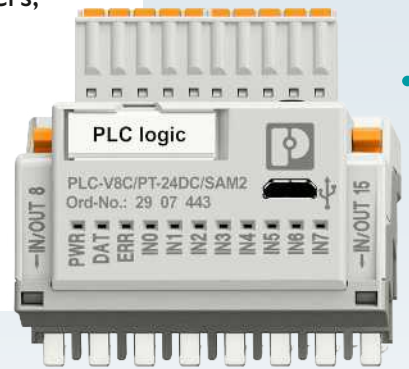


Relays, optocouplers, and logic modules

Switch, isolate, and amplify signals reliably

Relays, optocouplers, and logic modules – an overview of the product range

Relays are electrically controlled switches that perform many functions in automation. When it comes to switching, isolating, monitoring, amplifying, or multiplying, we provide support in the form of clever relays, optocouplers, and logic modules. Whether solid-state relays, electromechanical relays, coupling relays, optocouplers, monitoring relays, or timer relays and logic modules, you will find the right relay for your application here.

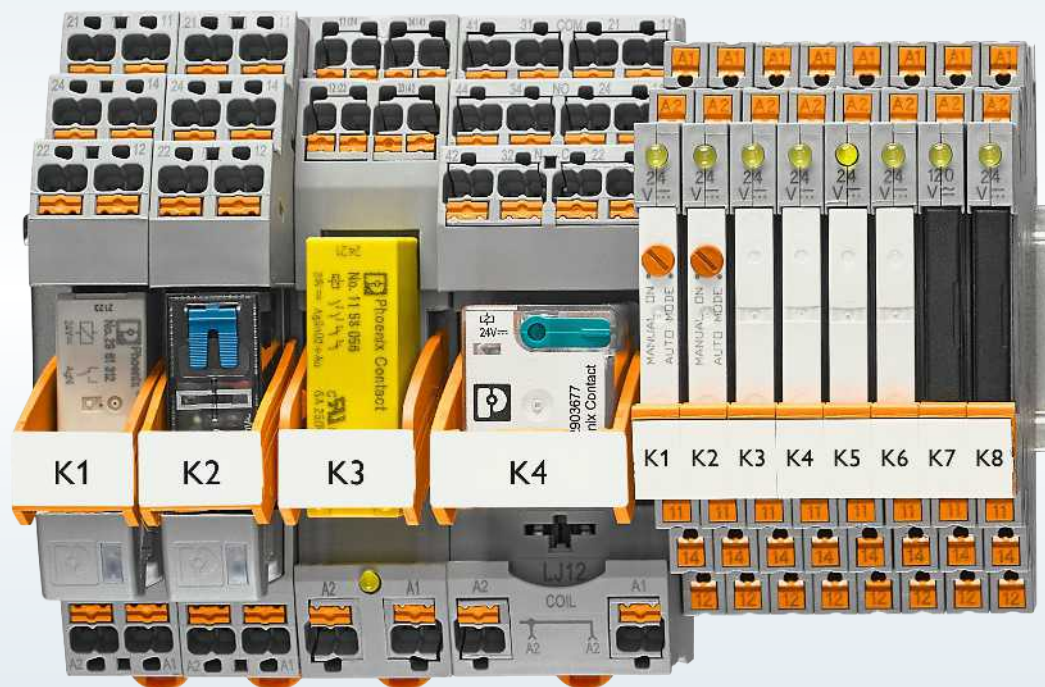


1

Electromechanical and solid-state relay modules

- RIFLINE complete industrial relay system: Ideal for all standard applications.
- PLC-INTERFACE highly compact relay modules: No matter what your application or industry, you will find the right relay module here.

More information starting on page 4.



3

Timer relays

From especially space-saving timer relays with an overall width of only 6 mm and compact timer relays in installation housings for building installation to smart multifunctional relays, you will find everything for your time control here.

More information starting on page 48.

2

Programmable logic relay system

Highly compact control and switching:
PLC logic combines relay and analog modules with logic functions and intuitive software.

More information starting on page 42.



4

Monitoring relays

EMD-SL monitoring relays, EMD-BL compact monitoring relays:
EMD monitoring relays can be used to detect deviations in important system parameters at an early stage. They can be indicated or system parts can be shut down selectively.

More information starting on page 56.

Content

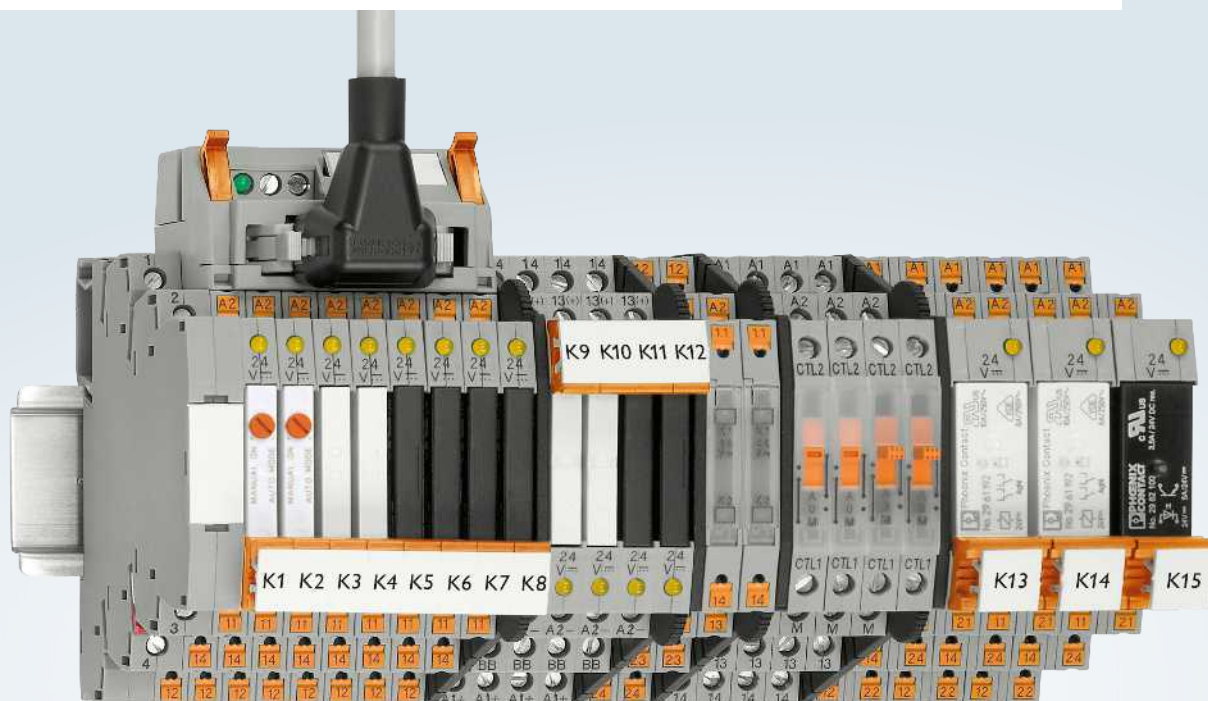
Electromechanical and solid-state relay modules	4
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COMPLETE line

The new standard for the control cabinet.
More information starting on page 66.

Electromechanical and solid-state relay modules for every application

Among other things, solid-state relays ensure reliable switching operations in system automation. Choose from our wide range of solid-state relays and electromechanical relays, available as plug-in versions or as complete modules. Coupling relays, highly compact relay modules, and relays for the Ex area also help achieve high system availability.



PLC-INTERFACE highly compact relay modules

PLC-INTERFACE is the interface between the controller and system I/O devices. The universal design is compact and space-saving. While the 6.2 mm narrow module has one contact, the 14 mm variant is available with two contacts. The modules are assembled with an electromechanical or a solid-state relay as needed.

More information starting on page 16.

Comparison of relay modules

	PLC-INTERFACE highly compact relay modules	Universal industrial relay system RIFLINE complete
Input voltage type	AC, DC, and UC	AC, DC
Nominal current of relay	Max. 10 A	Max. 16 A
Nominal current of solid-state relay	Max. 10 A	Max. 5 A
Contacts	Max. 2 changeover contacts, max. 2 N/O contacts	Max. 4 changeover contacts, max. 3 N/O contacts
Connection technology	Push-in, screw	Push-in, screw
Bridge	A1, A2, 11, 14	A2, 11 (with RIF-0 and RIF-1)
Adapters for the system cabling	Yes	Yes, for RIF-1 modules
Can be extended with logic and time functions	Yes, in combination with PLC logic	No
Special versions	Sensor/actuator, railway, filter against interference voltage, 100 kHz, TTL, high continuous currents up to 10 A, high inrush currents up to 800 A, modules with hand switches, variants with Ex approvals for Zone 2 (ATEX, Class 1 Division 2), force-guided coupling relays, electronic reversing load relays for DC motors	Can be extended with a timer module, high inrush currents up to 800 A, modules with hand switches, variants with Ex approvals for Zone 2, force-guided coupling relays



Universal industrial relay system RIFLINE complete

RIFLINE complete consists of DIN rail bases, electromechanical or solid-state relays, pluggable interference suppression modules, marking, and bridging material. The range of accessories is rounded off with a timer module. It is used to create a timer relay from a simple relay.

More information starting on page 6.

Electromechanical and solid-state relay modules

Universal industrial relay system from coupling relays to miniature contactors

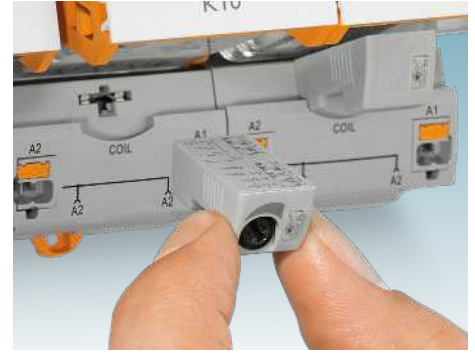
You can implement all of your standard relay applications using the universal relay system RIFLINE complete. Whether you want to isolate, multiply, or amplify signals: The field of applications ranges from coupling and timer relays to a replacement for miniature contactors. The relay system with universal plug-in design supports quick, easy, and error-free handling.



Your advantages

- ✓ Complete product family that covers all standard relay applications
- ✓ Easy handling with state-of-the-art wiring and potential distribution concept
- ✓ Easily extended to create a timer relay by means of a plug-in function module
- ✓ Reliable system for high machine and system availability
- ✓ Available as a complete module or modular system

Easy handling



Wiring

Fast, easy, tool-free wiring with Push-in connection technology.

Potential distribution

Easy potential distribution with pluggable bridges from the CLIPLINE complete system accessories.

Extension

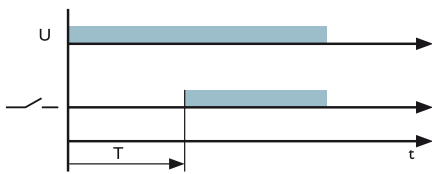
Easy extension with the plug-in, multifunctional timer module. You can select three time functions in a time range from 0.5 seconds to 100 minutes.

Multifunctional timer module

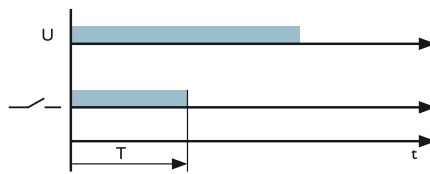
The multifunctional plug-in timer module for 24 V DC transforms the relay module into a timer relay. You can fit the RIF-1 to RIF-4 bases with this module.

- Switch-on delay
- Passing make contact
- Pulse generator

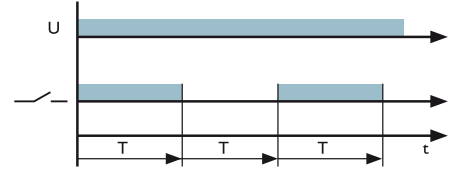
Choose from the following time functions:



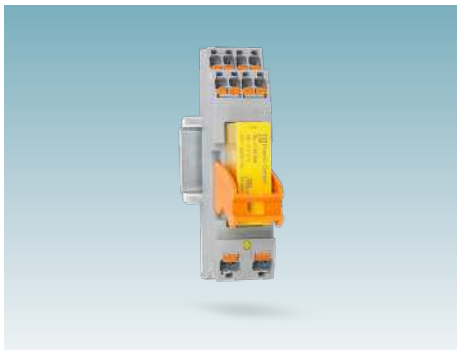
Switch-on delay



Passing make contact

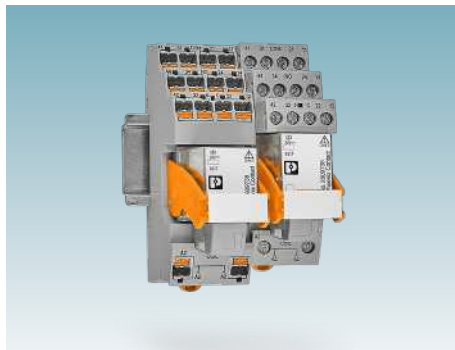


Pulse generator



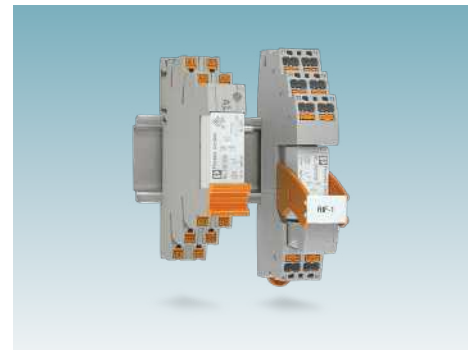
Force-guided contacts

Multi-channel coupling relay modules with force-guided contacts in accordance with DIN EN 61810-3 type A.



Potentially explosive applications

Coupling relay modules with ATEX, IECEx, and Class 1 Division 2 approval for potentially explosive applications.



High inrush currents

Coupling relay modules for high inrush currents up to 800 A_{peak}.

RIFLINE complete relay modules

RIF-0

The 6.2 mm narrow RIF-0 base series is suitable for a 1-changeover contact relay. Switching currents up to 6 A are implemented here. RIF-0 is therefore a good choice for all coupling applications.



RIF-0 electromechanical relay modules with power contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 N/O contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2903362	2903367
		1 changeover contact					2903371	2903375
	24 V DC	1 N/O contact					2903361	2903366
		1 changeover contact					2903370	2903374

RIF-0 electromechanical relay modules with gold contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 N/O contact	1 mA (12 V)	50 mA	50 mA	30 V AC 36 V DC	2903360	2903365
		1 changeover contact					2903369	2903373
	24 V DC	1 N/O contact					2903359	2903364
		1 changeover contact					2903368	2903372

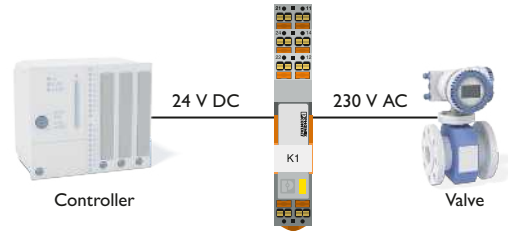
RIF-0 solid-state relay modules

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	300 Hz	100 mA	3 V DC ... 48 V DC	2905294	2905658
			3 A	3 V DC ... 33 V DC	2905293	2905657
		10 Hz	750 mA	24 V AC ... 253 V AC	2905295	2905656


RIFLINE complete relay modules

RIF-1


The 16 mm narrow RIF-1 base series is suitable for a 2-changeover contact relay. Currents up to 13 A can be switched here. The ideal relay for power switching and signal duplication.



RIF-1 electromechanical relay modules with power contact


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	10 mA (12 V)	11 A	50 A (20 ms, N/O contact)	250 V AC/DC	2906224	2908500
		2 changeover contacts	10 mA (5 V)	8 A	25 A (20 ms, N/O contact)		2906223	2908501
	24 V DC	1 changeover contact	10 mA (12 V)	11 A	50 A (20 ms, N/O contact)		2903342	2903358
		2 changeover contacts	10 mA (5 V)	8 A	25 A (20 ms, N/O contact)		2903334	2903350
	24 V AC	1 changeover contact	10 mA (12 V)	10 A	12 A (20 ms, N/O contact)		2903341	2903357
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903333	2903349
	120 V AC	1 changeover contact	10 mA (12 V)	10 A	25 A (20 ms, N/O contact)		2903340	2903356
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903332	2903348
	230 V AC	1 changeover contact	10 mA (12 V)	10 A	25 A (20 ms, N/O contact)		2903339	2903355
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903331	2903347

RIF-1 electromechanical relay modules with gold contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2903330	2903346
	24 V AC						2903329	2903345
	120 V AC						2903328	2903344
	230 V AC						2903327	2903343

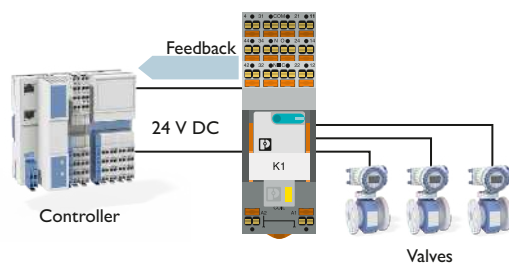
RIFLINE complete relay modules

RIF-1 electromechanical relay modules with power contact and manual activation


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 changeover contact	10 mA (12 V)	11 A	24 A (20 ms, N/O contact)	250 V AC/DC	2905289	2905659
		2 changeover contacts		8 A	12 A (20 ms, N/O contact)		2905291	2905660
	120 V AC	1 changeover contact			5 A		32 A (20 ms, N/O contact)	2909776
		2 changeover contacts		8 A	16 A (20 ms, N/O contact)		2909775	2909773
	230 V AC	1 changeover contact		8 A	32 A (20 ms, N/O contact)		2905290	2905661
		2 changeover contacts		5 A	16 A (20 ms, N/O contact)		2905292	2905662

RIF-2

The 31 mm wide RIF-2 base series is designed for industrial relays with up to four contacts. Currents up to 12 A are no problem. This is the ideal solution for signal multiplication.



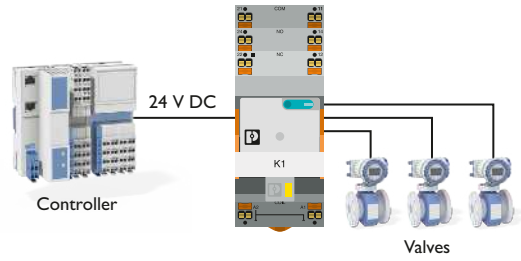
RIF-2 electromechanical relay modules with power contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts	5 mA (24 V)	10 A	30 A (20 ms, N/O contact)	250 V AC/DC	2903315	2903326
		4 changeover contacts		6 A	16 A (20 ms, N/O contact)		2903308	2903320
	24 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903313	2903323
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903306	2903318
	120 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903311	2903322
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903305	2903317
	230 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903310	2903321
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903304	2903316

RIFLINE complete relay modules

RIF-3

The 40 mm wide RIF-3 base series is designed for octal relays with up to three contacts. Switching currents up to 10 A are implemented here.

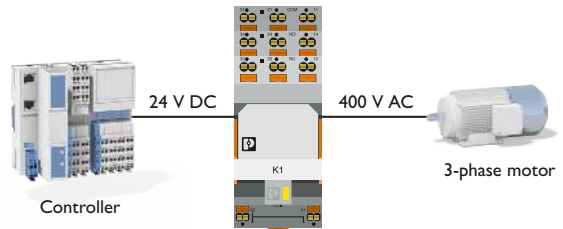


RIF-3 electromechanical relay modules with power contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	3 changeover contacts	10 mA (24 V)	8.5 A	30 A (20 ms, N/O contact)	250 V AC/DC	2903294	2903300
	120 V AC			6 A			2903293	2903299
	230 V AC			2903292			2903298	

RIF-4

The 43 mm wide RIF-4 base series is designed for power relays with up to three contacts. It can be used to switch currents up to 16 A.



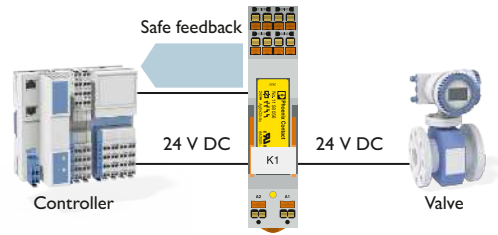
RIF-4 electromechanical relay modules with power contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	3 changeover contacts	10 mA (24 V)	10 A	50 A (20 ms, N/O contact)	440 V AC 250 V DC	2903278	2903288
	120 V AC			8 A			2903277	2903287
	230 V AC			2903276			2903285	


RIFLINE complete relay modules for special applications

Force-guided contacts

The coupling relay modules with up to four force-guided contacts in accordance with DIN EN 61810-3 are suitable for switching currents up to 6 A. Realize the standardized applications with safe feedback.

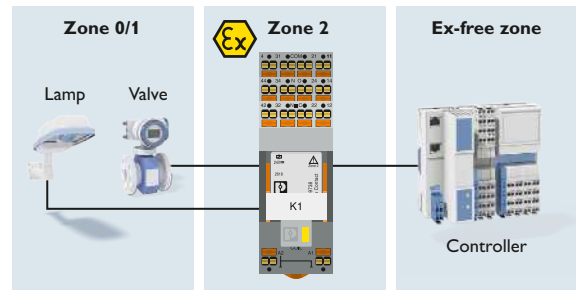


RIFLINE complete electromechanical relay modules with force-guided contacts


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts, force-guided	5 mA (10 V)	6 A	35 A (20 ms)	250 V AC/DC	2908215	2909848
		2 N/O contacts, 2 N/C contacts				250 V AC 300 V DC	1148699	
		3 N/O contacts, 1 N/C contacts				250 V AC 300 V DC	1148703	

Potentially explosive applications

The coupling relay modules of the RIF-2 base series with ATEX, IECEx, and Class 1 Division 2 approval are suitable for use in Zone 2 potentially explosive applications.



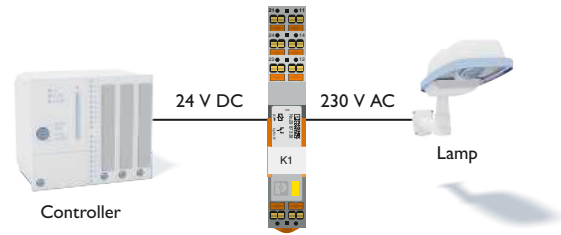
Single relays with force-guided contacts

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Item number
	24 V DC	2 changeover contacts, force-guided	10 mA (5 V)	6 A	35 A (20 ms)	250 V AC/DC	2908777
		2 N/O contacts, 2 N/C contacts	5 mA (10 V)			250 V AC 300 V DC	1158056
		3 N/O contacts, 1 N/C contacts				250 V AC 300 V DC	1157954


RIFLINE complete relay modules for special applications

High inrush currents


The coupling relay modules of the RIF-1 base series, with inrush-proof switching contacts and a wolfram lead contact, are suitable for switching very high inrush currents up to 800 A.



RIFLINE complete electromechanical relay modules with 4-changeover contact power contact for potentially explosive areas

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	4 changeover contacts	5 mA (24 V)	6 A	16 A (20 ms, N/O contact)	250 V AC/DC	2909741	2909845
	120 V AC			5 A			2909740	2909846
	230 V AC			2909739			2909847	

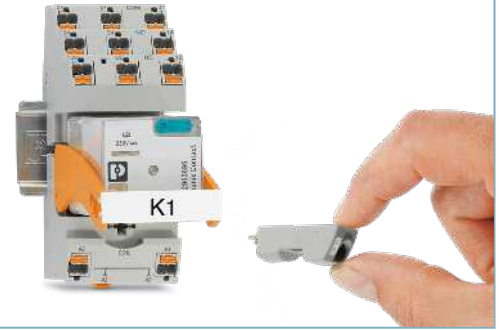
RIFLINE complete electromechanical relay modules for high inrush currents

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 N/O contact	100 mA (12 V DC)	6 A	80 A (20 ms) 130 A (peak, at capacitive load, 230 V AC, 24 µF)	250 V AC/DC	1078802	1078803
	24 V DC						2909884	2909885
							165 A (20 ms) 800 A (200 µs)	1078686

Accessories

Accessories

Here you will find our many plug-in module variants and relay retaining brackets for all relay bases and various requirements.



Plug-in modules

	Description	Item no.	Type
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with bridge rectifier, input voltage: 12 V AC ... 230 V AC	2907060	RIF-BR-12-230 AC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with freewheeling diode and yellow LED, input voltage: 12 V DC ... 24 V DC ±20%, polarity: A1-, A2+	2907057	RIF-LDM-12-24 DC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with freewheeling diode and yellow LED, polarity: A1+, A2-, input voltage: 110 V DC ±20%	2900941	RIF-LDP-110 DC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with freewheeling diode and yellow LED, polarity: A1+, A2-, input voltage: 12 V DC ... 24 V DC ±30%	2900939	RIF-LDP-12-24 DC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with freewheeling diode and yellow LED, polarity: A1+, A2-, input voltage: 48 V DC ... 60 V DC ±20%	2900940	RIF-LDP-48-60 DC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor and yellow LED, input voltage: 120 V AC ... 230 V AC / 110 V DC ±20%	2900944	RIF-LV-120-230 AC/110 DC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor and yellow LED, input voltage: 12 V AC ... 24 V AC / DC ±20%	2900942	RIF-LV-12-24 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor and yellow LED, input voltage: 48 V AC ... 60 V AC / DC ±20%	2900943	RIF-LV-48-60 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with RC element, input voltage: 120 V AC ... 230 V AC / DC ±20%	2900951	RIF-RC-120-230 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with RC element, input voltage: 12 V AC ... 24 V AC / DC ±20%	2900949	RIF-RC-12-24 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with RC element, input voltage: 48 V AC ... 60 V AC / DC ±20%	2900950	RIF-RC-48-60 UC
	Plug-in module for extending a relay module to a timer relay, 3 time functions, 4 time zones, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, Input voltage: 12 V DC ... 24 V DC	2902647	RIF-T3-24UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor, input voltage: 120 V AC ... 230 V AC / DC ±20%	2900948	RIF-V-120-230 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor, input voltage: 12 V AC ... 24 V AC / DC ±20%	2900945	RIF-V-12-24 UC
	Plug-in module, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, with varistor, input voltage: 48 V AC ... 60 V AC / DC ±20%	2900947	RIF-V-48-60 UC

Accessories




1



2

3

4

Electromechanical and solid-state relay modules

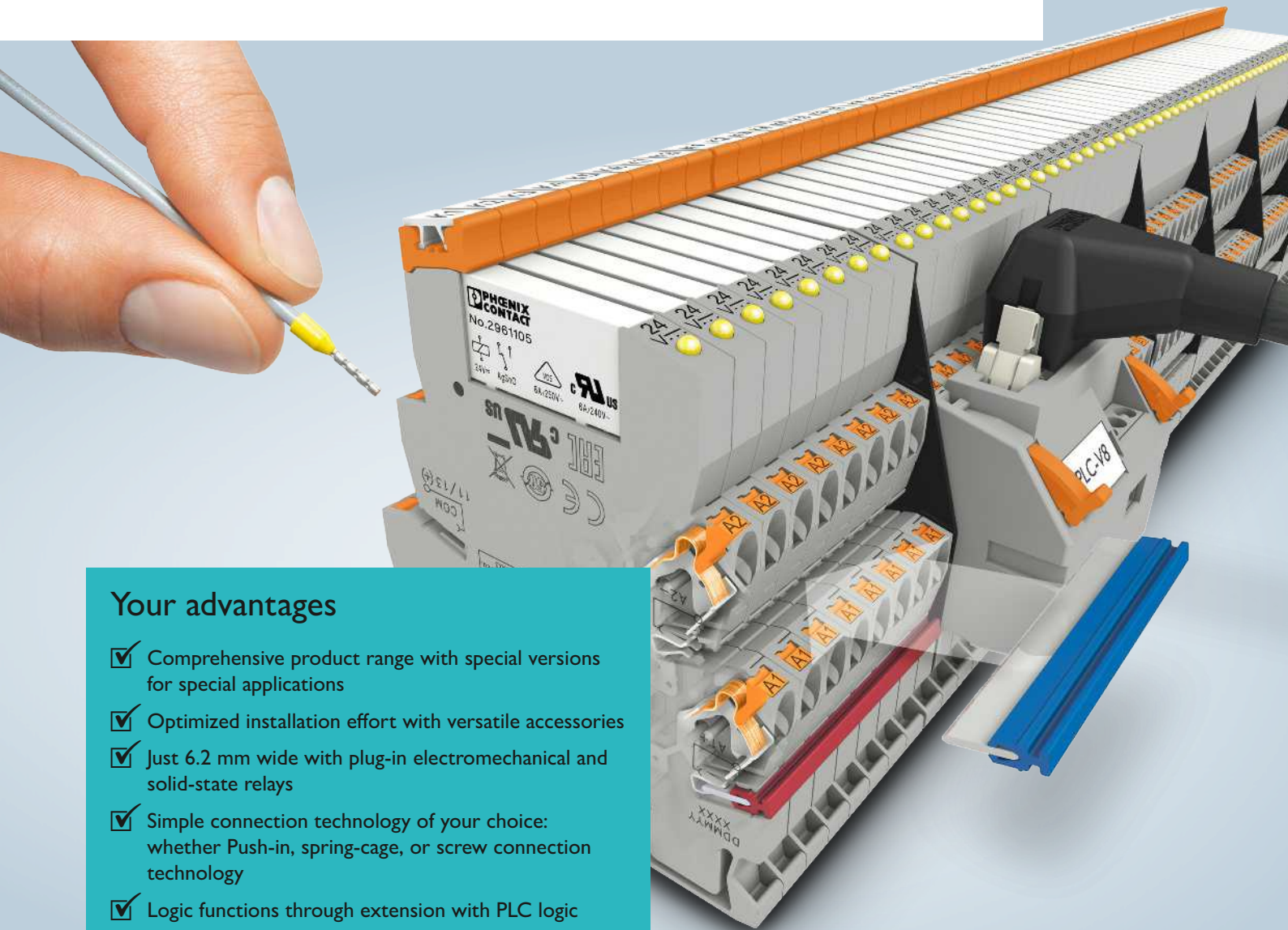
Ejector lever			
	Description	Item no.	Type
	Relay retaining bracket, with ejector function and holder for marking material, suitable for RIF-1 relay base, for 16 mm high miniature power relay and solid-state relay	2900953	RIF-RH-1
	Relay retaining bracket, with ejector function and holder for marking material, suitable for RIF-1 relay base, for 25 mm high miniature power relay and solid-state relay	2904468	RIF-RH-1-H
	Relay retaining bracket, with ejector function and holder for marking material, suitable for RIF-2 relay base, for industrial relay	2900954	RIF-RH-2
	Relay retaining bracket, with holder for marking material, suitable for RIF-3 relay base, for octal relay	2900955	RIF-RH-3
	Relay retaining bracket, with holder for marking material, suitable for RIF-4 relay base, for high-power relay	2900956	RIF-RH-4
	Relay retaining bracket, wire model, suitable for RIF-1 relay base, for 16 mm high miniature power and solid-state relays	2905986	RIF-RHM-1
	Relay retaining bracket, wire model, suitable for RIF-1 relay base, for 25 mm high miniature power relays	2905985	RIF-RHM-1-H
	Relay retaining bracket, wire model, suitable for RIF-2 relay base	2905984	RIF-RHM-2
	Relay retaining bracket, wire model, suitable for RIF-4 relay base	2905983	RIF-RHM-4
	Reinforced relay retaining bracket, with ejector function and holder for marking material, suitable for RIF-2 relay base, for industrial relay	2908043	RIF-RHS-2

Bridges			
	Description	Item no.	Type
	Plug-in bridge, pitch: 6.2 mm, number of pins: 2, color: red,	3030336	FBS 2-6
	Plug-in bridge, pitch: 6.2 mm, number of pins: 5, color: red,	3030349	FBS 5-6
	Plug-in bridge, pitch: 6.2 mm, number of pins: 10, color: red,	3030271	FBS 10-6
	Plug-in bridge, pitch: 6.2 mm, number of pins: 20, color: red,	3030365	FBS 20-6
	Plug-in bridge, pitch: 6.2 mm, number of pins: 50, color: red,	3032224	FBS 50-6
	Plug-in bridge, pitch: 6.2 mm, number of pins: 2, color: blue,	3036932	FBS 2-6 BU
	Plug-in bridge, pitch: 6.2 mm, number of pins: 2, color: gray,	3032237	FBS 2-6 GY
	Plug-in bridge, pitch: 8.2 mm, number of pins: 2, color: red,	3030284	FBS 2-8
	Plug-in bridge, pitch: 8.2 mm, number of pins: 2, color: blue,	3032567	FBS 2-8 BU
	Plug-in bridge, pitch: 8.2 mm, number of pins: 2, color: gray,	3032621	FBS 2-8 GY

Electromechanical and solid-state relay modules

Highly compact relay modules – narrow and high-performance switching

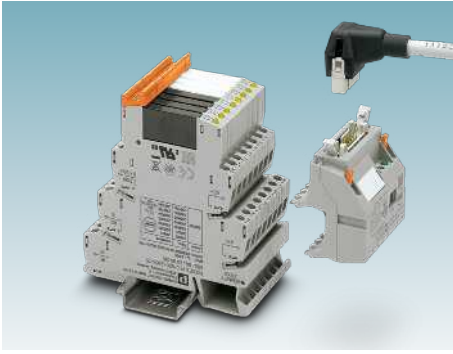
The PLC-INTERFACE relay series for universal use provides a wide range of plug-in electromechanical relays and solid-state relays. The following special variants are available: series for coupling sensors or actuators, solid-state relays, and hybrid variants for wear-free switching, Ex relays for Zone 2 applications, and relay modules for railroad applications.



Your advantages

- ✓ Comprehensive product range with special versions for special applications
- ✓ Optimized installation effort with versatile accessories
- ✓ Just 6.2 mm wide with plug-in electromechanical and solid-state relays
- ✓ Simple connection technology of your choice: whether Push-in, spring-cage, or screw connection technology
- ✓ Logic functions through extension with PLC logic

Easy extension



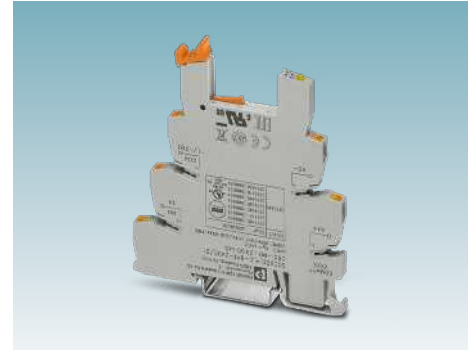
System cabling adapter

The system cabling adapter enables the quick, easy, and error-free connection of relay modules to the controller.



Time-saving potential distribution with plug-in bridges

With color-coded and insulated plug-in bridges, the PLC relay modules can save wiring time by up to 70%.



Compact space-saving housing

For space-saving installation, plug-in relays or solid-state relays in narrow housings that are just 6.2 mm or 14 mm wide are available.

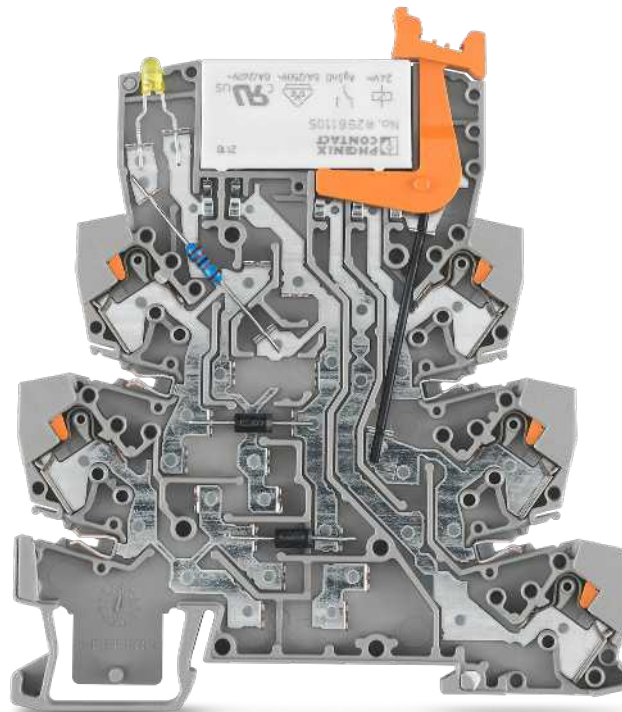
Lead-frame technology

Switch signals reliably – in the tightest of spaces

The lead-frame technology in the PLC-INTERFACE relay series provides the solid foundation for reliably switching, isolating, and amplifying signals. In addition, electromechanical and solid-state relays are used – this combination proves itself day after day in millions of switching cycles.

Innovation, passion, and pioneering spirit

In 1996, Phoenix Contact set a milestone in relay technology: Lead-frame technology was integrated for the first time into relay modules with an overall width of 6.2 mm.



Our relay modules in use

1 Railway technology

Relay and solid-state relay modules in accordance with DIN EN 50155 up to temperature class TX

2 Shipbuilding

DNV approval for the entire product range

3 Renewable energy

Space-saving relay modules for onshore and offshore applications

4 Logistics

Relays and solid-state modules for sorting and braking applications with high clock rates

5 Process industry

Highly compact relay modules with ATEX, IECEX, and UL Class 1 Div 2 approvals. Additional variants with increased immunity to interference with long control lines

6 Machine building and systems manufacturing

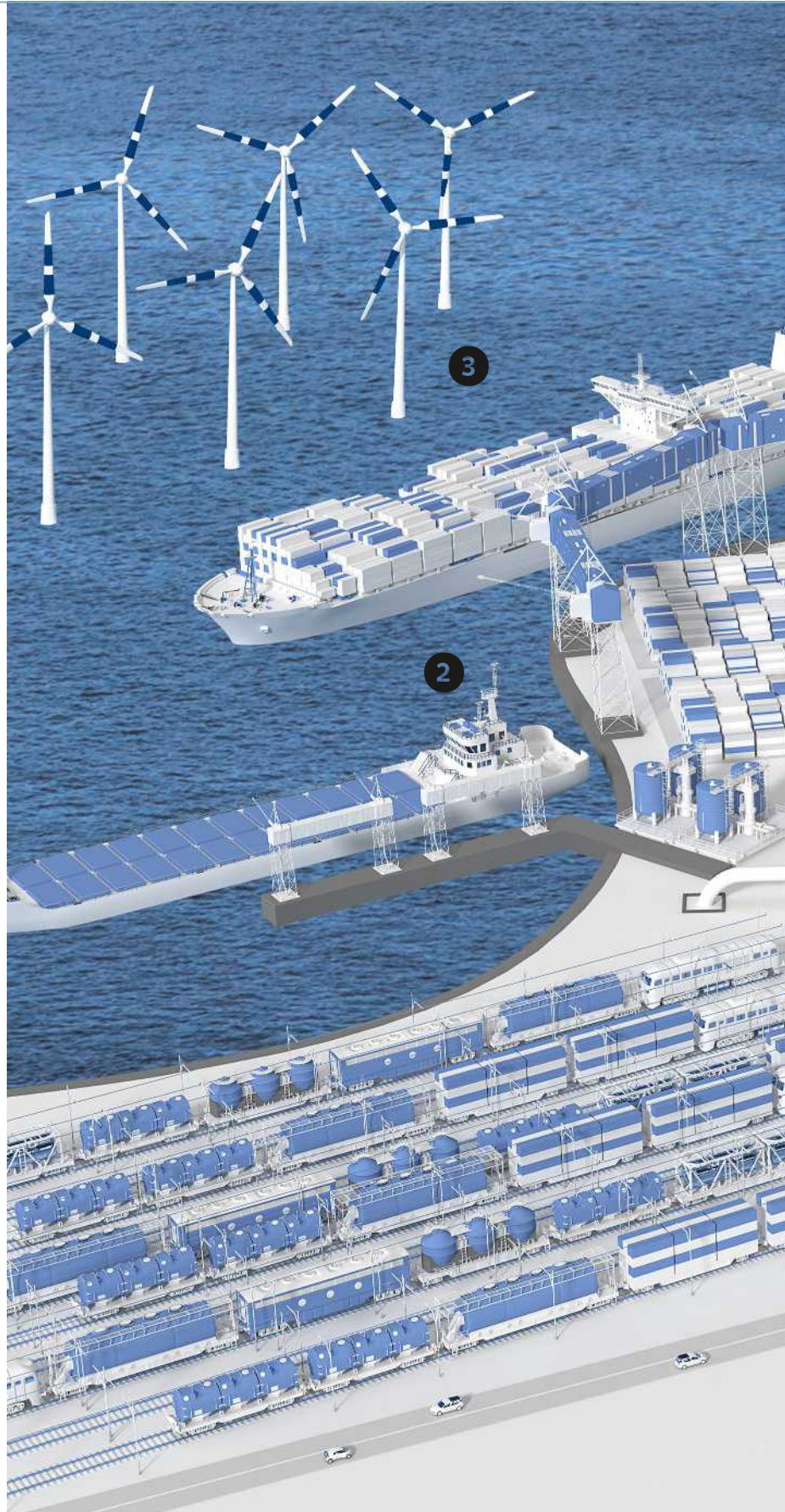
Comprehensive product range with special types such as relay modules with safe feedback through force-guided contacts or hybrid technology in accordance with DIN EN 61810-3 type A

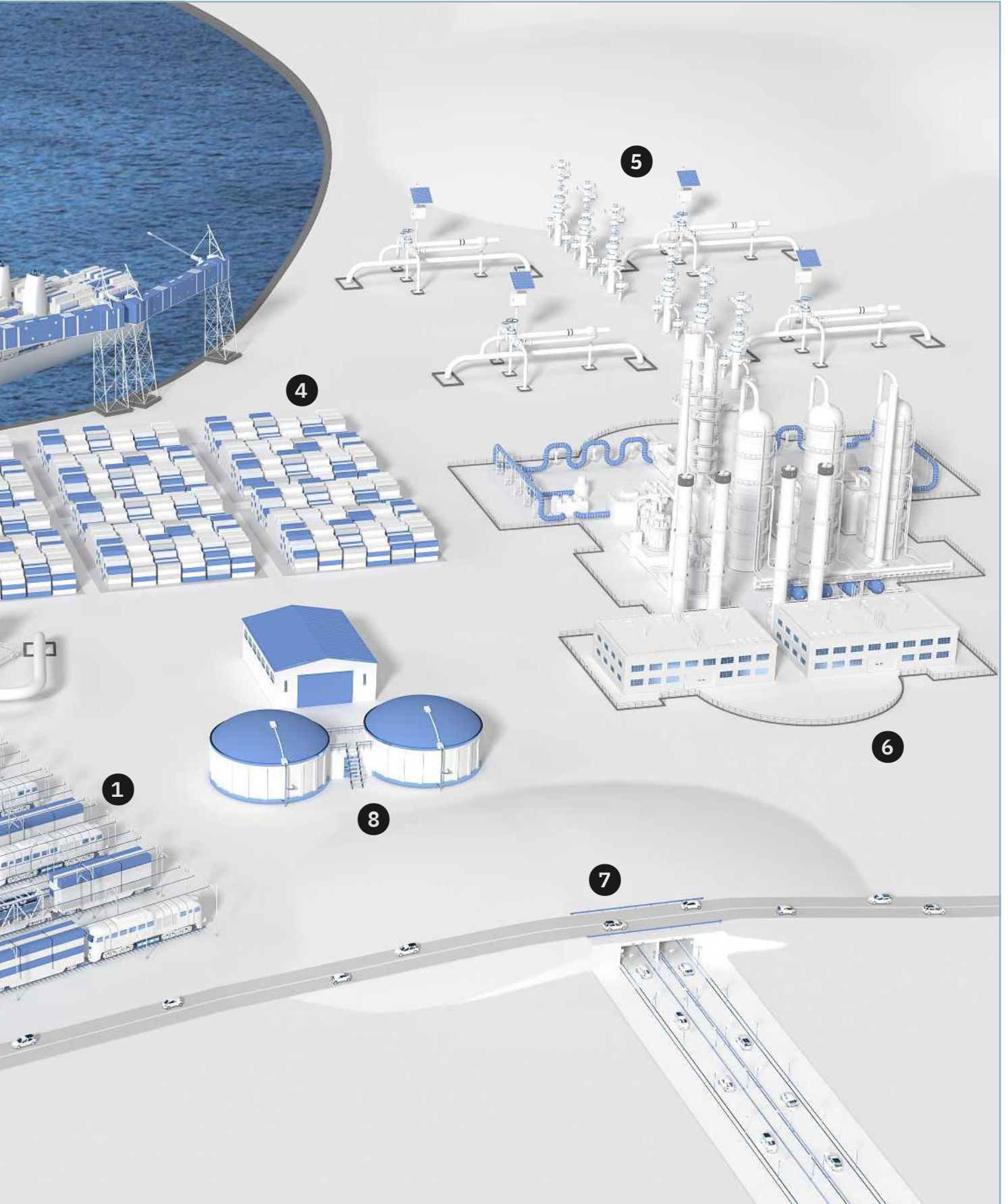
7 Infrastructure

Relay modules for high inrush currents (up to 800 A), e.g., for road and tunnel lighting systems


8 Water and wastewater


Relay and solid-state relay module with narrow design, designed for universal use





PLC-INTERFACE relay modules

PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	5 V DC	1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	1119893	1119897
	12 V DC						2900316	2966906
	24 V DC						2900299	2966171
	48 V DC						2900301	2966113
	60 V DC						2900303	2966139
	24 V AC/DC						2900300	2966184
	120 V AC 110 V DC						2900304	2966197
	230 V AC 220 V DC						2900305	2966207

PLC-INTERFACE electromechanical relay modules with 1-changeover contact gold contact								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2900317	2966919
	24 V DC						2900306	2966265
	48 V DC						2900308	2966126
	60 V DC						2900309	2966142
	125 V DC							2980034
	220 V DC							2987286
	24 V AC/DC						2900307	2966278
	48 V AC/DC						2902650	2959997
	120 V AC 110 V DC						2900310	2966281
	230 V AC 220 V DC						2900311	2966294

PLC-INTERFACE relay modules

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Electromechanical and solid-state relay modules


PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact and manual activation

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2909666	2909648
	24 V DC						2909667	2909649
	125 V DC							2909652
	24 V AC/DC						2909668	2909650
	120 V AC 110 V DC						2909669	2909651
	230 V AC 220 V DC						2909670	2909653


PLC-INTERFACE electromechanical relay modules with 1-changeover contact gold contact and manual activation

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2909671	2909654
	24 V DC						2909672	2909655
	125 V DC							2909658
	24 V AC/DC						2909673	2909656
	120 V AC 110 V DC						2909674	2909657
	230 V AC 220 V DC						2909676	2909660


PLC-INTERFACE electromechanical relay modules with power contact, actuator variant


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 N/O contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2900312	2966210
		2 N/O contacts	10 mA		25 A (20 ms)		2967109	


PLC-INTERFACE electromechanical relay modules with power contact and manual activation, actuator variant


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 N/O contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2909677	2909661

PLC-INTERFACE relay modules

PLC-INTERFACE electromechanical relay modules with power contact, sensor variant								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Screw connection	
	24 V DC	1 N/O contact	10 mA	6 A	10 A (4 s)	250 V AC/DC	2966223	
	120 V AC 110 V DC						2966249	
	230 V AC 220 V DC						2966252	

PLC-INTERFACE electromechanical relay modules with gold contact, sensor variant								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 N/O contact	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2900313	2966317
	120 V AC 110 V DC						2900314	2966320
	230 V AC 220 V DC						2900315	2966333

PLC-INTERFACE electromechanical relay modules with gold contact and manual activation, sensor variant								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 N/O contact	1 mA (at 24 V)	50 mA	50 mA	30 V AC 36 V DC	2909678	2909663
	120 V AC 110 V DC						2909679	2909664
	230 V AC 220 V DC						2909680	2909665

PLC-INTERFACE electromechanical relay modules with 2-changeover contact power contact								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	2 changeover contacts	10 mA (5 V)	6 A	15 A (300 ms)	250 V AC/DC	2900329	2967235
	24 V DC						2900330	2967060
	48 V DC						2900333	2967248
	60 V DC						2900334	2967293
	24 V AC/DC						2900332	2967073
	120 V AC 110 V DC						2900335	2967086
	230 V AC 220 V DC						2900336	2967099

PLC-INTERFACE relay modules

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Electromechanical and solid-state relay modules


PLC-INTERFACE electromechanical relay modules with 2-changeover contact gold contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	2 changeover contacts	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2900337	2967277
	24 V DC						2900338	2967125
	48 V DC						2900340	2967280
	60 V DC						2900341	2967303
	24 V AC/DC						2900339	2967112
	120 V AC 110 V DC						2900342	2967138
	230 V AC 220 V DC						2900343	2967141


PLC-INTERFACE electromechanical relay modules with 2-changeover contact power contact and manual activation


	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts	10 mA (12 V)	6 A	12 A (20 ms)	250 V AC/DC	2910519	2910502
	24 V AC/DC						2910520	2910503
	120 V AC 110 V DC						2910522	2910505
	230 V AC 220 V DC						2910523	2910506

PLC-INTERFACE electromechanical relay modules with 2-changeover contact gold contact and manual activation

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts	1 mA (12 V)	50 mA	50 mA	30 V AC 36 V DC	2910524	2910507
	48 V DC						2910527	
	24 V AC/DC						2910526	2910508
	120 V AC 110 V DC						2910528	2910511
	230 V AC 220 V DC						2910529	2910513

PLC-INTERFACE relay modules

PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact for high continuous currents								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	10 mA (12 V)	10 A	30 A (300 ms)	250 V AC/DC	2900290	2967617
	24 V DC						2900291	2967620
	48 V DC						2900294	2967646
	60 V DC						2900295	2967659
	24 V AC/DC						2900293	2967633
	120 V AC 110 V DC						2900296	2967662
	230 V AC 220 V DC						2900297	2967675

PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact and manual activation for high continuous currents								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	1 changeover contact	10 mA (12 V)	10 A	24 A (20 ms)	250 V AC/DC	2910530	2910514
	48 V DC						2910532	2910516
	24 V AC/DC						2910531	2910515
	120 V AC 110 V DC						2910533	2910517
	230 V AC 220 V DC						2910534	2910518

PLC-INTERFACE relay modules for railway applications

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Electromechanical and solid-state relay modules


PLC-INTERFACE electromechanical relay modules with power contact for railway applications

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2900318
		2 changeover contacts	10 mA (5 V)		15 A (300 ms)		2900346
	72 V DC	1 changeover contact	10 mA (12 V)		10 A (4 s)		2900319
		2 changeover contacts	10 mA (5 V)		15 A (300 ms)		2900347
	110 V DC	1 changeover contact	10 mA (12 V)		10 A (4 s)		2900320
		2 changeover contacts	10 mA (5 V)		15 A (300 ms)		2900348


PLC-INTERFACE electromechanical relay modules with power contact for high continuous currents in railway applications

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	1 changeover contact	10 mA (12 V)	10 A	30 A (300 ms)	250 V AC/DC	2900324
	110 V DC						2900326


PLC-INTERFACE electromechanical relay modules with gold contact for railway applications

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	1 changeover contact	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2900321
		2 changeover contacts					2900349
	72 V DC	1 changeover contact					2900322
	110 V DC	2 changeover contacts					2900351

PLC-INTERFACE electromechanical relay modules for 16.7 Hz input frequency

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	230 V AC	2 changeover contacts	1 mA	50 mA	50 mA	30 V AC 36 V DC	2900345

PLC-INTERFACE relay modules for railway applications

PLC-INTERFACE solid-state relay modules for railway applications					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection
	24 V DC	300 Hz	3 A	3 V DC ... 33 V DC	2900379
	110 V DC	100 Hz			2900380
	24 V DC	50 Hz		12 V DC ... 140 V DC	2900391
	36 V DC				2900392
	48 V DC				2900393
	72 V DC				2900394
	96 V DC				2900395
	110 V DC				2900396

PLC-INTERFACE relay modules with force-guided contacts


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Electromechanical and solid-state relay modules

Single relays with force-guided contacts							
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Item number
	24 V DC	2 changeover contacts, force-guided	10 mA (5 V)	6 A	6 A	250 V AC/DC	2908777


PLC-INTERFACE electromechanical relays with force-guided contacts								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts, force-guided	10 mA (5 V)	6 A	6 A	250 V AC/DC	2910537	2910535
	24 V AC/DC						2910539	2910536

PLC-INTERFACE relay modules for potentially explosive areas


PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact for potentially explosive areas

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2909527	2909522
	24 V DC						2909528	2909524
	120 V AC 110 V DC						2909529	2909525
	230 V AC 220 V DC						2909530	2909526


PLC-INTERFACE electromechanical relay modules with 1-changeover contact power contact for high continuous currents for potentially explosive areas

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 changeover contact	10 mA (12 V)	10 A	30 A (300 ms)	250 V AC/DC	2909531	2909518
	24 V DC						2909532	2909519
	120 V AC 110 V DC						2909533	2909520
	230 V AC 220 V DC						2909534	2909521


PLC-INTERFACE electromechanical relay modules with 2-changeover contact power contact for potentially explosive areas

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	2 changeover contacts	10 mA (5 V)	6 A	15 A (300 ms)	250 V AC/DC	2909513	2909517
	24 V DC						2909514	2909509
	120 V AC 110 V DC						2909515	2909511
	230 V AC 220 V DC						2909516	2909512

PLC-INTERFACE solid-state relay modules for potentially explosive areas

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	24 V DC	300 Hz	3 A	3 V DC ... 33 V DC	5603260
			100 mA	3 V DC ... 48 V DC	5603261
	120 V AC 110 V DC	10 Hz	3 A	3 V DC ... 33 V DC	5603262
			100 mA	3 V DC ... 48 V DC	5603263

PLC-INTERFACE relay modules for high inrush currents

PLC-INTERFACE electromechanical relay modules for high inrush currents								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	12 V DC	1 N/O contact	100 mA (12 V)	6 A	80 A (20 ms) 130 A (peak, at capacitive load, 230 V AC, 24 µF)	250 V AC/DC	1078801	1078800
	24 V DC						2900298	2967604
							1078683	1078680

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Electromechanical and solid-state relay modules

PLC-INTERFACE relay modules with integrated filter against interference signals

PLC-INTERFACE electromechanical relay modules with integrated filter against interference signals								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	120 V AC 110 V DC	1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	1125988	5603593
		2 changeover contacts	10 mA (5 V)		15 A (300 ms)		1136244	1125985
	230 V AC 220 V DC	1 N/O contact	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC		1125984
		1 changeover contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2910110	2980490
					30 A (300 ms, N/O contact)		1136242	1125943
		2 changeover contacts	10 mA (5 V)			15 A (300 ms)		1136245

PLC-INTERFACE electromechanical relay modules with defined input and output thresholds against very high interference signals								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	230 V AC	1 changeover contact	10 mA (12 V)	10 A	30 A (300 ms)	250 V AC/DC	1079404	1079402
		2 changeover contacts	10 mA (5 V)	6 A	15 A (300 ms)		1079389	1079387

PLC-INTERFACE solid-state relay modules

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Electromechanical and solid-state relay modules


PLC-INTERFACE input solid-state relay modules with DC output max. 100 mA

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	300 Hz	100 mA	3 V DC ... 48 V DC	2900352	2966728
	48 V DC				2900353	2966993
	60 V DC	100 Hz			2900354	2967455
	120 V AC 110 V DC	10 Hz			2900355	2966744
	125 V DC	50 Hz				2980047
	230 V AC 220 V DC	10 Hz			2900356	2966757


PLC-INTERFACE output solid-state relay modules with DC output max. 3 A


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	300 Hz	3 A	3 V DC ... 33 V DC	2900364	2966634
	48 V DC				2900365	2967002
	60 V DC	100 Hz			2900366	2967468
	120 V AC 110 V DC	10 Hz			2900367	2966650
	125 V DC	100 Hz				2980050
	230 V AC 220 V DC	10 Hz			2900368	2966663


PLC-INTERFACE output solid-state relay modules with AC output max. 750 mA


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	10 Hz	750 mA	24 V AC ... 253 V AC	2900369	2967840
	48 V DC				2900370	2967853
	120 V AC 110 V DC	3 Hz			2900372	2967879
	230 V AC 220 V DC				2900374	2967882

PLC-INTERFACE solid-state relay modules

PLC-INTERFACE output solid-state relay modules with DC output max. 1 A						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	5 V DC	50 Hz	1 A	12 V DC ... 300 V DC	2900381	2980652
	12 V DC				2900382	2980665
	24 V DC				2900383	2980678
	60 V DC				2900384	2980681
	110 V DC				2900385	2980694
	120 V AC	10 Hz			2900388	2980717
	220 V DC	50 Hz			2900387	2980704
	230 V AC	10 Hz			2900389	2980720

PLC-INTERFACE solid-state relay modules with TTL output						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	1 kHz	50 mA	4.5 V DC ... 6 V DC	2900363	2982728

PLC-INTERFACE hybrid solid-state relay modules						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	1 Hz	10 A	24 V AC ... 253 V AC	2905215	2905214
				12 V DC ... 250 V DC	new 2905494	new 2905495

PLC-INTERFACE solid-state relay modules with electronic changeover contact						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	1000 Hz	500 mA	3 V DC ... 48 V DC	2900378	2980636

PLC-INTERFACE solid-state relay modules

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Electromechanical and solid-state relay modules


PLC-INTERFACE solid-state relay modules with 10 A DC output and feedback

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	100 Hz	10 A	8 V DC ... 33 V DC	2900398	2982702


PLC-INTERFACE solid-state relay modules with DC output (actuator variant)

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	5 V DC	300 Hz	3 A	3 V DC ... 33 V DC	2900375	2980144
	24 V DC				2900376	2966676
					5 A	1194158


PLC-INTERFACE solid-state relay modules with AC output (actuator variant)

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	24 V DC	10 Hz	0.75 A	24 V AC ... 253 V AC	2967947
			2 A		2982760


PLC-INTERFACE solid-state relay modules with AC output for high inrush currents up to 250 A (1 ms)


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	10 Hz	2.4 A	24 V AC ... 253 V AC	2904632	2904631


PLC-INTERFACE solid-state relay modules with DC output (sensor variants)


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	300 Hz	100 mA	3 V DC ... 48 V DC	2900358	2966773
	120 V AC 110 V DC	10 Hz			2900359	2966799
	230 V AC 220 V DC				2900361	2966809


PLC-INTERFACE relay modules for special applications

PLC-INTERFACE electromechanical relay modules with two independent relays								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 N/O contacts (2 relays with 1 N/O contact)	5 mA	3.5 A	5 A	250 V AC 30 V DC	2901639	2987309


PLC-INTERFACE electromechanical relay modules for weak signal sources from 24 V DC / 1 mA								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	5 V DC	1 N/O contact	10 mA	6 A	10 A (4 s)	250 V AC/DC	1094764	1094759
	12 V DC						1094765	1094760
	24 V DC						1094767	1094761

PLC-INTERFACE pulse expansion module, pulse measurement from >0.1 ms					
	Rated actuating voltage	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	100 mA	3 V DC ... 48 V DC	2903173	2903171





PLC-INTERFACE electronic initiator terminals for NAMUR proximity sensors						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching points in accordance with EN 60947-5-6	Push-in connection	Screw connection
	24 V DC	350 Hz	50 mA	≥2.1 mA (in conducting state) ≤1.2 mA (in locked state) 6.3 mA ... 10 mA (during short circuit) 0 mA ... 0.35 mA (with a wire break)	2900397	2982663


PLC-INTERFACE electromechanical relay modules with hand switch								
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V AC/DC	1 N/O contact with switch	10 mA (12 V)	6 A	On request	250 V AC/DC	2900328	2982236


PLC-INTERFACE relay modules for special applications

PLC-INTERFACE hand switch modules without relays					
	Maximum switching voltage	Minimum switching voltage	Minimal switching current	Maximum inrush current	Screw connection
	72 V DC	2 V DC	1 mA	50 mA	2980733

PLC-INTERFACE Accessories

Bridges			
	Description	Item no.	Type
	Single plug-in bridge, number of pins: 2, length: 6 mm, color: blue	2966812	FBST 6-PLC BU
	Single plug-in bridge, number of pins: 2, length: 6 mm, color: gray	2966825	FBST 6-PLC GY
	Single plug-in bridge, number of pins: 2, length: 6 mm, color: red	2966236	FBST 6-PLC RD
	Single plug-in bridge, number of pins: 2, length: 8 mm, color: gray	2967688	FBST 8-PLC GY
	Single plug-in bridge, number of pins: 2, length: 14 mm, color: black	2967691	FBST 14-PLC BK
	Plug-in bridge, length: 50 mm, color: blue	1081051	FBST 50-PLC BU
	Plug-in bridge, length: 50 mm, color: gray	1081053	FBST 50-PLC GY
	Plug-in bridge, length: 50 mm, color: red	1081050	FBST 50-PLC RD
	Continuous plug-in bridge, length: 500 mm, color: brown	2967976	FBST 500-PLC BN
	Continuous plug-in bridge, length: 500 mm, color: blue	2966692	FBST 500-PLC BU
	Continuous plug-in bridge, length: 500 mm, color: gray	2966838	FBST 500-PLC GY
	Continuous plug-in bridge, length: 500 mm, color: red	2966786	FBST 500-PLC RD
	Passive feed-through bridge; can be inserted instead of a relay or solid-state relay, bridges terminal points A1 and 14	2980283	PLC-BP A1-14

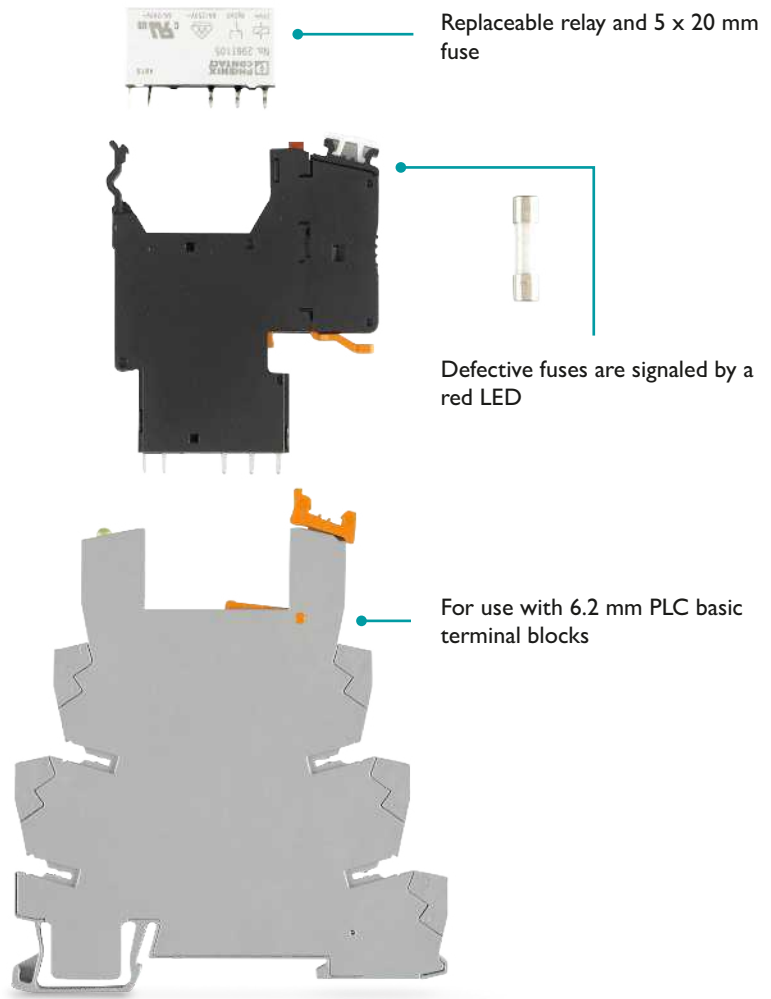
Feed-in terminal			
	Description	Item no.	Type
	Feed-in terminal, for feed-in of up to four potentials, for mounting on NS 35/7,5	2966508	PLC-ESK GY

Partition plate			
	Description	Item no.	Type
	Insulating plate, 2 mm thick, required at the start and end of every PLC terminal strip. Furthermore, it is used for: optical separation of groups, safe separation of different voltages of adjacent PLC-INTERFACES in accordance with DIN VDE 0106-101, isolation	2966841	PLC-ATP BK

Fuse adapters

Fuse adapters for relay modules Fuse protection without further space requirements

The fuse adapter for the PLC-INTERFACE relay system with an overall width of 6.2 mm makes it possible for you to fuse channel-by-channel without taking up additional space on the DIN rail. You can easily extend existing installations with this protective function.



Your advantages

- ✓ Easy extension of existing installations with the PLC-INTERFACE relay system through simple snap-on mounting
- ✓ Special relay base versions not needed – the standard portfolio can be used
- ✓ No additional space needed on the DIN rail
- ✓ Easy access to the fuse

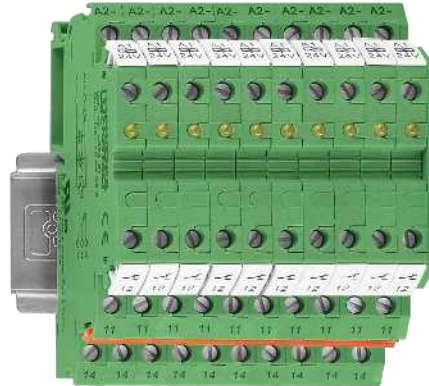
Fuse adapters

	Description	Item no.	Type
	Safety plug adapter for use on a 6.2 mm PLC basic terminal block. For 5 x 20 mm fuses. Operating voltage: 12 ... 24 V AC/DC. With LED for fuse failure indication.	1186499	PLC-FA-I-5X20-12-24UC
	Safety plug adapter for use on a 6.2 mm PLC basic terminal block. For 5 x 20 mm fuses. Operating voltage: 120 ... 230 V AC/DC. With LED for fuse failure indication.	1186508	PLC-FA-I-5X20-120-230UC
	Safety plug adapter for use on a 6.2 mm PLC basic terminal block. For 5 x 20 mm fuses. Operating voltage: Universal. Without fuse failure indication.	1186510	PLC-FA-5X20


DEK solid-state relay terminal blocks

Relay modules in terminal block design – DEK series


The Phoenix Contact DEK interface terminal blocks offer complete interface functions in just a 6.2 mm narrow terminal block housing. The powerful interfaces have not only the design, but also the high comfort of use of terminal blocks thanks to the use of standard terminal block accessories.




Relay terminal for middle to high power supplies, 1 changeover contact

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Screw connection
	24 V DC	1 changeover contact	10 mA	6 A	10 A (4 s)	250 V AC/DC	2964500

Relay terminal for middle to high power supplies, 1 N/O contact, sensor variant

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Screw connection
	5 V AC/DC	1 N/O contact	1 mA	3 A	5 A	250 V AC 125 V DC	2941170
	24 V AC/DC						2941154
							2964050

Relay terminal for middle to high power supplies, 1 N/O contact, actuator variant

	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Screw connection
	5 V AC/DC	1 N/O contact	1 mA	3 A	5 A	250 V AC 125 V DC	2941183
	24 V AC/DC						2940171
							2964063

DEK solid-state relay terminal blocks for special applications

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Electromechanical and solid-state relay modules


Relay terminal block with DC voltage output / max. = 100 mA

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	300 Hz	100 mA	3 V DC ... 48 V DC	2940223
	12 V DC				2964487
	24 V DC				2940207
	120 V AC	3 Hz			2941659
	230 V AC				2940210


Relay terminal block with DC voltage output / max. = 3 mA

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	300 Hz	3 A	3 V DC ... 30 V DC	2941361
	12 V DC				2941387
	24 V DC				2941374


Relay terminal block with DC voltage output / max. = 3 mA, actuator variant

	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	24 V DC	300 Hz	3 A	3 V DC ... 30 V DC	2964296


Relay terminal block with DC voltage output / max. = 10 mA


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	100 Hz	10 A	5 V DC ... 30 V DC	2961752
	12 V DC				2961749
	24 V DC				2964322


Relay terminal block with AC voltage output / max. = 800 A


	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	10 Hz	0.8 A	10 V AC ... 253 V AC	2964623
	12 V DC				2964636
	24 V DC				2964649

DEK solid-state relay terminal blocks for special applications


Relay terminal block with hand switch and integrated relay							
	Nominal input voltage	Contact type	Minimal switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Screw connection
	24 V AC/DC	1 N/O contact	1 mA	3 A	5 A	250 V AC	2964131


Relay terminal block with solid-state relay input max. 100 mA					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	230 V AC	5 Hz	100 mA	3 V DC ... 48 V DC	2964678

Relay terminal block with DC voltage output 100 kHz					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	100 kHz	50 mA	4 V DC ... 30 V DC	2964270
	24 V DC				2964283

Relay terminal block with DC voltage output push-pull 100 kHz					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	100 kHz	50 mA	4 V DC ... 18 V DC	2964542
	24 V DC				2964364
	5 V DC			14 V DC ... 30 V DC	2964555
	24 V DC				2964348

DEK solid-state relay terminal block accessories

Relay terminal block for inductive proximity sensors in accordance with NAMUR					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching points in accordance with EN 60947-5-6	Screw connection
	24 V DC	1 kHz	50 mA	≥2.1 mA (in conducting state) ≤1.2 mA (in locked state) 6.3 mA ... 10 mA (during short circuit) 0 mA ... 0.35 mA (with a wire break)	2940799

Inverter module for NPN/PNP transistor outputs					
	Supply voltage	Transmission frequency	Activation threshold	Shutoff threshold	Screw connection
	20 V DC ... 30 V DC	15 kHz	NPN input: <5 V (at UV = 24 V; <(UV - 19 V)) PNP input: >19 V	NPN input: >15 V (at UV = 24 V; >(UV - 9 V)) PNP input: <9 V	2964319

Accessories			
	Description	Item no.	Type
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm ² , loop length: 90 mm, ferrule length: 8 mm, color: black	2820916	DB 50- 90 BK
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm ² , loop length: 90 mm, ferrule length: 8 mm, color: blue	2821180	DB 50- 90 BU
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm ² , loop length: 90 mm, ferrule length: 8 mm, color: gray	2820929	DB 50- 90 GY
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm ² , loop length: 90 mm, ferrule length: 8 mm, color: red	2864639	DB 50- 90 RD
	Cover as termination of a terminal block row, color: green	2716949	D-DEK 1,5 GN

Programmable logic relay system

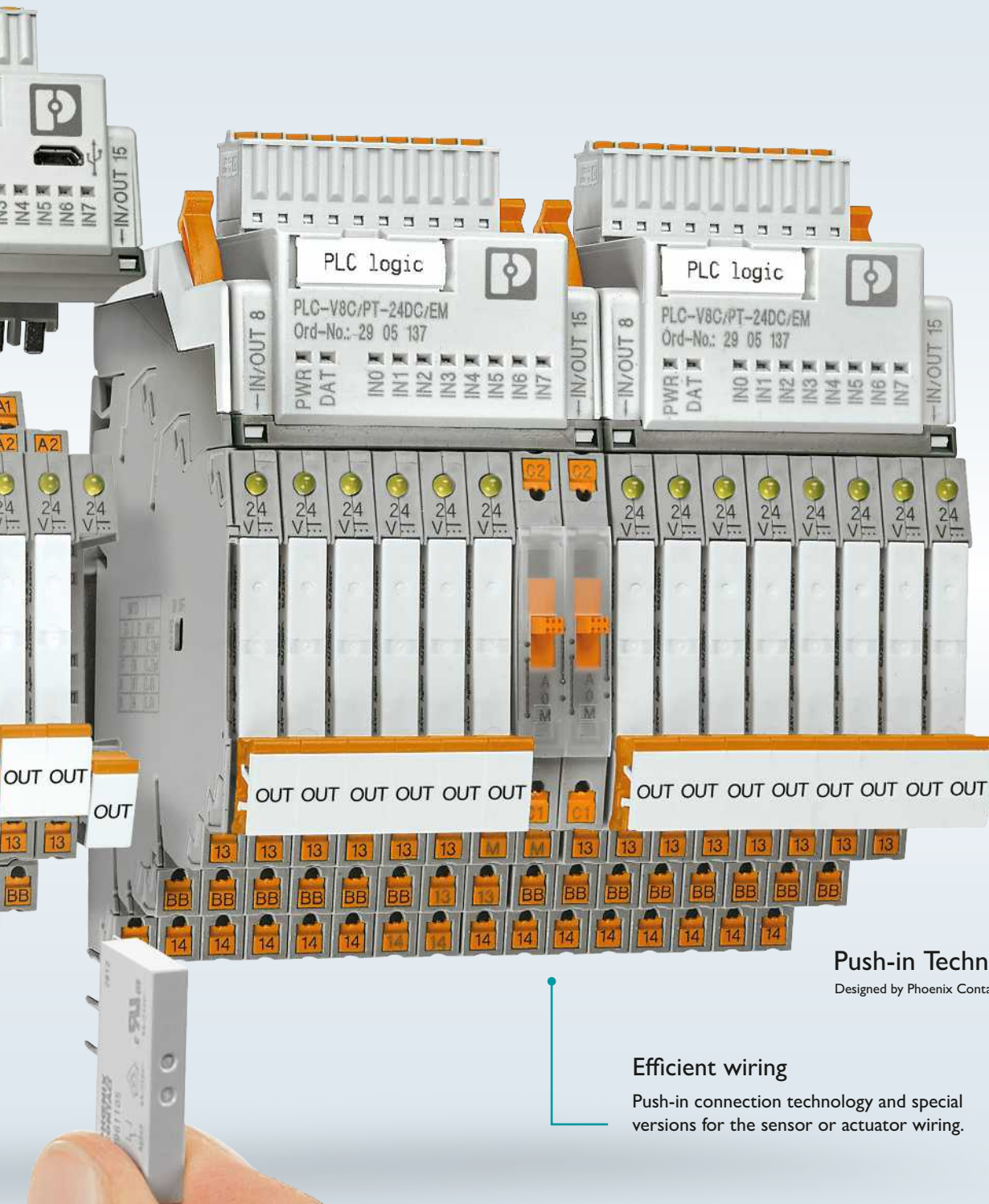
Extremely compact control and switching

On the logic module (or control relay) market, the PLC logic relay system is the first to combine logic, interface, and field connection levels in a single solution. This means that you can switch and control I/O signals with just one compact and flexible system. You can combine the logic module with the corresponding relay and analog modules as required. The modular structure enables a broad spectrum of application options.

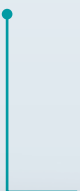


High availability

Benefit from a high level of machine and system availability. The modular design of PLC logic with plug-in switching elements allows relays to be replaced swiftly in the event of servicing.



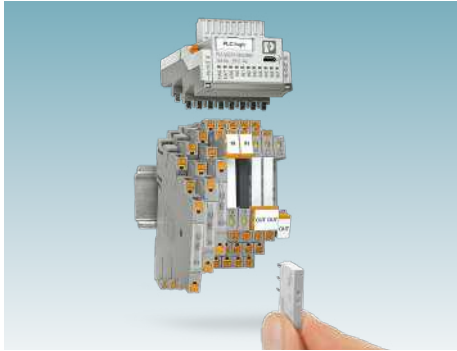
Push-in Technology[®]
 Designed by Phoenix Contact



Efficient wiring

Push-in connection technology and special versions for the sensor or actuator wiring.

Easy handling



Flexible combination

Use electromechanical and solid-state relays and analog input and output modules for your individual application.



PLC logic app

Easy and fast parameter adjustments as well as monitoring via app with the corresponding Bluetooth adapter.

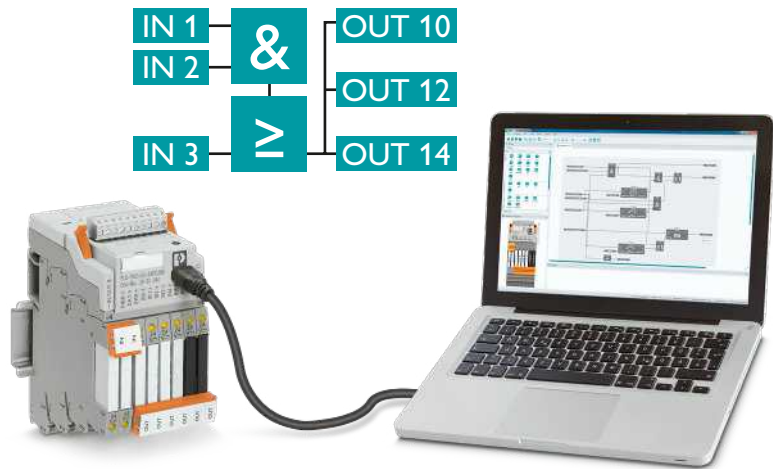


Intuitive programming

LOGIC+ is the intuitive software which allows you to implement your projects quickly.

Programmable logic modules

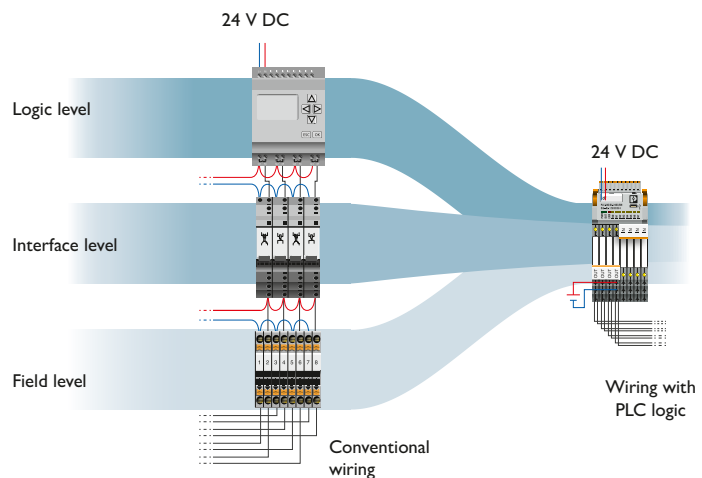
Combine the advantages of plug-in relays with logic functions and intuitive software, and implement small automation tasks with PLC logic.



Reduce wiring costs

With conventional logic modules, module wiring is complex and time-consuming. To avoid the disadvantages of permanently soldered relays, additional relay modules are often used upstream of the inputs and outputs.

PLC logic replaces conventional switching and control devices and reduces the wiring required.



PLC logic logic modules and PLC-INTERFACE relays


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Programmable logic relay system


Logic modules			
	Description	Screw connection	Push-in connection
	PLC logic stand-alone module, 2nd generation, with 16I/Os, for plug-in connection to eight digital or analog PLC-INTERFACE terminal blocks, cannot be extended, real-time clock, micro USB female connector, accommodates memory module and Bluetooth adapter, screw connection	2907445	2907443
	PLC logic basic module, 2nd generation, with 16I/Os, for plug-in connection to eight digital or analog PLC-INTERFACE terminal blocks, can be extended to 48I/Os, real-time clock, micro USB female connector, accommodates memory module and Bluetooth adapter, screw connection	2907447	2907446
	PLC logic extension module with 16I/Os, for plug-in connection to eight PLC-INTERFACE terminal blocks for extending the basic module (a maximum of two extension modules can be connected to a basic module), screw connection	2903095	2905137

Relay output			
	Description	Screw connection	Push-in connection
	PLC-INTERFACE, consisting of basic terminal block PLC-BSC.../21 with screw connection and plug-in miniature relay with power contact, for assembly on DIN rail NS 35/7,5, 1 changeover contact, input voltage 24 V DC	2966171	2900299
	PLC-INTERFACE, consisting of PLC-BSC.../21 basic terminal block with screw connection and plug-in miniature relay with multi-layer gold contact, for mounting on DIN rail NS 35/7,5, 1 changeover contact, input voltage 24 V DC	2966265	2900306
	PLC-INTERFACE, consisting of basic terminal block PLC-BSC.../ACT with screw connection and plug-in miniature relay with power contact, for assembly on DIN rail NS 35/7,5, 1 N/O contact, input voltage 24 V DC	2966210	2900312
	PLC-INTERFACE with switch (operation: manual) for the functions "manual, zero, and automatic", with screw connection and integrated power contact relay, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input voltage 24 V AC/DC	2982236	2900328

Solid-state relay output			
	Description	Screw connection	Push-in connection
	PLC-INTERFACE, consisting of PLC-BSC.../21 basic terminal block with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input: 24 V DC, output: 3 ... 48 V DC/100 A	2966728	2900352
	PLC-INTERFACE, consisting of PLC-BSC.../21 basic terminal block with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input: 24 V DC, output: 3 ... 33 V DC/3 A	2966634	2900364
	PLC-INTERFACE, consisting of PLC-BSC.../21 basic terminal block with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input: 24 V DC, output: 24 ... 253 V AC/0.75 A	2967840	2900369
	PLC-INTERFACE for output functions, consisting of PLC-BSC.../ACT basic terminal block with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input: 24 V DC, output: 3 ... 33 V DC/3 A	2966676	2900376
	PLC-INTERFACE with electronic changeover contact, consisting of PLC-BSC.../21 basic terminal block with screw connection and integrated miniature solid-state relay, for mounting on NS 35/7.5 DIN rail, 1 changeover contact, input: 24 V DC, output: 3 V DC...48 V DC/500 mA	2980636	2900378

PLC-INTERFACE relays

Relay input			
	Description	Screw connection	Push-in connection
	PLC-INTERFACE for input functions, consisting of PLC-BSC.../SEN basic terminal block with screw connection and plug-in miniature relay with multi-layer gold contact, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input voltage 24 V DC	2966317	2900313
	PLC-INTERFACE for input functions, consisting of PLC-BSC.../SEN basic terminal block with screw connection and plug-in miniature relay with multi-layer gold contact, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input voltage 120 V AC/110 V DC	2966320	2900314
	PLC-INTERFACE for input functions, consisting of PLC-BSC.../SEN basic terminal block with screw connection and plug-in miniature relay with multi-layer gold contact, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input voltage 230 V AC/220 V DC	2966333	2900315
	6.2 mm PLC basic terminal block for output function with screw connection, without relay or solid-state relay, for mounting on DIN rail NS 35/7,5, with load return connection (BB), 1 N/O contact, input voltage 5 V DC	2980241	2900448
	Plug-in miniature power relay, with multi-layer gold contact, 1 changeover contact, input voltage 4.5 V DC	2961370	

Solid-state relay input			
	Description	Screw connection	Push-in connection
	PLC-INTERFACE for input functions with PLC logic, with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail, 1 N/O contact, input: 24 V DC	2908173	2908172
	PLC-INTERFACE for input functions with PLC logic, with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail, 1 N/O contact, input: 120 V AC/110 V DC	2908175	2908174
	PLC-INTERFACE for input functions with PLC logic, with screw connection and plug-in miniature solid-state relay, for mounting on DIN rail, 1 N/O contact, input: 230 V AC/220 V DC	2908177	2908176

PLC-INTERFACE relay and accessories

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Programmable logic relay system

Analog input and output discs

	Description	Screw connection	Push-in connection
	Analog input module for PLC logic logic modules (2nd generation only), single-channel, signal type (4 mA ... 20 mA, 0 mA ... 20 mA, 0 V ... 10 V, 2 V ... 10 V) can be configured via DIP switch, screw connection	2906916	2906917
	Pt100/Pt1000 temperature transducer for PLC logic logic modules (2nd generation only), single-channel, signal type (Pt 100, Pt 1000) configurable via DIP switch, screw connection	2906918	2906919
	Analog output module for PLC logic logic modules (2nd generation only), single-channel, signal type (4 mA ... 20 mA, 0 mA ... 20 mA, 0 V ... 10 V, 2 V ... 10 V) can be configured via DIP switch, screw connection	2906920	2906921

Basic touch panel

	Description	Item no.	Type
	Touch panel with 10.92 cm / 4.3 inch TFT display (analog-resistive) 480 x 272 pixels (WQVGA), 16.7 million colors, Arm® Cortex®-A7, 700 MHz i.MX6 UL, 2x COM (RS-232/422/485), 1x USB 2.0, type A, 1x USB 2.0, type B, 1x Ethernet (10/100 Mbps), RJ45, Windows® Embedded Compact 7 and user software: Visu+. (Bus system: none)	1050387	BTP 2043W
	Touch panel with 17.8 cm / 7 inch TFT display (analog-resistive) 800 x 480 pixels (WVGA), 16.7 million colors, Arm® Cortex®-A7, 700 MHz i.MX6 UL, 2x COM (RS-232/422/485), 1x USB 2.0, type A, 1x USB 2.0, type B, 1x Ethernet (10/100 Mbps), RJ45, Windows® Embedded Compact 7 and user software: Visu+. (Bus system: none)	1046666	BTP 2070W
	Touch panel with 25.7 cm / 10.1 inch TFT display (analog-resistive) 1024 x 600 pixels (WSVGA), 16.7 million colors, Arm® Cortex®-A7, 700 MHz i.MX6 UL, 2x COM (RS-232/422/485), 1x USB 2.0, type A, 1x USB 2.0, type B, 1x Ethernet (10/100 Mbps), RJ45, Windows® Embedded Compact 7 and user software: Visu+. (Bus system: none)	1046667	BTP 2102W
	Data cable for RS-232 communication between the PLC logic logic modules and the BTP 2000 device series touch panels. Cable length: 2 m	1076342	IFS-V8C-RS232-DATCABLE

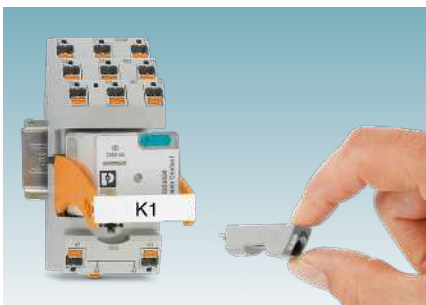
Timer relays – simple time control applications, narrow and precise

Timer relays are particularly suitable for controlling simple time sequences. The 6 mm timer relays with just one adjustable time and one fixed function are particularly space saving. Use the compact timer relays in installation housing for building installation and the series production of machines and systems. Our multifunctional relays offer selectable time ranges and functions.

Compact timer relays PLC-TR and ETD-BL

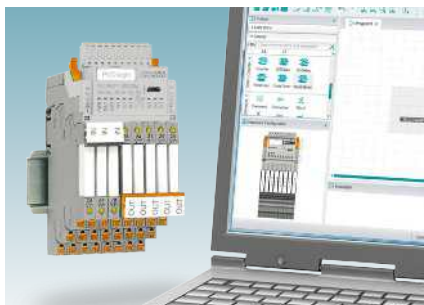
The 6 mm timer relays are the space-saving, cost-effective solution for simple time control applications. The compact timer relays in compact installation housing are particularly suitable for use in building installation and the series production of machines and systems.

More information starting on page 50.



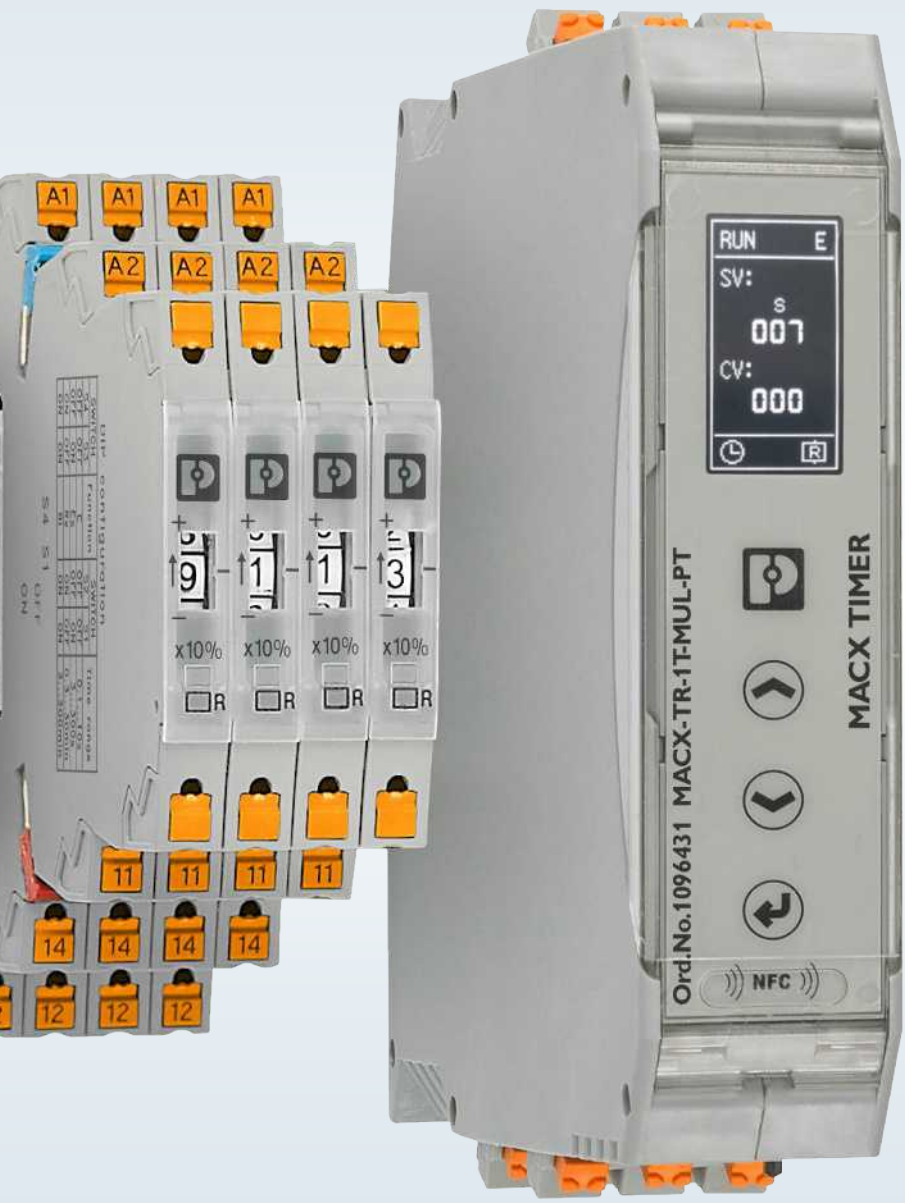
The universal industrial relay system with multifunctional timer module.

More information starting on page 7



The programmable logic relay system combines relay and analog modules with logic and time functions and intuitive software.

More information starting on page 42



Smart timer relays MACX-TR

Smart and versatile: multifunctional timer relays with OLED display and optional NFC communication, plus a smartphone app.

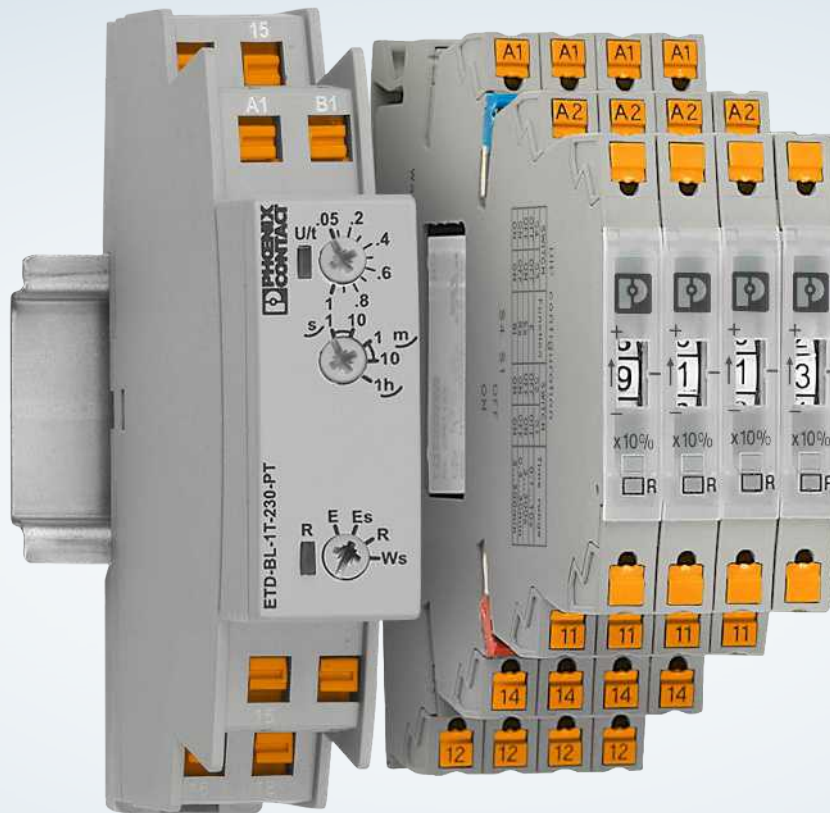
More information starting on page 52.

Timer relays

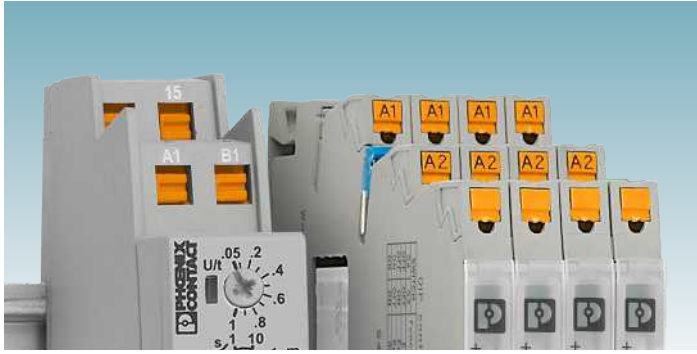
Compact timer relays

Space-saving for simple time control applications

When it comes to controlling simple time sequences, timer relays are the cost-effective alternative to a PLC. Our timer relays enable you to easily and inexpensively implement time control applications ranging from a few milliseconds to several days. Benefit from convenient device setup via the operating elements on the front of the housing. Floating changeover contact outputs ensure fast error indication and selective shutdown. Select the appropriate timer relay for your application from four product families.

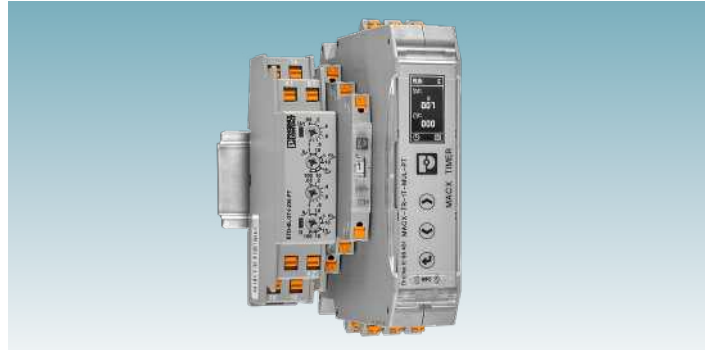


Your advantages



Fast wiring

Wiring is quick, easy, and tool-free with Push-in connection technology.



Easy handling

The time is set conveniently with an illuminated thumbwheel or with decoder switches on the front of the housing

ETD-BL compact timer relays

The compact timer relays are particularly suitable for use in building installation and the series production of machines and systems.

Your advantages:

- ✓ Space savings with the compact installation design, even in mobile and distributed system components
- ✓ Quick and tool-free wiring with Push-in Technology
- ✓ Clear diagnostics with status LEDs that are easy to see



Ultra-narrow PLC-TR timer relays

The narrow timer relays are the space-saving solution for simple time control applications. Choose between versions with an adjustable time and a predefined function or multifunctional products with four adjustable time ranges and selectable functions.

Your advantages:

- ✓ Narrow overall width of just 6.2 mm saves space
- ✓ Precise and convenient time setting using the illuminated thumbwheel
- ✓ Convenient and flexible setting of the multifunctional timer relays via DIP switches on the side panel
- ✓ Clear diagnostics with status LEDs that are easy to see
- ✓ Fast installation with the use of plug-in bridges and system cabling



Timer relays

Intelligent timer relays Time functions at a glance

The new intelligent MACX-TR timer relays are multifunctional timer relays with an OLED display and pushbuttons. You will benefit from both the intuitive handling and the precise time function setting options. You can adjust the time parameters either via an app on your smartphone or directly on the device – the choice is yours.

OLED display

With countdown display for monitoring the module status

PIN coding

For protection against unauthorized changes

Guided configuration

Via the device buttons or via app

Rapid selection of the time functions

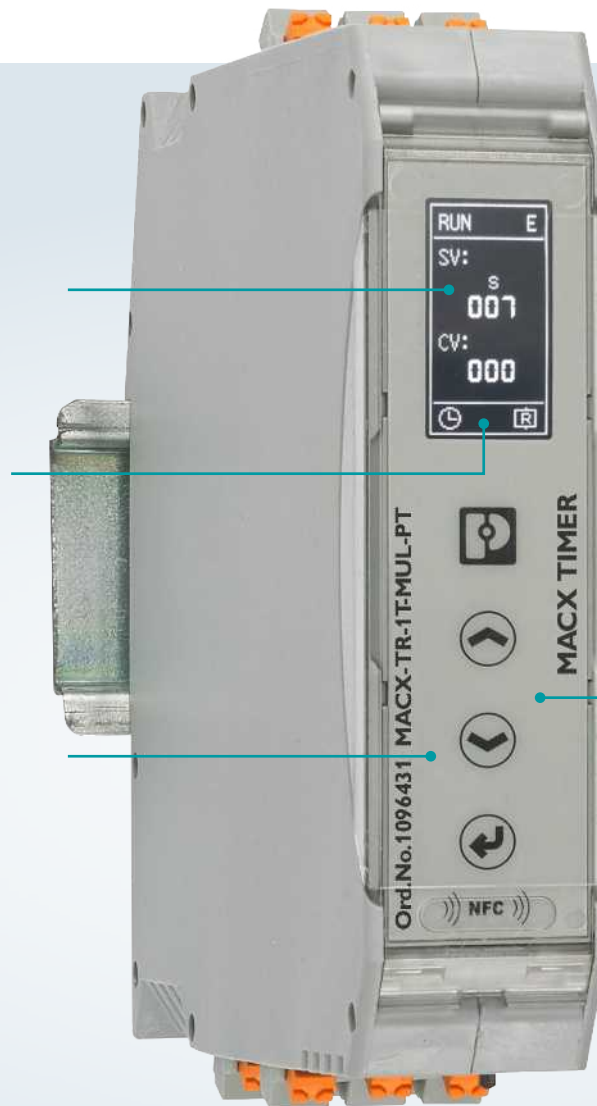
Via function diagrams on the clearly readable OLED screen or via smartphone app

Precise time settings

Without checking or calculating potentiometer settings

Error-free configuration

Error-free and rapid transmission of existing and stored configurations via smartphone using NFC communication



Easy handling in detail



Easy and precise setup

The combination of the easily readable OLED screen and pushbuttons enables easy handling directly on the device. Using the intuitive menu guide, you can select the necessary time functions and enter the precise time values at the touch of a button.



Intelligent configuration

The smartphone app provides you with further options. Via NFC connection, you can read out and adjust the current settings, and even transfer them to other timer relays. An optional PIN code provides protection against unauthorized access.



Smartphone app

In addition to the intelligent configuration options, the MACX-TR app provides you with access to additional device information and timer relay data sheets at any time. The free app is available in the respective stores for iOS and Android users.

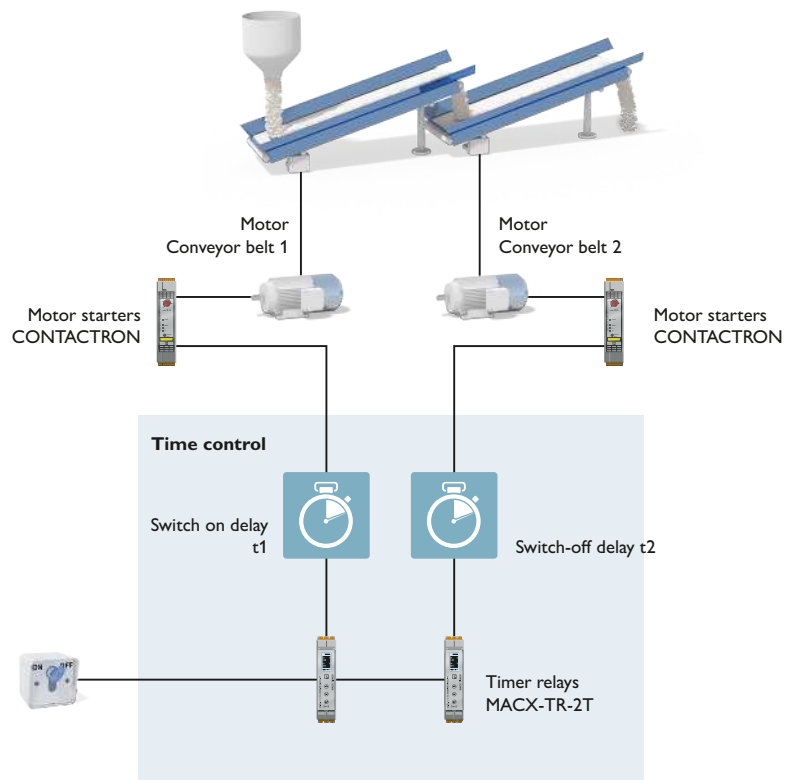
Application example: Conveying technology

Timer relays are used to protect the supply network against overloads and to avoid peak loads. To achieve this, the drive motors are switched on with a time delay.







When starting the system up, motor 2 is started first and then, after a short time interval, motor 1 is also started.

This sequence also prevents conveyor belt 2 from being overfilled during the system start-up if conveyor belt 1 is already loaded.

The stopping process is performed in the reverse time delay sequence. This also ensures that the conveyor belts are completely emptied.



Product overview of timer relays

Timer relays						
	Industrial housings			Compact housings		Narrow housings
						
Width	22.5			17.5		6.2
Functions						
E: switch-on delay	•			•		•
Es: switch-on delay with control contact	•			•		•
Rs: response delay with control contact	•			•		•
Wu: passing make contact, voltage-controlled	•					
Ws: passing make contact with control contact	•			•		
Bi: flashing beginning with pulse	•					•
Ip: switched-mode beginning with pause	•	•			•	
li: switched-mode beginning with pulse	•	•			•	
ER: with switch-on delay and off-delay, with control contact		•				
EWu: with switch-on delay and passing make contact, voltage-controlled		•				
EWs: with switch-on delay and passing make contact, with control contact		•				
Wt: pulse sequence evaluation (retriggerable off-delay)		•				
YΔ: star/delta startup		•				
POFF: off-delay			•			
Setting range time	10 ms ... 59999 min. 10 ms ... 999 h 59 min		10 ms ... 10 min.	50 ms ... 1 h 5 time end ranges	50 ms ... 100 h 7 time end ranges	0.1 s ... 300 min. 4 time end ranges
Contact type	2 floating changeover contacts			1 floating changeover contact		
Push-in connection	1096431	1103355	1119399	2905814	2907714	2910141
Screw connection	1096429	1103345	1119403	2905813	2907713	2910140

Timer relay application example

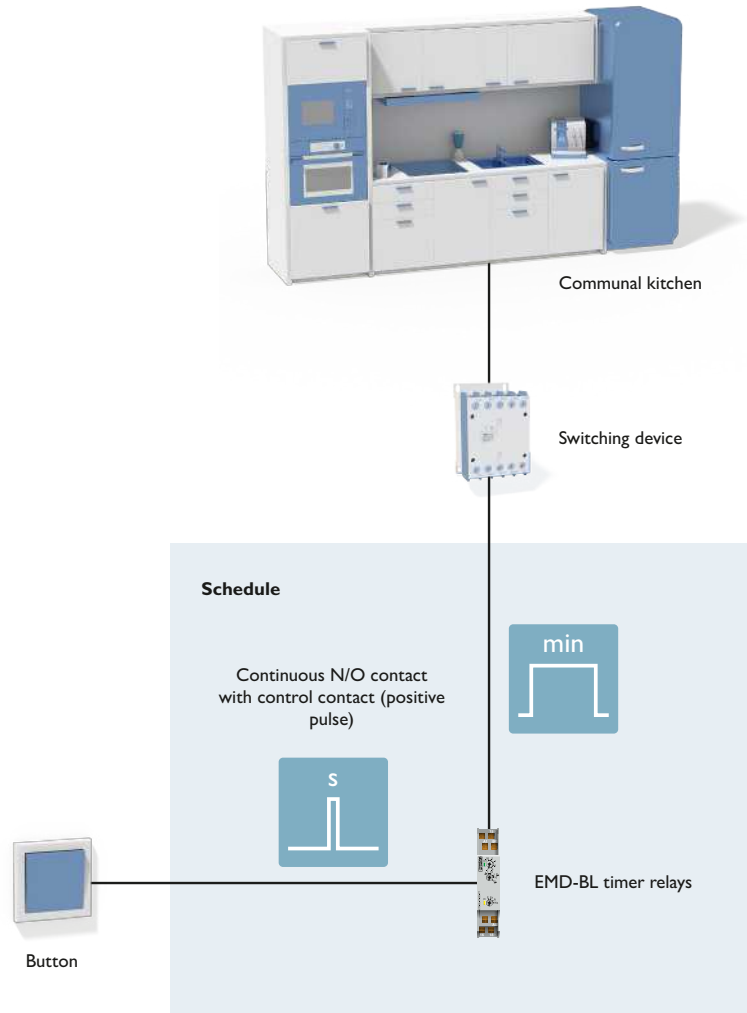
Time function in a communal kitchen

Time function

- With passing make contact, with control contact

Application requirements

- Switching on the stovetop with a button
- Stovetop must be turned off after a defined period of time
- Automatic switch-off after the time elapses



Monitoring relays

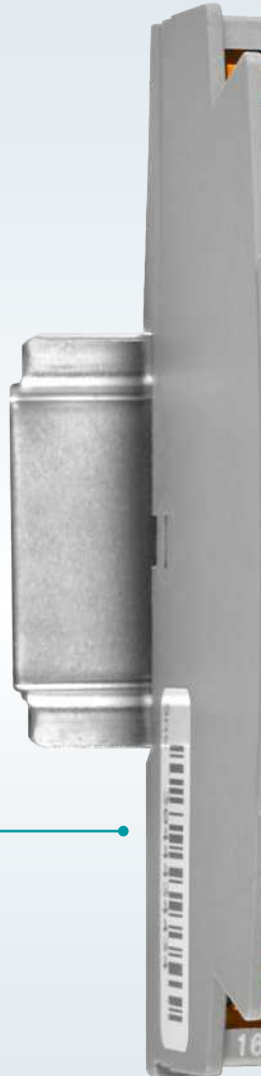
Increase your system availability

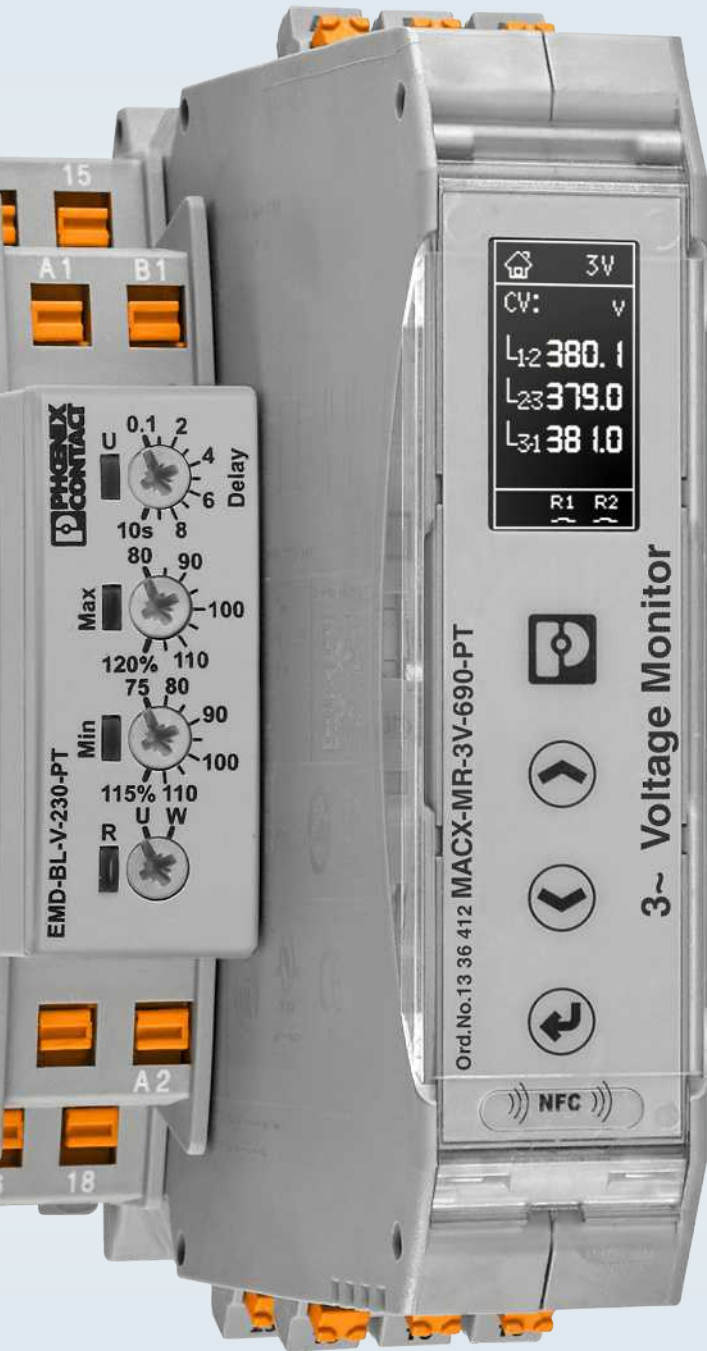
Using our monitoring relays, you can detect errors as soon as they occur. This increases your system availability and avoids expensive downtimes and repairs. Shut down system parts selectively or report an error to a controller as soon as the set limit value is exceeded or not reached. For the monitoring solution that's right for you, Phoenix Contact offers two device families.

Compact monitoring relays EMD-BL

The compact EMD-BL monitoring relays are ideal for simple monitoring tasks, especially in building installation and series production.

More information starting on page 58.





Smart monitoring relays

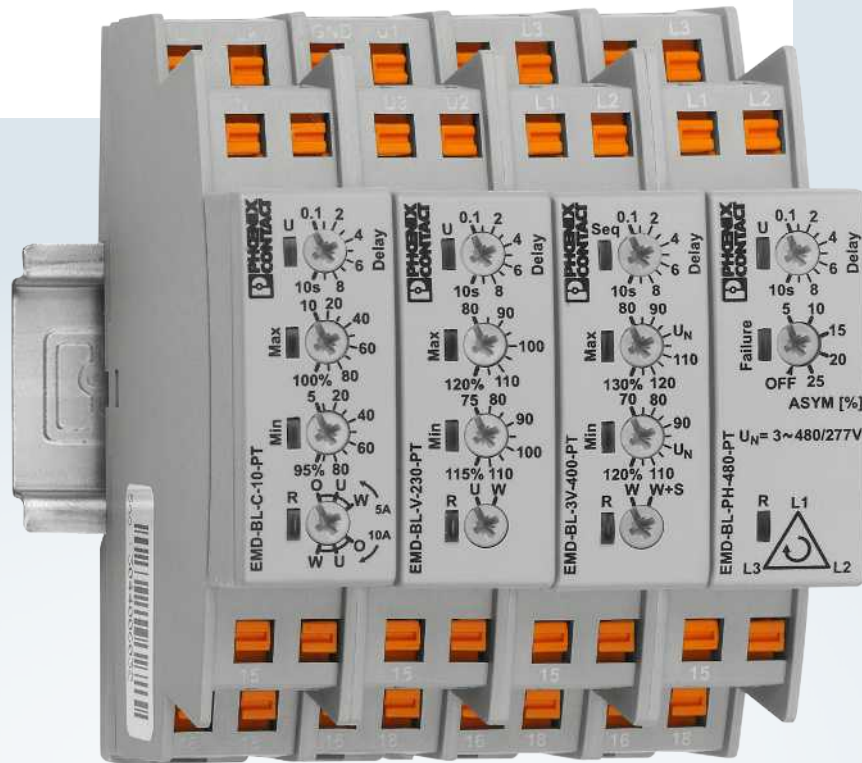
The smart MACX-MR monitoring relays provide you with many monitoring functions with extended setting options, large measuring ranges, and a broad supply voltage range.

More information starting on page 60.

Monitoring relays

Compact monitoring relays For simple monitoring tasks

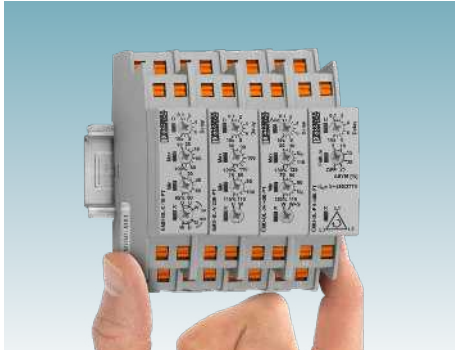
The compact EMD-BL monitoring relays are ideal for simple monitoring tasks, and are suitable both for use in building installation and in the series production of machines and systems. The devices monitor current, voltage, and phase parameters efficiently and reliably. With the push-in technology, they can be connected to the modules quickly, directly, and without tools.



Your advantages

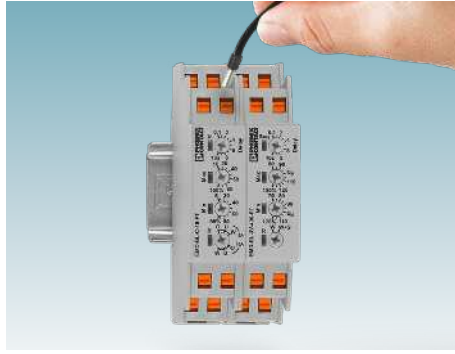
- ✓ Space saving with compact installation housing
- ✓ Easy handling – parameters can be conveniently set using rotary switches on the front of the housing
- ✓ Clear diagnostics with status LED
- ✓ Ideal for series production – reasonably-priced solution for numerous monitoring functions
- ✓ Quick installation of the module versions with supply from the measuring circuit

Your advantages in detail



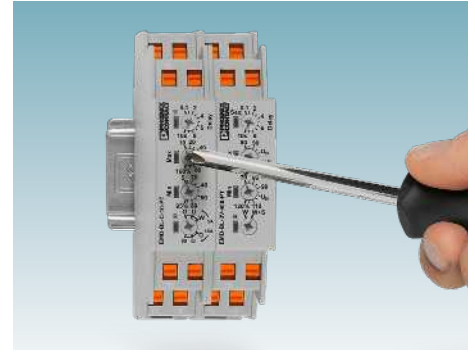
Compact and cost-effective

With the compact installation design, EMD-BL devices are ideal for building installation and series production.



Quick and easy wiring

Benefit from the advantages of Push-in direct connection technology: insertion forces reduced by up to 50% and tool-free wiring.



Easy handling

Desired parameters can be set conveniently via the rotary switch on the front of the housing.

Application examples

Current monitoring

With undercurrent monitoring, you can monitor electrical loads for functionality or open circuit. Overcurrent monitoring enables you to prevent overload situations or blockages.

- Current consumption of motors
- Monitoring lighting systems, ventilation systems, and heating circuits
- Overload situations for lifting and transport equipment
- Monitoring electromechanical braking equipment

Voltage monitoring

Protect machines and systems from harmful effects that could cause overvoltages or undervoltages.

- Undervoltage monitoring for batteries
- Speed monitoring for DC motors
- Limit value monitoring for machines and systems
- Power supply monitoring for machines and systems
- Protection against damage to loads due to unstable power supply networks

Phase monitoring

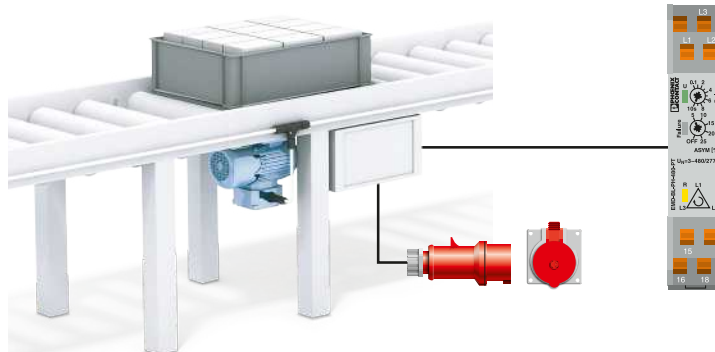
All phase parameters such as phase failure, phase sequence, and asymmetry can be monitored in 3-phase grids.

- Phase failure monitoring: motor protection in 3-phase grids
- Phase sequence monitoring: direction of rotation detection for conveyor belt drives
- Protection against motor damage in the event of phase asymmetry or phase failure

Temperature monitoring

When monitoring motor winding temperatures, temperature-dependent resistors detect motor heating and activate the relay to signal it.

- Monitoring the motor winding temperature of conveyor belt drives
- Protect motors from thermal and mechanical overloads, for example through insufficient cooling, difficult start-up, and undersizing



Phase monitoring in conveyor drives

Monitoring relays

Smart monitoring relays

Precise measurement and reporting

With the smart MACX-MR monitoring relays, you can keep a constant eye on important electrical and physical plant parameters. Benefit from intuitive operation via the buttons and OLED display or via NFC with the smartphone app. The precise setting and display of the values as well as error recording help you to detect even small deviations at an early stage and to fix the causes of the errors.

Easy-to-read OLED display

For user-guided configuration and display of the current values on site

PIN code

For protection against unauthorized changes

Extended measuring ranges

And high measuring accuracy with true-RMS measurement

Smart configuration

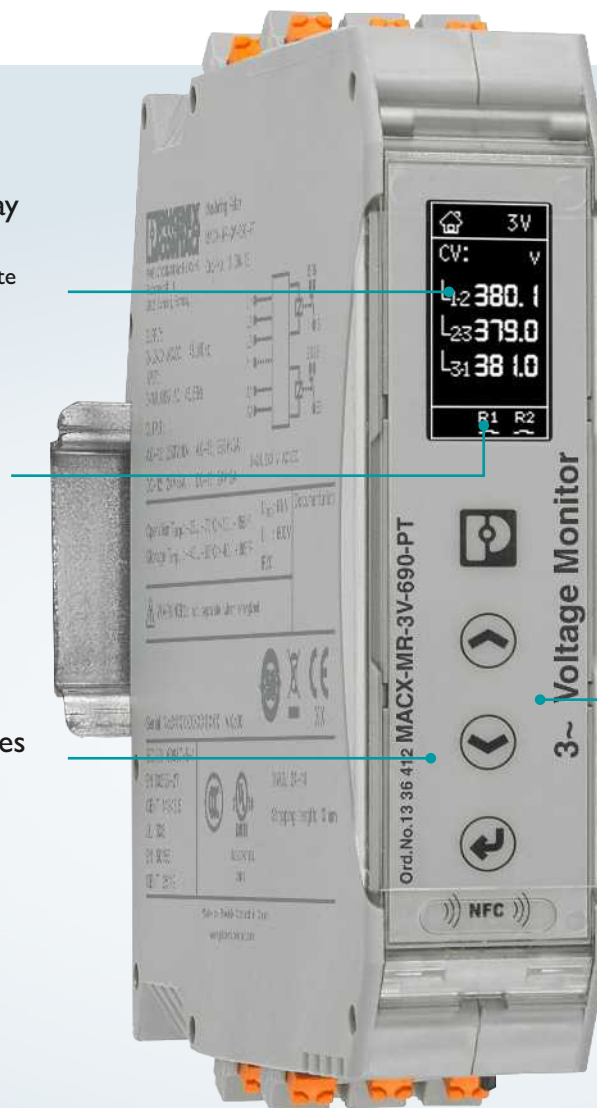
User-guided setting and simple transmission of stored configurations via smartphone using NFC communication

Precise limit value setting

Without checking or calculating potentiometer settings

Broad supply voltage range

Electrically isolated from the measuring circuit



COMPLETE line

The new standard for the control cabinet. More information on pages 6 and 7.

Simple advantages in detail



Intuitive operation

Perform exact device configuration via the intuitive menu navigation without having to perform long tests and calculations: either on the device via the easy-to-read OLED display and pushbuttons or via the smartphone app with extended functions.



Troubleshooting

With the continuous and precise monitoring of the selected system parameters, you can keep an eye on even small deviations from normal operation and take countermeasures in good time.



Versatile, safe, accurate

The extended setting options, large measuring ranges, and a broad supply voltage range make the MACX-MR monitoring relays particularly versatile. The electrical isolation of the measuring and supply circuit guarantees you high safety and accuracy.

The MACX-MR smartphone app

Benefit from the numerous options of the smartphone app.

The MACX-MR app offers you additional options, such as reading out and transferring settings to other monitoring relays. At the same time, you always have access to additional device information, such as the data sheets.

The app provides a function diagram and a description, as well as a reminder in case of setting errors, which makes the setting even more intuitive.






A precise parameter configuration is made with the MACX-MR app. Batch downloading of parameters to the device makes setting more efficient.

The recording of the error code, error value, value deviation, and error time helps you to quickly analyze and fix the cause. The error output contacts can be configured to distinguish between different errors.



Password protection provides protection against unauthorized changes to the device configuration.





Product overview of monitoring relays

Voltage monitoring, 3-phase			
	Industrial housings		
			
Width	22.5		45
Functions			
Phase sequence	•	•	•
Phase failure	•	•	•
Asymmetry	•	•	•
Window	•		•
Undervoltage	•		•
Oversvoltage	•		•
Input voltage range	160 V ... 690 V		480 V ... 900 V
Supply voltage	24 V ... 240 V AC -15% ... +10% 24 V ... 240 V DC -25% ... +30%	24 V ... 240 V DC -25% ... +30%	24 V ... 240 V AC -15% ... +10% 24 V ... 240 V DC -25% ... +30%
Contact type	2 floating changeover contacts		
Push-in connection	1336412	1336408	1336547
Screw connection	1336410	1336404	
	Compact housings		
			
Width	17.5		
Functions			
Phase sequence	•		•
Phase failure	•		
Asymmetry	•		
Window			•
Input voltage range	187 V AC ... 519 V AC		280 V AC ... 519 V AC
Supply voltage	±10% (= measuring voltage)		±30% (= measuring voltage)
Contact type	1 floating changeover contact		
Push-in connection	2903528		2903526
Screw connection	2903527		2903525



Product overview of monitoring relays

Voltage monitoring, 1-phase		
	Industrial housings	Compact housings
		
Width	22.5	17.5
Functions		
Window	•	•
Undervoltage	•	•
Overvoltage	•	
Input voltage range	0 V AC/DC ... 600 V AC/DC	0 V DC ... 24 V DC 0 V AC ... 24 V AC 0 V AC ... 230 V AC
Supply voltage	24 V ... 240 V AC -15% ... +10% 24 V ... 240 V DC -25% ... +30%	-25% ... +20% (= measuring voltage)
Contact type	2 floating changeover contacts	1 floating changeover contact
Push-in connection	1336507	2903524
Screw connection	1336426	2903523

Product overview of monitoring relays

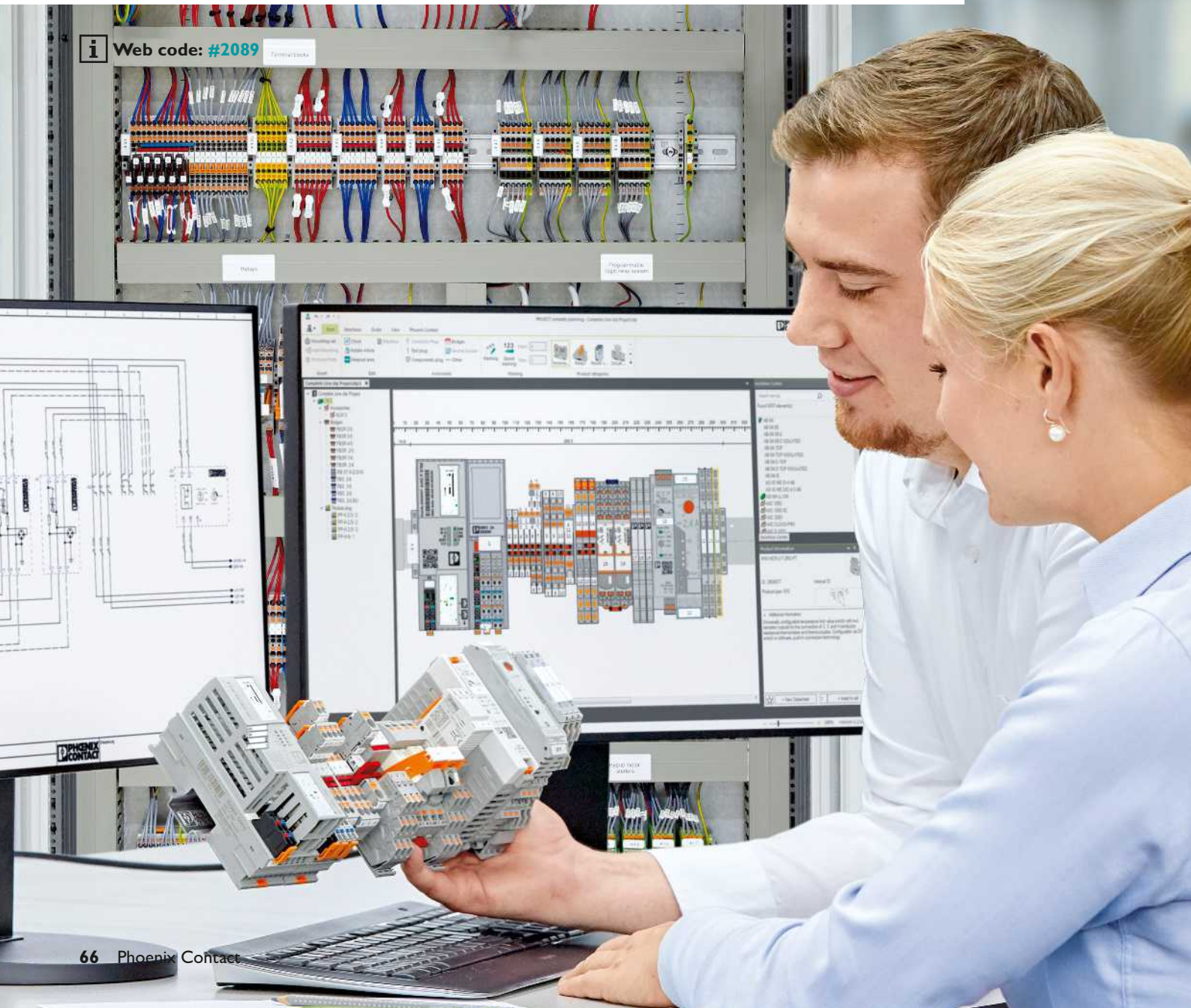
Current monitoring		
	Industrial housings	Compact housings
		
Width	22.5	17.5
Functions		
Window	•	•
Undercurrent	•	•
Overcurrent	•	•
Input current range	0 A AC/DC ... 10 A AC/DC	0 A ... 5 A 0 A ... 10 A
Supply voltage	24 V ... 240 V AC -15% ... +10% 24 V ... 240 V DC -25% ... +30%	195.5 V AC ... 264.5 V AC
Contact type	2 floating changeover contacts	1 floating changeover contact
Push-in connection	1336512	2903522
Screw connection	1336510	2903521

Product overview of monitoring relays

Temperature monitoring of the motor windings		
	Industrial housings	Compact housings
		
Width	22.5	17.5
Functions	Winding temperature monitoring	Winding temperature monitoring
Number of PTC sensors	6 (2 x 3 PTCs)	6 (1 x 6 PTCs)
Reset mode		
- Manual	•	
- Remote	•	
- Automatic	•	•
Test button	Yes	No
Supply voltage	24 V ... 240 V AC -15% ... +10% 24 V ... 240 V DC -25% ... +30%	195.5 V AC ... 253 V AC
Contact type	2 floating changeover contacts	1 floating changeover contact
Push-in connection	1336527	2906253
Screw connection	1336523	2906252

COMPLETE line – the comprehensive solution for the control cabinet

The COMPLETE line system encompasses technologically leading and coordinated hardware and software products, consulting services, and system solutions that help you optimize your processes in control cabinet building. Engineering, purchasing, installation, and operation become significantly easier for you.



Your advantages in detail:



Comprehensive product portfolio

With COMPLETE line, we offer a complete product portfolio of technologically leading products. This includes:

- Controllers and I/O modules
- Power supplies and device circuit breakers
- Terminal blocks and distribution blocks
- Relay modules and motor starters
- Signal conditioners
- Safety technology
- Surge protection
- Heavy-duty connectors



Intuitive handling

With the simple, intuitive handling of the coordinated hardware components, you will save time during installation, startup, and maintenance. With Push-in connection technology, you can wire applications quickly and without using tools. The broad, technologically leading product portfolio will always provide you with the right product for standard or special applications.



Save time throughout the entire engineering process

PROJECT complete planning and marking software supports the entire process of control cabinet building. The program features an intuitive user interface that enables the individual planning, automatic checking, and direct ordering of terminal strips.



Reduced logistics costs

Reduced variety of parts with standardized marking, bridging, and testing accessories. The COMPLETE line system coordinates products, design, and accessories so that you benefit from maximum reusability and thus reduce your logistics costs.



Optimized processes in control cabinet building

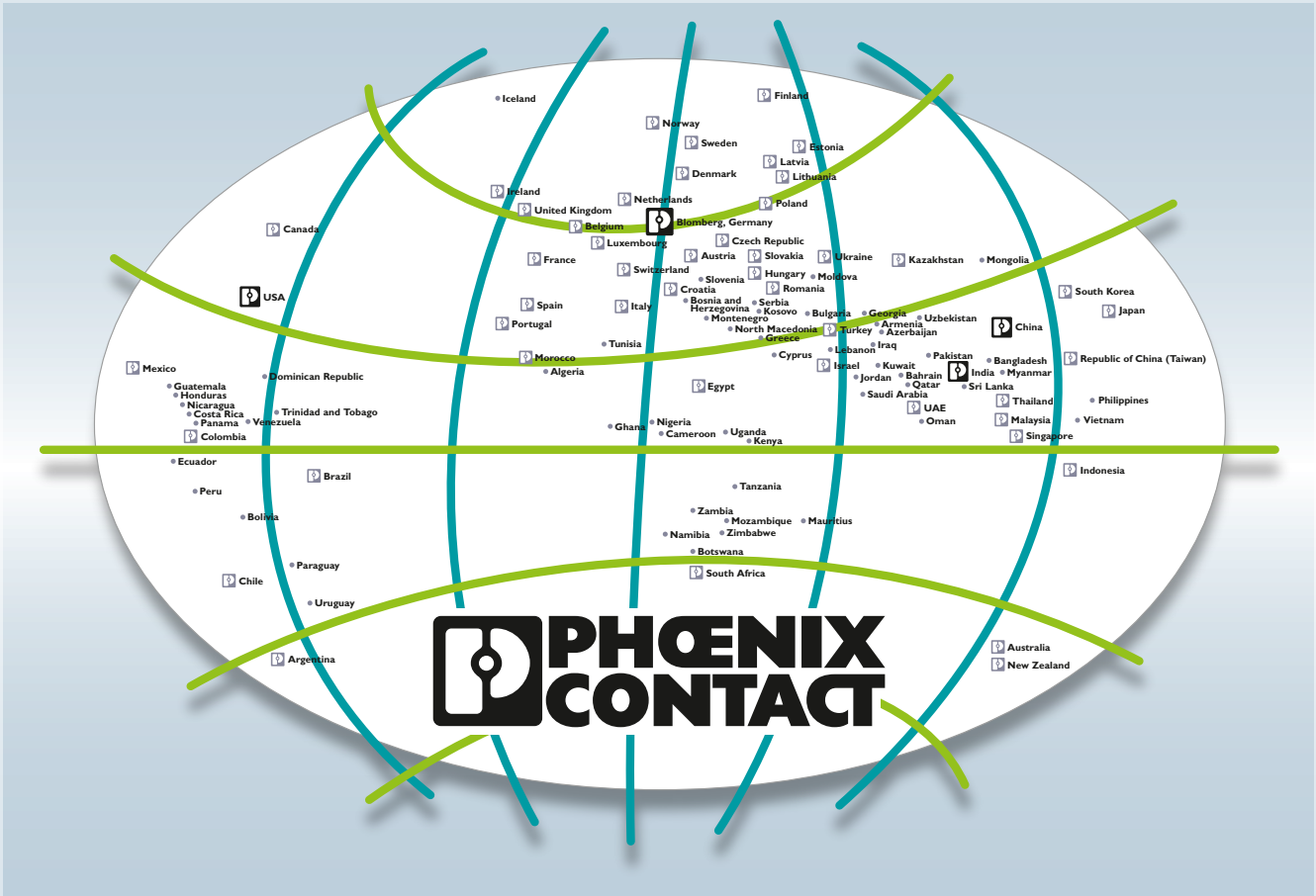
COMPLETE line supports you, from engineering through to manufacturing, in designing your control cabinet production as efficient as possible. This is how your customized concept for optimizing your processes in control cabinet building is created. Our terminal strip production helps you to flexibly manage order peaks or to supply your control cabinet production with fully assembled DIN rails just in time.



The new standard for the control cabinet

Discover the extensive COMPLETE line product portfolio and find out more about COMPLETE line and the comprehensive solutions for your control cabinet.

Visit our website:
phoenixcontact.com/completeline



Open communication with customers and partners worldwide

Phoenix Contact is a global market leader based in Germany. We are known for producing future-oriented products and solutions for the electrification, networking, and automation of all sectors of the economy and infrastructure. With a global network reaching across more than 100 countries with over 22,000 employees, we maintain close relationships with our customers, something we believe is essential for our common success.

Our wide range of innovative products makes it easy for our customers to implement the latest technology in a variety of applications and industries. This especially applies to the target markets of energy, infrastructure, industry, and mobility.

You can find your local partner at
[phoenixcontact.com](https://www.phoenixcontact.com)