



MACHINE BUILDING



PROCESS AUTOMATION



ENERGY



TRANSPORTATION



HAZARDOUS LOCATIONS



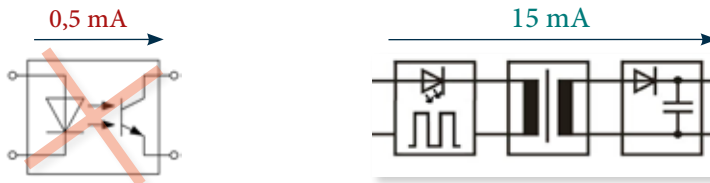
**Solid State I/O-relays**  
with Pulse Transformer Technology

# Solid State Relay, but not an optocoupler...

## Pulse Transformer Technology

- No minimum load requirement
- Extremely low leakage current

Delcon uses a pulse transformer instead of optocoupler for transmission of the signal from the primary to the secondary side and to provide 4600 VAC galvanic isolation between the field and controller sides of the relay.



Our technology enables a high energy transfer over the isolation (15 mA compared to optocouplers 0,5 mA). It means supply side control signal can be used to drive switching component (triac, MOSFET etc.) directly without an additional amplification circuit. It also allows the use of heavy duty output components of highest quality.

This design is radically different from optocoupler relays and modules in which the energy for the switching circuit is taken from the load circuit, which leads to many drawbacks such as minimum load requirement, leakage current, sensitivity to load line spikes etc.

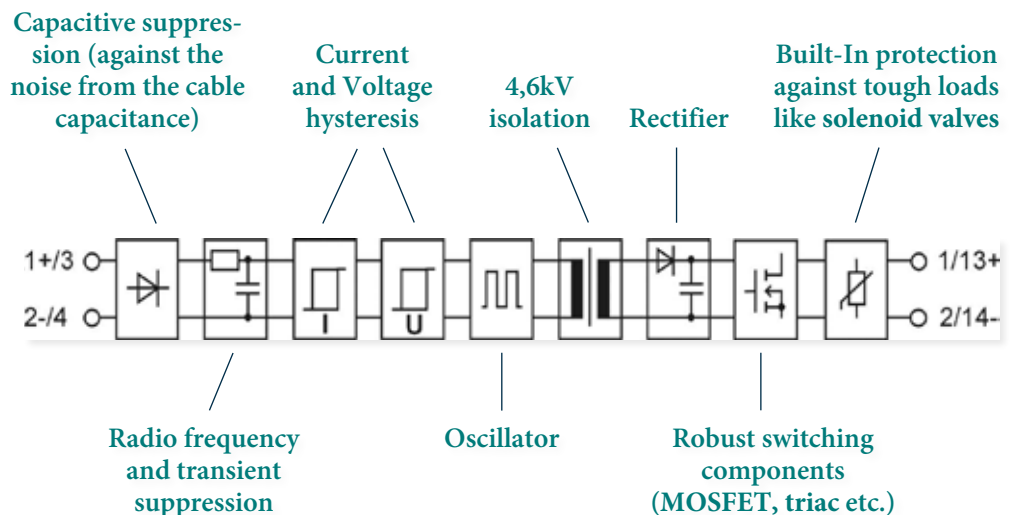
## Built-in circuits and filters

Additionally Delcons Relays include:

1. Suppression circuits on a signal sides to ensure that they work correctly in industrial areas with high interference levels originated by cable capacitance
2. Built-in protection (varistor, diode, RC-circuit etc.) for the switching component to extend reliability and life time even more



Capacitive noise leaking between cables/wires and inner capacitance of long AC-signal cables are commonly acknowledged problems in industry





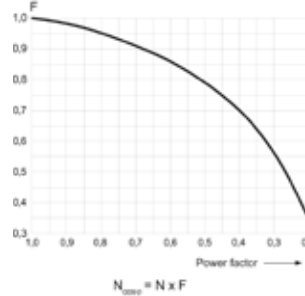
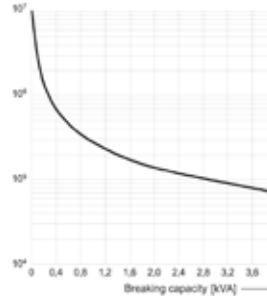
# Delcon relays cost, waste and stress less

**EXAMPLE:**

Load is 3A/240VAC/cosφ 0.4  
Application is running 600 cycles/hour, 8h every weekday  
and it is budgeted to run at least 10 years



## 1. Electro-mechanical relay



260 days x 8 hours x 600 cycles  
= 1 250 000 cycles/year

Electrical life with this load is 280 000 cycles,  
which means, one relay lasts  
280 000 / 1250000 = 0,224 years

To avoid production stops the relay should be  
changed at least 4 times/year

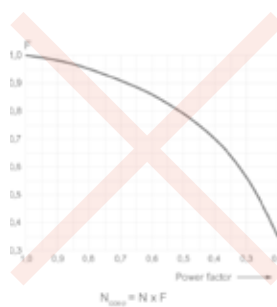
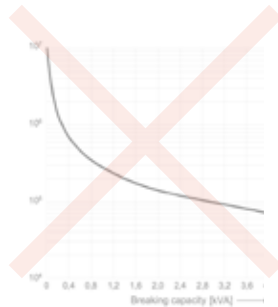
Mechanical life  $3 \times 10^7$   
cycles

With resistive load (0,72kVA)  
electrical life 400 000 cycles

With inductive load cosφ 0.4  
 $0,7 \times 4 \times 10^5 = 280 000$  cycles

**Relays needed: 40 pcs**

## 2. Delcon Relay



Electrical life is not depended on number of  
cycles. MTTF value tells calculatory life time  
based on the components in the relay.

Delcon gives this relay 10-year warranty, so  
min. life time is 10 years

Hence, to avoid production stops the relay  
should be changed once every 10 years

Mechanical life unlimited  
MTTF (MIL-HDBK-217F)  
3 700 000 hours = 422 years

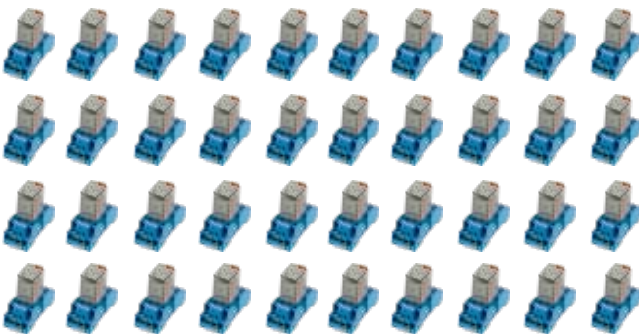
Electrical life is not depended  
on number of cycles

Inductive loads don't shorten  
life time of triac outputs

**Relays needed: 1 pc**

### 1. Electro-mechanical relay

Number of relays used **40**



Initial cost of the relay + 39 x cost of the relay +  
freight & stocking + maintenance labour & produc-  
tion downtime when replacing the relay (+ possi-  
ble production stoppage costs because of the relay  
failure)

### 2. Delcon Relay

Number of relays used **1**



**ONLY THE INITIAL COST OF THE  
RELAY**

**39 TIMES LESS PLASTIC AND OTHER  
TOXIC WASTE**

**NO PRODUCTION STOPPAGES OR  
ADDITIONAL MAINTANENCE WORK  
CAUSED BY THE RELAY**

**NO NEED TO KEEP EXCESSIVE  
AMOUNT OF SPARE PARTS**

## Our I/O concept

### Output relays:

- Controlled by PLC Output card
- Switch bigger AC- and DC-loads
- Relay output ('contacts') connected to pumps, solenoids, fans, contactors, motors etc.
- Max. 4 A / 350 V DC or 3 A / 415 V AC



8- or 16-relays with quick connection to the PLC



Single relays



FIELD: 120/230 VAC  
24/48/125/250 VDC



4 kV

Dielectric Strength according to UL and Overvoltage Category IV PN-EN 60664-1 standard

### Input relays:

- Signals from sensors, limit switches etc. 24..250 V DC / 24..400 V AC
- Built-in filters block electrical noise and prevent malfunction
- Relay output ('contacts') connected to PLC Input card, max. 50 mA / 5 - 24 V DC



8- or 16-relays with quick connection to the PLC



Single relays



Delcon relays' unbeatable quality is assured by both management's and employer's full commitment to follow our high quality standards in every step in our daily work

We are using ISO 9001:2015 CERTIFIED QUALITY SYSTEM



QUALITY & WARRANTY





10-year warranty

We guarantee the robustness of our relays, even in tough conditions. Our relays come with a 10-year warranty that covers the cost of a faulty relay and delivery costs. You will find individual warranty details for each product on the product data sheet.



# Stop wasting money for the second best

## Our mission is to build the best I/O-relays in the World!

“We have developed our own I/O-relay concept based on an unique design and up-to-date component technology.”

Delcon was founded in 1975 as a specialized manufacturer of solid state I/O-relays. Our relay design utilizes pulse transformer technology which gives unique advantages over traditional opto coupler based solid state relays and electro-mechanical relays. This technology helps to ensure a long lifetime and trouble free performance also in harsh industrial applications,

where difficult loads, electrical noise and interference via cross-talk can cause big problems.

Delcon has distributors in 40 countries. The largest customer segments are the energy industry, cargo handling at ports, railways and the pulp and paper industry.

We work for culture of integrity and ethical working environment and we take into account our ecological footprint in our production and development.



Delcon's customers include a number of companies that are market leaders in their own fields:

**BOMBARDIER** **Valmet** 



  
**BILLERUDKORSNÄS**



**BROMMA**

**KONEGRANES**  
Lifting Businesses™





**Malfunction due to cable capacitance**

**LED shines although control is off**

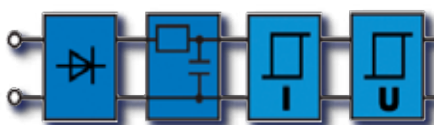
**Problem**

- Power cables installed adjacent to signal cables, especially over long cable runs, create a capacitive effect that can cause opto coupler/ electro mechanical relays to switch on or remain on after the control signal switches off
- Transients in the power supply causes damage to relay coils/opto coupler relays
- Interference from frequency inverters can provide false on/off switching

**Delcon Solution**

Delcon relays have built in

- Capacitive suppression to allow safe, reliable operation even with very long cable runs
- RC-circuit to protect the relays from transients and high frequency interference



**Problem**

- Electrical disturbances/noises can cause the LED indicator of the opto couplers / electromechanical relays to glow when the relay is switched off and no input signal present
- This makes it difficult to quickly diagnose faults and rectify problems

**Delcon Solution**

- Delcon relays **LED is synchronized** with the output so it is impossible for it to glow without relay being on at the same time
- In addition relays have good hysteresis with clearly defined on/off points to secure reliable operation also in high noise environments





# LONG LIFETIME



## Inductive loads break relays

## Relays break due to high DC-voltage

### Problem

- Contactors and solenoid valves are problematic inductive loads for electromechanical relays to handle
- Contacts weld --> Short lifetime

### Delcon Solution

- Delcon AC-output relays are rated at 3A and can switch inductive loads without any derating
- Delcon DC output relays have no derating up to 24Vdc and thereafter still offer significantly less derating compared to electromechanical relays

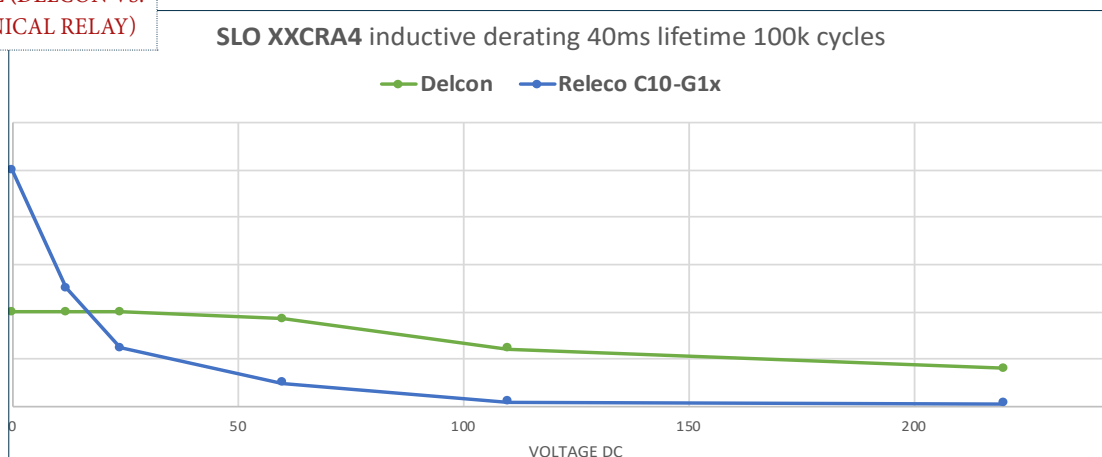
### Problem

- Reduced switching capacity --> electromechanical relays are significantly derated at higher DC-voltages
- Usually require special version relays that are physically bigger, take up more space, are very expensive and have long lead times

### Delcon Solution

- Delcon DC-output relay types CRA & CRA4 can switch up to 300Vdc with no derating compared to electromechanical relay and in a smaller package (0,5 inch width)
- Example SLO24CRA4 (25\$) switching 40ms inductive load at 3A/110VDC will give service life of 10 years or more

### EXAMPLE (DELCON VS. MECHANICAL RELAY)



## Standard Products




Product	Function: Normally-open operation, SPST-NO, 4,6kV isolation, capacitive noise filtering, built-in protection for output	Control 'coil' voltage	Load voltage	Max. current	Image
SLI12CR	Between sensors/switches & PLC	12 VDC	0...60 VDC	50 mA	
SLI24CR	Between sensors/switches & PLC	24 VDC	0...60 VDC	50 mA	
SLI24CRF	Between sensors/switches & PLC, up to 10kHz	24 VDC	0...60 VDC	50 mA	
SLI48CR	Between sensors/switches & PLC	48 VDC	0...60 VDC	50 mA	
SLI125CR	Between sensors/switches & PLC	120 VDC	0...60 VDC	50 mA	
SLI250CR	Between sensors/switches & PLC	250 VDC	0...60 VDC	50 mA	
SLI25CR	Between sensors/switches & PLC	24 VAC	0...60 VDC	50 mA	
SLI49CR	Between sensors/switches & PLC	48 VAC	0...60 VDC	50 mA	
SLI120CR	Between sensors/switches & PLC	120 VAC	0...60 VDC	50 mA	
SLI120CRI	NC-operation (SPST-NC)	120 VAC	0...60 VDC	100 mA	
SLI120CRP	2-wire proxy & PLC, up to 3,5mA leakage from switch	120 VAC	0...60 VDC	50 mA	
SLI230CR	Between sensors/switches & PLC	230 VAC	0...60 VDC	50 mA	
SLI230CRI	NC-operation (SPST-NC)	230 VAC	0...60 VDC	100 mA	
SLI230CRP	2-wire proxy & PLC, up to 3,5mA leakage from switch	230 VAC	0...60 VDC	50 mA	
SLO24COA	Change-over contacts (SPDT-CO)	24 VDC	0...265 VDC	0,8 A	
SLO5CR	Resistive loads	5 VDC	0...60 VDC	3 A	
SLO12CR	Resistive loads	12 VDC	0...60 VDC	3 A	
SLO24CRA4	MOSFET output for Solenoid Valves	24 VDC	0...250 VDC	4 A	
SLO24CRX	Resistive loads	24 VDC	0...28 VDC	10 A*	
SLO48CRA4	MOSFET output for Solenoid Valves	48 VDC	0...250 VDC	4 A	
SLO120CRA4	MOSFET output for Solenoid Valves	120 VDC	0...250 VDC	4 A	
SLO220CRA4	MOSFET output for Solenoid Valves	220 VDC	0...250 VDC	4 A	
SLO5TR	Inductive & resistive AC-loads	5 VDC	0...240 VAC	3 A	
SLO12TR	Inductive & resistive AC-loads	12 VDC	0...240 VAC	3 A	
SLO24IRA	For AC/DC loads, 1 kHz switching	24 VDC	0...240 VAC/ 250 VDC	1,2 A	
SLO24TR	Inductive & resistive AC-loads	24 VDC	0...240 VAC	3 A	
SLOP120TR	Inductive & resistive AC-loads	120 VAC	0...240 VAC	3 A	
SLOP230TR	Inductive & resistive AC-loads	230 VAC	0...240 VAC	1,5 A	
MIS1GN	DIN-rail socket for SLI-relays	Screw Terminals		8,3 A	
MOS1GN	DIN-rail socket for SLO-relays	Screw Terminals		8,3 A	
MIS1CCN	DIN-rail socket for SLI-relays	Tension Clamp		8,3 A	
MOS1CCN	DIN-rail socket for SLO-relays	Tension Clamp		8,3 A	
MOS1CO	DIN-rail socket for SLO24COA -relay	Screw Terminals		8,3 A	
Jumper 8-13	8-pin cross connecting bar				
Jumper 16-13	16-pin cross connecting bar				

\*) 8,3A with standard pluggable socket, 10A when the relay is pre-soldered into the DIN-rail socket (Product: SLO24CRXSN).



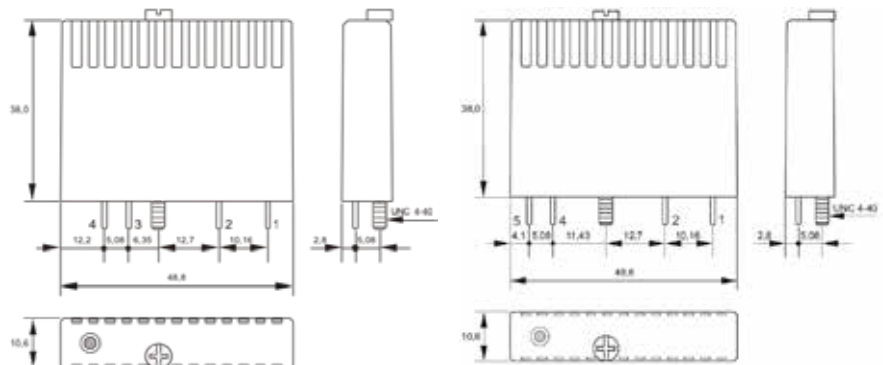



## Easy connections to the PLC

Product	Description	Type	Function	Max. current	Image
MBS8BIOP	Mounting base for 8-relays	Screw Terminals	For quick & secure connection to the PLC	8,3 A	
RC10X-xxx	10-pole connection cable	Flat cable connector to MBS8BIOP	Color coded single wires with ferrules to the PLC		
MBS16BIOP	Mounting base for 8-relays	Screw Terminals	For quick & secure connection to the PLC	8,3 A	
RC20X-xxx	20-pole connection cable	Flat cable connector to MBS16BIOP	Color coded single wires with ferrules to the PLC		

## G4 compatible relays (Compatible with 'G4' -pinning relays from other suppliers like OPTO22, Crydom, Grayhill etc.)

- No limited lifetime even with difficult loads, 3 year warranty
- High tolerance against noises
- Guaranteed switching on- and off-levels
- 100 % clear integrated status indication
- Breakdown voltage Input/Output 4300 VAC rms
- Works from zero loads upwards
- For resistive and slightly inductive loads
- CE (EMC and LVD)



Product	Function (Normally-open operation, SPST-NO)	Control 'coil' voltage	Load voltage	Max. current	Image
GLI120CRP	Between sensors/switches & PLC	120 VAC	0...60 VDC	50 mA	
GLI230CRP	2-wire proximity switches	230 VAC	0...60 VDC	50 mA	
GLI24CRB	Between sensors/switches & PLC	24 VDC	0...60 VDC	50 mA	
GLO5CR	Resistive DC-loads	5 VDC	0...60 VDC	3 A	
GLO5TR	Resistive & Inductive AC-loads	5 VDC	0...265 VAC	2,5 A	

# SLO-relays for A size loads

## DC or AC -control, AC-load



### Typically used:

- Interface relay between PLC and field apparatus
- Control of pumps, solenoids, fans, contactors etc
- Capable of switching both resistive and inductive AC-loads

### Main features:

- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- 10-year warranty
- cULus Listed, CE (EMC and LVD)
- Integrated status LED

## General description

The relays can handle inductive loads without load current reduction, which makes them very suitable for connection to, for example, solenoid valves and contactors. The relays have no mechanical parts, which means very reliable application.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for

more than 1.5 km without capacitive cross-talk affecting relays. The SLOP models are especially designed for connection to 2-wire sensors that produce leakage current. The relays are blind to leakage currents up to 3.5mA.

For forward/reverse control of AC-motors, the SLO24TRA is recommended. The relay has a higher operating voltage and withstands regenerated voltages from motors.

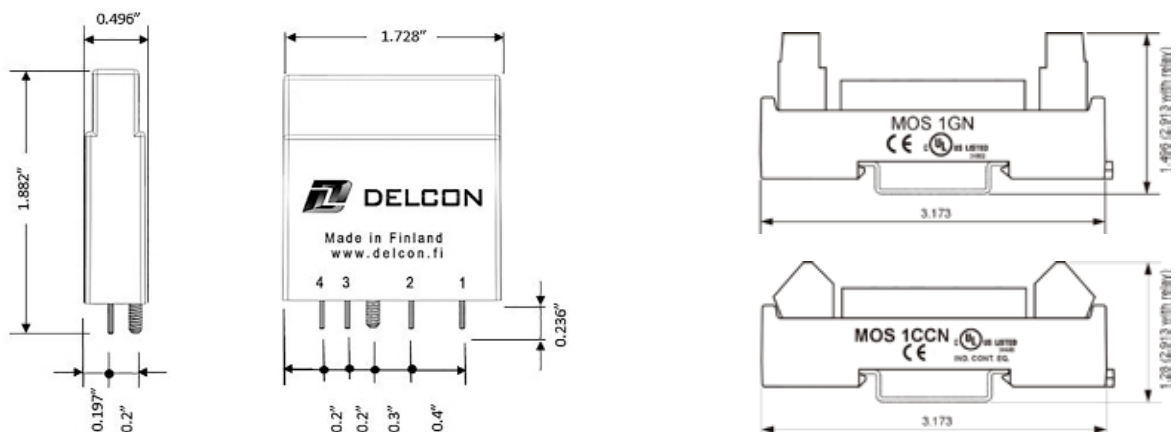
### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		SLO5TR	SLO24TR	SLO24IRA	SLOP120TR	SLOP230TR	SLO24TRA
Input voltage	nom.	5 V DC	24 V DC	24 V DC	120 V AC	230 V AC	24 V DC
Input voltage	max.	7 V DC	32 V DC	32 V DC	140 V AC	265 V AC	32 V DC
Power consumption	max.	17 mA	17 mA	15 mA	6 mA	6 mA	17 mA
Input impedance	typical	0.3 kΩ	1.6 kΩ	2 kΩ	24 kΩ	46 kΩ	1.4 kΩ
Activation voltage	typical	2.7 V DC	16 V DC		80 V AC	170 V AC	16 V DC
Drop-out voltage	typical	2.5 V DC	14 V DC		65 V AC	110 V AC	14 V DC
Drop-out current					3 mA	3 mA	
SECONDARY CIRCUIT							
Load voltage	max.	0-265 V AC		0-265 V AC 0-300 V DC	0-265 V AC		0-265 V AC motor loads 0-460 V AC static loads
Voltage drop at max. load	typical	1 V		1.5 V	1 V		
Load current	max.	3 A		1.2 A	3 A	1.5 A	2.5 A
Peak current, max. 20 ms		90 A		8 A	90 A		65 A
Leakage current	typical	2 mA	50 μA		2 mA		50 μA
Activation time	typical	0.5 ms		0.3 ms	10 ms		0.5 ms
Drop-out time	typical	11 ms		0.3 ms	20 ms		11 ms
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)					

More types with various control voltages, loads and additional features available. See [www.delcon.fi](http://www.delcon.fi)

### Dimensions:





# SLO-relays for A size loads

## DC-control, DC-load



### Typically used:

- Control of solenoid valves, heaters, lighting, fans, pumps, motors etc.
- High DC voltage applications such as power network control equipment and control systems for hydroelectric generators
- For both resistive and inductive loads

### Main features:

- Galvanic isolation 4 kV, 8 mm creep distance
- 10-year warranty
- cULus Listed, CE (EMC and LVD)
- Integrated status LED

## General description

The relays handle inductive loads and high DC-voltages with low load reduction compared to mechanical relays, which provide a long lifetime. If a diode is mounted across a load, such as 1N4007, the nominal current applies, even with high inductive loads (Keep in mind that the drop-out time increases when mounting a diode).

The relays have no mechanical parts, which means very

reliable application.

The integrated interference protection provides reliable operation even in very demanding electrical environments. Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for more than 1.5 km without capacitive cross-talk affecting relays.

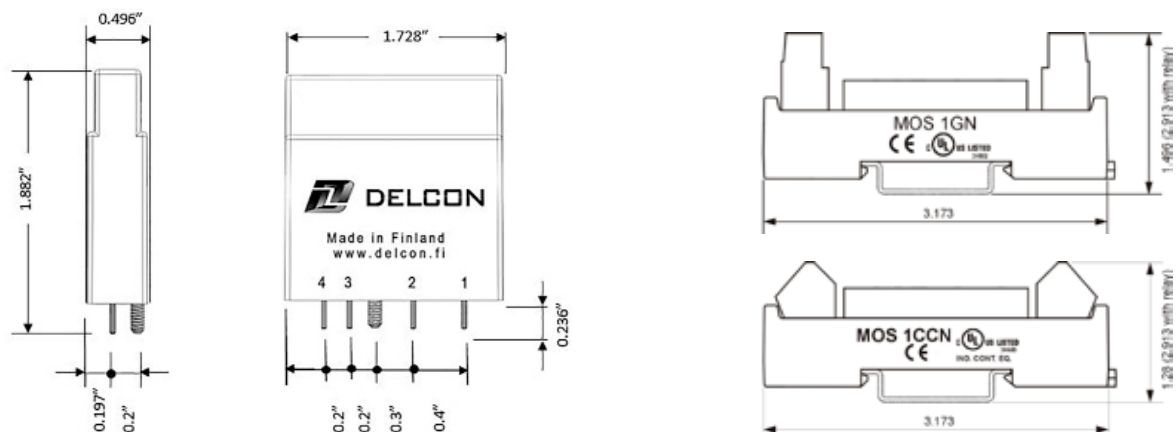
### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		SLO5CR	SLO24CR	SLO24CRA	SLO24CRA4	SLO24CRX	SLO48CRA4	SLO120CRA4	SLO220CRA4	SLO24COA	
Input voltage	nom.	5 V DC	24 V DC				48 V DC	120 V DC	220 V DC	24 V DC	
Input voltage	max.	15 V DC	32 V DC				60 V DC	140 V DC	250 V DC	32 V DC	
Power consumption	max.	15 mA				4 mA			10 mA		
Input impedance	typical	420 kΩ	2 kΩ				13 kΩ	34 kΩ	63 kΩ	2.4 kΩ	
Activation voltage	typical	2.7 V DC	16 V DC				30 V DC	80 V DC	170 V DC	15 V DC	
Drop-out voltage	typical	2.5 V DC	14 V DC				25 V DC	60 V DC	120 V DC	12 V DC	
SECONDARY CIRCUIT											
Load voltage	max.	0-60 V DC		0-300 V DC		0-32 V DC	0-300 V DC			0-265 V DC	
Voltage drop at max. load	typical	0.5 V DC		1.5 V DC	0.8 V DC	0.4 V DC	0.6 V DC	0.8 V DC		0.4 V DC	
Load current	max.	3 A		1.8 A	4 A	10 A	4 A			0.8 A	
Peak current max. 10 ms		15 A		12 A	20 A	80 A	20 A			12 A	
Activation time	typical	0.3 ms				0.5 ms					
Drop-out time	typical	0.3 ms				0.5 ms					
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)									

More types with various control voltages, loads and additional features available. See [www.delcon.fi](http://www.delcon.fi)

### Dimensions:





## SLI-relays, mA size loads (PLC input) AC-control, DC-load



### Typically used:

- To separate/adapt signals between sensors, limit switches etc. and PLC
- To prevent malfunction caused by electrical noise & interference via cable capacitance (typical when cabling/wiring exceeds 200 yards)
- To prevent malfunction caused by the leakage current from 2-wire proximity switches

### Main features:

- Built-in interference elimination filters
- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- Cost effective output (50 mA) connected typically to the PLC Input card
- Compatible with NPN/PNP logic
- cULus Listed, CE (EMC and LVD)
- Integrated status LED

## General description

The relays are used as an interface between AC sensors and control systems. The integrated interference protection provides reliable operation even in very demanding electrical environments.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for

more than 1.5 km without capacitive cross-talk affecting relays. The relays have no mechanical parts, which provides very reliable application.

The CRP models are especially designed for connecting to 2-wire sensors that generate leakage current. The CRP relays are blind to leakage currents up to 3.5 mA.

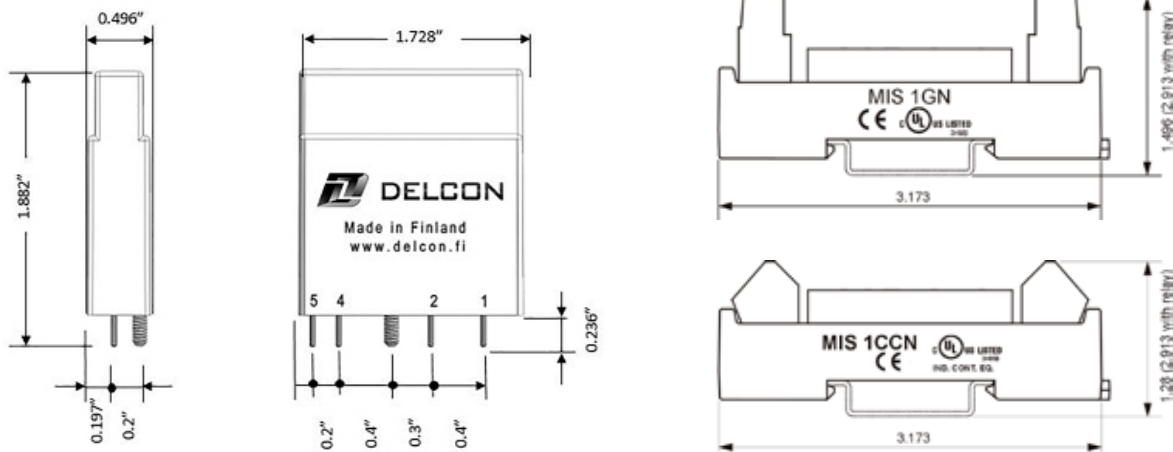
### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		SLI25CR	SLI120CR	SLI120CRP	SLI230CR	SLI230CRP	SLI400CRS*
Input voltage	nom.	24 V AC	120 V AC		230 V AC		400 V AC
Input voltage	max.	32 V AC	140 V AC		265 V AC		440 V AC
Power consumption	max.	15 mA	7 mA	8 mA	6 mA	7.5 mA	5 mA
Input impedance	typical	2 kΩ	20 kΩ	17 kΩ	45 kΩ	35 kΩ	80 kΩ
Activation voltage	typical	16 V AC	80 V AC		170 V AC		320 V AC
Drop-out voltage	typical	14 V AC	60 V AC		110 V AC	140 V AC	220 V AC
Drop-out current	typical			3.5 mA		3.5 mA	
SECONDARY CIRCUIT							
Load voltage	max.	0-60 V DC					
Voltage drop at max. load	typical	0.2 V DC					
Load current	max.	50 mA					
Activation time	typical	20 ms	50 ms	20 ms	50 ms	40 ms	50 ms
Drop-out time	typical	60 ms	50 ms	40 ms	50 ms	40 ms	50 ms
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)					

\*The socket is securely fitted to the relay.

### Dimensions:





## SLI-relays for mA size loads (PLC input) DC-control, DC-load

### Typically used:

- To separate/adapt DC-signals between sensors, limit switches etc. and PLC
- To prevent malfunction caused by electrical noise & interference via cable capacitance (typical when cabling/wiring exceeds 200 yards)
- To prevent malfunction caused by the leakage current from 2-wire proximity switches

### Main features:

- Built-in interference elimination filters
- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- Cost effective output (50 mA) connected typically to the PLC Input card
- Compatible with NPN/PNP logic
- cULus Listed, CE (EMC and LVD)
- Integrated status LED

## General description

The relays are used as an interface between DC sensors and control systems. The integrated interference protection provides reliable operation even in very demanding electrical environments.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for more

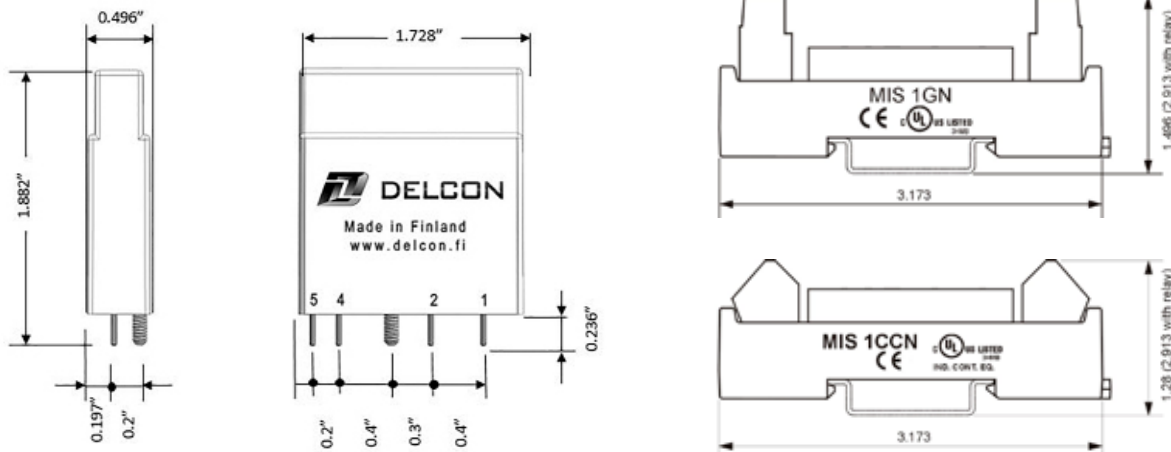
than 1.5 km without capacitive cross-talk affecting relays. The relays have no mechanical parts, which provides very reliable application. If high frequencies occur from sensors for counting inputs, for example, we recommend SLI24CRF.

### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		SLI12CR	SLI24CR	SLI24CRF	SLI48CR	SLI125CR	SLI250CR
Input voltage	nom.	12 V DC	24 V DC		48 V DC	125 V DC	250 V DC
Input voltage	max.	18 V DC	32 V DC		70 V DC	140 V DC	265 V DC
Power consumption	max.	7.5 mA	7 mA	8 mA	7 mA	4.2 mA	4 mA
Input impedance	typical	1.8 kΩ	4 kΩ		8 kΩ	31 kΩ	68 kΩ
Activation voltage	typical	7.5 V DC	16 V DC		36 V DC	80 V DC	170 V DC
Drop-out voltage	typical	6 V DC	14 V DC		26 V DC	60 V DC	110 V DC
SECONDARY CIRCUIT							
Load voltage	max.	0-60 V DC					
Voltage drop at max. load	typical	0.2 V DC					
Load current	max.	50 mA					
Activation time	typical	0.3 ms		5 μs	0.3 ms	0.5 ms	
Drop-out time	typical	0.3 ms	0.5 ms	20 μs	0.5 ms		
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)					

### Dimensions:



## Ex-relays for hazardous locations



- EX-series' features are identical to SL-Series - for example SLO 24CR <-> EXO 24CH
- Color for each EX-relay type is **gray**
- 10-year warranty for all mounting bases and for most of the relay types

### Specific mounting sockets for Ex-series:

- MIS and MOS 1GNEX, with screw connectors
- MIS and MOS 1CCNEX, with cage clamp

### HazLoc

- Class I, Division 2, Groups A, B, C, D
- Class I, Zone 2, IIC
- T4 ( $T_a \leq 70^\circ\text{C}$ )

Where...

Class I = Gases and Vapors

Division 2 = Not normally present in an explosive concentration (but may accidentally exist)

Groups = A: Acetylene  
 B: Hydrogen, etc.  
 C: Ether, etc.  
 D: Hydrocarbons, fuels, solvents, etc.

Zone 2 = Place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapor or mists is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

T4 ( $T_a \leq 70^\circ\text{C}$ ) = Maximum surface temperature

### ATEX: II 3 G Ex nA IIC Gc

Where...

II = Device group II; There are 2 groups of devices. Devices of Group I, Category M are for use in

underground mines and their above ground equipment, which are at risk from firedamp and/or inflammable dusts. All other areas at risk of explosion are combined in Device Group II.

3G = Category 3; equipment ensuring a normal level of protection. Explosive atmospheres are unlikely to occur.

Ex = explosion protection identifier.

nA = Protection principle non sparking device.

IIC = Explosion group; IIC can be used for all explosion groups (IIA, IIB and IIC).

Gc = Protection level; Assured level of protection against becoming an ignition source in normal operation.

### IECEx: Ex nA IIC Gc

Where...

Ex = explosion protection identifier.

nA = Protection principle non sparking device.

IIC = Explosion group; IIC can be used for all explosion groups.

Gc = Protection level; Assured level of protection against becoming an ignition source in normal operation



## Standard Ex-products



Product	Function: Normally-open operation, SPST-NO, 4,6kV isolation, capacitive noise filtering, built-in protection for output	Control 'coil' voltage	Load voltage	Max. current	Image
EXI12CH	Between sensors/switches & PLC	12 VDC	0...60 VDC	50 mA	
EXI24CH	Between sensors/switches & PLC	24 VDC	0...60 VDC	50 mA	
EXI24CHF	Between sensors/switches & PLC, up to 10kHz	24 VDC	0...60 VDC	50 mA	
EXI48CH	Between sensors/switches & PLC	48 VDC	0...60 VDC	50 mA	
EXI125CH	Between sensors/switches & PLC	120 VDC	0...60 VDC	50 mA	
EXI250CH	Between sensors/switches & PLC	250 VDC	0...60 VDC	50 mA	
EXI25CH	Between sensors/switches & PLC	24 VAC	0...60 VDC	50 mA	
EXI49CH	Between sensors/switches & PLC	48 VAC	0...60 VDC	50 mA	
EXI120CH	Between sensors/switches & PLC	120 VAC	0...60 VDC	50 mA	
EXI120CHI	NC-operation (SPST-NC)	120 VAC	0...60 VDC	100 mA	
EXI120CHP	2-wire proxy & PLC, up to 3,5mA leakage from switch	120 VAC	0...60 VDC	50 mA	
EXI230CH	Between sensors/switches & PLC	230 VAC	0...60 VDC	50 mA	
EXI230CHI	NC-operation (SPST-NC)	230 VAC	0...60 VDC	100 mA	
EXI230CHP	2-wire proxy & PLC, up to 3,5mA leakage from switch	230 VAC	0...60 VDC	50 mA	
EXO5CH	Resistive loads	5 VDC	0...60 VDC	3 A	
EXO12CH	Resistive loads	12 VDC	0...60 VDC	3 A	
EXO24CHA4	MOSFET output for Solenoid Valves	24 VDC	0...250 VDC	4 A	
EXO24CHX	Resistive loads	24 VDC	0...28 VDC	10 A*	
EXO48CHA4	MOSFET output for Solenoid Valves	48 VDC	0...250 VDC	4 A	
EXO120CHA4	MOSFET output for Solenoid Valves	120 VDC	0...250 VDC	4 A	
EXO220CHA4	MOSFET output for Solenoid Valves	220 VDC	0...250 VDC	4 A	
EXO5TH	Inductive & resistive AC-loads	5 VDC	0...240 VAC	3 A	
EXO12TH	Inductive & resistive AC-loads	12 VDC	0...240 VAC	3 A	
EXO24IHA	For AC/DC loads, 1 kHz switching	24 VDC	0...240 VAC/ 250 VDC	1,2 A	
EXO24TH	Inductive & resistive AC-loads	24 VDC	0...240 VAC	3 A	
EXOP120TH	Inductive & resistive AC-loads	120 VAC	0...240 VAC	3 A	
EXOP230TH	Inductive & resistive AC-loads	230 VAC	0...240 VAC	1,5 A	
MIS1GNEX	DIN-rail socket for EXI-relays	Screw Terminals		8,3 A	
MOS1GNEX	DIN-rail socket for EXO-relays	Screw Terminals		8,3 A	
MIS1CCNEX	DIN-rail socket for EXI-relays	Tension Clamp		8,3 A	
MOS1CCNEX	DIN-rail socket for EXO-relays	Tension Clamp		8,3 A	
Jumper 8-13	8-pin cross connecting bar				
Jumper 16-13	16-pin cross connecting bar				

\* ) 8,3A with standard pluggable socket, 10A when the relay is pre-soldered into the DIN-rail socket (Product: EXO24CRXSN).



## EXO-relays for A size loads DC or AC -control, AC-load



### Typically used:

- Interface relay between PLC and field apparatus
- Control of pumps, solenoids, fans, contactors etc
- Capable of switching both resistive and inductive AC-loads

- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- 10-year warranty
- UL certificate: E162828
- UL-certificate: E332493
- Integrated status LED

### Main features:

## General description

The relays can handle inductive loads without load current reduction, which makes them very suitable for connection to, for example, solenoid valves and contactors. The relays have no mechanical parts, which means very reliable application.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for more than 1.5 km without capacitive cross-talk affecting relays. The SLOP models are especially designed for connection to 2-wire sensors that produce leakage current. The relays are blind to leakage currents up to 3.5mA.

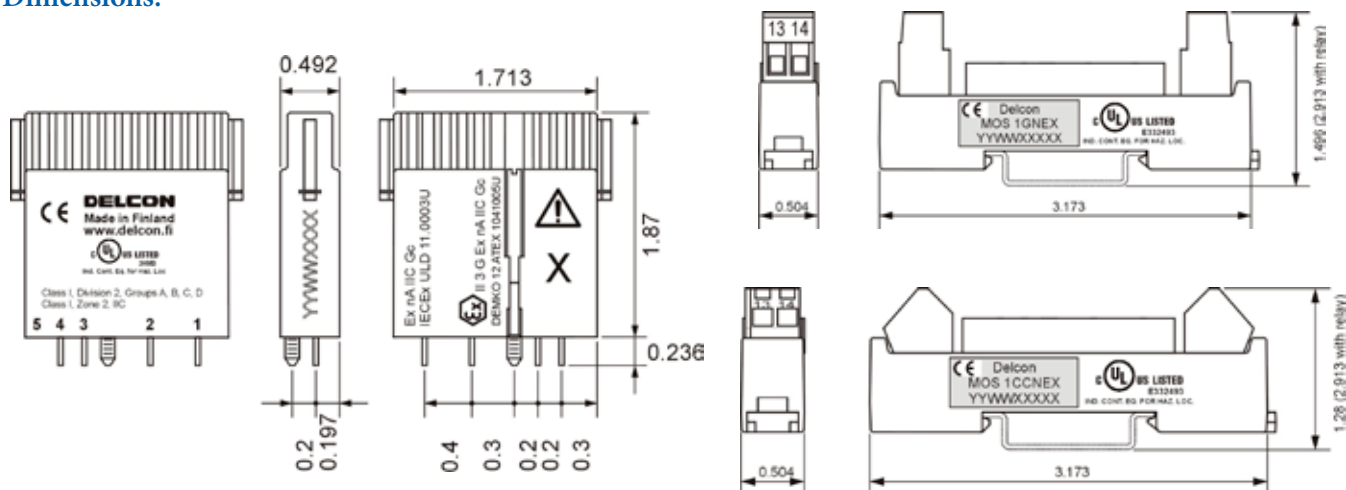
### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		EXO5TH	EXO24TH	EXO24TR	EXO24IHA	EXOP120TH	EXOP230TH
Input voltage	nom.	5 V DC	24 V DC	24 V DC	120 V AC	230 V AC	24 V DC
Input voltage	max.	7 V DC	32 V DC	32 V DC	140 V AC	265 V AC	32 V DC
Power consumption	max.	17 mA	17 mA	15 mA	6 mA	6 mA	17 mA
Input impedance	typical	0.3 kΩ	1.6 kΩ	2 kΩ	24 kΩ	46 kΩ	1.4 kΩ
Activation voltage	typical	2.7 V DC	16 V DC		80 V AC	170 V AC	16 V DC
Drop-out voltage	typical	2.5 V DC	14 V DC		65 V AC	110 V AC	14 V DC
Drop-out current					3 mA	3 mA	
SECONDARY CIRCUIT							
Load voltage	max.	0-265 V AC			0-265 V AC 0-300 V DC	0-265 V AC	
Voltage drop at max. load	typical	1 V		1.5 V	1 V		
Load current	max.	3 A			1.2 A	3 A	1.5 A
Peak current, max. 20 ms		90 A		8 A	90 A		65 A
Leakage current	typical	2 mA	50 μA		2 mA		50 μA
Activation time	typical	0.5 ms		0.3 ms	10 ms		0.5 ms
Drop-out time	typical	11 ms		0.3 ms	20 ms		11 ms
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)					

More types with various control voltages, loads and additional features available. See [www.delcon.fi](http://www.delcon.fi)

### Dimensions:







# EXO-relays for A size loads

## DC-control, DC-load



### Typically used:

- Control of solenoid valves, heaters, lighting, fans, pumps, motors etc.
- High DC voltage applications such as power network control equipment and control systems for hydroelectric generators
- For both resistive and inductive loads

### Main features:

- Galvanic isolation 4 kV, 8 mm creep distance
- 10-year warranty
- UL certificate: E162828
- UL-certificate: E332493
- Integrated status LED

## General description

The relays handle inductive loads and high DC-voltages with low load reduction compared to mechanical relays, which provide a long lifetime. If a diode is mounted across a load, such as 1N4007, the nominal current applies, even with high inductive loads (Keep in mind that the drop-out time increases when mounting a diode).

The relays have no mechanical parts, which means very

reliable application.

The integrated interference protection provides reliable operation even in very demanding electrical environments. Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for more than 1.5 km without capacitive cross-talk affecting relays.

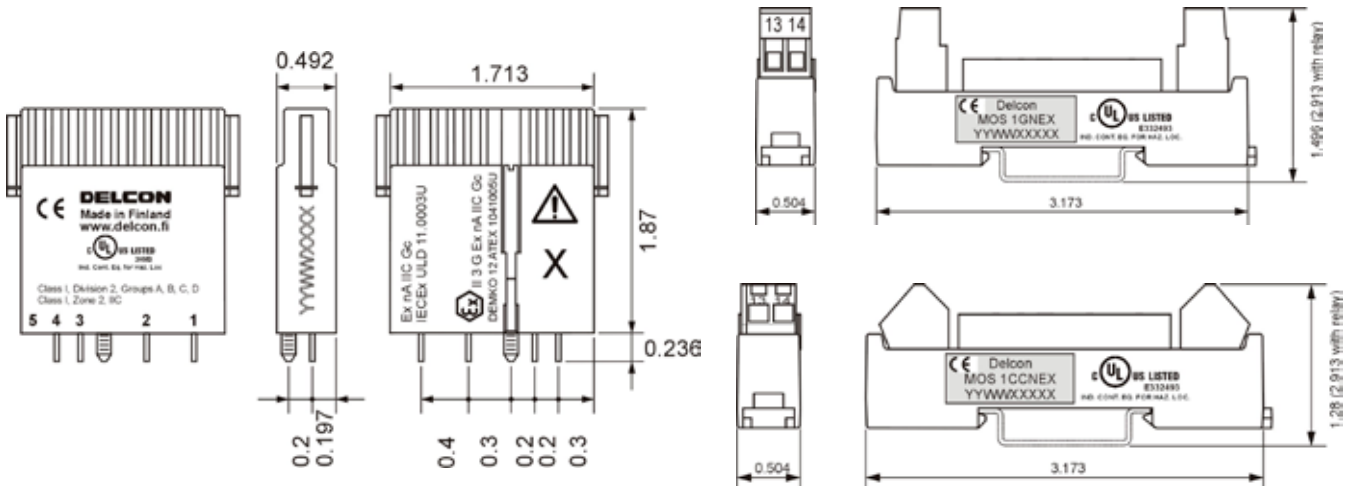
### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		EXO5CH	EXO24CH	EXO24CHA	EXO24CHA4	EXO24CHX	EXO48CHA4	EXO120CHA4	EXO220CHA4
Input voltage	nom.	5 V DC	24 V DC				48 V DC	120 V DC	220 V DC
Input voltage	max.	15 V DC	32 V DC				60 V DC	140 V DC	250 V DC
Power consumption	max.	15 mA				4 mA			
Input impedance	typical	420 kΩ	2 kΩ				13 kΩ	34 kΩ	63 kΩ
Activation voltage	typical	2.7 V DC	16 V DC				30 V DC	80 V DC	170 V DC
Drop-out voltage	typical	2.5 V DC	14 V DC				25 V DC	60 V DC	120 V DC
SECONDARY CIRCUIT									
Load voltage	max.	0-60 V DC	0-300 V DC			0-28 V DC	0-300 V DC		
Voltage drop at max. load	typical	0.5 V DC	1.5 V DC	0.8 V DC	0.4 V DC	0.6 V DC	0.8 V DC		
Load current	max.	3 A	1.8 A	4 A	10 A	4 A			
Peak current max. 10 ms		15 A	12 A	20 A	80 A	20 A			
Activation time	typical	0.3 ms				0.5 ms			
Drop-out time	typical	0.3 ms				0.5 ms			
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)							

More types with various control voltages, loads and additional features available. See [www.delcon.fi](http://www.delcon.fi)

### Dimensions:





## EXI-relays, mA size loads (PLC input) AC-control, DC-load



### Typically used:

- To separate/adapt signals between sensors, limit switches etc. and PLC
- To prevent malfunction caused by electrical noise & interference via cable capacitance (typical when cabling/wiring exceeds 200 yards)
- To prevent malfunction caused by the leakage current from 2-wire proximity switches

### Main features:

- Built-in interference elimination filters
- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- Compatible with NPN/PNP logic
- UL certificate: E162828
- UL-certificate: E332493
- Integrated status LED

## General description

The relays are used as an interface between AC sensors and control systems. The integrated interference protection provides reliable operation even in very demanding electrical environments.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for

more than 1.5 km without capacitive cross-talk affecting relays. The relays have no mechanical parts, which provides very reliable application.

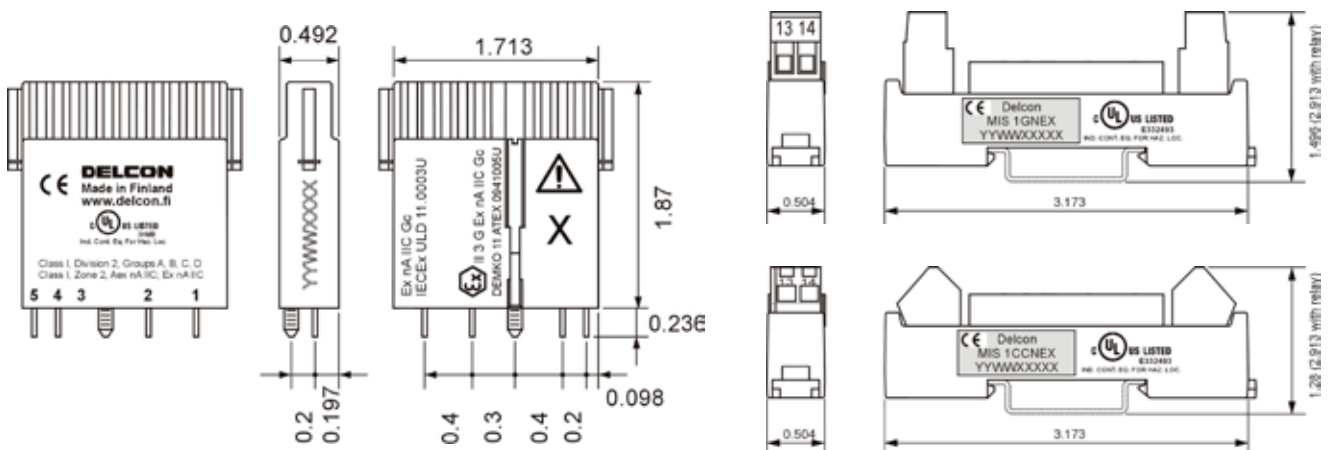
The CRP models are especially designed for connecting to 2-wire sensors that generate leakage current. The CRP relays are blind to leakage currents up to 3.5 mA.

### Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		EXI25CH	EXI120CH	EXI120CHP	EXI230CH	EXI230CHP
Input voltage	nom.	24 V AC	120 V AC		230 V AC	
Input voltage	max.	32 V AC	140 V AC		265 V AC	
Power consumption	max.	15 mA	7 mA	8 mA	6 mA	7.5 mA
Input impedance	typical	2 kΩ	20 kΩ	17 kΩ	45 kΩ	35 kΩ
Activation voltage	typical	16 V AC	80 V AC		170 V AC	
Drop-out voltage	typical	14 V AC	60 V AC		110 V AC	140 V AC
Drop-out current	typical			3.5 mA		3.5 mA
SECONDARY CIRCUIT						
Load voltage	max.	0-28 V DC				
Voltage drop at max. load	typical	0.2 V DC				
Load current	max.	50 mA				
Activation time	typical	20 ms	50 ms	20 ms	50 ms	40 ms
Drop-out time	typical	60 ms	50 ms	40 ms	50 ms	40 ms
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)				

### Dimensions:





# EXI-relays for mA size loads (PLC input) DC-control, DC-load

## Typically used:

- To separate/adapt DC-signals between sensors, limit switches etc. and PLC
- To prevent malfunction caused by electrical noise & interference via cable capacitance (typical when cabling/wiring exceeds 200 yards)
- To prevent malfunction caused by the leakage current from 2-wire proximity switches

## Main features:

- Built-in interference elimination filters
- Galvanic isolation 4 kV, 8 mm creepage & clearance distance
- UL certificate: E162828
- UL-certificate: E332493
- Compatible with NPN/PNP logic
- Integrated status LED

## General description

The relays are used as an interface between DC sensors and control systems. The integrated interference protection provides reliable operation even in very demanding electrical environments.

Thanks to interference protection, signal cables can be run alongside power cables on, for example, cable racks for

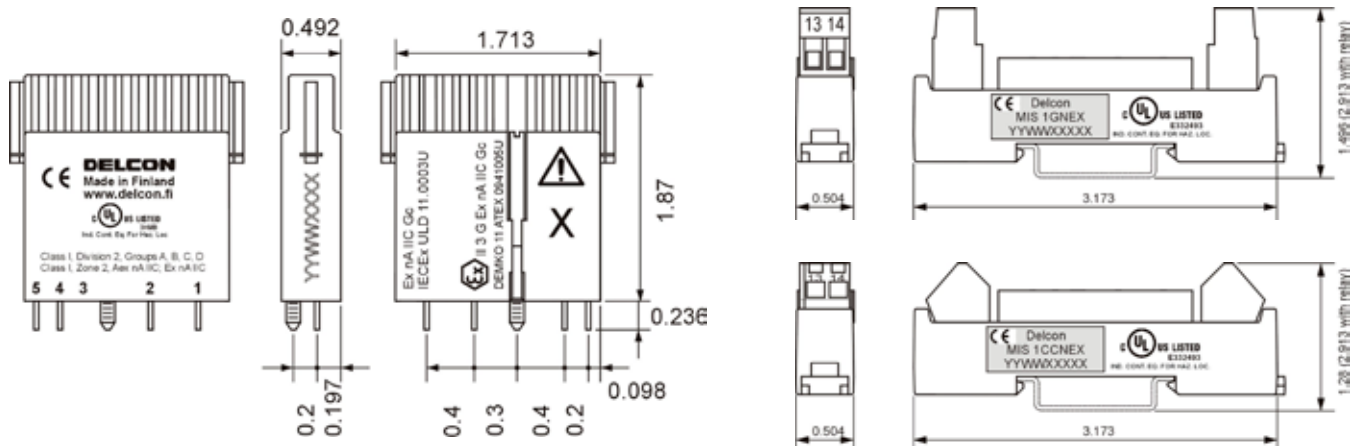
more than 1.5 km without capacitive cross-talk affecting relays. The relays have no mechanical parts, which provides very reliable application. If high frequencies occur from sensors for counting inputs, for example, we recommend EXI24CHF.

## Technical data

(Values at +25 °C)

PRIMARY CIRCUIT		EXI12CH	EXI24CH	EXI24CHF	EXI48CH	EXI125CH	EXI250CH
Input voltage	nom.	12 V DC	24 V DC		48 V DC	125 V DC	250 V DC
Input voltage	max.	18 V DC	32 V DC		70 V DC	140 V DC	265 V DC
Power consumption	max.	7.5 mA	7 mA	8 mA	7 mA	4.2 mA	4 mA
Input impedance	typical	1.8 kΩ	4 kΩ		8 kΩ	31 kΩ	68 kΩ
Activation voltage	typical	7.5 V DC	16 V DC		36 V DC	80 V DC	170 V DC
Drop-out voltage	typical	6 V DC	14 V DC		26 V DC	60 V DC	110 V DC
SECONDARY CIRCUIT							
Load voltage	max.	0-28 V DC					
Voltage drop at max. load	typical	0.2 V DC					
Load current	max.	50 mA					
Activation time	typical	0.3 ms		5 μs	0.3 ms	0.5 ms	
Drop-out time	typical	0.3 ms	0.5 ms	20 μs	0.5 ms		
Operating temperature		-40 °C to +70 °C (relay specific values and derating information in individual data sheets)					

## Dimensions:



## Quick guide to Item codes SL-series

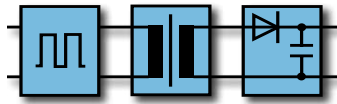
Type	Colour	Standard (SPST-NO)	Additional feature	Suitable DIN-rail socket
<b>SLO-relays</b> DC-control, AC-load		<b>TR</b> <ul style="list-style-type: none"> <li>For resistive and inductive loads</li> </ul>	<b>TRA</b> <ul style="list-style-type: none"> <li>Motor control</li> </ul>	<b>MOS1GN</b> , screw terminals <b>MOS1CCN</b> , cage clamp
<b>SLO-relays</b> AC-control, AC-load		<b>SLOA120TR</b> <ul style="list-style-type: none"> <li>For resistive and inductive loads</li> </ul>	<b>SLOP120TR</b> <ul style="list-style-type: none"> <li>Input suitable for 2-wire proximity switches</li> </ul>	<b>MOS1GN</b> , screw terminals <b>MOS1CCN</b> , cage clamp
<b>SLO-relays</b> DC-control, AC/DC-load		<b>IRA</b> <ul style="list-style-type: none"> <li>Fast AC-switching (1kHz)</li> <li>Suitable for AC- and DC-loads</li> </ul>	<b>IRAI</b> <ul style="list-style-type: none"> <li>SPST-NC function</li> </ul>	<b>MOS1GN</b> , screw terminals <b>MOS1CCN</b> , cage clamp
<b>SLO-relays</b> DC-control, DC-load		<b>CR</b> <ul style="list-style-type: none"> <li>High switching frequency</li> <li>Resistive loads</li> </ul>	<b>CRX</b> <ul style="list-style-type: none"> <li>High current (10A) with resistive loads</li> </ul>	<b>MOS1GN</b> , screw terminals <b>MOS1CCN</b> , cage clamp
<b>SLO-relays</b> DC-control, DC-load		<b>CRA, CRA4, CRAA4</b> <ul style="list-style-type: none"> <li>Inductive loads</li> <li>High DC-loads</li> </ul>	<b>CRAI, CRAI7</b> <ul style="list-style-type: none"> <li>SPST-NC function</li> </ul>	<b>MOS1GN</b> , screw terminals <b>MOS1CCN</b> , cage clamp
<b>SLO-relays</b> DC-control, DC-load		<b>COA</b> <ul style="list-style-type: none"> <li><b>SPDT function (C/O)!</b></li> <li>High DC-loads</li> </ul>		<b>MOS1CO</b> , screw terminals
<b>SLI-relays</b> AC-control, DC-load		<b>CR</b> <ul style="list-style-type: none"> <li>Filters against noise from cable capacitance (cables &gt; 100 m)</li> </ul>	<b>CRI</b> <ul style="list-style-type: none"> <li>SPST-NC function</li> </ul>	<b>MIS1GN</b> , screw terminals <b>MIS1CCN</b> , cage clamp <b>MIOS1A</b> (for <b>SLI400CR</b> ), screw terminals
<b>SLI-relays</b> AC-control, DC-load		<b>CRP</b> <ul style="list-style-type: none"> <li>For 2-wire proximity sensors (leakage current immunity 3.5mA)</li> </ul>		<b>MIS1GN</b> , screw terminals <b>MIS1CCN</b> , cage clamp
<b>SLI-relays</b> DC-control, DC-load		<b>CR</b> <ul style="list-style-type: none"> <li>Filters against noise from cable capacitance (cables &gt; 100 m)</li> </ul>	<b>CRF</b> <ul style="list-style-type: none"> <li>High switching frequency</li> </ul>	<b>MIS1GN</b> , screw terminals <b>MIS1CCN</b> , cage clamp



## Technical Information

### Pulse Transformer Technology

Delcon uses a pulse transformer instead of optocoupler for transmission of the signal from the primary to secondary side, resulting in high energy transfer. This permits the use of heavy duty output components of high quality.



In comparison with an optocoupler, which utilises the load side for supply to the internal electronics, Delcon relays use the control side for a supply. This gives two significant benefits compared to optocouplers:

- No minimum load requirement
- Extremely low leakage current

### Solid State Switch & Protection Components

#### AC output:

Thanks to the pulse transformer's strong signal transmission, TRIACs that are less sensitive to rapid load voltage (dV/dt) rise/fall times can be used. The SLO24TR standard relay has very low leakage current (50 µA) and has varistor protection against load transients. Other AC relays have varistors and RC

protection on the secondary side. All modules have a wide voltage range.

The relays can handle resistive and inductive loads without load currents needing to be reduced.

#### DC output:

Power MOSFET output semi-conductor. Available for load currents up to 10A in the same compact casing. Transient protection is provided by a zener diode or varistor, which entails that there is no leakage current. Low reduction of load current for inductive loads compared with mechanical relays.

### Operating Temperature Ranges

The permitted load is linearly reduced to 1/3 from +30 °C to +70 °C ambient temperature. When the output modules are mounted close together, the maximum load should not exceed 50 percent for an extended period. In other words, all modules constant to and including 50 % load, or half of the modules with 100 % load or all with 100 % load half the time.

If there is a **12.5 mm gap** between the modules, these restrictions do not apply. AC-output relays with AC control circuits (SLOA120TR, SLOP120TR, SLOA230TR, SLOP230TR) are to be installed with the same method as AC-input relays, in addition to what is described above.

### Approvals

CE, cULus listed (file no.: E162 828)



### Application tips NPN/PNP

All input relays can be connected both for NPN and PNP logic

### Input relays connected with long unshielded signal cables

When power cables are installed beside signal cables for long distances, the CR type must be used

### Connection of 2-wire sensors with leakage current

If 2-wire sensors or other equipment that generates leakage current is to be connected to the interface relays, we recommend use of the following relays:

- Input relay SLI120CRP or SLI230CRP
- Output relay SLOP120TR or SLOP230TR

### Forward/reverse operation with motors

Delcon's standard relays (e.g., SLO24TR) should not be used for forward/reverse operation of single-phase or three-phase motors. Doing so entails risk for the returned voltage damaging the relays.

For forward/reverse or static control of AC motors, **SLO24TRA** is to be used. This relay is especially designed for controlling motor operation and has a higher maximum voltage compared to the standard relays. For forward/reverse control of DC motors, we recommend **LPS24**.

### 24 V DC applications with high inductive loads

If the load is strongly inductive, we recommend the use of transient protection along with SLO24CR. If transient protection cannot be fitted, we recommend SLO24CRA/SLO24CRA4, which have an operating voltage of up to 300 V DC. The relay has higher immunity to high-energy load transients. For inductive DC loads, the maximum nominal current is reduced. More information at [www.delcon.fi](http://www.delcon.fi).

# PT-Series

## PLESR

Single-phase SSR's

These economical, sleek and robust single phase SSR's are designed to control resistive loads, such as heater bands and cartridge heaters, using the time proportioned DC or AC driver output from a temperature controller.

Using noise-free ON-OFF zero crossing firing, these DIN rail or wall mounted units employ industrially rated reliable solid state power switching devices for optimal and reliable control in demanding industrial heating applications.



## PLETR

3-phase SSR's

These economical DIN rail or wall mount 3 phase SSR units are designed to control resistive 3 phase loads, such as heater bands and cartridge heaters, using the DC or AC SSR driver output from a temperature controller.

Using noise-free zero cross firing, the PLETR / (AC) control 2 legs of the resistive 3 phase load. The third, unswitched leg is bussed through the unit for convenient connection.



---

### THERMAL PROTECTION

Temperature ratings for Solid State Contactors are listed in the specifications at continuous operation at 100% output and 100% duty cycle. These conditions assume that all recommended instructions for mounting and cooling airflow access are followed.

Power Controllers are designed to work up to a specific temperature. If that temperature is exceeded, the unit is likely to be damaged. Thermal protection can prevent excessive temperatures from damaging the power unit. When the SSR junction temperature reaches 125°C (275°F), the inhibit and the OH (overheat) LED indicator is illuminated. Once the temperature is within acceptable limits, the command signal is again enabled and the OH LED turns off.

### INSTALLATION

These Power Controllers must be installed in accordance with the recommendations expressed in the installation guide supplied with each unit, and also in accordance with local wiring regulations. It is important to note that each controlled phase in an SCR generates a heat loss calculated at approximately 1.2 watts per amp per phase (1.8 for the PLESRT). Adequate ventilation or forced cooling must be provided to maintain ambient conditions inside the control panel enclosures within the operating specification.

### FUSE PROTECTION

SCR Power Controllers and Solid State Relays require high speed fuses to protect the power device against short circuit currents resulting from load or wiring faults. High speed fuses must be externally mounted. Consult the catalogue for recommended fusing for our power controllers. The high speed fuse does not provide protection to the load or to the branch of the circuit against sustained medium scale overloads, and it is therefore necessary to fit a standard circuit protection fuse (HCR fuse or circuit breaker) in the supply lines to the Power Controller.



## Standard Products

ITEM	TYPE	LOAD CURRENT	LOAD VOLTAGE	CONTROL VOLTAGE
PLESRT122400	1-PHASE SSR'S	12 A	240 V~RMS 50/60 HZ	24 VDC
PLESRT182400	1-PHASE SSR'S	18 A	240 V~RMS 50/60 HZ	24 VDC
PLESRAC25401	1-PHASE SSR'S	25 A	400 V~RMS 50/60 HZ	100-240 VAC
PLESRAC25402	1-PHASE SSR'S	25 A	400 V~RMS 50/60 HZ	24 VAC
PLESRAC25602	1-PHASE SSR'S	25 A	600 V~RMS 50/60 HZ	24 VAC
PLESRAC25601	1-PHASE SSR'S	25 A	600 V~RMS 50/60 HZ	100-240 VAC
PLESR0254000	1-PHASE SSR'S	25 A	400 V~RMS 50/60 HZ	24 VDC
PLESR0254001	1-PHASE SSR'S	25 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLESR0256000	1-PHASE SSR'S	25 A	600 V~RMS 50/60 HZ	24 VAC
PLESR0256001	1-PHASE SSR'S	25 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLESR0404000	1-PHASE SSR'S	40 A	400 V~RMS 50/60 HZ	24 VDC
PLESRAC40401	1-PHASE SSR'S	40 A	400 V~RMS 50/60 HZ	100-240 VAC
PLESRAC40402	1-PHASE SSR'S	40 A	400 V~RMS 50/60 HZ	24 VAC
PLESR0404001	1-PHASE SSR'S	40 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLESRAC40602	1-PHASE SSR'S	40 A	600 V~RMS 50/60 HZ	24 VAC
PLESR0406000	1-PHASE SSR'S	40 A	600 V~RMS 50/60 HZ	24 VDC
PLESRAC40601	1-PHASE SSR'S	40 A	600 V~RMS 50/60 HZ	100-240 VAC
PLESR0406001	1-PHASE SSR'S	40 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLESRAC60401	1-PHASE SSR'S	60 A	400 V~RMS 50/60 HZ	100-240 VAC
PLESR0604000	1-PHASE SSR'S	60 A	400 V~RMS 50/60 HZ	24 VDC
PLESRAC60402	1-PHASE SSR'S	60 A	400 V~RMS 50/60 HZ	24 VAC
PLESR0604001	1-PHASE SSR'S	60 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLESRAC60602	1-PHASE SSR'S	60 A	600 V~RMS 50/60 HZ	24 VAC
PLESRAC60601	1-PHASE SSR'S	60 A	600 V~RMS 50/60 HZ	100-240 VAC
PLESR0606000	1-PHASE SSR'S	60 A	600 V~RMS 50/60 HZ	24 VDC
PLESR0606001	1-PHASE SSR'S	60 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLESRAC80401	1-PHASE SSR'S	80 A	400 V~RMS 50/60 HZ	100-240 VAC
PLESR0804000	1-PHASE SSR'S	80 A	400 V~RMS 50/60 HZ	24 VDC
PLESRAC80402	1-PHASE SSR'S	80 A	400 V~RMS 50/60 HZ	24 VAC
PLESR0804001	1-PHASE SSR'S	80 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLESR0806000	1-PHASE SSR'S	80 A	600 V~RMS 50/60 HZ	24 VDC
PLESRAC80601	1-PHASE SSR'S	80 A	600 V~RMS 50/60 HZ	100-240 VAC
PLESRAC80602	1-PHASE SSR'S	80 A	600 V~RMS 50/60 HZ	24 VAC
PLESR0806001	1-PHASE SSR'S	80 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0254000	3-PHASE SSR'S	25 A	400 V~RMS 50/60HZ	24 VDC
PLETR0254001	3-PHASE SSR'S	25 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0256000	3-PHASE SSR'S	25 A	600 V~RMS 50/60HZ	24 VDC
PLETR0256001	3-PHASE SSR'S	25 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0404000	3-PHASE SSR'S	40 A	400 V~RMS 50/60HZ	24 VDC
PLETR0404001	3-PHASE SSR'S	40 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0406000	3-PHASE SSR'S	40 A	600 V~RMS 50/60HZ	24 VDC
PLETR0406001	3-PHASE SSR'S	40 A	600 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0604000	3-PHASE SSR'S	60 A	400 V~RMS 50/60HZ	24 VDC
PLETR0604001	3-PHASE SSR'S	60 A	400 V~RMS 50/60 HZ *)	100-240 VAC
PLETR0606000	3-PHASE SSR'S	60 A	600 V~RMS 50/60HZ	24 VDC
PLETR0606001	3-PHASE SSR'S	60 A	600 V~RMS 50/60 HZ *)	100-240 VAC

\*) with over heating alarm



For more detailed information,  
please see a separate PL-Series  
catalogue at [delcon.fi](http://delcon.fi)

Delcon relays are sold via our Global distribution network  
Find Your nearest partner at [delcon.fi/delcon-distributors](https://delcon.fi/delcon-distributors)



*Your distributor:*



**DELCON**

**Delcon Oy**  
Veikkointie 4  
FI-03100  
Nummela, Finland  
[sales@delcon.fi](mailto:sales@delcon.fi)  
[@DelconRelays](https://www.instagram.com/DelconRelays)