RF200 / RF300 / MV400, IP65, straight connector, PUR material, trailable, available in following lengths[1]:	
2 m	**6GT2891-4EH20**
5 m	**6GT2891-4EH50**
Extension cable SIMATIC RF200 / RF300 / MV400, PUR material, trailable, straight connector	
2 m	**6GT2891-4FH20**
5 m	**6GT2891-4FH50**
10 m	**6GT2891-4FN10**
20 m	**6GT2891-4FN20**
50 m	**6GT2891-4FN50**

[1] The connecting cables can be extended using RF300 connecting cables of type 6GT2891-4Fxxx. These connecting cables are available in the lengths 2 m, 5 m, 10 m, 20 m and 50 m.

Technical specifications

Article number	**6GT2002-0GA10**
product type designation	ASM 475 communication module
transfer rate	
transfer rate at the point-to-point connection serial maximum	115.2 kbit/s
interfaces	
design of the interface for point-to-point connection	RS422
number of readers connectable	2
type of electrical connection	
• of the backplane bus	S7-300 backplane bus
• of the PROFIBUS interface	(according to the head module)
• of Industrial Ethernet interface	(according to the head module)
• for supply voltage	Screw-type or spring-loaded terminals
design of the interface to the reader for communication	Screw-type or spring-loaded terminals
mechanical data	
material	Noryl
color	anthracite
supply voltage, current consumption, power loss	
supply voltage	
• at DC rated value	24 V
• at DC	20 ... 30 V
consumed current at DC at 24 V	
• without connected devices typical	0.1 A
• with connected devices maximum	1 A
ambient conditions	
ambient temperature	
• during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
protection class IP	IP20
shock resistance	According to IEC 61131-2
shock acceleration	150 m/s²
vibrational acceleration	10 m/s²
design, dimensions and weights	
width	40 mm
height	125 mm
depth	120 mm
net weight	0.2 kg
fastening method	S7-300 rack
wire length for RS 422 interface maximum	1 000 m

Technical specifications

Article number	**6GT2002-0GA10**
product type designation	ASM 475 communication module
product features, product functions, product components general	
display version	4 LEDs per reader connection, 2 LEDs for device status
product function addressable transponder file handler	Yes
protocol is supported	
• S7 communication	Yes
product functions management, configuration, engineering	
type of parameterization	Object manager, GSD
type of programming	FB 45, FB 55, FC 56 (FC 45/55 with limited functionality)
type of computer-switched communication	acyclic communication

Article number	**6GT2002-0GA10**
product type designation	ASM 475 communication module
standards, specifications, approvals	
certificate of suitability	CE, FCC, UL/CSA
accessories	
accessories	Front connector with screw-type or spring-loaded terminals

SIPLUS S7-300 CP 340

Overview

- The low-cost, complete solution for serial communication over a point-to-point connection
- RS 232C (V.24) and RS 422/485 (X.27)
- Implemented protocols:
  - ASCII
  - 3964 (R) (not for RS 485)
  - Printer driver
- Simple parameterization using tool integrated in STEP 7

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 CP 340 communications module	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
with 1 RS 232C (V.24) interface	**6AG1340-1AH02-2AE0**
with 1 RS 422/485 (X.27) interface	**6AG1340-1CH02-2AE0**

Technical specifications

Article number	**6AG1340-1AH02-2AE0**	**6AG1340-1CH02-2AE0**
Based on	**6ES7340-1AH02-0AE0**	**6ES7340-1CH02-0AE0**
	SIPLUS S7-300 CP340 RS232	SIPLUS S7-300 CP340 RS422/485
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	60 °C; = Tmax
Ambient temperature during storage/transportation		
• min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m

• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at
	1 140 hPa ... 795 hPa
	(-1 000 m ... +2 000 m) //
	Tmin ... (Tmax - 10 K) at
	795 hPa ... 658 hPa
	(+2 000 m ... +3 500 m) //
	Tmin ... (Tmax -20 K) at
	658 hPa ... 540 hPa
	(+3 500 m ... +5 000 m)
		Tmin ... Tmax at
		1 140 hPa ... 795 hPa
		(-1 000 m ... +2 000 m) //
		Tmin ... (Tmax - 10 K) at
		795 hPa ... 658 hPa
		(+2 000 m ... +3 500 m) //
		Tmin ... (Tmax -20 K) at
		658 hPa ... 540 hPa
		(+3 500 m ... +5 000 m)

Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Technical specifications

Article number	**6AG1340-1AH02-2AE0**	**6AG1340-1CH02-2AE0**
Based on	**6ES7340-1AH02-0AE0**	**6ES7340-1CH02-0AE0**
	SIPLUS S7-300 CP340 RS232	SIPLUS S7-300 CP340 RS422/485
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS S7-300 CP 341

Overview

- For fast, high-performance serial data exchange via point-to-point coupling
- Two versions with different physical transmission characteristics:
  - RS 232C (V.24),
  - RS 422/RS 485 (X.27)
- Implemented protocols: ASCII, 3964 (R), RK 512, customized protocols (can be reloaded)
- Simple parameter assignment using tool integrated in STEP 7

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 CP 341 communications processor	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	
with RS 232C interface (V.24)	**6AG1341-1AH02-7AE0**
with RS 422/485 (X.27) interface	**6AG1341-1CH02-7AE0**
Accessories	
Modbus Master V3.1	
Task: Communication via Modbus protocol with RTU format, SIMATIC S7 as master Requirement: CP 341 or CP 441-2; STEP 7 V4.02 and higher Delivery package: Driver program/documentation, English, German, French	
Single license	**6ES7870-1AA01-0YA0**
Single license, without software and documentation	**6ES7870-1AA01-0YA1**
Modbus Slave V3.1	
Task: Communication via Modbus protocol with RTU format, SIMATIC S7 as slave Requirement: CP 341 or CP 441-2; STEP 7 V4.02 and higher Delivery package: Driver program/documentation, English, German, French	
Single license	**6ES7870-1AB01-0YA0**
Single license, without software and documentation	**6ES7870-1AB01-0YA1**

Technical specifications

Article number	**6AG1341-1AH02-7AE0**	**6AG1341-1CH02-7AE0**
Based on	**6ES7341-1AH02-0AE0**	**6ES7341-1CH02-0AE0**
	SIPLUS S7-300 CP341 RS232C	SIPLUS S7-300 CP341 RS422/485
Ambient conditions		
Ambient temperature during operation		
• min.	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Ambient temperature during storage/transportation		
• min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Altitude during operation relating to sea level		
• Installation altitude above sea level, max.	5 000 m	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Technical specifications

Article number	**6AG1341-1AH02-7AE0**	**6AG1341-1CH02-7AE0**
Based on	**6ES7341-1AH02-0AE0**	**6ES7341-1CH02-0AE0**
	SIPLUS S7-300 CP341 RS232C	SIPLUS S7-300 CP341 RS422/485
Resistance		
Use in stationary industrial systems		
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea		
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology		
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark		
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

SIPLUS CP 342-5

Overview

DP-M	DP-S	FMS	PG/OP	S7/S5	
●	●		●	●	

- PROFIBUS DP master or slave with electrical interface for connecting the SIMATIC S7-300 to PROFIBUS at up to 12 Mbps (including 45.45 kbps)
- Communication services:
- PROFIBUS DP
- PG/OP communication (OP multiplexing)
- S7 communication (client, server)
- Open communication (SEND/RECEIVE)
- Easy configuring and programming via PROFIBUS
- Cross-network PG communication using S7 routing
- Modules can be replaced without a PG

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS CP 342-5 communications processor	
(Extended temperature range and exposure to environmental substances)	
Communications processor for electrical connection of SIMATIC S7-300 to PROFIBUS at up to 12 Mbps, with electronic manual on CD-ROM	
Ambient temperature range -25 ... +70 °C	**6AG1342-5DA03-7XE0**
Accessories	See SIMATIC CP 342-5 communications processor, page 5/185

Technical specifications

Article number	**6AG1342-5DA03-7XE0**
Based on	**6GK7342-5DA03-0XE0**
product type designation	SIPLUS NET CP 342-5
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
	●	●	●			●	●

- Connection for the SIMATIC S7-300 to Industrial Ethernet (not for SINUMERIK)
  - 2 x RJ45 interface for 10/100 Mbps full/half duplex connection (with autosensing for automatic switchover and autocrossover function)
  - Integrated 2-port real-time switch ERTEC
  - Multi-protocol operation with TCP and UDP transport protocol and PROFINET IO
  - Keep Alive function
- Communications services:
  - Open communication (TCP/IP and UDP)
  - PG/OP communication
  - S7 communication (server)
  - PROFINET IO device
- Multicast for UDP
- Remote programming and initial commissioning is possible over Industrial Ethernet
- IT communication
  - Web function
- Integration into network management through SNMP
- Configuration with STEP 7
- Cross-network PG/OP communication by means of S7 routing
- Diagnostics possibilities in STEP 7 and via web browser

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS CP 343-1 Lean communications processor For connecting SIMATIC S7-300 to Industrial Ethernet through TCP/IP and UDP, Multicast, S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, PROFINET IO device, integral 2-port switch ERTEC, comprehensive diagnostics facilities, module replacement without programming device, SNMP, initial commissioning over LAN; with electronic manual on CD-ROM	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	**6AG1343-1CX10-2XE0**
Accessories	
Consumables	
IE FC RJ45 plug 180 (extended temperature range and exposure to media) 180° cable outlet	
• 1 unit	**6AG1901-1BB10-7AA0**
IE FC TP standard cable GP 2 x 2 (type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC stripping tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**
Programming tools	
STEP 7 Version 5.7	See Chapter 12
STEP 7 Professional V17	See Chapter 12
SOFTNET S7 for Industrial Ethernet Software for S7 and open communication, incl. OPC server, programming device/OP communication, and NCM PC/STEP 7 Professional V12, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	See Industry Mall

Technical specifications

Article number	**6AG1343-1CX10-2XE0**
Based on	**6GK7343-1CX10-0XE0**
product type designation	SIPLUS NET CP343-1 LEAN
ambient conditions	
ambient temperature	
• for vertical installation during operation	-25 ... +40 °C
• for horizontally arranged busbars during operation	-25 ... +60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1343-1CX10-2XE0**
Based on	**6GK7343-1CX10-0XE0**
product type designation	SIPLUS NET CP343-1 LEAN
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●			●	●

- The connection of SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet
  - 2 x RJ45 interface for 10/100 Mbps full/half-duplex connection with autosensing/autonegotiation and autocrossover function
  - Integrated 2-port real-time switch ERTEC
  - Multi-protocol operation with ISO, TCP, UDP transport protocol and PROFINET IO
  - Adjustable keep-alive function
- Communications services:
  - Open communication (ISO, TCP/IP, and UDP)
  - PROFINET IO controller or PROFINET IO device
  - PG/OP communication: Cross-network by means of S7 routing
  - S7 communication (client, server, multiplexing)
- Media redundancy (MRP);
  within an Ethernet network with ring topology, the CP supports the media redundancy procedure MRP (V2.2 or higher).
- Multicast for UDP
- IP address assignment via DHCP, simple PC tool or via the user program (e.g. HMI)
- Access protection via configurable access list
- Remote programming and commissioning via Industrial Ethernet
- Configuration with STEP 7
- Automatic setting of CPU clock setting over Ethernet with NTP or SIMATIC procedure
- Web diagnostics
- Integration in network management systems via SNMP (MIB2 diagnostics information)
- Diagnostics possibilities in STEP 7 and via web browser

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 CP 343-1 communications processor For connection of SIMATIC S7-300 to Industrial Ethernet over ISO and TCP/IP; PROFINET IO controller or PROFINET IO device, MRP, integrated 2-port switch ERTEC; S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE, with and without RFC 1006, multicast, DHCP, CPU clock synchronization via SIMATIC procedure and NTP, diagnostics, SNMP, access protection through IP access list, initialization over LAN 10/100 Mbps; with electronic manual on DVD	
For industrial applications with extended ambient conditions	
Extended temperature range and exposure to media	**6AG1343-1EX30-7XE0**

	Article No.
Accessories	
Consumables	
IE FC RJ45 plug 180 (extended temperature range and exposure to media) 180° cable outlet • 1 unit	**6AG1901-1BB10-7AA0**
C-PLUG Removable data storage medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot, -40 ... +70 °C, exposure to media	**6AG1900-0AB00-7AA0**
IE FC TP standard cable GP 2 x 2 (type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC stripping tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**

Ordering data

	Article No.
Communication within the application	
SIPLUS SCALANCE XC-200 Industrial Ethernet Switches	
Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM	
Extended temperature range and exposure to media	
Switches with PROFINET delivery state	
• **SIPLUS SCALANCE XC206-2 (ST/BFOC)** with six RJ45 ports 10/100 Mbps and two ST/BFOC ports 100 Mbps	**6AG1206-2BB00-7AC2**

	Article No.
Programming tools	
STEP 7 Version 5.7	See Chapter 12
STEP 7 Professional V17	See Chapter 12
SOFTNET S7 for Industrial Ethernet	See Industry Mall
Software for S7 and open communication, incl. OPC server, programming device/OP communication, and NCM PC/STEP 7 Professional V12, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	

Technical specifications

Article number	**6AG1343-1EX30-7XE0**
Based on	**6GK7343-1EX30-0XE0**
product type designation	SIPLUS NET CP 343-1
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1343-1EX30-7XE0**
Based on	**6GK7343-1EX30-0XE0**
product type designation	SIPLUS NET CP 343-1
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

Overview

ISO	TCP/ UDP	PN	MRP	IT	IP-R	PG/OP	S7/S5
●	●	●	●	●	●	●	●

- The connection of SIMATIC S7-300/SINUMERIK 840D powerline to Industrial Ethernet
  - Multi-protocol operation with TCP and UDP transport protocol
  - Adjustable keep-alive function
- Two separate interfaces (integrated network separation):
  - Gigabit interface with one RJ45 port with 10/100/1 000 Mbps, full/half-duplex with auto-sensing capability
  - PROFINET interface with two RJ45 ports with 10/100 Mbps full/half-duplex with auto-sensing and auto-crossover functionality via integrated 2-port switch
- Communications services via both interfaces:
  - Open communication (TCP/IP and UDP): Multicast with UDP, including routing between both interfaces
  - PG/OP communication:
    Cross-network by means of S7 routing
  - S7 communication (client, server, multiplexing) including routing between both interfaces
  - IT communication:
    HTTP communication supports access to process data via own web pages;
    e-mail client function, sending of e-mails directly from user program;
    FTP communication supports program-controlled FTP client communication;
    access to data blocks through FTP server
- Communications services via PROFINET interfaces:
  - PROFINET IO controller and IO device with real-time properties (RT and IRT)[1)]
  - PROFINET CBA
  - IP address assignment via DHCP, simple PC tool or via program block (e.g. for HMI)
  - Configuration with STEP 7
- Media redundancy (MRP);
  within an Ethernet network with ring topology, the CP supports the media redundancy procedure MRP (V2.2 or higher).
- Access protection by means of configurable IP access list
- Module replacement without programming device;
  all information is stored on the C-PLUG
  (also file system for IT functions)
- Extensive diagnostic functions for all modules in the rack
- IT communication
  - Web function
  - E-mail function
  - FTP
- Integration into network management systems through the support of SNMP V1 MIB-II

[1)] possible combinations in parallel operation:
- IO controller with IRT and IO device with RT
- IO controller with RT and IO device with IRT

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS S7-300 CP 343-1 Advanced

Ordering data	Article No.
SIPLUS S7-300 CP 343-1 Advanced communications processor for connecting the SIMATIC S7-300 to Industrial Ethernet, PROFINET IO controller and IO device with RT and IRT, MRP, PROFINET CBA, TCP/IP and UDP, S7 communication, open communication (SEND/RECEIVE), FETCH/WRITE with or without RFC 1006, diagnostics extensions, multicast, web server, HTML diagnostics, FTP server, FTP client, email client, CPU clock set via SIMATIC procedure and NTP, access control via IP access list, SNMP, DHCP, initialization over LAN 10/100 Mbps; with electronic manual on DVD; C-PLUG included	
For industrial applications with extended ambient conditions	
Exposure to media	**6AG1343-1GX31-4XE0**
Accessories	
Consumables	
IE FC RJ45 plug 180 (extended temperature range and exposure to media) 180° cable outlet	
• 1 unit	**6AG1901-1BB10-7AA0**
C-PLUG Removable data storage medium for simple replacement of devices in the event of a fault; for storing configuration or engineering and application data; can be used for SIMATIC NET products with C-PLUG slot, -40 ... +70 °C, exposure to media	**6AG1900-0AB00-7AA0**
IE FC TP standard cable GP 2 x 2 (type A) 4-wire, shielded TP installation cable for connection to IE FC RJ45 outlet/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1 000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC TP standard cable GP 4 x 2 8-wire, shielded TP installation cable for universal applications; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	
• AWG22, for connection to IE FC RJ45 modular outlet	**6XV1870-2E**
• AWG24, for connecting to IE FC RJ45 Plug 4 x 2, IE FC M12 Plug PRO 4 x 2	**6XV1878-2A**
IE FC stripping tool Pre-adjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**

	Article No.
Communication within the application	
SIPLUS SCALANCE XC-200 Industrial Ethernet Switches Industrial Ethernet switches with integrated SNMP access, web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; with integrated redundancy manager; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM Extended temperature range and exposure to media Switches with PROFINET delivery state	
• **SIPLUS SCALANCE XC206-2 (ST/BFOC)** with six RJ45 ports 10/100 Mbps and two ST/BFOC ports 100 Mbps	**6AG1206-2BB00-7AC2**
Programming tools	
STEP 7 Version 5.7	See Chapter 12
STEP 7 Professional V17	See Chapter 12
SOFTNET S7 for Industrial Ethernet Software for S7 and open communication, incl. OPC server, programming device/OP communication, and NCM PC/STEP 7 Professional V12, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	See Industry Mall
SIMATIC iMap	See Chapter 12

Technical specifications

Article number	**6AG1343-1GX31-4XE0**
Based on	**6GK7343-1GX31-0XE0**
product type designation	SIPLUS NET CP343-1 ADVANCED
ambient conditions	
ambient temperature	
• for vertical installation during operation	0 ... 40 °C
• for horizontally arranged busbars during operation	0 ... 60 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1343-1GX31-4XE0**
Based on	**6GK7343-1GX31-0XE0**
product type designation	SIPLUS NET CP343-1 ADVANCED
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

SIPLUS TIM 3V-IE for WAN and Ethernet

Overview

- SINAUT communication module SIPLUS TIM for SIMATIC S7-300 for use in a wide area network (WAN)
- IP communication via secure VPN (virtual private network) using the Internet
- Wireless communication via GPRS router, GPRS modem, or radio devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for seamless recording of data
- Simple configuration and operation without specialist IT knowledge

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS ST7 TIM 3V-IE communication module With an RS 232 interface for SINAUT communication via a conventional WAN or an IP-based network (WAN or LAN)	**6AG1800-3BA00-7AA0**
Accessories	
Consumables	
IE FC TP standard cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit, -40 ... +70 °C, exposure to media	**6AG1901-1BB10-7AA0**
IE FC stripping tool Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**

Technical specifications

Article number	**6AG1800-3BA00-7AA0**
Based on	**6NH7800-3BA00**
product type designation	SIPLUS SINAUT ST7, TIM 3V-IE
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1800-3BA00-7AA0**
Based on	**6NH7800-3BA00**
product type designation	SIPLUS SINAUT ST7, TIM 3V-IE
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

SIPLUS TIM 4R-IE for WAN and Ethernet

Overview

- SINAUT communication module SIPLUS TIM with four interfaces for SIMATIC S7-300 or as a self-contained device for S7-400 for use in a wide area network (WAN)
- For universal use in a SINAUT station, node station and control center
- Internet communication via integrated MSC-VPN tunnel with direct connection to DSL router or operation via IPsec VPN with additional SIMATIC NET components
- Wireless communication via GPRS router, GPRS modem, or radio devices
- Wired communication via Ethernet, DSL, dialup modems or dedicated line modem
- Complete migration of existing wireless, dedicated line and dial-up technology to IP-based network
- Message frame memory for seamless recording of data and support of redundant communication paths
- Simple configuration and operation without specialist IT knowledge

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS ST7 TIM 4R-IE communication module With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)	**6AG1800-4BA00-7AA0**
Accessories	
Consumables	
IE FC TP standard cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 plug 180 RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit; -40 ... +70 °C, exposure to media	**6AG1901-1BB10-7AA0**
IE FC stripping tool Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**

Technical specifications

Article number	**6AG1800-4BA00-7AA0**
Based on	**6NH7800-4BA00**
product type designation	SIPLUS SINAUT ST7, TIM 4R-IE
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1800-4BA00-7AA0**
Based on	**6NH7800-4BA00**
product type designation	SIPLUS SINAUT ST7, TIM 4R-IE
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

SIPLUS TIM 3V-IE DNP3

Overview

In a station for the S7-CPU, the new SIPLUS communication module TIM 3V-IE DNP3 V3.0 (TeleControl Interface Module) handles the data exchange with the assigned master system SIMATIC PCS 7 TeleControl V8.0 using the open DNP3 protocol. In addition, the V3.0 module now also supports master and node functionality.

- With the S7-300 housing, the module can be fully integrated into the S7-300 system
- The module has an RS232 interface for the connection of an external modem for data transmission via a conventional WAN or the connection of a Modbus RTU slave to an S7-300 system
- The RJ45 port is used for data transmission via IP-based networks

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS TIM 3V-IE DNP3 communication module With an RS232 interface for SINAUT communication via a conventional WAN and an IP-based network (WAN or LAN)	**6AG1803-3BA00-7AA0**
Accessories	
Consumables	
IE FC TP standard cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compliant; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 plug 180 RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit -40 ... +70 °C, exposure to media	**6AG1901-1BB10-7AA0**
IE FC stripping tool Preadjusted stripping tool for fast stripping of the Industrial Ethernet FC cables	**6GK1901-1GA00**

Technical specifications

Article number	**6AG1803-3BA00-7AA0**
Based on	**6NH7803-3BA00-0AA0**
product type designation	SIPLUS NET TIM 3V-IE DNP3
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1803-3BA00-7AA0**
Based on	**6NH7803-3BA00-0AA0**
product type designation	SIPLUS NET TIM 3V-IE DNP3
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

SIPLUS TIM 4R-IE DNP3

Overview

In a station for the S7-CPU, the SIPLUS communication module TIM 4R-IE DNP3 (TeleControl Interface Module) handles the data exchange with the assigned SIMATIC PCS7 TeleControl V8.0 master system using the open DNP3 protocol. In addition, the V3.0 module now also supports master and node functionality.

- With the double-width S7-300 housing, the module can be fully integrated into the S7-300 system
- Can be connected as a stand-alone module to a SIMATIC S7-400 and SIMATIC S7-400 H System
- Two RS232/RS485 interfaces support connection of an external modem for data transmission via a conventional WAN or of a Modbus RTU slave to an S7-300 system
- The module has two RJ45 interfaces for data transmission via IP-based networks
- By using physically separate connection paths, the module permits media redundancy without loss of data during the switchover

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIPLUS TIM 4R-IE DNP3 communication module With two combined RS 232/RS 485 interfaces for SINAUT communication via conventional WANs and two RJ45 interfaces for SINAUT communication via IP-based networks (WAN or LAN)	**6AG1803-4BA00-7AA0**
Accessories	
Consumables	
IE FC TP standard cable GP 2 x 2 (Type A) 4-wire, shielded TP installation cable for connection to IE FC outlet RJ45/IE FC RJ45 plug; PROFINET-compatible; with UL approval; sold by the meter; max. delivery unit 1000 m, minimum order quantity 20 m	**6XV1840-2AH10**
IE FC RJ45 plug 180 RJ45 plug-in connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables; with 180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface	
• 1 pack = 1 unit -40 ... +70 °C, exposure to media	**6AG1901-1BB10-7AA0**
IE FC stripping tool Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables	**6GK1901-1GA00**

Technical specifications

Article number	**6AG1803-4BA00-7AA0**
Based on	**6NH7803-4BA00-0AA0**
product type designation	SIPLUS NET TIM 4R-IE DNP3
ambient conditions	
ambient temperature	
• during operation	-25 ... +70 °C
• during storage	-40 ... +70 °C
• during transport	-40 ... +70 °C
installation altitude at height above sea level maximum	5 000 m
ambient condition relating to ambient temperature - air pressure - installation altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
relative humidity	
• with condensation acc. to IEC 60068-2-38 maximum	100 %; RH including condensation/ frost (no commissioning when condensation is present), horizontal installation
chemical resistance to commercially available cooling lubricants	Yes; incl. airborne diesel and oil droplets
resistance to biologically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3B2 mold and fungal spores (excluding fauna), Class 3B3 on request
• conformity acc. to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)

Article number	**6AG1803-4BA00-7AA0**
Based on	**6NH7803-4BA00-0AA0**
product type designation	SIPLUS NET TIM 4R-IE DNP3
resistance to chemically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray in accordance with EN 60068-2-52 (Severity 3). The supplied plug covers must remain in place on the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes
resistance to mechanically active substances	
• conformity acc. to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
• conformity acc. to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation.
coating for equipped printed circuit board acc. to EN 61086	Yes; Class 2 for high availability
type of coating protection against pollution according to EN 60664-3	Yes; Protection of the type 1
type of test of the coating acc. to MIL-I-46058C	Yes; Coating discoloration during service life possible
product conformity of the coating Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies acc. to IPC-CC-830A	Yes; Conformal coating, class A
protection class IP	IP20

SM 374 simulator

Overview

- Simulator module for program testing during commissioning and ongoing operation
- For the simulation of sensor signals using switches
- For display of signal conditions on the outputs using LED
- Simulation of
  - 16 inputs or
  - 16 outputs or
  - 8 inputs and 8 outputs
- Function can be directly adjusted on the module using a screwdriver

Ordering data

	Article No.
SM 374 simulator module incl. bus connectors, labeling strips	**6ES7374-2XH01-0AA0**
Bus connectors 1 unit, spare part	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Label cover 10 units (spare part)	**6ES7392-2XY00-0AA0**
Labeling sheets for machine inscription for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**

Technical specifications

Article number	**6ES7374-2XH01-0AA0** SM 374 Simulation unit 16E/16A
General information	
Product type designation	SM 374
Input current	
from backplane bus 5 V DC, max.	80 mA
Power loss	
Power loss, typ.	0.35 W
Digital inputs	
Number of digital inputs	16; Switch
Digital outputs	
Number of digital outputs	16; LEDs
Potential separation	
Potential separation digital inputs	
• between the channels and backplane bus	No
Potential separation digital outputs	
• between the channels and backplane bus	No
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	190 g

Overview

- Dummy module for reserving slots for non-parameterized signal modules
- Structure and address allocation is retained when replaced with a signal module

Ordering data

	Article No.
DM 370 dummy module incl. bus connectors, labeling strips	**6ES7370-0AA01-0AA0**
Bus connectors 1 unit, spare part	**6ES7390-0AA00-0AA0**
Labeling strips 10 units (spare part)	**6ES7392-2XX00-0AA0**
Label cover 10 units (spare part)	**6ES7392-2XY00-0AA0**
Labeling sheets for machine inscription for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**

Technical specifications

Article number	**6ES7370-0AA01-0AA0** DM 370 DUMMY module
General information	
Product type designation	DM 370
Input current	
from backplane bus 5 V DC, max.	5 mA
Power loss	
Power loss, max.	0.03 W
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	180 g

SIPLUS S7-300 DM 370

Overview

- Dummy module for reserving slots for unconfigured signal modules
- Retention of design and address assignment when replacing with a signal module

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

	Article No.
SIMATIC S7-300 DM 370 dummy module	
for use when replacing modules	
Extended temperature range and exposure to media	**6AG1370-0AA01-7AA0**
Accessories	
Consumables	
Bus connectors	**6ES7390-0AA00-0AA0**
1 unit (spare part)	
Labeling strips	
10 units (spare part)	
For modules with 20-pin front connector	**6ES7392-2XX00-0AA0**
Label cover	
10 units (spare part)	
For modules with 20-pin front connector	**6ES7392-2XY00-0AA0**
Labeling sheets for machine printing	
For modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
Petrol	**6ES7392-2AX00-0AA0**
Light beige	**6ES7392-2BX00-0AA0**
Yellow	**6ES7392-2CX00-0AA0**
Red	**6ES7392-2DX00-0AA0**

Technical specifications

Article number	**6AG1370-0AA01-7AA0**
Based on	**6ES7370-0AA01-0AA0** SIPLUS S7-300 Dummy module
Ambient conditions	
Ambient temperature during operation	
• min.	-40 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- For the simple and user-friendly connection of sensors and actuators to the S7-300 I/O modules
- For maintaining the wiring when replacing modules ("permanent wiring")
- With mechanical coding to avoid errors when replacing modules

Ordering data

	Article No.
Front connectors	
20-pin, with screw contacts	
• 1 unit	**6ES7392-1AJ00-0AA0**
• 100 units	**6ES7392-1AJ00-1AB0**
20-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BJ00-0AA0**
• 100 units	**6ES7392-1BJ00-1AB0**
40-pin, with screw contacts	
• 1 unit	**6ES7392-1AM00-0AA0**
• 100 units	**6ES7392-1AM00-1AB0**
40-pin, with spring-loaded contacts	
• 1 unit	**6ES7392-1BM01-0AA0**
• 100 units	**6ES7392-1BM01-1AB0**
Front door, elevated design	**6ES7328-0AA00-7AA0**
e.g. for 32 channel modules; enables connection of 1.3 mm^2/16 AWG wires	
Front door, higher version, for F-modules	**6ES7328-7AA10-0AA0**
For F-modules; for connecting 1.3 mm^2/16 AWG wires; wiring diagram and labels in yellow	

System cabling for SIMATIC S7-300 and ET 200M

Overview

Wiring of SIMATIC S7 I/O modules with the sensors/actuators is a significant factor with respect to time/cost overhead, configuring, control cabinet installation, procurement and ease of service.

With SIMATIC TOP connect system cabling, it is simple and quick to establish a reliable connection for your SIMATIC S7-300 or ET 200M.

With the TIA Selection Tool, a mouse click is all that is required to configure the connection from the SIMATIC S7 module to the I/O. The program automatically checks for plausibility and generates a parts list for the selected connection components that can then be ordered in the Industry Mall.

More information can be found on the Internet at

http://www.siemens.com/tia-selection-tool

Design

Two cabling variants are available for a wide range of control cabinet concepts:

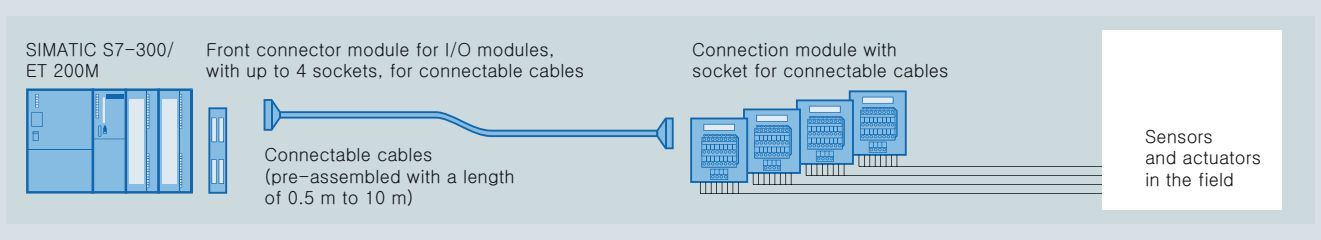
Fully modular connection

Each component is individually inserted.

The system consists of:

- Front connector module
- Connecting cable
- Terminal modules in the following versions: basic module, signal module and function module

Connection errors are thus practically excluded and installation overhead is minimized. Systematic connection of the SIMATIC system. The assembly work for the connecting cables is drastically reduced thanks to the use of pre-assembled cables sold by the meter.



SIMATIC TOP connect for S7-300/ ET200M, fully modular connection

Flexible connection

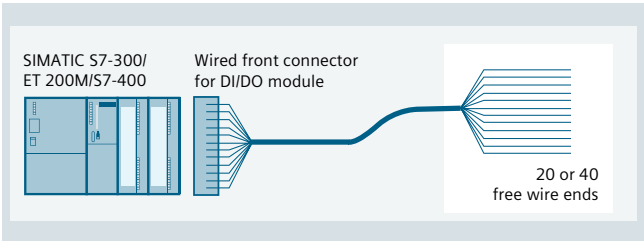
Consisting of:

- Front connector with screw-type or crimp connection
- Front connector with fixed single cores
- Single cores also available with UL/CSA-certified cores

The blue wires are numbered sequentially and can be routed direct to each element in the control cabinet. The numbering of the single cores corresponds to the coding of the front connector contacts.

In comparison to conventional single wiring, there is a cost saving of 50% for assembly, since the single cores that have already been checked on the connector are fixed.

This eliminates the time-consuming assembly of up to 40 individual wires per module.



SIMATIC TOP connect for S7-300/ET200M, flexible connection

Overview

The fully modular connection for connecting to the digital I/O modules of the SIMATIC S7-300 or ET 200M consists of modified front connectors, called front connector modules, preassembled connecting cables of various lengths, and terminal modules. Suitable components can be selected for the application in question and joined by means of simple plug-in connections. The terminal modules are used instead of conventional terminal blocks and act as the interface to the sensors and actuators.

Benefits

- Front connector module, connecting cable and terminal module are easy to plug in
- Fast, low-cost wiring
- For digital and analog signals, supply voltage can be connected to the front plug-in module or terminal module
- Reduction in wiring errors, clear control cabinet wiring
- Distribution of digital signals by byte or quadruple byte
- Each component can be replaced individually
- Pre-assembled cables can be used in different lengths

Design

Front connector module

Modified front connectors, called front connector modules, are available for connecting to the module. These are plugged into the module to be wired instead of the front connector. Many different front connector module versions, for digita l I/O modules, 24 V 2-ampère modules or analog I/O modules. The connecting cables are plugged into these front connector modules.

Connecting cable

There are different versions of the connecting cable.

As a pre-assembled 16-pin or 50-pin round cable (shielded or unshielded) it is available in lengths up to 10 m.

When assembled, there are one or two insulation displacement connectors (female ribbon connectors) at both ends of the cable.

The connecting cable connects the front connector module with the terminal module.

Terminal module

The system has both digital and analog terminal modules for connecting the I/O signals. These are snapped onto the DIN rail. The terminal modules with basic or signal functionality are available in 1-byte or 4-byte versions.

Terminal modules are available for two different connection methods: with push-in or screw-type terminals. The potential can be fed in at the terminal module or at the front connector module.

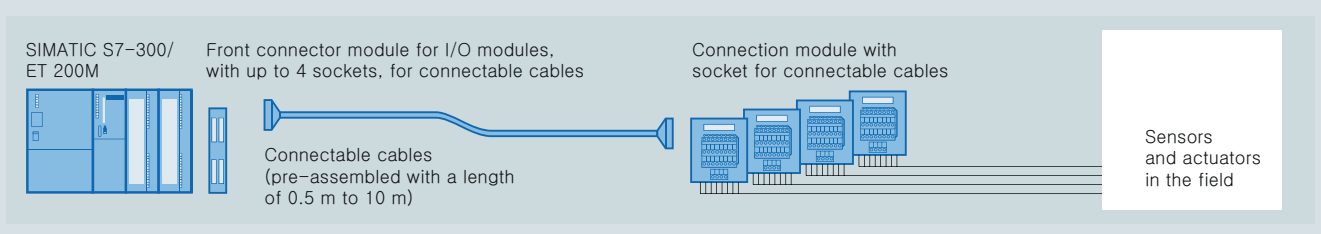
If other voltage or power levels are required in the field, the terminal module for TPRo or TPOo output signals is used. For the TPRo terminal module, relays are used for the implementation. For the TPOo terminal module, optocouplers are used for the implementation. This converts the 24 V DC output signal simply and reliably to another voltage or power level. If 230 V AC or 110 V AC input signals have to be transmitted to the controller in the field, a terminal module with relay TPRi is available that simply converts the 230/110 V AC signal to 24 V DC. This means that there is always the same voltage level on the module side.

Use with optocouplers for the TPRo relay modules

If higher switching frequencies of the relay terminal module are required for the output signals, the relay can simply be replaced with an optocoupler (note technical specifications) in order to increase the switching frequency.

Shield plate

The shield plate is latched onto the terminal module for 3-core initiators or optionally onto the terminal module for analog signals and then snapped onto the DIN rail with the terminal module. With the shield connection clamps, optimal shield connection is achieved between the shielded round-sheath ribbon cable or the shielded field cables and the grounded DIN rail.



SIMATIC TOP connect for S7-300/ ET200 M, fully modular connection

5

Technical specifications Front connector

Technical data of front connector module	
Rated operating voltage	24 VDC
Max. permissible operating voltage	60 V DC
Max. permissible continuous current • per connector pin	1 A
Max. permissible summation current	4 A/byte
Permissible ambient temperature	0 to + 60°C
Test voltage	0.5 kV, 50 Hz, 60 sec.
Air gaps and creepage distances	IEC 664 (1980), IEC 664 A (1981), in accordance with DIN VDE 0110 (01.89), overvoltage class II, pollution degree 2

Wiring rules for front connector modules

Front connector module SIMATIC TOP connect, connection for potential infeed		
	Spring connection	Screw connection
	Modules up to 4 connections	
Connectable cable cross-sections		
• solid cables	No	
• flexible cables with/without wire end ferrule	0,25 to 1.5 mm^2	
Number of wires per connection	1 or a combination of 2 conductors up to 1.5 mm^2 (total) in a common wire end ferrule	
Max. diameter of the cable insulation	3.1 mm	
Stripping length of the cables		
• without insulating collar	6 mm	
• with insulating collar	-	
Wire-end ferrules in acc. with DIN 46228		
• without insulating collar	Form A; 5 to 7 mm long	
• with insulating collar 0.25 to 1.0 mm^2	-	
• with insulating collar 1.5 mm^2	-	
Blade width of the screwdriver	3.5 mm (cylindrical shape)	
Tightening torque for connecting the cables	-	0.4 to 0.7 Nm

Front connector module SIMATIC TOP connect, connection for potential infeed		
	Spring connection	Screw connection
	Modules up to 8 connections	
Connectable cable cross-sections		
• solid cables	No	
• flexible cables with/without wire end ferrule	0.25 to 0.75 mm^2	
Number of cables per connection	1 or a combination of 2 wires up to 0.75 mm^2 (total) in a common wire end ferrule	
Max. diameter of the cable insulation	2.0 mm	
Stripping length of the cables		
• without insulating collar	6 mm	
• with insulating collar	-	
Wire-end ferrules in acc. with DIN 46228		
• without insulating collar	Form A; 5 to 7 mm long	
• with insulating collar 0.25 to 1.0 mm^2	-	
• with insulating collar 1.5 mm^2	-	
Blade width of the screwdriver	3.5 mm (cylindrical shape)	
Tightening torque for connecting the cables	-	0.4 to 0.7 Nm

Technical specifications Connecting cable

Technical specifications of connecting cable from SIMATIC S7 to connection module	
Operating voltage	60 V DC
Continuous current per signal conductor	1 A
Max. total current	4 A/byte
Operating temperature	0 to +60 °C
Outer diameter of pre-assembled round cable in mm unshielded/shielded (16-pole)	Approx. 6.5/7.0

Ordering data

Front connector modules [1)]

	Article No.
Front connector module (compact CPU 312C)	
Power supply via	
• Screw terminals	**6ES7921-3AK20-0AA0**
Front connector module (compact CPU 313C/ 314C-2PtP/314C-2DP), slot X1	
Power supply via	
• Screw terminals	**6ES7921-3AM20-0AA0**
Front connector module (digital 2 x 8 I/O)	
Power supply via	
• Spring-loaded terminals	**6ES7921-3AA00-0AA0**
• Screw terminals	**6ES7921-3AB00-0AA0**
Front connector module (digital 4 x 8 I/O)	
Power supply via	
• Spring-loaded terminals	**6ES7921-3AA20-0AA0**
• Screw terminals	**6ES7921-3AB20-0AA0**
Front connector module (1 x 8 outputs) for 2-ampere digital outputs	
Power supply via	
• Spring-loaded terminals	**6ES7921-3AC00-0AA0**
• Screw terminals	**6ES7921-3AD00-0AA0**
Front connector module 20-pin (analog)	
Power supply via	
• Spring-loaded terminals	**6ES7921-3AF00-0AA0**
• Screw terminals	**6ES7921-3AG00-0AA0**
Front connector module 40-pin (analog)	
Power supply via	
• Spring-loaded terminals	**6ES7921-3AF20-0AA0**
• Screw terminals	**6ES7921-3AG20-0AA0**

[1)] The terminal assignments of these front connector modules are unambiguous, so dimension drawings can be omitted. The dimension drawings for these front connector modules can be found under "Wiring of S7-300 analog modules" in the Industry Mall.

Connecting cables

	Article No.
Connecting cables for SIMATIC S7-300	
Pre-assembled round cable	
16-pin, 0.14 mm^2	
Unshielded	
• 0.5 m	**6ES7923-0BA50-0CB0**
• 1.0 m	**6ES7923-0BB00-0CB0**
• 1.5 m	**6ES7923-0BB50-0CB0**
• 2.0 m	**6ES7923-0BC00-0CB0**
• 2.5 m	**6ES7923-0BC50-0CB0**
• 3.0 m	**6ES7923-0BD00-0CB0**
• 4.0 m	**6ES7923-0BE00-0CB0**
• 5.0 m	**6ES7923-0BF00-0CB0**
• 6.5 m	**6ES7923-0BG50-0CB0**
• 8.0 m	**6ES7923-0BJ00-0CB0**
• 10.0 m	**6ES7923-0CB00-0CB0**
Shielded	
• 1.0 m	**6ES7923-0BB00-0DB0**
• 2.0 m	**6ES7923-0BC00-0DB0**
• 2.5 m	**6ES7923-0BC50-0DB0**
• 3.0 m	**6ES7923-0BD00-0DB0**
• 4.0 m	**6ES7923-0BE00-0DB0**
• 5.0 m	**6ES7923-0BF00-0DB0**
• 6.5 m	**6ES7923-0BG50-0DB0**
• 8.0 m	**6ES7923-0BJ00-0DB0**
• 10.0 m	**6ES7923-0CB00-0DB0**
Version 4 x 16 to 1 x 50-pin, 0.14 mm^2	
Unshielded	
• 0.5 m	**6ES7923-5BA50-0EB0**
• 1.0 m	**6ES7923-5BB00-0EB0**
• 1.5 m	**6ES7923-5BB50-0EB0**
• 2.0 m	**6ES7923-5BC00-0EB0**
• 2.5 m	**6ES7923-5BC50-0EB0**
• 3.0 m	**6ES7923-5BD00-0EB0**
• 4.0 m	**6ES7923-5BE00-0EB0**
• 5.0 m	**6ES7923-5BF00-0EB0**
• 6.5 m	**6ES7923-5BG50-0EB0**
• 8.0 m	**6ES7923-5BJ00-0EB0**
• 10.0 m	**6ES7923-5CB00-0EB0**

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Ordering data

Terminal modules

	Article No.
Terminal module TP1	
For 1-wire connection, for 16-pin connecting cables	
• Push-in terminals without LEDs	**6ES7924-0AA20-0AC0**
• Screw-type terminals without LEDs	**6ES7924-0AA20-0AA0**
• Push-in terminals with LEDs	**6ES7924-0AA20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0AA20-0BA0**
For 1-wire connection, for 50-pin connecting cables	
• Push-in terminals without LEDs	**6ES7924-2AA20-0AC0**
• Screw-type terminals without LEDs	**6ES7924-2AA20-0AA0**
• Push-in terminals with LEDs	**6ES7924-2AA20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-2AA20-0BA0**
Terminal module TP3	
For 3-wire connection, for 16-pin connecting cables	
• Push-in terminals without LEDs	**6ES7924-0CA20-0AC0**
• Screw-type terminals without LEDs	**6ES7924-0CA20-0AA0**
• Push-in terminals with LEDs	**6ES7924-0CA20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0CA20-0BA0**
• Push-in terminals with LEDs and one isolating terminal per channel	**6ES7924-0CH20-0BC0**
• Screw-type terminals with LEDs and one isolating terminal per channel	**6ES7924-0CH20-0BA0**
• Push-in terminals with LEDs and fuse per channel	**6ES7924-0CL20-0BC0**
• Screw-type terminals with LEDs and one fuse per channel	**6ES7924-0CL20-0BA0**
For 3-wire connection, for 50-pin connecting cables	
• Push-in terminals without LEDs	**6ES7924-2CA20-0AC0**
• Screw-type terminals without LEDs	**6ES7924-2CA20-0AA0**
• Push-in terminals with LEDs	**6ES7924-2CA20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-2CA20-0BA0**
Terminal module TPRo	
Relay module for 8 outputs, relay as normally open contact	
• Push-in terminals with LEDs	**6ES7924-0BD20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0BD20-0BA0**
Terminal module TPRi	
Relay module for 8 outputs (110 V AC), relay as normally open contact	
• Push-in terminals with LEDs	**6ES7924-0BG20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0BG20-0BA0**

	Article No.
Terminal module TPRi	
Relay module for 8 outputs (230 V AC), relay as normally open contact	
• Push-in terminals with LEDs	**6ES7924-0BE20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0BE20-0BA0**
Terminal module TPOo	
Optocoupler module for 8 outputs (max. 24 V DC/4 A)	
• Push-in terminals with LEDs	**6ES7924-0BF20-0BC0**
• Screw-type terminals with LEDs	**6ES7924-0BF20-0BA0**
Terminal module for digital output modules 2 A	
Terminal module TP2	
• Push-in terminals without LEDs	**6ES7924-0BB20-0AC0**
• Screw-type terminals without LEDs	**6ES7924-0BB20-0AA0**
Terminal module for analog modules	
Terminal module TPA	
• Push-in terminals without LEDs	**6ES7924-0CC21-0AC0**
• Screw-type terminals without LEDs	**6ES7924-0CC21-0AA0**
Accessories	
ID labels for terminal modules in S7-1500 design	
ID labels, insertable P. unit = 340 units	**3RT1900-1SB20**
Shield plate for analog terminal module	
P. unit = 4 units (for connection of 15-pin connecting cable)	**6ES7928-1AA20-4AA0**
Shield connection clamp	
For shield plate at SIMATIC end, P. unit = 10 units	**6ES7590-5BA00-0AA0**
For shield plate at field end, 2 x 2 ... 6 mm	**6ES7390-5AB00-0AA0**
For shield plate at field end, 3 ... 8 mm	**6ES7390-5BA00-0AA0**
For shield plate at field end, 4 ... 13 mm	**6ES7390-5CA00-0AA0**

Overview

Flexible connection enables fast, direct connection of the SIMATIC S7-300/ET 200 M input/output modules to the individual elements in the control cabinet.

Attached single cores reduce the wiring outlay.

Wire cross-sections of 0.5 mm^2 allow higher currents, too.

Technical specifications

Front connector with single cores for 16 channels	
Rated operating voltage	24 V DC
Permissible continuous current with simultaneous load of all wires, max.	1.5 A
Permissible ambient temperature	0 to 60 °C
Core type	H05V-K or with UL 1007/1569; CSA TR64
Number of single cores	20
Core cross-section	0.5 mm^2; Cu
Bundle diameter in mm	approx. 15
Core color	Blue, RAL 5010
Designation of cores	Numbered from 1 to 20 (front connector contact = core number)
Assembly	Screw-type or crimp contacts

Front connector with single cores for 32 channels	
Rated operating voltage	24 V DC
Permissible continuous current with simultaneous load of all wires, max.	1.5 A
Permissible ambient temperature	0 to 60 °C
Core type	H05V-K or with UL 1007/1569; CSA TR64
Number of single cores	40
Core cross-section	0.5 mm^2; Cu
Bundle diameter in mm	approx. 17
Core color	Blue, RAL 5010
Designation of cores	Numbered from 1 to 40 (front connector contact = core number)
Assembly	Screw-type or crimp contacts

Ordering data

	Article No.
Front connector with single wires for 16-channel digital modules SIMATIC S7-300, 20 x 0.5 mm^2	
Core type H05V-K	
Screw version	
Packaging unit: 1 unit Length:	
• 2.5 m	**6ES7922-3BC50-0AB0**
• 3.2 m	**6ES7922-3BD20-0AB0**
• 5 m	**6ES7922-3BF00-0AB0**
• Custom lengths	On request
Packaging unit: 5 units Length:	
• 2.5 m	**6ES7922-3BC50-5AB0**
• 3.2 m	**6ES7922-3BD20-5AB0**
• 5.0 m	**6ES7922-3BF00-5AB0**
Crimp version	
Packaging unit: 1 unit Length:	
• 2.5 m	**6ES7922-3BC50-0AF0**
• 3.2 m	**6ES7922-3BD20-0AF0**
• 5.0 m	**6ES7922-3BF00-0AF0**
• Custom lengths	On request
Core type UL/CSA-certified	
Screw version	
Packaging unit: 1 unit Length:	
• 3.2 m	**6ES7922-3BD20-0UB0**
• 5.0 m	**6ES7922-3BF00-0UB0**
Front connector with single wires for 32-channel digital modules SIMATIC S7-300, 40 x 0.5 mm^2	
Core type H05V-K	
Screw version	
Packaging unit: 1 unit Length:	
• 2.5 m	**6ES7922-3BC50-0AC0**
• 3.2 m	**6ES7922-3BD20-0AC0**
• 5.0 m	**6ES7922-3BF00-0AC0**
• Custom lengths	On request
Packaging unit: 5 units Length:	
• 2.5 m	**6ES7922-3BC50-5AC0**
• 3.2 m	**6ES7922-3BD20-5AC0**
• 5.0 m	**6ES7922-3BF00-5AC0**
Crimp version	
Packaging unit: 1 unit Length:	
• 2.5 m	**6ES7922-3BC50-0AG0**
• 3.2 m	**6ES7922-3BD20-0AG0**
• 5.0 m	**6ES7922-3BF00-0AG0**
• Custom lengths	On request
Core type UL/CSA-certified	
Screw version Packaging unit: 1 unit Length:	
• 3.2 m	**6ES7922-3BD20-0UC0**
• 5.0 m	**6ES7922-3BF00-0UC0**

Design

The front connector is available in two versions:

The 20-pin front connector comprises:

- 20 crimp contact connections for the wiring
- Strain relief for the cables
- Unlocking button for unlatching the front connector when replacing the module
- Receptacle for coding element attachment; there are two coding elements with attachments on the module.
  The attachments latch into the front connector when inserted for the first time.

The 40-pin front connector comprises:

- 40 crimp contact connections for the wiring
- Strain relief for the cables
- Locking screw for fixing and detaching the front connector when the module is replaced
- Receptacle for coding element attachment; there is one two coding element with attachment on the module.
  The attachment latches into the front connector when inserted for the first time.

Integration

Use of the 20-pole front connector with

- 16-channel signal modules
- Function modules
- CPU 312 IFM

Use of the 40-pole front connector with

- 32-channel signal modules
- Compact CPUs

Ordering data

	Article No.
Front connector 20-pin, crimp version without crimp contacts	
Packing unit 100 units	**6ES7921-3AH00-1AA0**
Front connector 40-pin, crimp version without crimp contacts	
Packing unit 100 units	**6ES7921-3AH20-1AA0**
Accessories	
Crimp contacts for front connectors	**6XX3070**
Packing unit 250 units	
Crimping tool	**6XX3071**
For crimping the crimp contacts	
Unlocking tool for crimp contacts	**6ES5497-4UC11**

Overview

The design and functionality of the SIMATIC PS307 single-phase load power supply (system and load current supply) with automatic range switching of the input voltage are an optimal match to the SIMATIC S7-300 PLC. The supply to the CPU is quickly established by means of the connecting comb that is supplied with the system and load current supply. It is also possible to provide a 24 V supply to other S7-300 system components, input/output circuits of the input/output modules and, if necessary, the sensors and actuators. Comprehensive certifications such as UL and GL enable universal use (does not apply to outdoor use).

Ordering data

	Article No.
PS307 load current supply, 2 A incl. connecting comb Input: 120/230 V AC Output: 24 V DC/2 A	**6ES7307-1BA01-0AA0**
SIMATIC S7-300 Outdoor, 2 A Stabilized power supply PS305 Input: 24 … 110 V DC Output: 24 V DC/2 A	**6ES7305-1BA80-0AA0**
PS307 load current supply, 5 A incl. connecting comb Input: 120/230 V AC Output: 24 V DC/5 A	**6ES7307-1EA01-0AA0**
SIMATIC S7-300 Outdoor, 5 A Stabilized power supply PS307 Input: 120/230 V AC Output: 24 V DC/5 A	**6ES7307-1EA80-0AA0**
PS307 load current supply, 10 A Input: 120/230 V AC Output: 24 V DC/10 A	**6ES7307-1KA02-0AA0**
Accessories	
SIMATIC S7-300 mounting adapter For snapping the new PS307 onto a 35 mm DIN rail (EN 60715) Spare part	**6EP1971-1BA00**
SIMATIC S7-300 mounting adapter For snapping the PS307 onto a 35 mm DIN rail	**6ES7390-6BA00-0AA0**

Technical specifications

Article number	6ES7307-1BA01-0AA0	6ES7305-1BA80-0AA0	6ES7307-1EA01-0AA0	6ES7307-1EA80-0AA0	6ES7307-1KA02-0AA0
Product	PS 307	PS 305 Outdoor	PS 307	PS 307 Outdoor	PS 307
Power supply, type	24 V/2 A	24 V/2 A	24 V/5 A	24 V/5 A	24 V/10 A
Input					
Input	1-phase AC	DC voltage	1-phase AC	1-phase AC	1-phase AC
• Note	Automatic range selection		Automatic range selection	Set by means of selector switch on the device	Automatic range selection
supply voltage					
• 1 at AC rated value	120 V		120 V	120 V	120 V
• 2 at AC rated value	230 V		230 V	230 V	230 V
• at DC		24 ... 110 V			
input voltage					
• 1 at AC	85 ... 132 V		85 ... 132 V	93 ... 132 V	85 ... 132 V
• 2 at AC	170 ... 264 V		170 ... 264 V	187 ... 264 V	170 ... 264 V
• at DC		16.8 ... 138 V			
Wide-range input	No	Yes	No	No	No
Overvoltage resistance	2.3 × $V_{in\ rated}$, 1.3 ms	154 V; 0.1 s	2.3 × $V_{in\ rated}$, 1.3 ms	2.3 × $V_{in\ rated}$, 1.3 ms	2.3 × $V_{in\ rated}$, 1.3 ms
Mains buffering	at V_{in} = 93/187 V	at $V_{in\ rated}$	at V_{in} = 93/187 V	at V_{in} = 93/187 V	at V_{in} = 93/187 V
Mains buffering at $I_{out\ rated}$, min.	20 ms; at V_{in} = 93/187 V	10 ms; at $V_{in\ rated}$	20 ms; at V_{in} = 93/187 V	20 ms; at V_{in} = 93/187 V	20 ms; at V_{in} = 93/187 V
Rated line frequency 1	50 Hz		50 Hz	50 Hz	50 Hz
Rated line frequency 2	60 Hz		60 Hz	60 Hz	60 Hz
Rated line range	47 ... 63 Hz		47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz
input current					
• at rated input voltage 120 V	0.9 A		2.3 A	2.1 A	4.2 A
• at rated input voltage 230 V	0.5 A		1.2 A	1.2 A	1.9 A
• at rated input voltage 24 V		2.4 A			
• at rated input voltage 110 V		0.6 A			

1-phase, DC 24 V (for S7-300 and ET200M)

Technical specifications

Article number	6ES7307-1BA01-0AA0	6ES7305-1BA80-0AA0	6ES7307-1EA01-0AA0	6ES7307-1EA80-0AA0	6ES7307-1KA02-0AA0
Product	PS 307	PS 305 Outdoor	PS 307	PS 307 Outdoor	PS 307
Power supply, type	24 V/2 A	24 V/2 A	24 V/5 A	24 V/5 A	24 V/10 A
Switch-on current limiting (+25 °C), max.	22 A	20 A	20 A	45 A	55 A
duration of inrush current limiting at 25 °C					
• maximum	3 ms	10 ms	3 ms	3 ms	3 ms
I^2t, max.	1 $A^2 \cdot s$	5 $A^2 \cdot s$	1.2 $A^2 \cdot s$	1.8 $A^2 \cdot s$	3.3 $A^2 \cdot s$
Built-in incoming fuse	T 1.6 A/250 V (not accessible)	T 6.3 A/250 V (not accessible)	T 3,15 A/250 V (not accessible)	T 3,15 A/250 V (not accessible)	T 6.3 A/250 V (not accessible)
Protection in the mains power input (IEC 898)	Recommended miniature circuit breaker: 3 A characteristic C	Recommended miniature circuit breaker: from 10 A characteristic C, suitable for DC	Recommended miniature circuit breaker: from 6 A characteristic C	Recommended miniature circuit breaker: from 10 A characteristic C or from 6 A characteristic D	Recommended miniature circuit breaker: from 10 A characteristic C
Output					
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	24 V	24 V	24 V	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V	24 V	24 V	24 V
Total tolerance, static ±	3 %	3 %	3 %	3 %	3 %
Static mains compensation, approx.	0.1 %	0.2 %	0.1 %	0.2 %	0.1 %
Static load balancing, approx.	0.2 %	0.4 %	0.5 %	0.4 %	0.5 %
Residual ripple peak-peak, max.	50 mV	150 mV	50 mV	150 mV	50 mV
Residual ripple peak-peak, typ.	5 mV	30 mV	10 mV	40 mV	15 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	150 mV	240 mV	150 mV	240 mV	150 mV
Spikes peak-peak, typ. (bandwidth: 20 MHz)	20 mV	150 mV	20 mV	90 mV	60 mV
product function output voltage adjustable	No	No	No	No	No
Output voltage setting	-	-	-	-	-
Status display	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK
On/off behavior	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)
Startup delay, max.	2 s	3 s	2 s	3 s	2 s
Voltage rise, typ.	10 ms	5 ms	10 ms	100 ms	10 ms
Rated current value $I_{out\ rated}$	2 A	2 A	5 A	5 A	10 A
Current range	0 ... 2 A	0 ... 3 A	0 ... 5 A	0 ... 5 A	0 ... 10 A
• Note		3 A up to +60°C at V_{in} > 24 V			
supplied active power typical	48 W	48 W	120 W	120 W	240 W
short-term overload current					
• on short-circuiting during the start-up typical	9 A	9 A	20 A	20 A	38 A
• at short-circuit during operation typical	9 A	9 A	20 A	20 A	38 A
duration of overloading capability for excess current					
• on short-circuiting during the start-up	90 ms	270 ms	100 ms	180 ms	80 ms
• at short-circuit during operation	90 ms	270 ms	100 ms	80 ms	80 ms
Parallel switching for enhanced performance	Yes	Yes	Yes	No	Yes
Numbers of parallel switchable units for enhanced performance	2	2			
Efficiency					
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	84 %	75 %	87 %	84 %	90 %
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	9 W	16 W	18 W	23 W	27 W

Technical specifications

Article number	6ES7307-1BA01-0AA0	6ES7305-1BA80-0AA0	6ES7307-1EA01-0AA0	6ES7307-1EA80-0AA0	6ES7307-1KA02-0AA0
Product	PS 307	PS 305 Outdoor	PS 307	PS 307 Outdoor	PS 307
Power supply, type	24 V/2 A	24 V/2 A	24 V/5 A	24 V/5 A	24 V/10 A
Closed-loop control					
Dynamic mains compensation ($V_{in\ rated}$ ±15 %), max.	0.1 %	0.3 %	0.1 %	0.3 %	0.1 %
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	0.8 %	2.5 %	1 %	3 %	2 %
Load step setting time 50 to 100%, typ.	0.5 ms	2.5 ms	0.3 ms	0.2 ms	
Load step setting time 100 to 50%, typ.	0.5 ms	2.5 ms	0.3 ms	0.2 ms	
setting time maximum	1 ms	5 ms		5 ms	0.1 ms
Protection and monitoring					
Output overvoltage protection	Additional control loop, shutdown at < 28.8 V, automatic restart	Additional control loop, shutdown at approx. 30 V, automatic restart	Additional control loop, shutdown at < 28.8 V, automatic restart	Additional control loop, shutdown at approx. 30 V, automatic restart	Additional control loop, shutdown at < 28.8 V, automatic restart
Current limitation	2.2 ... 2.6 A	3.3 ... 3.9 A	5.5 ... 6.5 A	5.5 ... 6.5 A	11 ... 12 A
property of the output short-circuit proof	Yes	Yes	Yes	Yes	Yes
Short-circuit protection	Electronic shutdown, automatic restart	Electronic shutdown, automatic restart	Electronic shutdown, automatic restart	Electronic shutdown, automatic restart	Electronic shutdown, automatic restart
enduring short circuit current RMS value					
• maximum	2 A	2 A	7 A	5 A	12 A
Overload/short-circuit indicator	-	-			-
Safety					
Primary/secondary isolation	Yes	Yes	Yes	Yes	Yes
galvanic isolation	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra low output voltage V_{out} according to EN 60950-1 and EN 50178, creepage distances and clearances > 5 mm	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra low output voltage V_{out} according to EN 60950-1 and EN 50178, creepage distances and clearances > 5 mm	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178
Protection class	Class I	Class I	Class I	Class I	Class I
leakage current					
• maximum	3.5 mA		3.5 mA	3.5 mA	3.5 mA
• typical	0.5 mA		0.5 mA	0.3 mA	0.6 mA
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20	IP20
Approvals					
CE mark	Yes	Yes	Yes	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 142), File E143289	UL-Listed (UL 508), File E143289, CSA (CSA C22.2 No. 142)	cULus-Listed (UL 508, CSA C22.2 No. 142), File E143289	UL-Listed (UL 508), File E143289, CSA (CSA C22.2 No. 142)	cULus-Listed (UL 508, CSA C22.2 No. 142), File E143289
Explosion protection	ATEX (EX) II 3G Ex nA II T4; cULus (ANSI/ISA 12.12.01, CSA C22.2 No.213) Class I, Div. 2, Group ABCD, T4, File E330455	-	ATEX (EX) II 3G Ex nA II T4; cULus (ANSI/ISA 12.12.01, CSA C22.2 No.213) Class I, Div. 2, Group ABCD, T4, File E330455	-	ATEX (EX) II 3G Ex nA II T4; cULus (ANSI/ISA 12.12.01, CSA C22.2 No.213) Class I, Div. 2, Group ABCD, T4, File E330455
certificate of suitability NEC Class 2	No	No	No	No	No
FM approval	Class I, Div. 2, Group ABCD, T4	-	Class I, Div. 2, Group ABCD, T4	-	Class I, Div. 2, Group ABCD, T4
CB approval	No	No	No	No	No
certificate of suitability EAC approval	Yes	Yes	Yes	Yes	Yes
Marine approval	In S7-300 system	-	In S7-300 system	-	In S7-300 system
EMC					
Emitted interference	EN 55022 Class B	EN 55011 Class A	EN 55022 Class B	EN 55011 Class A	EN 55022 Class B
Supply harmonics limitation	not applicable	not applicable	EN 61000-3-2	-	EN 61000-3-2
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2

1-phase, DC 24 V (for S7-300 and ET200M)

Technical specifications

Article number	6ES7307-1BA01-0AA0	6ES7305-1BA80-0AA0	6ES7307-1EA01-0AA0	6ES7307-1EA80-0AA0	6ES7307-1KA02-0AA0
Product	PS 307	PS 305 Outdoor	PS 307	PS 307 Outdoor	PS 307
Power supply, type	24 V/2 A	24 V/2 A	24 V/5 A	24 V/5 A	24 V/10 A
environmental conditions					
ambient temperature					
• during operation	0 ... 60 °C	-25 ... +70 °C	0 ... 60 °C	-25 ... +70 °C	0 ... 60 °C
- Note	with natural convection	with natural convection	with natural convection	with natural convection	with natural convection
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K5, transient condensation permitted	Climate class 3K3, 5 … 95% no condensation	Climate class 3K5, transient condensation permitted	Climate class 3K3, 5 … 95% no condensation
Mechanics					
Connection technology	screw-type terminals	screw-type terminals	screw-type terminals	screw-type terminals	screw-type terminals
Connections					
• Supply input	L, N, PE: 1 screw terminal each for 0.5 ... 2.5 mm^2 single-core/ finely stranded	L+1, M1, PE: 1 screw terminal each for 0.5 ... 2.5 mm^2 single-core/ finely stranded	L, N, PE: 1 screw terminal each for 0.5 ... 2.5 mm^2 single-core/ finely stranded	L, N, PE: 1 screw terminal each for 0.5 ... 2.5 mm^2 single-core/ finely stranded	L, N, PE: 1 screw terminal each for 0.5 ... 2.5 mm^2 single-core/ finely stranded
• Output	L+, M: 2 screw terminals each for 0.5 ... 2.5 mm^2	L+, M: 3 screw terminals each for 0.5 ... 2.5 mm^2	L+, M: 3 screw terminals each for 0.5 ... 2.5 mm^2	L+, M: 3 screw terminals each for 0.5 ... 2.5 mm^2	L+, M: 4 screw terminals each for 0.5 ... 2.5 mm^2
• Auxiliary	-	-	-	-	-
width of the enclosure	40 mm	80 mm	60 mm	80 mm	80 mm
height of the enclosure	125 mm	125 mm	125 mm	125 mm	125 mm
depth of the enclosure	120 mm	120 mm	120 mm	120 mm	120 mm
required spacing					
• top	40 mm	50 mm	40 mm	50 mm	40 mm
• bottom	40 mm	50 mm	40 mm	50 mm	40 mm
• left	0 mm	0 mm	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm	0 mm	0 mm
Weight, approx.	0.4 kg	0.57 kg	0.6 kg	0.57 kg	0.8 kg
product feature of the enclosure housing can be lined up	Yes	Yes	Yes	Yes	Yes
Installation	Can be mounted onto S7 rail	Can be mounted onto S7 rail	Can be mounted onto S7 rail	Can be mounted onto S7 rail	Can be mounted onto S7 rail
mechanical accessories	Mounting adapter for standard mounting rail (6EP1971-1BA00)	Mounting adapter for standard mounting rail (6ES7390-6BA00-0AA0)	Mounting adapter for standard mounting rail (6EP1971-1BA00)	Mounting adapter for standard mounting rail (6ES7390-6BA00-0AA0)	Mounting adapter for standard mounting rail (6EP1971-1BA00)
MTBF at 40 °C	2 320 078 h	964 506 h	2 480 589 h	2 231 610 h	1 504 280 h
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

Overview

The design and functionality of the SIPLUS PS 305 and PS 307 1-phase load power supplies (system and load current supply) with automatic range switchover of the input voltage are an optimal match for the SIMATIC S7-300 in design and functionality. By means of the connecting comb that is supplied with the system and load current supply, the supply to the CPU is quickly established. It is also possible to provide a 24 V supply to other S7-300 system components, input/output circuits of the input/output modules and, if necessary, the sensors and actuators. Comprehensive certifications, such as UL, ATEX or GL facilitate universal use (does not apply to outdoor use).

Note

SIPLUS extreme products are based on Siemens standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Ordering data

Ordering data	Article No.
SIPLUS power supplies	
For industrial applications with extended ambient conditions	
SIPLUS S7-300 PS 305 (Extended temperature range and exposure to media) Input: 24 … 110 V DC Output: 24 V DC/2 A	**6AG1305-1BA80-2AA0**
SIPLUS S7-300 PS 307 5 A (Extended temperature range and exposure to media) Incl. connection bracket 120/230 V AC; 24 V DC Output current 5 A (dimensions 60 x 125 x 120)	**6AG1307-1EA01-7AA0**
SIPLUS S7-300 PS 307 10 A (Extended temperature range and exposure to media) Incl. connection bracket 120/230 V AC; 24 V DC Output current 10 A (dimensions 80 x 125 x 120)	**6AG1307-1KA02-7AA0**
For rolling stock railway applications	
SIPLUS S7-300 PS 305 (Extended temperature range and exposure to media) Conforms to EN 50155 Input: 24 … 110 V DC Output: 24 V DC/2 A	**6AG1305-1BA80-2AA0**
Accessories	
SIMATIC S7-300 mounting adapter For snapping the PS 307 onto a 35 mm DIN rail (EN 60715)	**6EP1971-1BA00**
Spare part	
SIMATIC S7-300 mounting adapter; for snapping the PS 307 onto 35 mm standard rails	**6ES7390-6BA00-0AA0**

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Technical specifications

Article number	6AG1305-1BA80-2AA0	6AG1307-1EA01-7AA0	6AG1307-1KA02-7AA0
Based on	6ES7305-1BA80-0AA0	6ES7307-1EA01-0AA0	6ES7307-1KA02-0AA0
	SIPLUS S7-300 PS 305 2 A (EN50155)	SIPLUS PS307 AC 120/230V / DC 24 V/5 A	SIPLUS_PS307_10A
Ambient conditions			
Ambient temperature during operation			
• min.	-25 °C; = Tmin	-25 °C; = Tmin	-25 °C; = Tmin
• max.	70 °C; = Tmax; for use on railway vehicles according to EN 50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/UL hazardous use applies	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	2 000 m	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m); above 2 000 m max. 75 V DC	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m); above 2 000 m max. 75 V DC	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m); above 2 000 m max. 75 V DC
Relative humidity			
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance			
Use in stationary industrial systems			
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles			
- to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request		
- to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *		
- to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *		
Use on ships/at sea			
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology			
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark			
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview

- For connection of the SIMATIC S7-300 rack in multi-tier configurations
- IM 365:
  For configuring central controllers and max. 1 expansion unit.
  Limited use of modules in the expansion unit (e.g. no CPs and FMs)
- IM 360/IM 361:
  For configuring central controllers and max. 3 expansion units.
  Unlimited selection of modules in the expansion unit

Ordering data

	Article No.
IM 360 interface module For expanding the S7-300 with max. 3 EUs; can be plugged into the CC	**6ES7360-3AA01-0AA0**
IM 361 interface module For expanding the S7-300 with max. 3 EUs; can be plugged into the EU	**6ES7361-3CA01-0AA0**
Connecting cable Between IM 360 and IM 361 or IM 361 and IM 361	
1 m	**6ES7368-3BB01-0AA0**
2.5 m	**6ES7368-3BC51-0AA0**
5 m	**6ES7368-3BF01-0AA0**
10 m	**6ES7368-3CB01-0AA0**
IM 365 interface module For expanding the S7-300 with max. 1 EU; 2 modules with permanent connecting cable (1 m)	**6ES7365-0BA01-0AA0**
SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC software, SIMATIC TDC	**6ES7998-8XC01-8YE0**
SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	**6ES7998-8XC01-8YE2**

Technical specifications

Article number	**6ES7360-3AA01-0AA0** Interf. mod. IM360 in CC, with K-BUS	**6ES7361-3CA01-0AA0** IM 361 Interface Module in ER, with K-Bus	**6ES7365-0BA01-0AA0** Interf. mod. IM365, w/o K-BUS
Supply voltage			
Rated value (DC)			
• 24 V DC		Yes	
Input current			
from supply voltage L+, max.		500 mA	
from backplane bus 5 V DC, max.	350 mA		100 mA
Power loss			
Power loss, typ.	2 W	5 W	0.5 W
Hardware configuration			
Number of interfaces per CPU, max.	1	3	1; 1 pair
Dimensions			
Width	40 mm	80 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	225 g	505 g	580 g

SIPLUS S7-300 IM 365

Overview

- SIPLUS IM 365:
  For configuration of 1 central controller and max. 1 expansion unit

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

Ordering data

	Article No.
SIPLUS S7-300 IM 365 interface module	
For expansion of S7-300 with max. 1 EU; 2 modules with permanent connecting cable (1 m)	
Extended temperature range and exposure to media	**6AG1365-0BA01-2AA0**

Technical specifications

Article number	**6AG1365-0BA01-2AA0**
Based on	**6ES7365-0BA01-0AA0**
	SIPLUS S7-300 IM365
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	60 °C; = Tmax
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
- to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *

Article number	**6AG1365-0BA01-2AA0**
Based on	**6ES7365-0BA01-0AA0**
	SIPLUS S7-300 IM365
Use on land craft, rail vehicles and special-purpose vehicles	
- to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
- to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
- to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *
Use on ships/at sea	
- to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
- to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
- to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
- Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!

Overview DIN rail

- The mechanical rack for SIMATIC S7-300
- For accommodating the modules
- Can be attached to walls

Ordering data

	Article No.
DIN rail	
160 mm	**6ES7390-1AB60-0AA0**
482 mm	**6ES7390-1AE80-0AA0**
530 mm	**6ES7390-1AF30-0AA0**
830 mm	**6ES7390-1AJ30-0AA0**
2000 mm	**6ES7390-1BC00-0AA0**

Overview Labeling sheets

Labeling sheets

- Film sheets for the application-specific labeling of SIMATIC S7-300 I/O modules using standard laser printers
- Plain color films, tear-resistant, dirt-repellent
- Simple handling:
  - perforated label sheets in DIN A4 format for easy separation of the labeling strips.
  - the separated strips can be attached directly onto the I/O modules.
- Different colors to distinguish between different module types or preferred applications:
  The labeling sheets are available in the following colors: petrol, light-beige, red, and yellow. Yellow is reserved for fail-safe systems.

Label cover

- Petrol-colored film
- For sealing and fixing of custom labeling strips on normal paper
- Accessories, 10 units

Ordering data

	Article No.
Label sheets	
for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX00-0AA0**
light-beige	**6ES7392-2BX00-0AA0**
yellow	**6ES7392-2CX00-0AA0**
red	**6ES7392-2DX00-0AA0**
for modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units	
petrol	**6ES7392-2AX10-0AA0**
light-beige	**6ES7392-2BX10-0AA0**
yellow	**6ES7392-2CX10-0AA0**
red	**6ES7392-2DX10-0AA0**

Technical specifications

Labeling sheets for S7-300	
Dimensions	DIN A4
Labeling strips per sheet, pre-perforated	10
Weight, approx.	0.1 kg