



RFID

INTELLIGENT IDENTIFICATION

RFH6xx, RFU61x, RFU62x, RFU63x, RFU65x

SICK
Sensor Intelligence.



Image-based code readers



Image-based code readers with camera technology are characterized by their flexibility in reading a variety of code types. In addition to reading 1D bar codes, they employ a range of image processing algorithms to identify 2D codes, such as the frequently used Data Matrix, QR, or MaxiCodes, as well as optical character recognition. They make light work of switching from bar codes to 2D codes.



Laser-based bar code scanners



Bar code scanners have an outstanding depth of field and are thus easily able to identify bar codes on objects of varying heights. Due to the large aperture angles of up to 60°, just one device covers most conveyor belt widths.



www.sick.com/more-than-a-vision

MORE THAN A VISION

Intelligent questions have more than one answer.
The best technology depends on the task at hand.

In reality, providing an effective solution for identification tasks requires more than just one type of technology. SICK gives you that choice. Three technologies, one philosophy: Your customer requirements come first.

For every identification task, the same question is asked: Which technology is best? And as it so often is in life, there is never just one answer for every question. The best possible solution is always tailored to the individual technical and economic conditions of the application.

Three identification technologies have dominated the market for many years: RFID, laser-based bar code scanners, and image-based code readers. As the market leader in automated identification, SICK has not only mastered all the main technologies, but also poses the right questions to ensure the right products are selected from its technology portfolio.



RFID

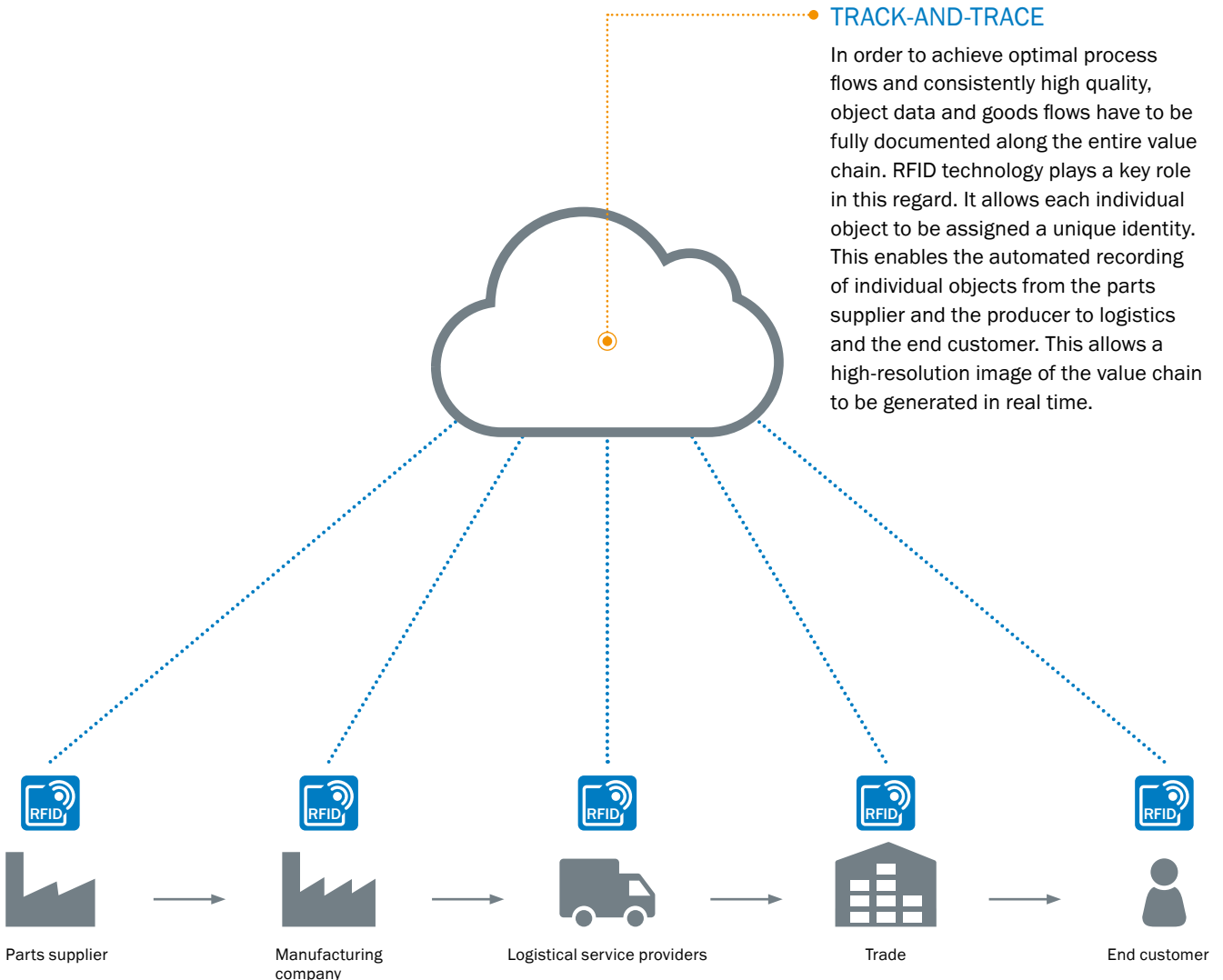
RFID is particularly well suited to harsh ambient conditions, such as extreme temperatures or identification objects under high levels of physical stress. By comparison, optical technologies require visual contact at all times in order to detect the code and are therefore more susceptible to wear or contamination.

- No visual contact with the RFID tag required
- Omnidirectional reading
- Reliable use under harsh ambient conditions
- Large distances between reader and object possible
- Short reading cycles and possibility of bulk reading
- Rewritable RFID tags and large storage capacity

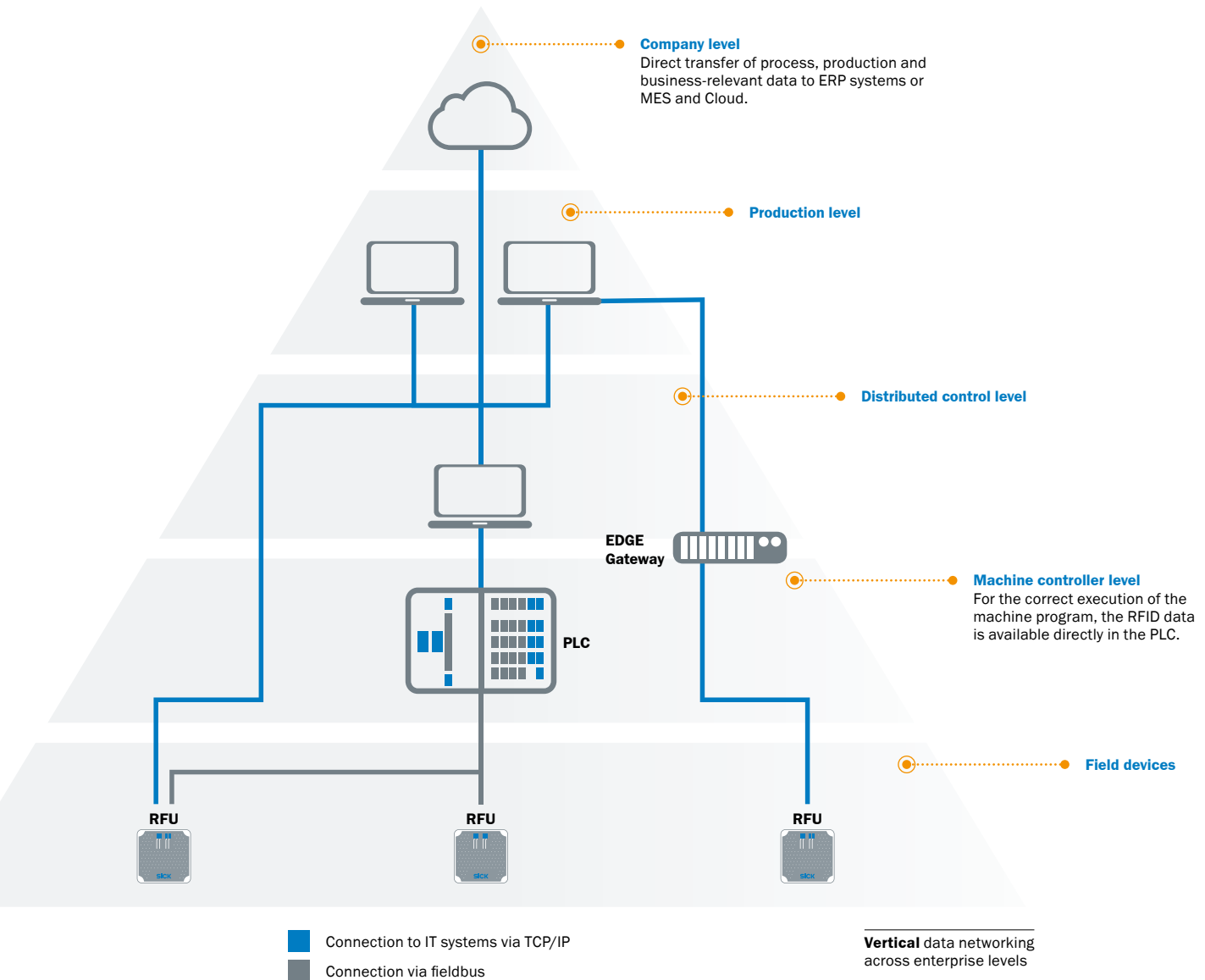
TRANSPARENCY AT EVERY LEVEL



Digital change holds advantages and challenges for all industries and industrial processes. The advancing automation enables an optimized added value, production in Batch Size 1 and individualized mass products. However, this requires transparent production and logistics processes as well as a horizontally and vertically networked information structure. The vertical networking of data is characterized by its availability at all levels of an enterprise. The horizontal integration of data, in turn, requires its exchange across location and company boundaries, as well as the standardization of technologies that are used in companies.



Horizontal data networking beyond location and company boundaries

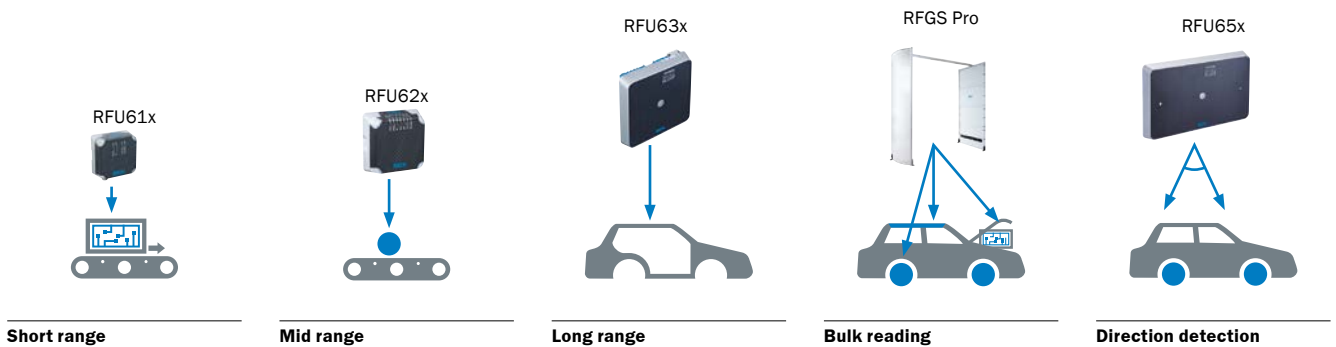


SEAMLESS DATA INTEGRATION

Open, cloud-based systems will become increasingly important for the management of overall processes in the future. They enable maximum process flexibility and real-time process control. For this purpose, data is processed directly in the sensor into usable information for higher-level systems. RFID devices from SICK can be integrated into the most common fieldbus networks at the machine control level using function blocks and simultaneously connected to applications at company level and to the cloud via Ethernet. As a result, the devices fit seamlessly into existing systems and are prepared for future tasks in the course of Industry 4.0.

CONTINUOUS IDENTIFICATION WITH ONE TECHNOLOGY

Seamless process transparency as well as traceability of components and products along the entire value chain are becoming increasingly important. Until now, this has required the use of several technologies: LF and HF RFID solutions for the short range as well as UHF solutions for mid range and long ranges. With its UHF product family, SICK now offers consistent and cross-company identification solutions.



+ The UHF RFID technology offers the following advantages:

- Read ranges of 0 to 10 m
- Reliable identification despite variable parameters (e.g., transponder orientation, extraneous light)
- No optical line of sight between transponder and RFID read/write device necessary
- Resistant to dirt and extreme temperatures (e.g., in painting processes)
- Simultaneous detection of transponders (bulk reading)
- Global data standards as a basis for cross-company implementation
- Transponder data can be overwritten

+ SICK offers the right device for your application:

- Compact design
- Robust device design for reliable operation under all conditions
- Integrated interfaces for fieldbuses and Industry 4.0 protocols
- Wide range of function blocks for all common control systems
- Worldwide UHF radio approvals
- Additional functions, such as direction detection

EVERYTHING FROM A SINGLE SOURCE

SICK offers not only the right RFID read/write device for every application, but also transponders and additional accessories for connection and mounting. To help you implement proven identification solutions throughout your company, SICK offers worldwide technical support as well as broad global coverage of country approvals.



RFID read/write device



Transponders and antennas

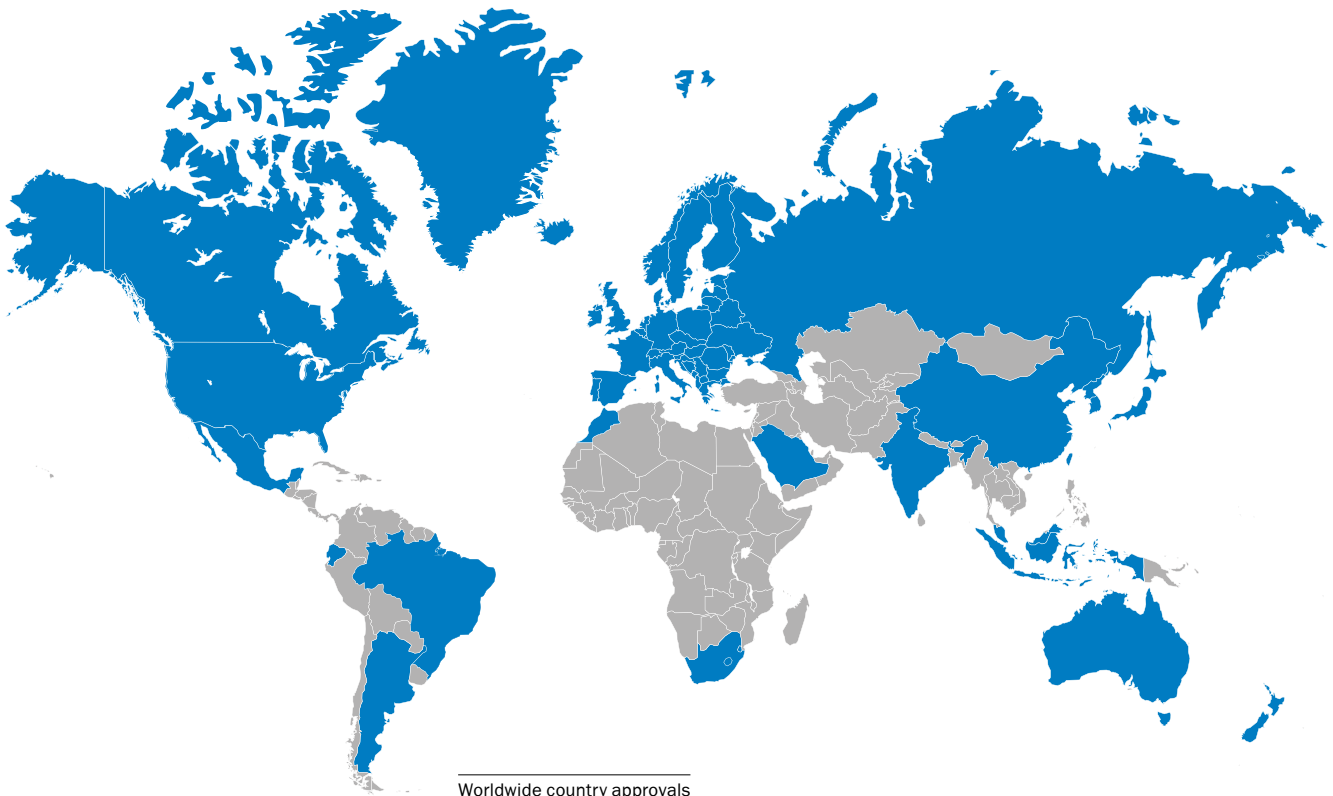


Accessories



Service

- UHF RFID read/write devices available
- UHF RFID read/write devices not yet available



THE OPTIMAL VARIANT FOR EVERY APPLICATION

With its RFID read/write devices, SICK offers ideal identification solutions for the most diverse fields of application in networked automation. Always in focus: complete transparency, high flexibility and efficient system management. In this regard, the special features of the various industries have to be taken into account:

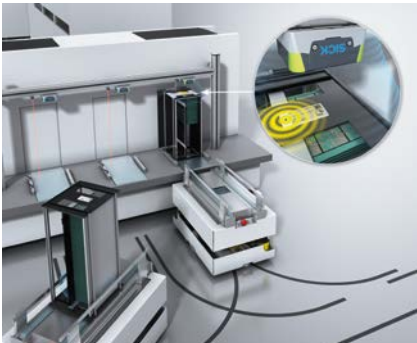
- Conveying technology in factory and logistics automation: reliable assignment of transponders at comparatively low speeds and reading distances
- Tracking in logistics processes: Identification of many transponders at once (bulk identification) and acquisition of additional information about the direction of movement of the transponders (e.g., car distribution)
- Transport logistics: identification of vehicles at very high speeds over 200 km/h

Thanks to RFID read/write devices from SICK, a high degree of automation can be achieved in each of these processes. The robust design of the devices makes this possible even under harsh conditions in factory automation and outdoor applications in a wide variety of industries.

Below, you will find some exemplary RFID applications:

ELECTRONICS

Identification of printed circuit board magazines with UHF-RFID technology



In PCB production, automated guided carts (AGCs) transport the empty magazines to the unloader and remove the magazines filled with printed circuit boards. This is where the printed circuit boards, mostly marked with Data Matrix codes, are assigned to the magazines provided with RFID tags. These are then driven to a warehouse by an automated guided cart, where the printed circuit boards are temporarily stored before

further processing in the assembly lines. The AGCs and unloading stations are equipped with an RFU61x for complete traceability. Thanks to its compact design, the RFID read/write device can be integrated in very small spaces in vehicles and SMD machines.

Recommended products

RFU61x 22

INDUSTRIAL VEHICLES

Driver assistance in narrow aisle warehouses by means of RFID positioning



Driver assistance systems support manned forklift truck drivers in narrow aisle warehouses so that they can approach the next storage space quickly and without errors. Rugged and space-saving, RFID tags are embedded in the floor of the narrow aisle. On the forklift, the RFH620 RFID read/write device reads the tags and the vehicle controls stops automatically at the target column of the shelving unit.

Recommended products

RFH6xx 16

AUTOMOTIVE AND PARTS SUPPLIERS

Assembly identification in the production process



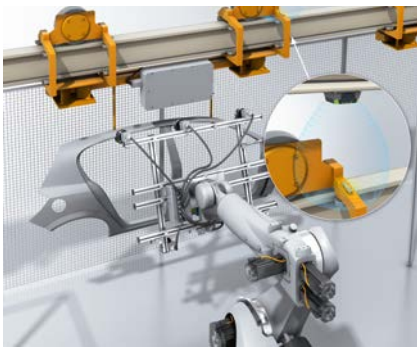
The use of RFID makes it possible reliably control and monitor the production process. Individual production commands can be triggered using the transponder data. The attachment of UHF transponders directly on the assembly provides the relevant data if the assembly has been disconnected from the workpiece carrier or enclosed by a plastic housing. The data is therefore also useful in downstream process

steps, for example in logistics or the final assembly of several assemblies.

Recommended products

RFU61x 22

Carrier identification on electric overhead conveyors



Electrical overhead conveyors (EOC) are used in automotive manufacturing to transport vehicles and vehicle parts on production lines. The carriers used in EOCs are labeled with RFID transponders, which assist with providing product information, controlling processes, and planning maintenance work on the EOC carriers. Given the short ranges involved, HF RFID solutions are often employed in this area. Applications with

larger read ranges are better solved using compact UHF RFID devices.

Recommended products

RFU61x 22

Car body identification



With RFID read/write devices with UHF technology, vehicles can be reliably identified in all manufacturing processes in automobile production, from car body construction to the paint shop all the way to final assembly. The UHF transponder is suspended in the wheelhouse, making it possible to clearly identify the vehicle. The transponder can be read at all times, even over large distances. Using the vehicle identifica-

tion number on the transponder, an MES (manufacturing execution system) provides the desired process information for each production step. Or this can be read out directly.

Recommended products

RFU63x 30

Vehicle track and trace in the production and distribution process



Vehicles can be clearly identified and tracked in the production process. From car body assembly to the paint shop and final assembly, it is relatively easy as the vehicles are located in guided production lines. But on the way to the next stations, e.g. the post-processing and final inspection stations as well as parking spaces on the factory premises, tracking of the cars is necessary. Different distances to reading devices, different reading speeds and missing triggers are challenges in this process.

However, UHF read/write devices such as RFU65x or RFU63x with additional antennas reliably detect the position and direction of movement of a vehicle on the way to the post-processing and final inspection stations as well as on the factory premises.

Recommended products

RFU65x 36

STORAGE AND CONVEYOR

Automated pallet identification with RFID

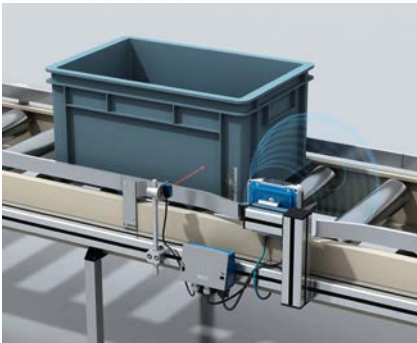


To ensure stable and error-free material flow, reliable, rugged sensors are required for presence detection, overhang evaluation and height measurement of the pallets and their loads. Automatic pallet identification solutions that use bar codes or RFID technology support the routing information and storage location assignment.

Recommended products

RFU61x 22

Automated tote identification with RFID



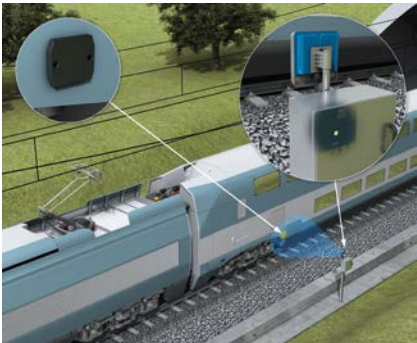
Compact RFID read/write devices, which are optimized for logistics, feature an integrated antenna as well as a definable reading field. This ensures that RFID tags can be assigned correctly even when objects follow one another in quick succession. The devices are compatible with 4Dpro and can be integrated into industrial Networks.

Recommended products

RFU62x 26

TRAFFIC

Identification of moving trains



The identification of rail vehicles via RFID creates transparency in logistics and maintenance processes. The rugged RFU63x RFID read/write device reliably reads transponders on moving trains. The additional axle sensors make it possible to detect train speed and the distance between axles. Measurement results from Wayside Train Monitoring Systems can also be assigned to the individual wheel. Tendencies can be

identified and preventative measures can be taken.

Recommended products

RFU63x 30

You can find more RFID applications online at: → www.sick.com/RFID

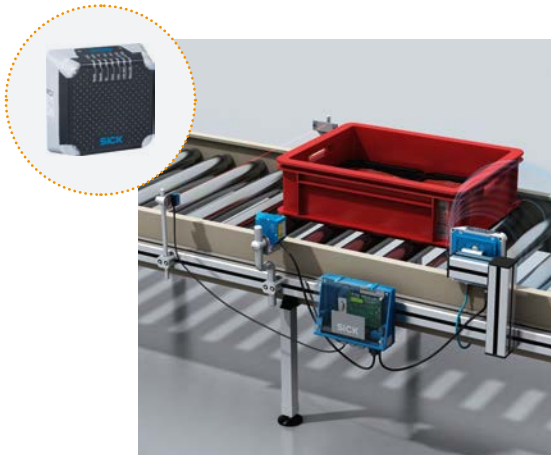
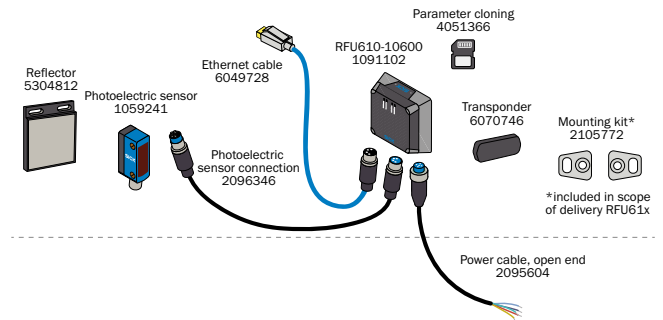
QUICK AND EASY MOUNTING

SICK offers the appropriate interface concept and accessories for every application. In this way, all RFID systems from SICK can be installed simply, flexibly and quickly. Predefined parameter sets can be installed on the SD card of the read/write device via a cloning file, thereby accelerating installation or replacement. Anyone who needs additional functions can simply program them in the SICK AppSpace eco-system.



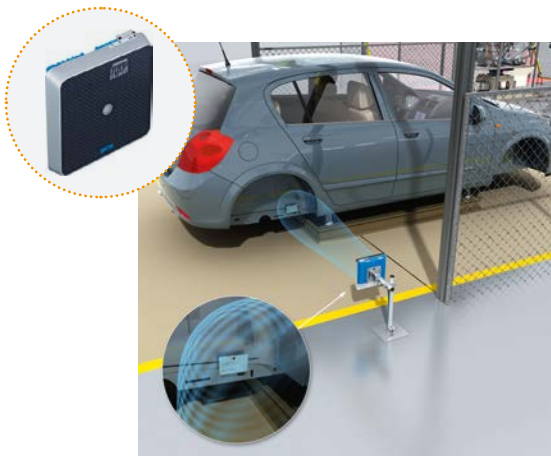
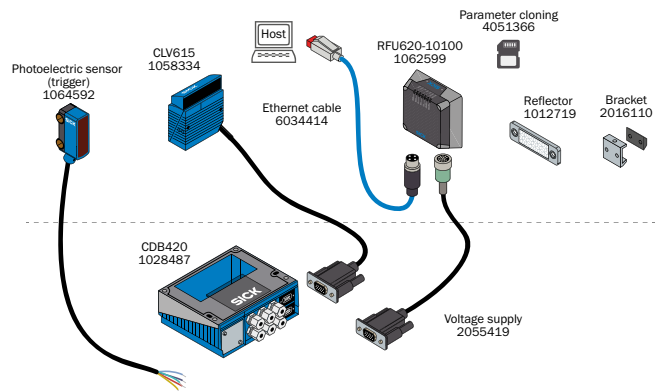
RFU61x

Monitoring of an assembly line, PCB production and pallet identification



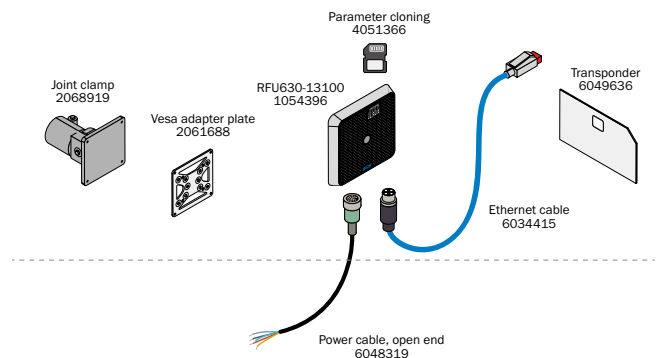
RFU62x

Data combination of bar code and RFID



RFU63x

Car body identification in bodyshell construction





Secure your future by investing in the right solution

4Dpro – THE FLEXIBILITY YOU NEED

The sensor manufacturer SICK offers a broad portfolio of identification and vision solutions which are developed and produced in-house. Whichever solution you choose today, you can be sure of a flexible future with the 4Dpro concept. All 4Dpro sensors are compatible and interchangeable. Standardized connectivity, a standardized user interface, and a standardized accessory concept – we call this unique combination 4Dpro.



More information
www.sick-4Dpro.com

Standardized connectivity

All 4Dpro sensors feature the same modular connectivity. This provides the basis for a flexible fieldbus link combined with high process reliability. What's more, you benefit twice over – the purchase order process is less complicated and integration is quicker and easier.

Standardized user interface

All 4Dpro sensors use SICK's universal device configuration software. This means that you can quickly familiarize yourself with every type of technology. Data is sent to the control in the required format and the inputs and outputs of the 4Dpro sensors can be analyzed quickly by an event monitor.

Standardized accessory concept

All 4Dpro sensors are supported by the same accessory pool. This reduces both component variety and the amount of effort put into storage, smoothing the way for low storage costs.

4Dpro sensors are identified by the 4Dpro mark



Bar code scanners



Image-based code readers



Vision sensors



RFID read/write devices

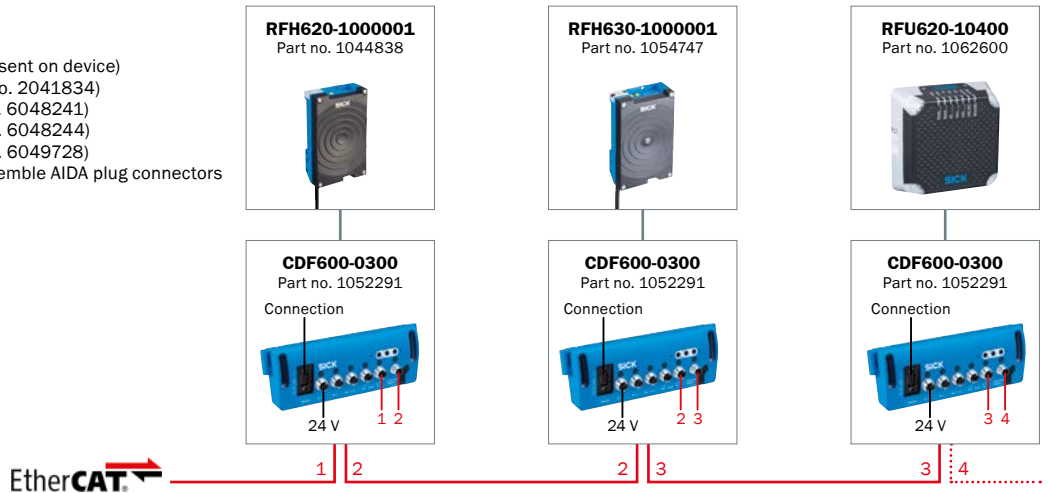
SEAMLESS INTEGRATION INTO CONTROL SYSTEMS

Efficient automation depends on optimum networking of the sensors involved. For this purpose, RFID read/write devices from SICK offer various fieldbus interfaces directly on the device. The use of 4Dpro connection modules further expands the range of addressable fieldbus systems. In addition, the

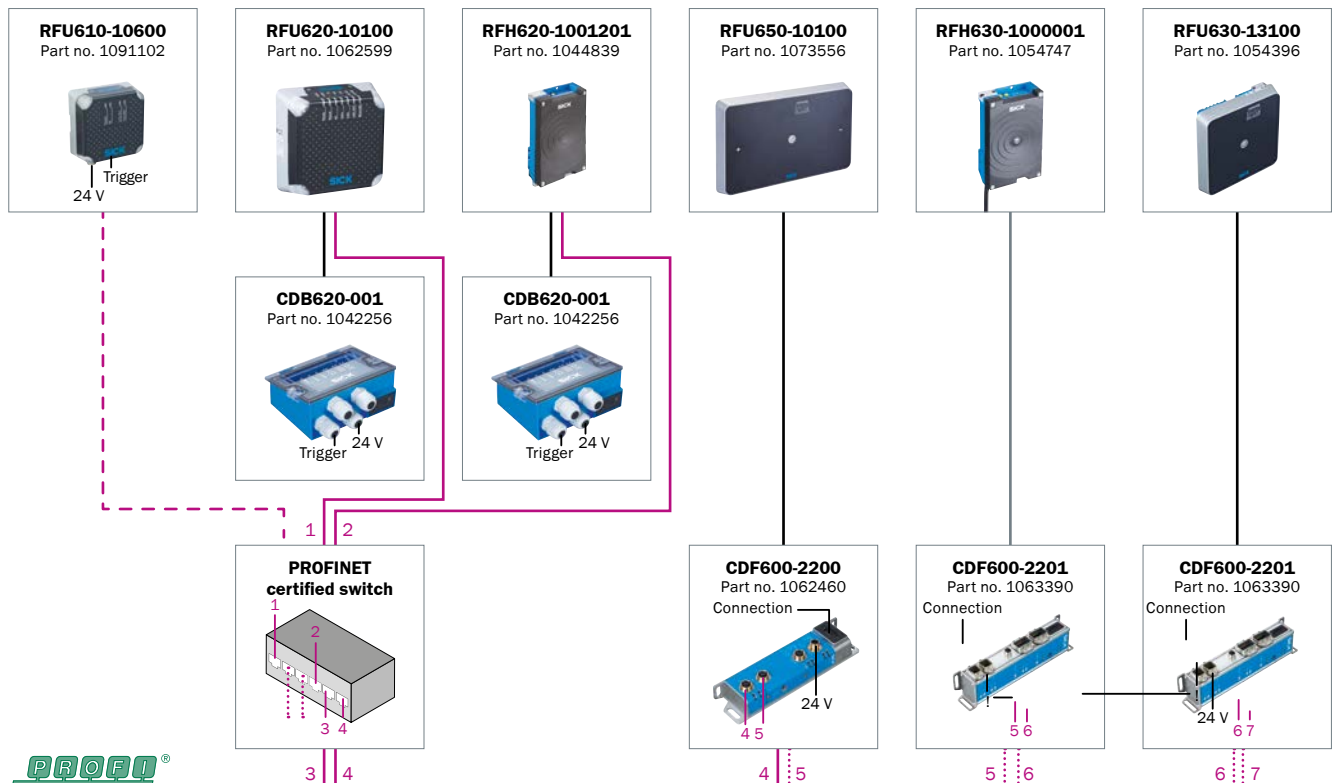
4Dpro concept offers accessories that accelerate cabling and device replacement. The following graphics show examples of how RFID devices from SICK can be integrated directly or via the 4Dpro connection technology.

EtherCAT®

- Connecting cable (already present on device)
- Connection cable, 2 m (Part no. 2041834)
- EtherCAT® cable, 2 m (Part no. 6048241)
- PROFINET cable, 2 m (Part no. 6048244)
- PROFINET cable, 2 m (Part no. 6049728)
- PROFINET cable, ready to assemble AIDA plug connectors



PROFINET



PRODUCT FAMILY OVERVIEW



Technical data overview		
Product category	Read/write device with integrated antenna	Read/write device with integrated antenna
Frequency band	HF (13.56 MHz)	UHF (860 MHz ... 960 MHz)
Version	Short Range / Mid Range	Short Range
Read range	≤ 150 mm / ≤ 240 mm	≤ 0.5 m
Ethernet	✓, TCP/IP	✓, TCP/IP
Power-over-Ethernet (PoE)	-	✓
PROFINET	✓	✓
Single Port	✓	✓
Dual Port	✓, optional over external fieldbus module	-
EtherNet/IP™	✓	✓
EtherCAT®	✓, optional over external fieldbus module	-
Serial	✓, RS-232, RS-422, RS-485	-
PROFIBUS DP	✓, optional over external fieldbus module	-
CAN	✓	-
CANopen	✓	-
USB	-	✓
MicroSD memory card	✓	✓
Weight	450 g ... 760 g	313 g

At a glance		
	<ul style="list-style-type: none"> • 13.56 MHz RFID read/write device for read ranges up to 240 mm • Transponder communication according to ISO/IEC 15693 standard • Compact, industrial design with integrated antenna • Embedded protocols allow interfacing with standard industrial fieldbus technologies • Powerful micro-processor executes internally configurable logic • Flexible trigger control • Supports parameter cloning via microSD memory card • Built-in diagnostics 	<ul style="list-style-type: none"> • Extremely compact design • Read range up to 0.5 m • Connection option for trigger sensors • Linkage option to superior control systems or directly to the cloud • Antenna and data processing integrated in the sensor • Configuration via SOPAS ET or integrated web server • Can be used with SICK AppSpace • Rugged design in accordance with IP67

Detailed information → 16 → 22



RFU62x

Short-range ultra high frequency scanner



RFU63x

Simple integration – intelligence included



RFU65x

The measuring RFID device with integrated passage and direction detection

Read/write device with integrated antenna	Read/write device with integrated antenna / read/write device without integrated antenna	Read/write device with integrated antenna
UHF (860 MHz ... 960 MHz)	UHF (860 MHz ... 960 MHz)	UHF (860 MHz ... 960 MHz)
Mid Range	Long Range	Long Range
≤ 2 m	≤ 10 m	≤ 10 m
✓, TCP/IP	✓, TCP/IP	✓, TCP/IP
✓	-	-
✓	✓	✓
✓	✓	✓
✓, optional over external fieldbus module	✓, optional over external fieldbus module	✓, optional over external fieldbus module
✓	✓	✓
✓, optional over external fieldbus module	✓, optional over external fieldbus module	✓, optional over external fieldbus module
✓, RS-232, RS-422, RS-485	✓, RS-232, RS-422, RS-485	✓, RS-232, RS-422, RS-485
✓, optional over external fieldbus module	✓, optional over external fieldbus module	✓, optional over external fieldbus module
✓	✓	✓
✓	✓	✓
✓	✓	✓
✓	✓	✓
780 g	2.6 kg / 2.1 kg	3.9 kg

- Antenna and data processing integrated in the sensor
- Read range up to 2 m
- Linkage option to superior control systems or directly to the cloud
- Excellent antenna characteristics
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

→ 26

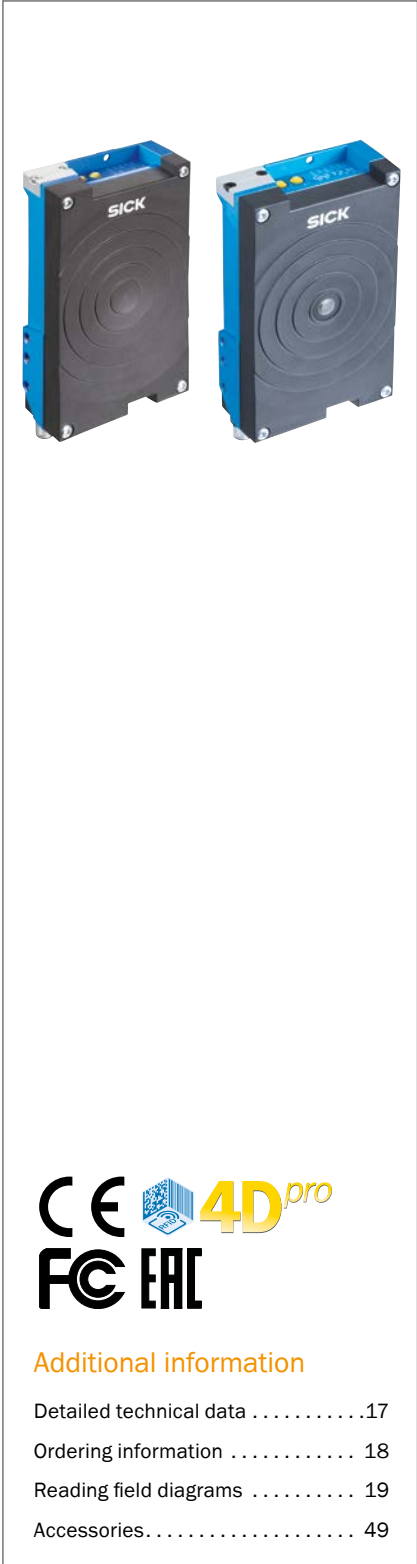
- Antenna and data processing integrated in the sensor
- Read range up to 10 m
- Linkage option to superior control systems or directly to the cloud
- Up to 4 external antennas
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

→ 30

- Antenna and data processing integrated in the sensor
- Read range up to 10 m
- Linkage option to superior control systems or directly to the cloud
- Direction and position detection
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

→ 36

INTELLIGENT RFID COMMUNICATION



Product description

The RFH6xx is a compact, high frequency (HF) read/write device for read ranges up to 240 mm. It is compatible with ISO/IEC 15693. Thanks to its compact design and integrated antenna, it is a cost-effective and flexible solution for logistics. Integrated signal and

data processing ensure extremely high identification process speeds. Trigger signals and output control enable use as a locally controlled unit. Compatible with all 4Dpro accessories, such as CMC600, and uses SOPAS operating software.

At a glance

- 13.56 MHz RFID read/write device for read ranges up to 240 mm
- Transponder communication according to ISO/IEC 15693 standard
- Compact, industrial design with integrated antenna
- Embedded protocols allow interfacing with standard industrial fieldbus technologies
- Powerful micro-processor executes internally configurable logic
- Flexible trigger control
- Supports parameter cloning via microSD memory card
- Built-in diagnostics

Your benefits

- Reliable identification guarantees maximum throughput
- Adapts to changing needs, providing long-term investment security
- Simple integration saves installation time
- The defined reading field ensures targeted identification of the desired object
- Maintenance-free
- Compact RFID read/write device with integrated antennae and several host interfaces do not require additional connectivity
- The same connectivity and user interface as the bar code scanners and image-based code readers from SICK – compatible thanks to the uniform 4Dpro platform

→ www.sick.com/RFH6xx

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	RFH620	RFH630
Version	Short Range	Mid Range
Antenna	Integrated	Integrated Integrated, additional connection for external antenna (depending on type)
Data transmission rate	26 kbit/s (default)	

Interfaces

	RFH620	RFH630
Ethernet	✓, TCP/IP	
Function	Host, AUX	
Data transmission rate	10/100 MBit/s	
PROFINET	✓	
Function	Host, PROFINET Single Port, PROFINET Dual Port (optional via external connection module CDF600-2)	
Data transmission rate	10/100 MBit/s	
EtherNet/IP™	✓	
Function	Host	
Data transmission rate	10/100 MBit/s	
EtherCAT®	✓	
Type of fieldbus integration	Optional over external fieldbus module CDF600	
Function	Host	
Serial	✓, RS-232, RS-422, RS-485	
Remark	RS-422/RS-485 only via 4-wire	
Function	Host, AUX	
Data transmission rate	0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud	
PROFIBUS DP	✓	
Type of fieldbus integration	Optional over external fieldbus module CDF600-2	
Function	Host	
CAN	✓	
Remark	CSN (SICK CAN Sensor Network)	
Function	Host	
Data transmission rate	20 kbit/s ... 1,000 kbit/s	
CANopen	✓	
Function	Host	
Data transmission rate	20 kbit/s ... 1,000 kbit/s	
Digital inputs		
Cable	2 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)	
Ethernet	1 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)	2 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)
Digital outputs		
Cable	2 physical (additional 2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420)	
Ethernet	2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420	2 physical (additional 2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420)

	RFH620	RFH630
Optical indicators	6 LEDs, multi-colored (device status)	6 LEDs, multi-colored (device status) 1 RGB LED (process feedback)
Acoustic indicators	1 beeper (feedback)	
Configuration software	SOPAS ET, CoLa commands (telegrams), Fieldbus controller (PLC) with additional assistance from SICK function blocks	
Memory card	microSD memory card (parameter cloning)	

Mechanics/electronics

	RFH620	RFH630
Electrical connection	Cable	1 x cable, 15-pin D-Sub HD male connector
	Ethernet	1 x M12, 12-pin male connector, A-coded 1 x M12, 4-pin female connector, D-coded
Supply voltage	10 V DC ... 30 V DC	
Power consumption	Typ. 5 W	Typ. 8 W
Housing color	Blue, black	
Enclosure rating	IP67	
Protection class	III	
Weight	450 g ... 520 g (depending on type)	710 g ... 760 g (depending on type)
Dimensions (L x W x H)	147 mm x 88 mm x 39 mm ¹⁾	
MTBF	> 100 years	

¹⁾ Swivel connector is 15 mm longer.

Ambient data

	RFH620	RFH630
Electromagnetic compatibility (EMC)	EN 301489-3	
Vibration resistance	EN 60068-2-64:2008-02	
Shock resistance	EN 60068-2-27:2009-05	
Ambient operating temperature	-20 °C ... +60 °C	-20 °C ... +50 °C
Storage temperature	-25 °C ... +70 °C	
Permissible relative humidity	95 %, Non-condensing	

Ordering information

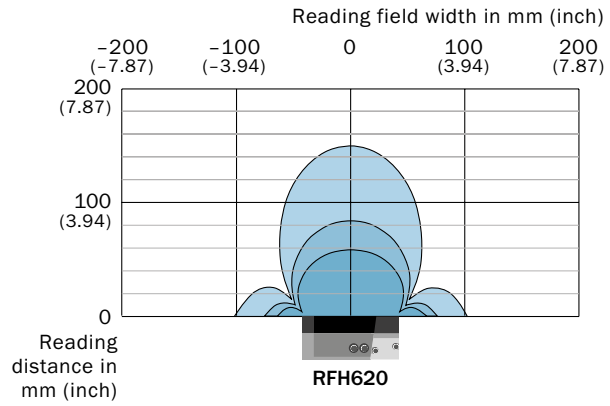
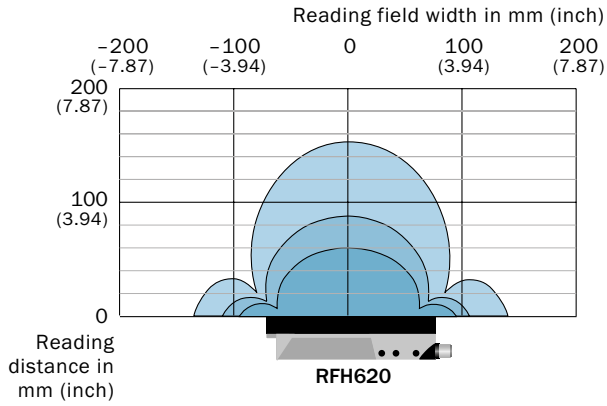
- **Product category:** read/write device with integrated antenna
- **Frequency band:** HF (13.56 MHz)
- **RFID standard:** ISO/IEC 15693, ISO/IEC 18000-3 "Mode 1"
- **Radio approval:** global

Version	Read range	Connection type	Output power	Type	Part no.
RFH620 Short Range	≤ 150 mm ¹⁾	Cable	200 mW	RFH620-1000001	1044838
		Ethernet	200 mW	RFH620-1001201	1044839
RFH630 Mid Range	≤ 240 mm ¹⁾	Cable	1 W	RFH630-1000001	1054747
		Ethernet	1 W	RFH630-1102101	1054746

¹⁾ With RFID ISO card transponder in plane parallel alignment to read/write device antenna; depending on dimensions and quality of transponder.

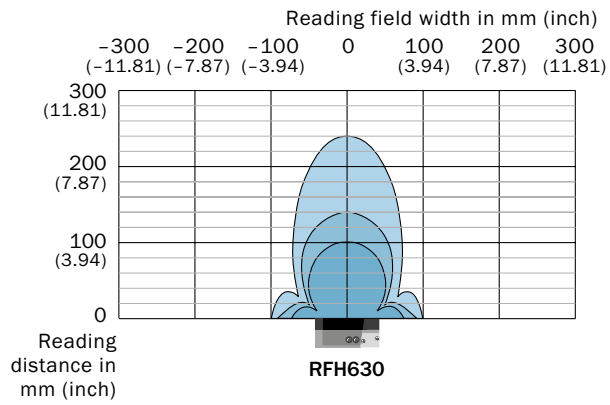
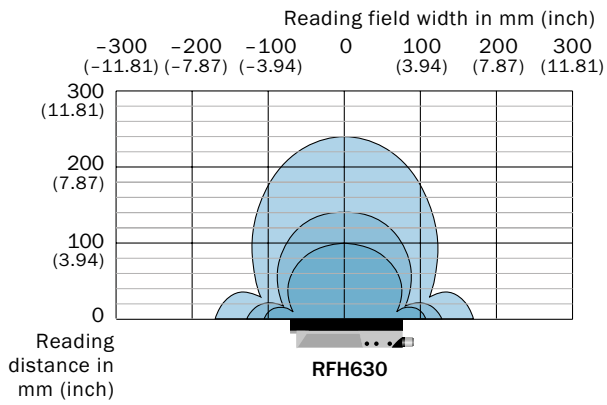
Reading field diagrams

RFH620



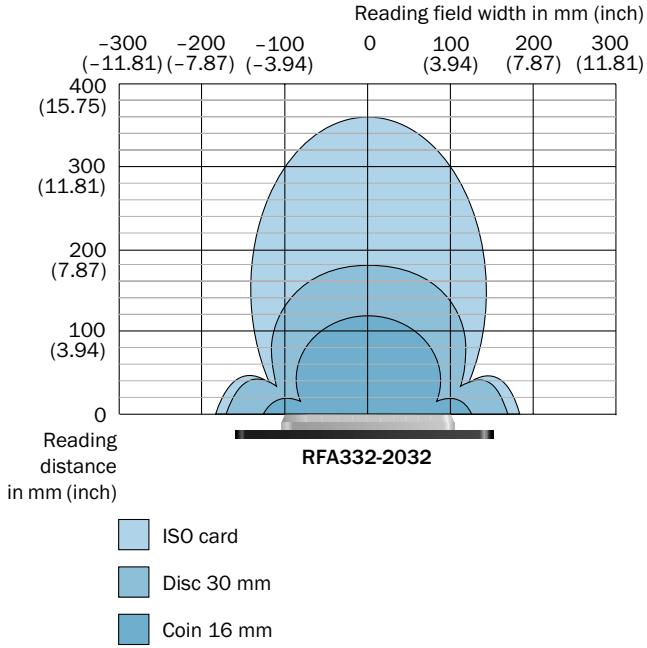
- ISO Card
- Disc 30
- Coin 16

RFH630

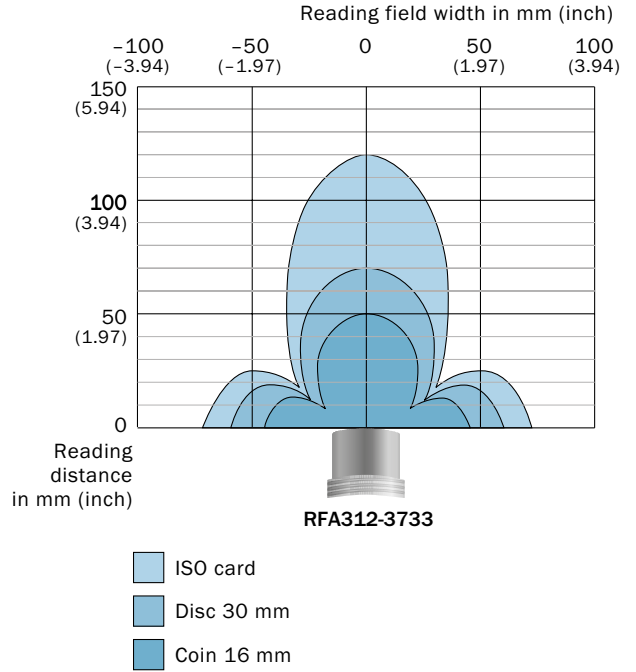


- ISO Card
- Disc 30
- Coin 16

RFH630 Ethernet with external antenna



RFH630 Ethernet with external antenna



smALL-IN-ONE



Product description

The RFU61x is the smallest read/write device of its type on the market. It is perfectly suited for IoT applications directly on the workpiece or component. The RFU61x therefore rounds out the UHF product family from SICK by enabling continuous identification along the entire value chain for the first time. The interfaces of the RFU61x enable direct connection of a trigger sensor,

whereby the RFU61x can be used as a remote, self-supporting unit. Thanks to the integrated process logic, data can be processed directly in the RFU61x and passed onto the control. Like the other RFU devices, the RFU61x can also be programmed according to individual requirements using the SICK AppSpace eco-system.

At a glance

- Extremely compact design
- Read range up to 0.5 m
- Connection option for trigger sensors
- Linkage option to superior control systems or directly to the cloud
- Antenna and data processing integrated in the sensor
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

Your benefits

- The small size enables versatile application possibilities even if space is tight
- Quicker and cheaper installation thanks to direct connection option for trigger sensors
- Very little programming work needed in the control due to intelligent process logics in the device
- Easy configuration through SOPAS ET or the integrated web server saves time and costs for commissioning
- Maximum flexibility when programming individual software solutions with SICK AppSpace
- The rugged design enables reliable operation - even in tough industrial environments



Additional information

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→ www.sick.com/RFU61x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Version	Short Range
Modulation	PR-ASK
Antenna	Integrated
Polarization	Circular
Axial ratio	Typ. 2 dB
Aperture angle	110°
Front-to-back ratio	> 5 dB

Interfaces

Ethernet	✓, TCP/IP
Function	Host, AUX
Data transmission rate	10/100 MBit/s
Power-over-Ethernet (PoE)	✓
PROFINET	✓
Function	Host, PROFINET Single Port
Data transmission rate	10/100 MBit/s
EtherNet/IP™	✓
Function	Host
Data transmission rate	10/100 MBit/s
USB	✓
Remark	USB 2.0
Function	AUX
Digital inputs	1 physical, switching (trigger sensors can be connected directly to the device (port 3) – max. 40 mA)
Optical indicators	4 LEDs, multi-colored (device status) 4 RGB LED (process feedback)
Configuration software	SOPAS ET, CoLa commands (telegrams), Web server, Fieldbus controller (PLC) with additional assistance from SICK function blocks
Programming interface	Application-specific programming using the SICK AppStudio development environment
Memory card	microSD memory card (parameter cloning, data storage)

Mechanics/electronics

Electrical connection	1 x M12, 4-pin male connector, A-coded 1 x M12, 8-pin female connector, X-coded 1 x M8, 4-pin female connector, A-coded 1 x USB, 5-pin micro-B socket
Supply voltage	18 V DC ... 30 V AC ¹⁾
Power consumption	Operation: typ. 6 W Standby: typ. 3 W
Housing	Aluminum die cast Plastic (PPS)
Enclosure rating	IP67
Protection class	III
Weight	313 g
Dimensions (L x W x H)	92 mm x 80 mm x 38 mm
MTBF	22 years ²⁾

¹⁾ PoE: 48 V DC ... 57 V DC as per PoE technology.

²⁾ Operation at +50 °C.

Ambient data

Electromagnetic compatibility (EMC)	EN 301489-3
Vibration resistance	EN 60068-2-6:2007
Shock resistance	EN 60068-2-27:2008
Ambient operating temperature	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C
Permissible relative humidity	90 %, Non-condensing

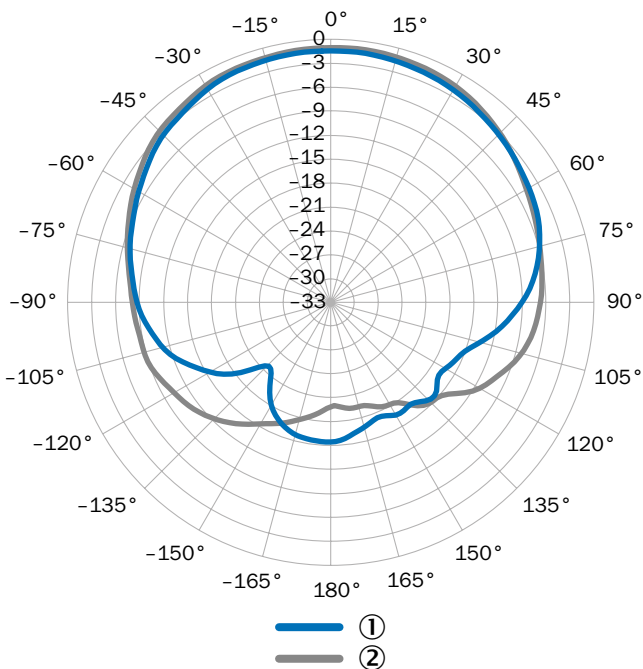
Ordering information

- **Version:** Short Range
- **Product category:** read/write device with integrated antenna
- **Frequency band:** UHF (860 MHz ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C
- **Read range:** ≤ 0.5 m (Depending on transponder used and ambient conditions.)
- **Connection type:** PoE, Power and Ethernet

Radio approval	Output power	Type	Part no.
Europe	25 mW ERP	RFU610-10600	1091102
USA, Canada	40 mW EIRP	RFU610-10601	1099890
China	25 mW ERP	RFU610-10605	1101394

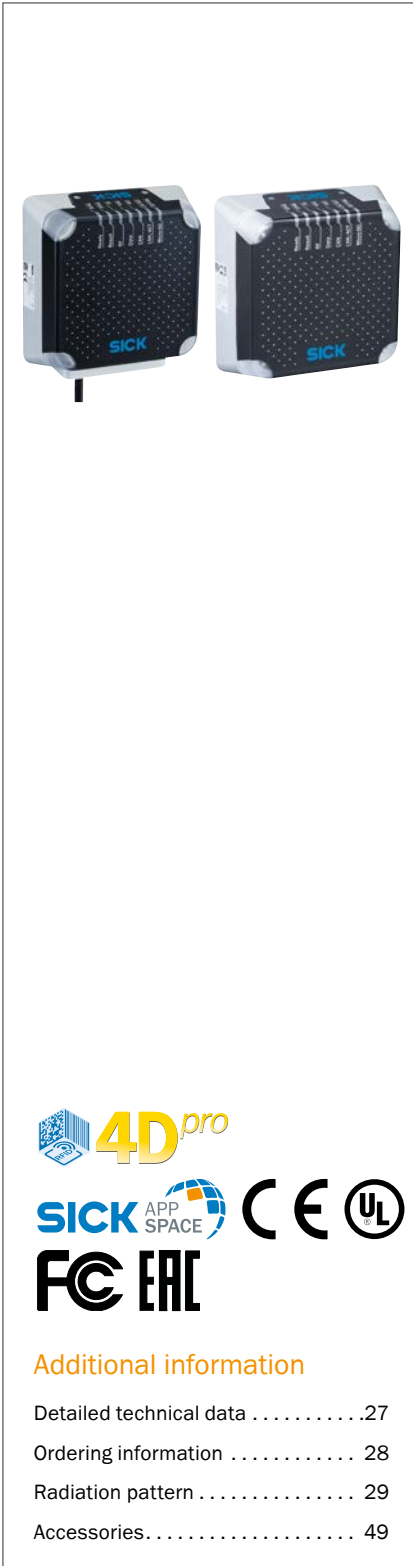
Radiation pattern

Measured antenna gain in dBic at 866.5 MHz, LHCP (left-hand circularly polarized)



- ① Horizontal plane (azimut)
- ② Vertical plane (elevation)

SHORT-RANGE ULTRA HIGH FREQUENCY SCANNER



Product description

The RFU62x is a UHF RFID read/write device suitable for read ranges of up to 1 m. The transponder communication is compliant with the ISO/IEC18000-6C (EPC Class 1 Gen 2) standard. The device can be configured to operate

from the SOPAS user interface or by sending ASCII commands directly. Its well-defined, restricted read/write range is particularly well-suited for automated identification over small object distances, e.g., in conveyor technology.

At a glance

- Antenna and data processing integrated in the sensor
- Read range up to 2 m
- Linkage option to superior control systems or directly to the cloud
- Excellent antenna characteristics
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

Your benefits

- Very high process stability as the optimally-aligned antenna characteristics prevent no-reads
- Easy configuration through SOPAS ET or the integrated web server saves time and costs for commissioning
- Maximum flexibility when programming individual software solutions with SICK AppSpace
- The rugged design enables reliable operation - even in tough industrial environments
- Very little programming work needed in the control due to intelligent process logics in the device

→ www.sick.com/RFU62x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Version	Mid Range
Modulation	PR-ASK
Antenna	Integrated
Polarization	Circular
Axial ratio	Typ. 2 dB / typ. 3 dB (depending on type)
Aperture angle	100°
Front-to-back ratio	> 7 dB

Interfaces

	RFU620-104xx	RFU620-101xx	RFU620-105xx
Ethernet		✓, TCP/IP	
Function	–	Host, AUX	
Data transmission rate	–	10/100 MBit/s	
Power-over-Ethernet (PoE)	–		✓
PROFINET	✓		
Function	Host, PROFINET Dual Port (optional via external connection module CDF600-2)	Host, PROFINET Single Port, PROFINET Dual Port (optional via external connection module CDF600-2)	Host, PROFINET Single Port
Data transmission rate	10/100 MBit/s		
EtherNet/IP™		✓	
Function	–	Host	
Data transmission rate	–	10/100 MBit/s	
EtherCAT®	✓		–
Type of fieldbus integration	Optional over external fieldbus module		–
Function	Host		–
Serial	✓, RS-232, RS-422, RS-485		–
Remark	RS-422/RS-485 only via 4-wire		–
Function	Host, AUX		–
Data transmission rate	0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud		–
PROFIBUS DP	✓		–
Type of fieldbus integration	Optional over external fieldbus module CDF600-2		–
Function	Host		–
CAN	✓		–
Remark	CSN (SICK CAN Sensor Network)		–
Function	Host		–
CANopen	✓		–
Function	Host		–
USB	✓		
Remark	USB 2.0		
Function	AUX		
Digital inputs	2 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)		–
Digital outputs	2 physical (additional 2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420)		–
Optical indicators	7 LEDs, multi-colored (device status) 4 RGB LED (process feedback)		

	RFU620-104xx	RFU620-101xx	RFU620-105xx
Configuration software	SOPAS ET, CoLa commands (telegrams), Fieldbus controller (PLC) with additional assistance from SICK function blocks	SOPAS ET, CoLa commands (telegrams), Web server, Fieldbus controller (PLC) with additional assistance from SICK function blocks	
Programming interface	-	Application-specific programming using the SICK AppStudio development environment	
Memory card	microSD memory card (parameter cloning, data storage)		

Mechanics/electronics

	RFU620-104xx	RFU620-101xx	RFU620-105xx
Electrical connection	1 x cable, 15-pin D-Sub HD male connector 1 x USB, 5-pin micro-B socket	1 x M12, 17-pin male connector, A-coded 1 x M12, 4-pin female connector, D-coded 1 x USB, 5-pin micro-B socket	1 x M12, 8-pin female connector, X-coded 1 x USB, 5-pin micro-B socket
Supply voltage	10 V DC ... 30 V DC	10 V DC ... 30 V DC ¹⁾	48 V DC ... 57 V DC ²⁾
Power consumption	Operation: typ. 8 W Standby: typ. 3 W	Operation: typ. 8 W With heating: max. 20 W Standby: typ. 3 W	Operation: typ. 8 W Standby: typ. 3 W
Housing	Aluminum die cast Plastic (PPS)		
Enclosure rating	IP65	IP67	
Protection class	III		
Weight	780 g		
Dimensions (L x W x H)	137 mm x 131 mm x 56 mm		
MTBF	23 years ³⁾		25 years ³⁾

¹⁾ With heating 20 V DC ... 30 V DC.

²⁾ As per PoE technology.

³⁾ Operation at +50 °C.

Ambient data

	RFU620-104xx	RFU620-101xx	RFU620-105xx
Electromagnetic compatibility (EMC)	EN 301489-3		
Vibration resistance	EN 60068-2-64:2008-02		
Shock resistance	EN 60068-2-27:2009-05		
Ambient operating temperature	-25 °C ... +50 °C	-40 °C ... +50 °C	-25 °C ... +50 °C
Storage temperature	-40 °C ... +70 °C		
Permissible relative humidity	90 %, Non-condensing		

Ordering information

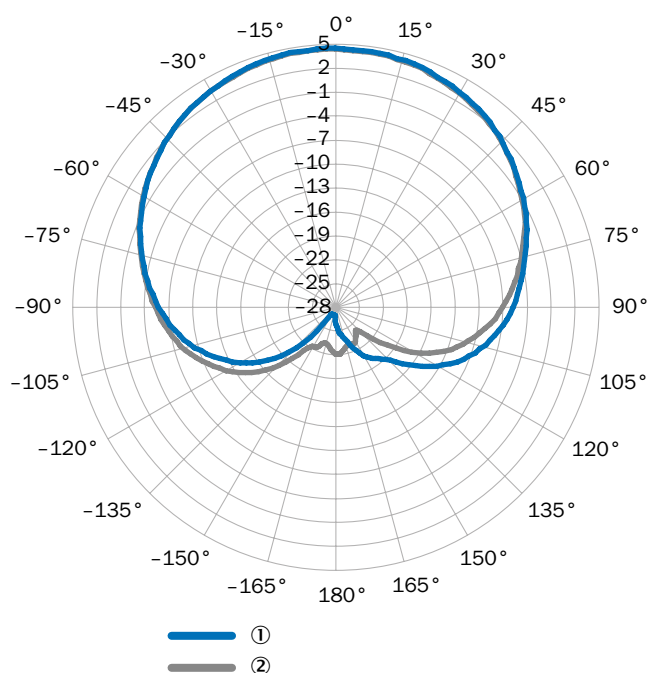
- **Product category:** read/write device with integrated antenna
- **Frequency band:** UHF (860 MHz ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C
- **Read range:** ≤ 2 m (Depending on transponder used and ambient conditions.)

Version	Connection type	Radio approval	Output power	Type	Part no.
RFU620-104xx Mid Range	Cable	Europe, South Africa	0,25 W ERP	RFU620-10400	1062600
		USA, Canada, México	0,32 W EIRP	RFU620-10401	1062603

Version	Connection type	Radio approval	Output power	Type	Part no.
RFU620-101xx Mid Range	Ethernet	Europe, South Africa	0,25 W ERP	RFU620-10100	1062599
		USA, Canada, México, Ecuador	0,32 W EIRP	RFU620-10101	1062602
		Australia	0,32 W EIRP	RFU620-10102	1101700
		India	0,25 W ERP	RFU620-10103	1091355
		Brazilian	0,32 W EIRP	RFU620-10104	1069677
		China, Thailand	0,2 W ERP	RFU620-10105	1068728
		Japan	0,32 W EIRP	RFU620-10107	1068727
		Russia	0,25 W ERP	RFU620-10108	1094605
		Korea	0,32 W EIRP	RFU620-10110	1086439
		New Zealand	0,32 W EIRP	RFU620-10111	1084997
		Indonesia	0,2 W EIRP	RFU620-10112	1092037
		Malaysia	0,2 W EIRP	RFU620-10114	1096414
		Vietnam	0,32 W EIRP	RFU620-10118	1101686
RFU620-105xx Mid Range	PoE	Europe, South Africa	0,25 W ERP	RFU620-10500	1062601
		USA, Canada, México	0,32 W EIRP	RFU620-10501	1062604
		India	0,25 W ERP	RFU620-10503	1069453
		Brazilian	0,32 W EIRP	RFU620-10504	1070407
		China, Thailand	0,2 W ERP	RFU620-10505	1077860
		Japan	0,32 W EIRP	RFU620-10507	1083976
		Russia	0,25 W ERP	RFU620-10508	1088871
		Korea	0,32 W EIRP	RFU620-10510	1083557
		Malaysia	0,2 W EIRP	RFU620-10514	1077863

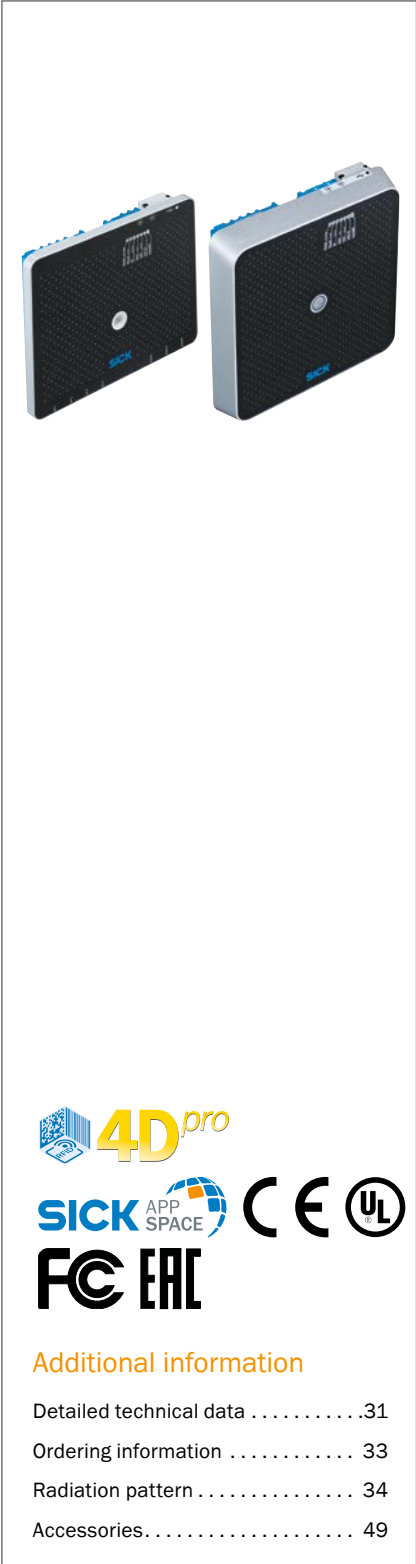
Radiation pattern

Measured antenna gain in dBic at 868.5 MHz, RHCP (right-hand circularly polarized)



- ① Horizontal plane (azimut)
- ② Vertical plane (elevation)

SIMPLE INTEGRATION – INTELLIGENCE INCLUDED



Product description

The RFU63x is an ultra-high frequency (UHF) RFID solution for industrial environments. Via integrated application management software, the RFU63x is able to solve common industrial applications without any external “middleware” and can, therefore, be used as a stand-alone solution. This is possible due to an integrated filter and data management

system. With 4Dpro compatibility, the RFU63x is easy and cost-efficient to integrate in common industrial environments. Different options for parameter cloning between systems (e.g., integrated microSD memory card feature) reduce maintenance time. The integrated feedback LED can be used to read diagnostic or process feedback.

At a glance

- Antenna and data processing integrated in the sensor
- Read range up to 10 m
- Linkage option to superior control systems or directly to the cloud
- Up to 4 external antennas
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

Your benefits

- External antenna for cost-effective extension of the detection range
- Easy configuration through SOPAS ET or the integrated web server saves time and costs for commissioning
- Maximum flexibility when programming individual software solutions with SICK AppSpace
- The rugged design enables reliable operation - even in tough industrial environments
- Very little programming work needed in the control due to intelligent process logics in the device



Additional information

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→ www.sick.com/RFU63x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

	RFU630-131xx	RFU630-041xx
Version	Long Range	
Modulation	PR-ASK, DSB-ASK	
Antenna	Integrated	–
Polarization	Circular	–
Axial ratio	Typ. 2 dB	–
Aperture angle	72°	–
Front-to-back ratio	> 17 dB	–
External antenna	3 external antenna ports	4 external antenna ports

Interfaces

Ethernet	✓, TCP/IP
Function	Host, AUX
Data transmission rate	10/100 MBit/s
PROFINET	✓
Function	Host, PROFINET Single Port, PROFINET Dual Port (optional via external connection module CDF600-2)
Data transmission rate	10/100 MBit/s
EtherNet/IP™	✓
Function	Host
Data transmission rate	10/100 MBit/s
EtherCAT®	✓
Type of fieldbus integration	Optional over external fieldbus module CDF600
Function	Host
Serial	✓, RS-232, RS-422, RS-485
Remark	RS-422/RS-485 only via 4-wire
Function	Host, AUX
Data transmission rate	0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud
PROFIBUS DP	✓
Type of fieldbus integration	Optional over external fieldbus module CDF600-2
Function	Host
CAN	✓
Remark	CSN (SICK CAN Sensor Network)
Function	Host
CANopen	✓
Function	Host
USB	✓
Remark	USB 2.0
Function	AUX
Digital inputs	2 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)
Digital outputs	2 physical (additional 2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420)
Optical indicators	7 LEDs, multi-colored (device status) 1 RGB LED (process feedback)
Acoustic indicators	1 beeper (feedback)
Operating elements	2 buttons (choose and start/stop functions)

Configuration software	SOPAS ET, CoLa commands (telegrams), Web server, Fieldbus controller (PLC) with additional assistance from SICK function blocks
Programming interface	Application-specific programming using the SICK AppStudio development environment
Memory card	microSD memory card (parameter cloning, data storage)

Mechanics/electronics

	RFU630-131xx	RFU630-041xx
Electrical connection	1 x M12, 17-pin male connector, A-coded 1 x M12, 4-pin female connector, D-coded 1 x USB, 5-pin micro-B socket	
Supply voltage	18 V DC ... 30 V DC	
Power consumption	Operation: typ. 20 W, max. 26 W Standby: typ. 6 W	
Housing	Aluminum die cast	
Housing color	Blue, black, silver	
Enclosure rating	IP67	
Protection class	III	
Weight	2.6 kg	2.1 kg
Dimensions (L x W x H)	239 mm x 239 mm x 64 mm	239 mm x 197 mm x 40 mm
MTBF	28 years ¹⁾	

¹⁾ Operation at +25 °C.

Ambient data

	RFU630-131xx	RFU630-041xx
Electromagnetic compatibility (EMC)	EN 301489-3	EN 301489-3, EN 50121-4 (2017)
Vibration resistance	EN 60068-2-64:2008-02	
Shock resistance	EN 60068-2-27:2009-05	
Ambient operating temperature	-30 °C ... +60 °C ¹⁾	
Storage temperature	-30 °C ... +70 °C	
Permissible relative humidity	± 90 %, Non-condensing	

¹⁾ From Firmware version V2.02.

Ordering information

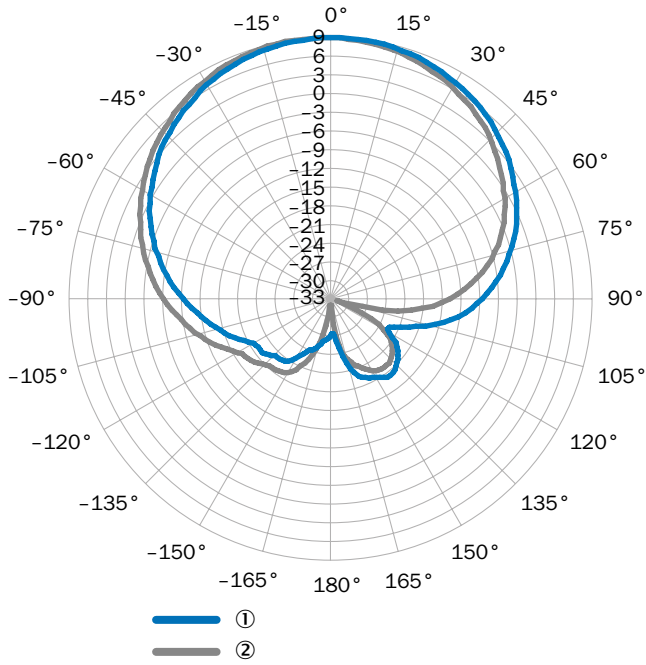
- **Frequency band:** UHF (860 MHz ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C
- **Read range:** ≤ 10 m (Depending on transponder used and ambient conditions.)

Version	Product category	Radio approval	Output power	Type	Part no.
RFU630-131xx Long Range	Read/write device with integrated antenna	Europe, South Africa, Saudi Arabia	2 W ERP	RFU630-13100	1054396
		USA, Canada, México, Argentina	4 W EIRP	RFU630-13101	1054397
		Australia	4 W EIRP	RFU630-13102	1058775
		India	2 W ERP	RFU630-13103	1067473
		Brazilian	4 W EIRP	RFU630-13104	1068726
		China	2 W ERP	RFU630-13105	1057943
		Japan	4 W EIRP	RFU630-13106	1067133
			0,5 W EIRP	RFU630-13107	1061498
		Russia, Belarus	2 W ERP	RFU630-13108	1070903
		Korea	4 W EIRP	RFU630-13110	1073442
		New Zealand	3,16 W EIRP	RFU630-13111	1077862
		Indonesia	2 W ERP	RFU630-13112	1074302
		Taiwan	2 W EIRP	RFU630-13113	1077861
		Malaysia	2 W ERP	RFU630-13114	1095224
Morocco	0,5 W ERP	RFU630-13115	1083558		
RFU630-041xx Long Range	Read/write device without integrated antenna	Europe, South Africa, Saudi Arabia	max. 30 dBm at external antenna ports	RFU630-04100	1058117
		USA, Canada		RFU630-04101	1059999
		Australia		RFU630-04102	1073376
		Brazilian		RFU630-04104	1093152
		China		RFU630-04105	1073196
		Japan		RFU630-04106	1068569
		Russia		RFU630-04108	1070904
		Singapore		RFU630-04109	1073377

Radiation pattern

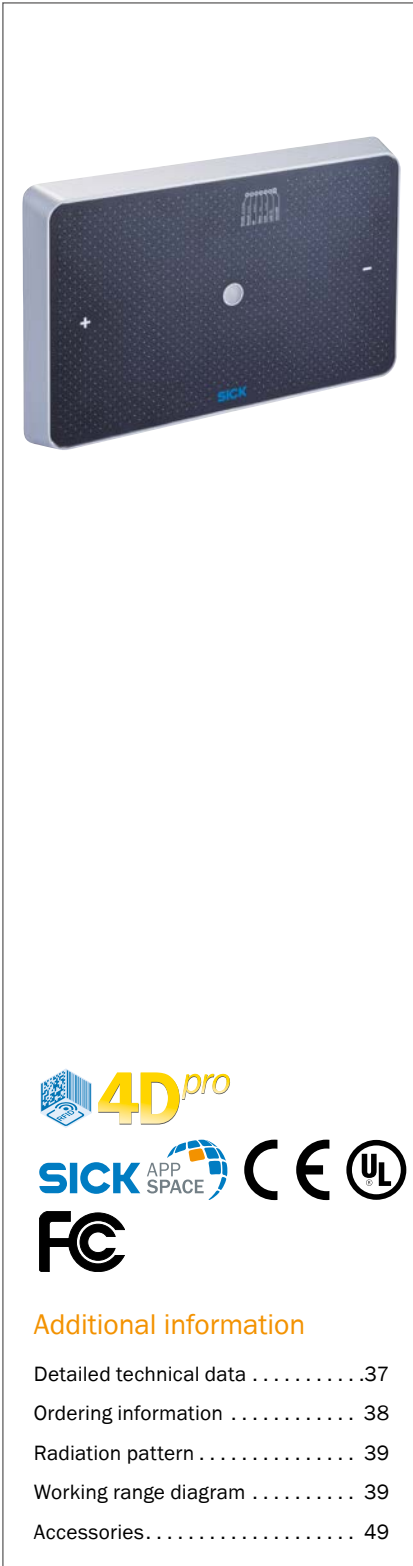
RFU630-131xx Long Range

Measured antenna gain in dBic at 868.5 MHz, RHCP (right-hand circularly polarized)



- ① Horizontal plane (azimut)
- ② Vertical plane (elevation)

THE MEASURING RFID DEVICE WITH INTEGRATED PASSAGE AND DIRECTION DETECTION



Product description

The RFU65x RFID read/write device saves space, time, and costs when it comes to identifying vehicles and vehicle parts. This compact device is able to determine the angle from which the transponder responds. The RFU65x also features an integrated logic unit that processes data on the basis of algorithms. This makes it possible to

deduce entry detection information plus a vehicle's direction of movement when it drives through a receiving goods door, for example. Unlike other devices, the RFU65x does not require any additional external antennae. Not only does this cut down on costs, it also simplifies and accelerates application processes in logistics and the automotive industry.

At a glance

- Antenna and data processing integrated in the sensor
- Read range up to 10 m
- Linkage option to superior control systems or directly to the cloud
- Direction and position detection
- Configuration via SOPAS ET or integrated web server
- Can be used with SICK AppSpace
- Rugged design in accordance with IP67

Your benefits

- High process transparency due to the detection of movement direction and the position of transponders
- Easy configuration through SOPAS ET or the integrated web server saves time and costs for commissioning
- Maximum flexibility when programming individual software solutions with SICK AppSpace
- The rugged design enables reliable operation - even in tough industrial environments
- Very little programming work needed in the control due to intelligent process logics in the device



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Accessories 49

→ www.sick.com/RFU65x

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

Features

Version	Long Range
Modulation	PR-ASK, DSB-ASK
Antenna	Integrated
Polarization	Circular
Aperture angle	80°, vertical 55°, horizontal
Front-to-back ratio	> 15 dB

Interfaces

Ethernet	✓, TCP/IP
Function	Host, AUX
Data transmission rate	10/100 MBit/s
PROFINET	✓
Function	Host, PROFINET Single Port, PROFINET Dual Port (optional via external connection module CDF600-2)
Data transmission rate	10/100 MBit/s
EtherNet/IP™	✓
Function	Host
Data transmission rate	10/100 MBit/s
EtherCAT®	✓
Type of fieldbus integration	Optional over external fieldbus module CDF600
Function	Host
Serial	✓, RS-232, RS-422, RS-485
Remark	RS-422/RS-485 only via 4-wire
Function	Host, AUX (only RS-232)
Data transmission rate	0.3 kBaud ... 115.2 kBaud, AUX: 57.6 kBaud
PROFIBUS DP	✓
Type of fieldbus integration	Optional over external fieldbus module CDF600-2
Function	Host
CAN	✓
Remark	CSN (SICK CAN Sensor Network)
Function	Host
CANopen	✓
Function	Host
USB	✓
Remark	USB 2.0
Function	AUX
Digital inputs	2 physical (additional 2 logical inputs via optional parameter storage CMC600 in CDB620/CDM420)
Digital outputs	2 physical (additional 2 logical outputs via optional parameter storage CMC600 in CDB620/CDM420)
Optical indicators	7 LEDs, multi-colored (device status) 1 RGB LED (process feedback)
Acoustic indicators	1 beeper (feedback)
Operating elements	2 buttons (choose and start/stop functions)
Configuration software	SOPAS ET, CoLa commands (telegrams), Web server, Fieldbus controller (PLC) with additional assistance from SICK function blocks

Programming interface	Application-specific programming using the SICK AppStudio development environment
Memory card	microSD memory card (parameter cloning, data storage)

Mechanics/electronics

Electrical connection	1 x M12, 17-pin male connector, A-coded 1 x M12, 4-pin female connector, D-coded 1 x USB, 5-pin micro-B socket
Supply voltage	12 V DC ... 30 V DC
Power consumption	Operation: typ. 20 W, max. 26 W Standby: typ. 6 W
Housing	Aluminum
Housing color	Blue, black, silver
Enclosure rating	IP67
Protection class	III
Weight	3.9 kg
Dimensions (L x W x H)	400 mm x 252 mm x 70 mm
MTBF	25 years ¹⁾

¹⁾ Operation at +25 °C.

Ambient data

Electromagnetic compatibility (EMC)	EN 301489-3
Vibration resistance	EN 60068-2-64:2008-02
Shock resistance	EN 60068-2-27:2009-05
Ambient operating temperature	-25 °C ... +60 °C
Storage temperature	-30 °C ... +70 °C
Permissible relative humidity	90 %, Non-condensing

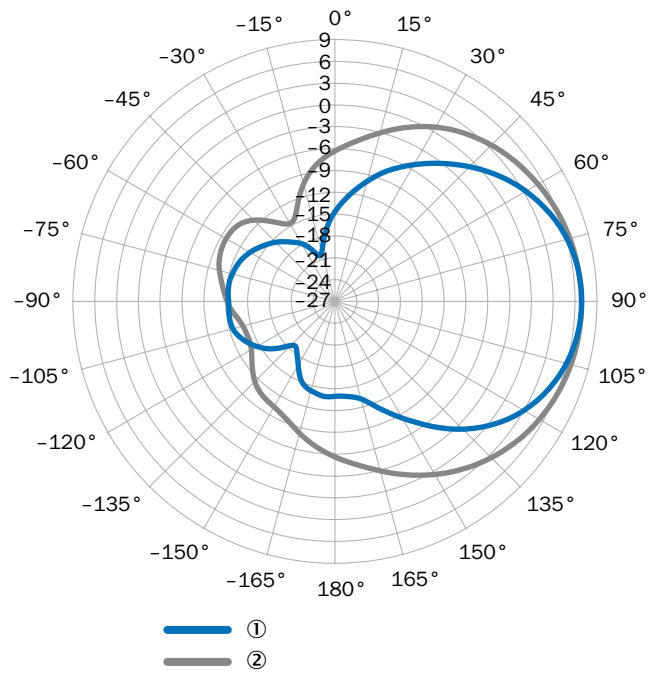
Ordering information

- **Version:** Long Range
- **Product category:** read/write device with integrated antenna
- **Frequency band:** UHF (860 MHz ... 960 MHz)
- **RFID standard:** EPCglobal UHF Class 1 Generation 2, ISO/IEC 18000-6 C
- **Read range:** ≤ 10 m (Depending on transponder used and ambient conditions.)

Radio approval	Output power	Type	Part no.
Europe	1,6 W ERP	RFU650-10100	1073556
USA, Canada, México	2,5 W EIRP	RFU650-10101	1076522
Australia	2 W EIRP	RFU650-10102	1087587
India	1,6 W ERP	RFU650-10103	1096413
Brazilian	3,2 W EIRP	RFU650-10104	1092036
China	1,6 W ERP	RFU650-10105	1083559
Japan	2,5 W EIRP	RFU650-10106	1083560

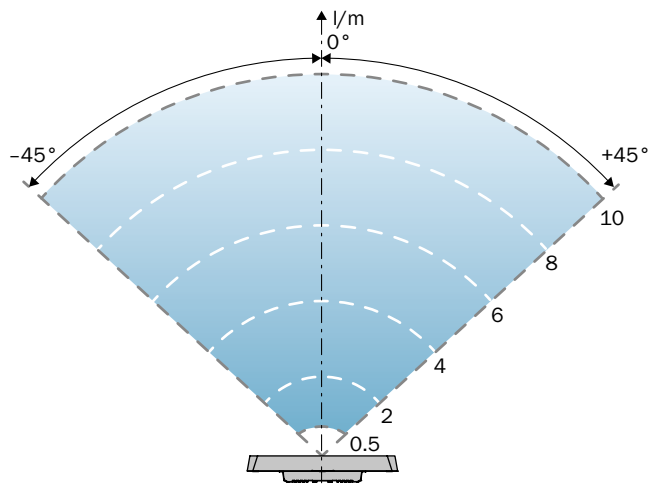
Radiation pattern

Measured antenna gain in dBic at 866.5 MHz, RHCP (right-hand circularly polarized)

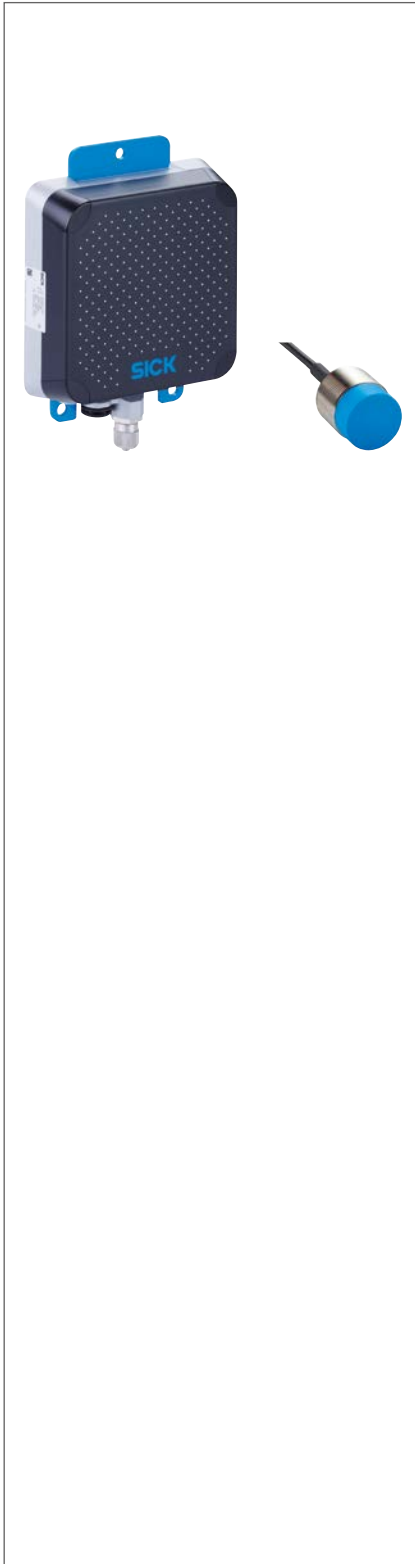


- ① Horizontal plane (azimut)
- ② Vertical plane (elevation)

Working range diagram



RELIABLE IDENTIFICATION – IN ANY SITUATION



Product description

Industry-compliant RFID antennas from SICK are available for both the HF and UHF frequency ranges. The large range of sizes offers the right antenna for every application and installation situation. The rugged design was developed specially for the challenging application conditions in industrial environments and outdoor areas. Depending on the antenna and transponders, read ranges

of up to 300 mm (HF) or 10 m (UHF) can be achieved. The RFH630 (HF) and RFU63x (UHF) RFID read/write devices from SICK can be used for antenna operation. The RFU63x offers connection options for several antennas. This means several reading points can be realized and challenging reading situations can be solved from various angles using transponder detection.

At a glance

- Read range up to 10 m for UHF antennas
- Rugged design in accordance with enclosure rating IP67
- Ambient temperature ranges from -40 °C to $+70\text{ °C}$
- Integrated feedback LEDs
- Circularly polarized UHF antennas

Your benefits

- Optimally aligned antenna characteristics prevent faulty readings, therefore ensuring high process stability
- Reliable operation thanks to rugged design – even under rough industrial environments
- Low-cost extension of the detection range due to the connection of several external antennas to an RFU63x
- Large ambient temperature range enables reliable use even under extreme weather conditions
- Omni-directional reading of transponders thanks to circular antenna polarization








→ www.sick.com/RFID_antennas

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

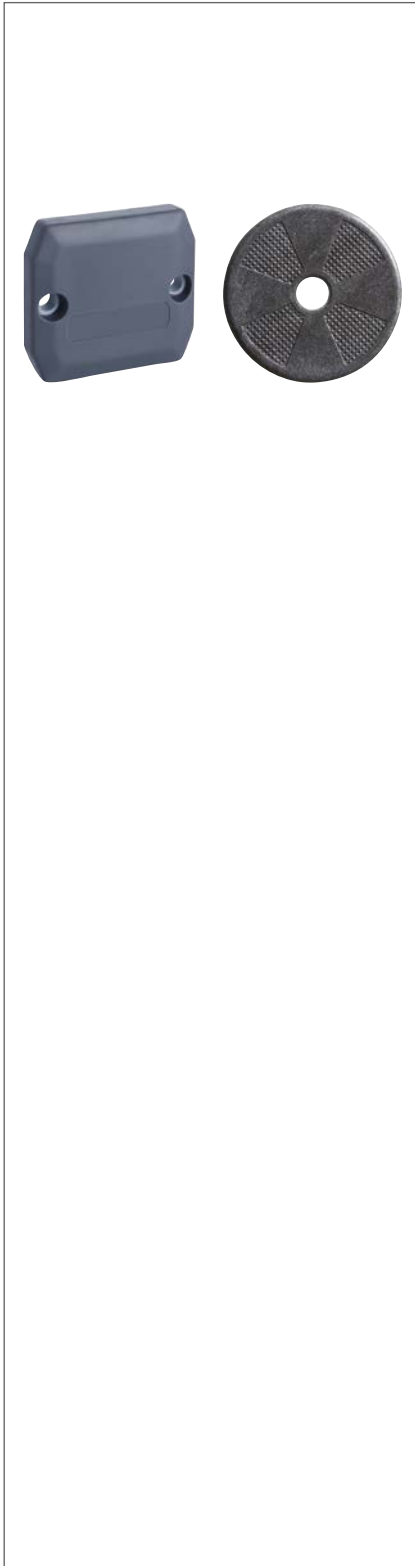


RFID

RFID antennas

	Brief description	Type	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Industrial RFID HF antenna, cable length 3.62 m, diameter 30 mm, length 48 mm	RFA312-3733	1065473	-	-	-	●	-	-	-	-	-	-
	Industry-compliant RFID HF antenna, length of cable 3.62 m, dimensions 300 mm x 210 mm x 33 mm, no mounting on metal (distance from metal to antenna > 10 cm)	RFA332-2032	1054399	-	-	-	●	-	-	-	-	-	-
	Industrial RFID UHF antenna, carrier frequency 865 ... 868 MHz (Europe, India, Russia, South Africa, Saudi Arabia), TNC reverse	RFA621-000	1073138	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (USA, Canada, México, Australia, Brazil, China, Japan), TNC reverse	RFA621-001	1073139	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 865 ... 868 MHz (Europe, India, Russia, South Africa, Saudi Arabia), TNC reverse	RFA630-000	1058383	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (USA, Canada, México, Australia, Brazil, China, Japan), TNC reverse	RFA630-001	1058384	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 865 ... 868 MHz (Europe, India, Russia, South Africa, Saudi Arabia), TNC male connector, with integrated feedback LED (RGB)	RFA630-100	1059946	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 902 ... 928 MHz (USA, Canada, México, Australia, Brazil, China, Japan), TNC male connector, with integrated feedback LED (RGB)	RFA630-101	1059947	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 860 ... 960 MHz (Europe and North America), N male connector	RFA641-3440	6034316	-	-	-	-	-	-	-	-	●	-
	Industrial RFID UHF antenna, carrier frequency 865 ... 870 MHz (Europe, South Africa, Saudi Arabia), TNC reverse	RFA651-5731	6036102	-	-	-	-	-	-	-	-	●	-

CLEVER LITTLE HELPERS FOR SOLVING IDENTIFICATION TASKS



Product description

The RFID transponders (also known as RFID tags) from SICK work on the basis of high frequency (HF) or ultra high frequency (UHF). The transponders work passively and use the energy of the RFID read/write device for data transmission. Both HF and UHF transponders follow a standard which is valid worldwide. The large range of transponders regarding

dimensions, size, storage size, ambient operating temperature, mounting and read range enable use in many different applications. RFID tags can save up to 64 bits of data and can be identified up to a read range of 10 m. Together with the RFID read/write devices, they create reliable and future-proof identification solutions.

At a glance

- Passive transponders
- Compliance with standards
- Mounting on various materials possible, even on metallic surfaces
- No visual contact required
- Reading and writing
- Ambient temperature range from $-40\text{ }^{\circ}\text{C}$ to $+230\text{ }^{\circ}\text{C}$

Your benefits

- Low price and maintenance-free
- Standard-compatible transponders enable future-proof solutions
- High flexibility thanks to the option of mounting on different materials and functions which make visual contact to the RFID read/write device unnecessary
- Variable use due to quick and easy overwriting of transponder data
- The rugged design enables reliable operation - even in tough industrial environments

→ www.sick.com/RFID_transponders

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



NOTE ABOUT TRANSPONDER USAGE

When selecting and affixing a transponder, the required performance, the ambient conditions and the installation situation are particularly to be taken into consideration. The most important information is listed here to support your decision. Whatever choice you make, SICK always offers you the right transponder.

Read range

A transponder has to be selected in such a way that the required read ranges can be reliably achieved. Essential characteristics are the antenna size and the used transponder IC (integrated circuit), but the application environment also has to be considered.

Memory size

Transponders have different storage volumes, depending on the built in IC. The transponders have a unique identification number and a user memory for additional data. The requirements for the respective memory size result from the desired data concept.

Metal

Metal absorbs HF waves and reflects UHF waves. Therefore, use special on-metal transponders or ensure sufficient distance between the transponder and metal.

Temperature

The ambient temperature affects the selection and performance of a transponder. The frequency and duration of the temperature input plays an important role in this regard.

Liquids

Liquids do not have a significant influence on HF transponders, but in the case of UHF transponders, they can cause attenuation and range reduction.

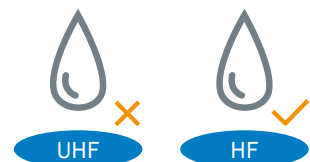
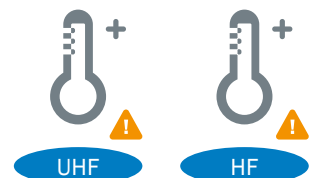
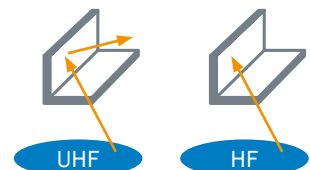
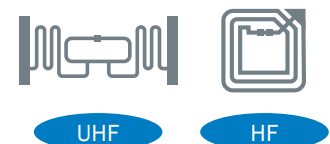
Region-dependent frequency tuning

While HF transponders can be used worldwide, regionally optimized frequency tuning is available for UHF transponders.

- European Telecommunications Standards Institute (ETSI): 865 to 868 MHz
- Federal Communications Commission (FCC): 902 to 928 MHz












There are also UHF transponder variants for worldwide use.



- Global: 865 to 928 MHz



Transponder HF

Features

	Dimen- sions	IC	Max. reading distance (mm)	Ambient operating temperature					Type	Part no.
				Temperature (constant)		Temperature (cyclical)				
				min. (°C)	max. (°C)	to (°C)	Dura- tion	Cy- cles		
		NXP ICODE SLIX	70 RFH620 120 RFH630	-25	+85	-	-	-	HF Transpon- der, disk	6051701
	Ø 30 mm x 3 mm	NXP ICODE SLIX	85 RFH620 140 RFH630	-25	+85	+140	100 h	1	HF Transpon- der, disk	6034740
		Fujitsu MB89R118	80 RFH620 130 RFH630	-20	+85	+140	100 h	1	HF Transpon- der, disk	6043514
	Ø 50 mm x 3 mm	NXP ICODE SLIX	120 RFH620 200 RFH630	-25	+85	+140	100 h	1	HF Transpon- der, disk	6033781
		Fujitsu MB89R118	110 RFH620 190 RFH630	-20	+85	+140	100 h	1	HF Transpon- der, disk	6042212
	86 x 54 x 1 mm ³	NXP ICODE SLIX	150 RFH620 240 RFH630	-35	+50	-	-	-	HF transpon- der, ISO card	6037848
	Ø 16 mm x 3 mm	NXP ICODE SLIX	60 RFH620 100 RFH630	-25	+85	+120 +220	100 h 30 sec	1 1	HF Transpon- der, coin	6041592
	Ø 22 mm x 3 mm	TI Tag-it HF-I plus	65 RFH620 115 RFH630	-25	+90	-	-	-	HF Transpon- der, coin	6033173
	Ø 22 mm x 3 mm	NXP ICODE SLIX	5 RFH620 50 RFH630	-40	+90	-	-	-	HF Transpon- der, disk, on-metal	6052179
	90 x 34 x 7 mm ³	NXP ICODE SLIX	65 RFH620 120 RFH630	-25	+85	-	-	-	HF Tran- sponder, rectangular, on-metal	6047938
	25 x 13 x 5 mm ³	NXP ICODE SLIX	55 RFH620 110 RFH630	-25	130	-	-	-	HF Tran- sponder, rectangular, on-metal	6039051
	Ø 4 mm x 22 mm	NXP ICODE SLIX	30 RFH620 90 RFH630	-40	+90	+120 +140	100 h 10 h	1 1	HF Transpon- der, glass	6039237
	Ø 5 mm x 30 mm	NXP ICODE SLIX	25 RFH620 45 RFH630	-40	+85	-	-	-	HF Transpon- der, cylinder	6044368
	81 mm x 49 mm	NXP ICODE SLIX	140 RFH620 230 RFH630	-40	+85	-	-	-	HF Transpon- der, paper label	6037763
 Illustration may differ	36 mm x 18 mm	NXP ICODE SLIX	55 RFH620 120 RFH630	-40	+85	-	-	-	HF Transpon- der, paper label	6052794

	Dimen- sions	IC	Max. reading distance (mm)	Ambient operating temperature					Type	Part no.
				Temperature (constant)		Temperature (cyclical)				
				min. (°C)	max. (°C)	to (°C)	Dura- tion	Cy- cles		
	51 x 51 x 6.5 mm ³	NXP ICODE SLIX	100 RFH620 165 RFH630	-25	+85	+220	40 min	1,000	HF Transponder, square, high-temp	6060918
	14 x 7 mm ³	NXP ICODE SLIX	55 RFH620 140 RFH630	-5	+50	-	-	-	HF Transponder, cylinder	6067993

Note about memory organization

The size of the memory in the transponder depends on the built-in IC. However, the memory organization is always the same and is composed as follows:

- UID (user identification) - Unique number from the IC manufacturer (cannot be changed)
- User memory (optional) - The user memory can be used to store information on the transponder (individually changeable).

Overview of ISO-15693 transponder ICs - 13.56 MHz - HF

Manufacturer	Type	UID ¹⁾	AFI ²⁾	DSFID ³⁾	User memory	Number of blocks	Blocks size
NXP	ICODE SLIX	•	•	•	896 bit	28	4 Byte
	ICODE SLIX 2	•	•	•	2,528 bit	79	4 Byte
	ICODE SLIX-S	•	•	•	1,280 bit	40	4 Byte
	ICODE SLIX-L	•	•	•	256 bit	8	4 Byte
Texas Instruments	Tag-it HF-I pro	•	•	•	256 bit	8	4 Byte
	Tag-it HF-I plus	•	•	•	2,048 bit	64	4 Byte
Infineon	SRF55V01P	•	•	-	416 bit	13	4 Byte
	SRF55V02P	•	•	-	1,792 bit	56	4 Byte
	SRF55V10P	•	•	-	7,936 bit	248	4 Byte
Fujitsu	MB89R119B	•	•	•	1,856 bit	58	4 Byte
	MB89R118	•	•	•	16,000 bit	250	8 bytes
	MB89R112	•	•	•	64,000 bit	250	32 Byte

¹⁾ UID = unique identifier; unique, individual, non-rewritable 64-bit value, e.g., E0 04 01 00 1A B2 3C 45.

²⁾ AFI = Application family identifier: filter byte in the transponder to distinguish between different transponder populations on the air interface.

³⁾ DSFID = Data storage format identifier: filter byte in the transponder to distinguish between different transponder populations according to the reading process.

Typical duration of read and write accesses with the RFH6xx and ISO-15693 transponders (RF setting: 26 kbit/s)

Read UID ¹⁾

Number of transponders	1	2	3	4
Time (ms)	19 ²⁾	54	60	67

¹⁾ UID = unique identifier; unique, individual, non-rewritable 64-bit value, e.g., E0 04 01 00 1A B2 3C 45.

²⁾ Single-slot mode (no anti-collision required).

Read several blocks

Number of blocks	1	2	3	4	5	6	7	8	9	...
Time (ms)	13	15	17	19	21	23	25	27	29	...

Write several blocks

Number of blocks	1	2	3	4	5	6	7	8	9	...
Time (ms)	16	32	48	64	80	96	112	128	144	...

Transponder UHF

Features

Image	Dimensions (W x H x D)	IC	Max. reading distance ¹⁾ (m) <small>RFU61x, transmitting power 25 mW (ERP)</small> <small>RFU62x, transmitting power 250 mW (ERP)</small> <small>RFU63x / 65x, transmitting power 2 W (ERP)</small>	Ambient operating temperature					Type	Part no.
				Temperature (constant)		Temperature (cyclical)				
				min. (°C)	max. (°C)	to (°C)	Duration	Cycles		
	51.5 x 10 x 47.5 mm ³	Impinj Monza 4QT		-40	+85	+125	60 min	1	UHF Transponder, rectangular, on-metal global	6052346
	155 x 14.5 x 26 mm ³	NXP G2iM+		-35	+65	-	-	-	UHF Transponder, rectangular, on-metal, ETSI	6061180
		Impinj Monza 4QT		-35	+65	-	-	-	UHF Transponder, rectangular, on-metal, FCC	6060819
	27 x 6 x 27 mm ³	Impinj Monza 4QT		-35	+85	-	-	-	UHF Transponder, square, on-metal, global	6052186
	85,6 x 0,76 x 54 mm ³	Alien Higgs 3		-10	+50	-	-	-	UHF Transponder, ISO-card, global	6051820
	51 x 7,5 x 36,3 mm ³	Alien Higgs 3		-30	+85	+220	30 min	1,000	UHF Transponder, rectangular, on-metal & high-temp ETSI ²⁾	6060472
		Alien Higgs 3		-30	+85	+220	30 min	1,000	UHF Transponder, rectangular, on-metal & high-temp FCC ²⁾	6053159
	41 x 5,15 x 11 mm ³	NXP UCODE i2C		-40	+85	-	-	-	UHF Transponder, rectangular, on-metal & high memory, global	6054025
	110 x 0,42 x 70 mm ³	NXP UCODE G2XM		-40	+85	+220	50 min	1	UHF Transponder, rectangular, high-temp, global ²⁾	6049636
		NXP UCODE G2iM		-40	+85	+230	60 min	4	UHF Transponder, rectangular, high-temp, global ²⁾	6052355

	Dimensions (WxHxD)	IC	Max. reading distance ¹⁾ (m)							Temperature range					Type	Part no.
			RFU61x, transmitting power 25 mW (ERP) RFU62x, transmitting power 250 mW (ERP) RFU63x / 65x, transmitting power 2 W (ERP)							Temperature (constant)		Temperature (cyclical)				
			0.1	0.2	0.5	1	2	5	10	min. (°C)	max. (°C)	to (°C)	Duration	Cycles		
	65 x 45 x 8 mm ³	Quanray Q-Star 2a								-20	+85	-	-	-	UHF Transponder, rectangular, on-metal & high memory, global	6061389
	122 x 2 x 18 mm ³	Impinj Monza 4QT								-35	+85	-	-	-	UHF Transponder, rectangular, global	6068184
	85 x 10 x 21 mm ³	Impinj Monza 4E								-35	+85	-	-	-	UHF Transponder, rectangular, on-metal, global	6068580
	93 x 0.2 x 11.5 mm ³	Impinj Monza 4E								-35	+85	-	-	-	UHF Transponder, PET label, global	6065191
	33.7 x 6 x 31.1 mm ³	Impinj Monza X-8k								-40	+85	+150	1,000 h	1	UHF Transponder, rectangular, on-metal & high memory, ETSI	6066560
		Impinj Monza X-8k								-40	+85	+220	10 h	1	UHF Transponder, rectangular, on-metal & high memory, FCC	6066545
	31.7 x 4.97 x 12.8 mm ³	Alien Higgs 3								-30	+85	-	-	-	UHF Transponder, rectangular, on-metal, ETSI	6070746
		Alien Higgs 3								-30	+85	-	-	-	UHF Transponder, rectangular, on-metal, FCC	6070747
	97 mm x 0.2 x 15 mm ³	Impinj Monza 4E								-40	+85	-	-	-	UHF Transponder, paper label, global	6070051
 Illustration may differ	97 mm x 0.2 x 27 mm ³	NXP UCODE 7xm								-40	+85	-	-	-	UHF transponder, paper label	6073284

¹⁾ Data consists of theoretical values under laboratory conditions. Antenna is optimally aligned and the maximum permitted transmitting power according to ETSI EN 302208 (2 W ERP) is used. Different surface materials can influence read ranges.

²⁾ Tested in laboratory, customer qualification required.

Note about memory organization

The size of the memory in the transponder depends on the built-in IC. However, the memory organization is always the same and is composed as follows:

- TID (Transponder identnumber) – Unique number from IC manufacturer (cannot be changed)
- UII (Unique item identifier) – Used to identify the transponder (can be changed individually)
- User memory/password management (optional) – In addition to the UII, the user memory can be used to store additional information on the transponder (individually changeable)


Overview of ISO-18000-6C transponder ICs – 865-928 MHz – UHF

Manufacturer	Type	User memory	UII/EPC memory
Alien	Higgs 3	512 bit 64 bit	96 bit 496 bit
	Higgs 4	512 bit	128 bit
Impinj	Monza 4D	32 bit	128 bit
	Monza 4E	128 bit	496 bit
	Monza 4QT	512 bit	128 bit
	Monza 4i	480 bit	256 bit
	Monza 5	0 bit	128 bit
	Monza R6	0 bit	96 bit
	Monza R6-P	64 bit	128 bit
	Monza S6-C	32 bit	96 bit
	Monza X-2k	2,176 bit	128 bit
	Monza X-8k	8,192 bit	128 bit
NXP	UCODE G2iM+	640 bit 320 bit	128 bit 448 bit
	UCODE G2iL+	0 bit	128 bit
	UCODE G2XL	0 bit	240 bit
	UCODE G2XM	512 bit	240 bit
	UCODE G2iL	0 bit	128 bit
	UCODE G2iM	512 bit	256 bit
	UCODE 7	0 bit	128 bit
	UCODE 7M	32 bit	128 bit
	UCODE 7xm	1,000 bit	448 bit
	UCODE 7xm+	2,000 bit	448 bit
	UCODE 8	-	128 bit
	UCODE 8M	32 bit	96 bit
	UCODE i ² C	3,328 bit	160 bit
Quanray	Q-Star 2a	64,000 bit	240 bit
	Q-Star 56GN	2,048 bit	448 bit

RFID

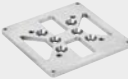







Further accessories

Storage media

	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
 Illustration may differ	MicroSD memory card with 1 GB for industrial use	4051366	●	●	●	●	●	●	●	●	●	●
	Code for activating the SICK AppSpace functions. MicroSD memory card with 1 GB for industrial use.	1076012	-	-	-	-	●	●	●	●	●	●








Mounting systems

Mounting brackets and plates





	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	VESA adapter plate, incl. assembly material	2071862	-	-	-	-	-	●	●	●	-	-
		2061688	-	-	-	-	-	-	-	-	●	●
	Mounting kit for mounting the device	2105772	-	-	-	-	●	-	-	-	-	-
	Mounting bracket	2048551	●	●	●	●	-	-	-	-	-	-
	Simple mounting bracket	2071067	-	-	-	-	-	●	●	●	-	-
	Pivot mounting bracket, incl. assembly material	2061737	-	-	-	-	-	-	-	-	●	●
	Mounting bracket for wall mounting, incl. assembly material	2060912	-	-	-	-	-	-	-	-	●	●
	Pivot mounting bracket, incl. assembly material	2080967	-	-	-	-	-	-	-	-	●	●
	Frame bracket	2071773	-	-	-	-	-	●	●	●	-	-

Terminal and alignment brackets


	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Link clamp with screws	2068919	-	-	-	-	-	●	●	●	●	●



	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Base clamp	5327611	-	-	-	-	-	●	●	●	●	●
	Solid clamp DI = 30,1 M 8*25	5327612	-	-	-	-	-	●	●	●	●	●
	Ball-and-socket bracket for mounting	2014726	-	-	-	-	-	●	●	●	-	-
	Pipe, diameter 30 mm, length 1 m	5327610	-	-	-	-	-	●	●	●	●	●
	Quick-action lock system	2016110	-	-	-	-	-	●	●	●	-	-
	Universal holder for mounting rods (diameter 12 mm)	2107110	-	-	-	-	●	-	-	-	-	-
	Sealing plug, diameter 30 mm	5327613	-	-	-	-	-	●	●	●	●	●

Universal bar clamp systems




	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Mounting bar, straight, 200 mm, steel	4056054	-	-	-	-	●	-	-	-	-	-
	Mounting bar, straight, 300 mm, steel	4056055	-	-	-	-	●	-	-	-	-	-
	Mounting bar, L-shaped, 150 mm x 150 mm, steel	4056052	-	-	-	-	●	-	-	-	-	-
	Mounting bar, L-shaped, 250 x 250 mm, steel	4056053	-	-	-	-	●	-	-	-	-	-
	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm, steel	4056056	-	-	-	-	●	-	-	-	-	-
	Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm, steel	4056057	-	-	-	-	●	-	-	-	-	-
	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	5321878	-	-	-	-	●	-	-	-	-	-

Device protection (mechanical)

	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	IP-65 sealing rubber for extension cables with 15-pin D-Sub plug connection	4038847	●	●	●	●	-	●	●	-	●	●



	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Recommended for outdoor usage.	2081800	-	-	-	-	-	-	-	-	●	-
 Illustration may differ		2080601	-	-	-	-	-	-	-	-	-	-

Other mounting accessories

	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Spacer for on-metal application with disc transponder; length 20 mm, diameter 18 mm, hole 8.2 mm, up to 120 °C	5324113	●	●	●	●	-	-	-	-	-	-
	2-part Teflon support for HF transponders, 2 x 6.2 mm holes, including (Allen) screws and spacers	2084810	●	●	●	●	-	-	-	-	-	-
	Teflon holder for high memory transponder; 2 x hole 6.2 mm	2075469	-	-	-	-	●	●	●	●	●	●

Connection systems





Power supply units and power supply cables

	Brief description	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Power supply unit with pre-assembled M12 female connector, 12-pin	2049552	-	●	-	-	-	-	-	-	-	-
	Power supply unit (Euro plug) unit with pre-assembled M12 female connector, 17-pin, dimensions (L x W x H): 102 mm x 36 mm x 53 mm	2062249	-	-	-	●	-	-	●	-	●	●




Plug connectors and cables

- **Signal type/application:** Power, serial, CAN, digital I/Os


	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x		
	Female connector, M12, 17-pin, straight, A-coded	Flying leads	17-wire, suitable for 2 A, Changed color coding of the flying leads, stripped	2 m	2081094	-	-	-	●	-	-	●	-	●	●		
				3 m	2070425	-	-	-	●	-	-	●	-	●	●		
				5 m	2070426	-	-	-	●	-	-	●	-	●	●		
				10 m	2070427	-	-	-	●	-	-	●	-	●	●		
			Suitable for 2 A, suitable for refrigeration	5 m	2075220	-	-	-	●	-	-	●	-	●	●		
	Female connector, M12, 17-pin	Flying leads	To connection module CDx (except CDB650), 2-wire	10 m	6048319	-	-	-	●	-	-	●	-	●	●		
	Female connector, M12, 12-pin, straight	Flying leads	12-wire, UL	5 m	6034605	-	●	-	-	-	-	-	-	-	-		
	Female connector, M12, 12-pin, straight, A-coded	Flying leads	Suitable for 2 A, suitable for refrigeration	5 m	2075219	-	●	-	-	-	-	-	-	-	-		
	Female connector, M12, 4-pin, straight, A-coded	Flying leads	4-wire, CE, UL	2 m	2095607	-	-	-	-	●	-	-	-	-	-		
				5 m	2095608	-	-	-	-	●	-	-	-	-	-	-	
				10 m	2095609	-	-	-	-	●	-	-	-	-	-	-	-
	Female connector, M12, 4-pin, angled, A-coded	Flying leads	4-wire, CE, UL	2 m	2095766	-	-	-	-	●	-	-	-	-	-		
				5 m	2095767	-	-	-	-	●	-	-	-	-	-	-	
				10 m	2095768	-	-	-	-	●	-	-	-	-	-	-	-
	Female connector, M12, 17-pin, straight, A-coded	Male connector, M12, 17-pin, straight, A-coded	To connection module CDB650, 17-wire, suitable for 2 A	0.9 m	6052945	-	-	-	●	-	-	●	-	●	●		
				2 m	6052286	-	-	-	●	-	-	●	-	●	●		
				3 m	6051194	-	-	-	●	-	-	●	-	●	●		
				5 m	6051195	-	-	-	●	-	-	●	-	●	●		
	Female connector, M12, 17-pin, straight, A-coded	Male connector, M12, 17-pin, straight, A-coded	Suitable for 2 A, suitable for refrigeration	2 m	6053230	-	-	-	●	-	-	●	-	●	●		
				3 m	6053231	-	-	-	●	-	-	●	-	●	●		
				5 m	6053232	-	-	-	●	-	-	●	-	●	●		
	Female connector, M12, 17-pin, straight	Male connector, D-Sub-HD, 15-pin, straight	To connection module CDx (except CDB650)	0.35 m	2056184	-	-	-	●	-	-	●	-	●	●		
				0.9 m	2049764	-	-	-	●	-	-	●	-	●	●		
				2 m	2055419	-	-	-	●	-	-	●	-	●	●		
				3 m	2055420	-	-	-	●	-	-	●	-	●	●		
				5 m	2055859	-	-	-	●	-	-	●	-	●	●		
				3 m	2061605	-	-	-	●	-	-	●	-	●			
	Female connector, M12, 12-pin, straight	Male connector, D-Sub-HD, 15-pin, straight	To connection module CDx (except CDB650)	0.35 m	2047698	-	●	-	-	-	-	-	-	-	-		
				0.9 m	2042916	-	●	-	-	-	-	-	-	-	-	-	-
				2 m	2041834	-	●	-	-	-	-	-	-	-	-	-	-
				3 m	2042914	-	●	-	-	-	-	-	-	-	-	-	-
				5 m	2042915	-	●	-	-	-	-	-	-	-	-	-	-
				3 m	2061604	-	●	-	-	-	-	-	-	-	-	-	-





	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Female connector, D-Sub-HD, 15-pin, straight	Flying leads	Extension cable, 15-wire, AWG26	2 m	2043413	●	-	●	-	-	●	-	-	-	-
 Illustration may differ	Female connector, D-Sub-HD, 15-pin, straight	Male connector, D-Sub-HD, 15-pin, straight	Extension cable, 15-wire, AWG26	2 m	6054331	●	●	●	●	-	●	●	-	●	●
				3 m	6054332	●	●	●	●	-	●	●	-	●	●
	Female connector, D-Sub-HD, 15-pin, straight	Male connector, D-Sub-HD, 15-pin, straight	Extension cable, 15-wire, AWG26	3 m	6034418	●	●	●	●	-	●	●	-	●	●
	Female connector, D-Sub, 9-pin, straight	Female connector, D-Sub, 9-pin, straight	For PC connection	3 m	2014054	●	●	●	●	-	●	●	-	●	●

• Signal type/application: Power


	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x	
	Cable	Flying leads	Black AS-i flat cable for looping in the power supply to 4Dpro Ethernet sensors, 2-wire, by the meter, For use with connection clip 6022472	-	6022463	-	●	-	●	●	-	●	-	-	-	
	Connection clip, M12	-	AS-i clip for connection on black AS-i flat cable	-	6022472	-	●	-	●	●	-	●	-	-	-	
	Female connector, M12, 12-pin, straight	Male connector, M12, 4-pin, straight	For connecting connection clip (part no. 6022472) for power supply to AS-i flat cable (part no. 6022463)	1 m	6044572	-	●	-	-	-	-	-	-	-	-	
				2.5 m	6044573	-	●	-	-	-	-	-	-	-	-	-
	Female connector, M12, 17-pin, straight	Male connector, M12, 4-pin, straight	For connecting connection clip (part no. 6022472) for power supply to AS-i flat cable (part no. 6022463)	1 m	6044574	-	-	-	●	-	-	●	-	-	-	-
				2.5 m	6044575	-	-	-	●	-	-	●	-	-	-	-

• Signal type/application: Ethernet



	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Male connector, M12, 4-pin, D-coded	Male connector, M12, 4-pin, D-coded	4-wire, twisted pair	2 m	6034420	-	●	-	●	-	-	●	-	●	●
				3 m	6034421	-	●	-	●	-	-	●	-	●	●
				5 m	6034422	-	●	-	●	-	-	●	-	●	●

	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
			4-wire, twisted pair, AWG26	2 m	6034414	-	●	-	●	-	-	●	-	●	●
				3 m	6044400	-	●	-	●	-	-	●	-	●	●
				5 m	6034415	-	●	-	●	-	-	●	-	●	●
				10 m	6030928	-	●	-	●	-	-	●	-	●	●
				20 m	6036158	-	●	-	●	-	-	●	-	●	●
 Illustration may differ	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, Ecolab, AWG26	2 m	6050198	-	●	-	●	-	-	●	-	●	●
				3 m	6050199	-	●	-	●	-	-	●	-	●	●
				5 m	6050200	-	●	-	●	-	-	●	-	●	●
				10 m	6050201	-	●	-	●	-	-	●	-	●	●
				20 m	6050596	-	●	-	●	-	-	●	-	●	●
			4-wire, CAT5, CAT5e	5 m	6054493	-	●	-	●	-	-	●	-	●	●
				10 m	6054492	-	●	-	●	-	-	●	-	●	●
				20 m	6050685	-	●	-	●	-	-	●	-	●	●
	Male connector, M12, 8-pin, straight, X-coded	Male connector, RJ45, 8-pin, straight	8-wire, twisted pair, AWG26	0.5 m	6049726	-	-	-	-	●	-	-	●	-	-
				1 m	6049727	-	-	-	-	●	-	-	●	-	-
				2 m	6049728	-	-	-	-	●	-	-	●	-	-
				5 m	6049729	-	-	-	-	●	-	-	●	-	-
				10 m	6049730	-	-	-	-	●	-	-	●	-	-



• **Signal type/application:** PROFINET

	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
 Illustration may differ	Male connector, M12, 4-pin, straight, D-coded	Male connector, RJ45, 8-pin, straight	4-wire, CAT5, CAT5e	5 m	6053217	-	●	-	●	-	-	●	-	●	●



• **Signal type/application:** Sensor/actuator cable

	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Female connector, M8, 4-pin, straight, A-coded	Male connector, M8, 4-pin, straight, A-coded	4-wire, UL	0.6 m	2096346	-	-	-	-	●	-	-	-	-	-
				2 m	2096347	-	-	-	-	●	-	-	-	-	-
				5 m	2096348	-	-	-	-	●	-	-	-	-	-
	Female connector, M8, 4-pin, straight, A-coded	Male connector, M12, 4-pin, straight, A-coded	4-wire, UL	0.6 m	2096135	-	-	-	-	●	-	-	-	-	-
				2 m	2096136	-	-	-	-	●	-	-	-	-	-
				3 m	2100803	-	-	-	-	●	-	-	-	-	-
				5 m	2096137	-	-	-	-	●	-	-	-	-	-
				10 m	2100804	-	-	-	-	●	-	-	-	-	

• **Signal type/application:** USB 2.0, RS-232















	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Male connector, USB-A	Male connector, Micro-B	-	2 m	6036106	-	-	-	-	●	●	●	●	●	●
	Male connector, D-Sub, 9-pin, straight	Male connector, USB-A, straight	Converter RS-232 to USB (if no RS-232 interface is available with the PC)	-	6042499	●	●	●	●	-	●	●	-	●	●

• **Signal type/application:** HF analog

	Connection type head A	Connection type head B	Cable	Length of cable	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x	
	Male connector, N, straight	Male connector, TNC, straight	Antenna connecting cable, power loss 1.5 dB	2 m	6050967	-	-	-	-	-	-	-	-	●	-	
			Antenna connecting cable, power loss 2.5 dB	5 m	6039548	-	-	-	-	-	-	-	-	-	●	-
			Antenna connecting cable, power loss 3.5 dB	10 m	6050968	-	-	-	-	-	-	-	-	-	●	-
	Female connector, TNC	Female connector, TNC	Antenna connecting cable, power loss 1.5 dB	2 m	6049780	-	-	-	-	-	-	-	-	●	-	
			Antenna connecting cable, power loss 2.5 dB	5 m	6049781	-	-	-	-	-	-	-	-	-	●	-
			Antenna connecting cable, power loss 3.5 dB	10 m	6049782	-	-	-	-	-	-	-	-	-	●	-

4DproConnectivity

Modules

	Brief description	Type	Part no.	RFH620 cable	RFH620 Ethernet	RFH630 cable	RFH630 Ethernet	RFU61x	RFU62x cable	RFU62x Ethernet	RFU62x PoE	RFU63x	RFU65x
	Small connection module for one sensor, 4 cable glands, base for CMC600	CDB620-001	1042256	●	●	●	●	-	●	●	-	-	-
	Small connection module for one sensor, 2 cable glands, 2 x M12 connector/socket for CAN, base for CMC600	CDB620-101	1042257	●	●	●	●	-	●	●	-	-	-
	Small connection module for a sensor, 5 cable glands, socket for CMC cloning module	CDB620-201	1042258	●	●	●	●	-	●	●	-	-	-
	Connection device basic for connecting one sensor with 2 A fuse, 5 cable glands and RS-232 interface to sensor via M12, 17-pin female connector, all outputs available on screw/spring-loaded terminals.	CDB650-204	1064114	-	-	-	●	-	-	●	-	●	●
	Fieldbus proxy/gateway for connecting a sensor to EtherCAT networks	CDF600-0300	1052291	●	●	●	●	-	●	●	-	-	-
	Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 2 x M12, male connector/female connector, 5-pin)	CDF600-2100	1058965	●	●	●	●	-	●	●	-	●	●
	Fieldbus proxy/gateway for connecting identification sensors to PROFIBUS-DP networks (PROFIBUS interface: 1 x D-Sub, female connector, 9-pin)	CDF600-2103	1058966	●	●	●	●	-	●	●	-	●	●
	Fieldbus proxy/gateway for connecting one identification sensor to PROFINET-IO networks (interface 2 x M12, female connector/female connector, 4-pin)	CDF600-2200	1062460	●	●	●	●	-	●	●	-	●	●
	Fieldbus proxy/gateway for connecting an identification sensor to PROFINET IO networks (interface 2 x RJ45 AIDA, female/female connector, 4-pin)	CDF600-2201	1063390	●	●	●	●	-	●	●	-	●	●
	Modular connection module for one sensor	CDM420-0001	1025362	●	●	●	●	-	●	●	-	-	-
	Modular connection module for two sensors	CDM420-0004	1028487	●	●	●	●	-	●	●	-	-	-
	Modular connection module for one sensor, 2 A fuse	CDM420-0006	1058634	●	●	●	●	-	●	●	-	●	●
	Modular connection module for two sensors, 2 A fuse	CDM420-0007	1060324	●	●	●	●	-	●	●	-	●	●
	Kit: modular connection module for one sensor, 2 A fuse, Host and AUX interface available on face plate, power supply CMP490, US power cord	CDM420-0108	1064248	●	●	●	●	-	●	●	-	●	●

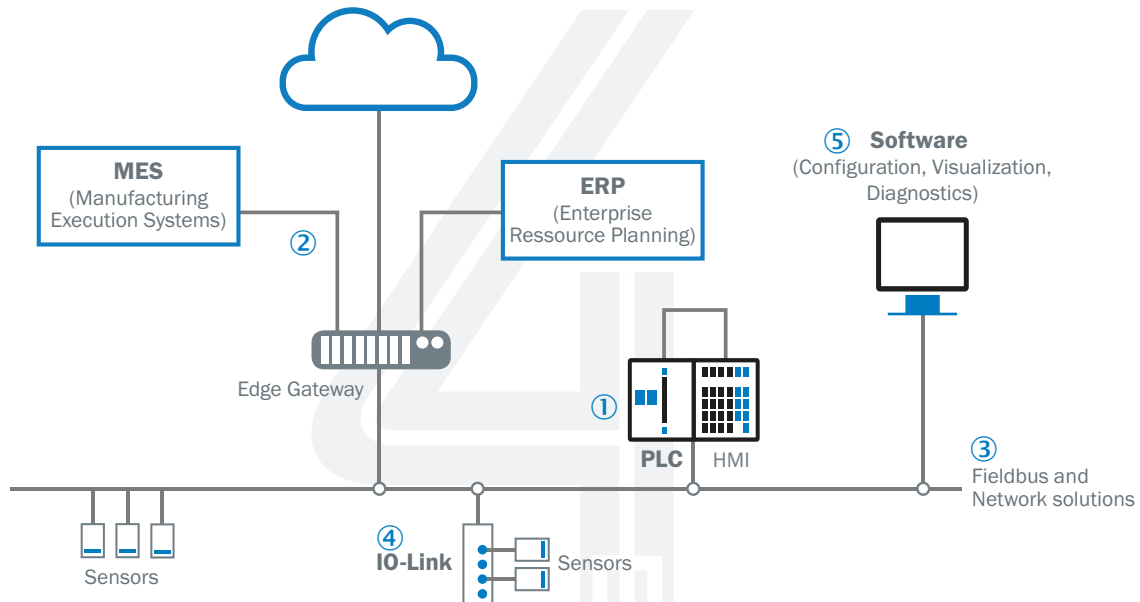
Recommended services

Brief description	Typ	Artikelnr.
Warranty extensions		
<ul style="list-style-type: none"> Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase), long-term protection for calculable lump sum Duration: Five-year warranty from date of purchase. 	Five-year extended warranty	1680671
Commissioning		
<ul style="list-style-type: none"> Range of services: Inspection of connection, alignment, optimization of parameters of the RFU/RFH as well as verification tests, setup of previously defined functions of reading configuration, data processing and network, interfaces and inputs and outputs Documentation: Archiving of product parameters in a SICK database, documentation of reading rate, creation of a commissioning log Duration: Additional work will be invoiced separately based on time spent Note: The prices do not include expenses or costs for the travel time 	Commissioning RFU/RFH	1610018
Maintenance		
<ul style="list-style-type: none"> Range of services: Inspection, analysis and restoring of defined functions, checking and adjustment of reading configuration, data processing, network, interfaces and inputs and outputs as well as operating data Documentation: Documentation of operating hours and archiving of parameters in a SICK database, documentation of the read rate, for RFU log file with parameters such as RSSI, TxPwr, CS and reading gate duration, creation of a maintenance log Duration: Additional work will be invoiced separately based on time spent Note: The prices do not include expenses or costs for the travel time 	Maintenance RFU/RFH	1611424
Training		
<ul style="list-style-type: none"> Range of services: SICK offers training courses for numerous target groups ranging from basic to expert levels, the training format and location can be worked out in collaboration with SICK Duration: 1 d Note: A minimum and maximum number of participants is determined based on the training format, depending on the training format, content and location, a training course may take place over the course of one or more work days 	Training UHF RFID read/write devices	1682671

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