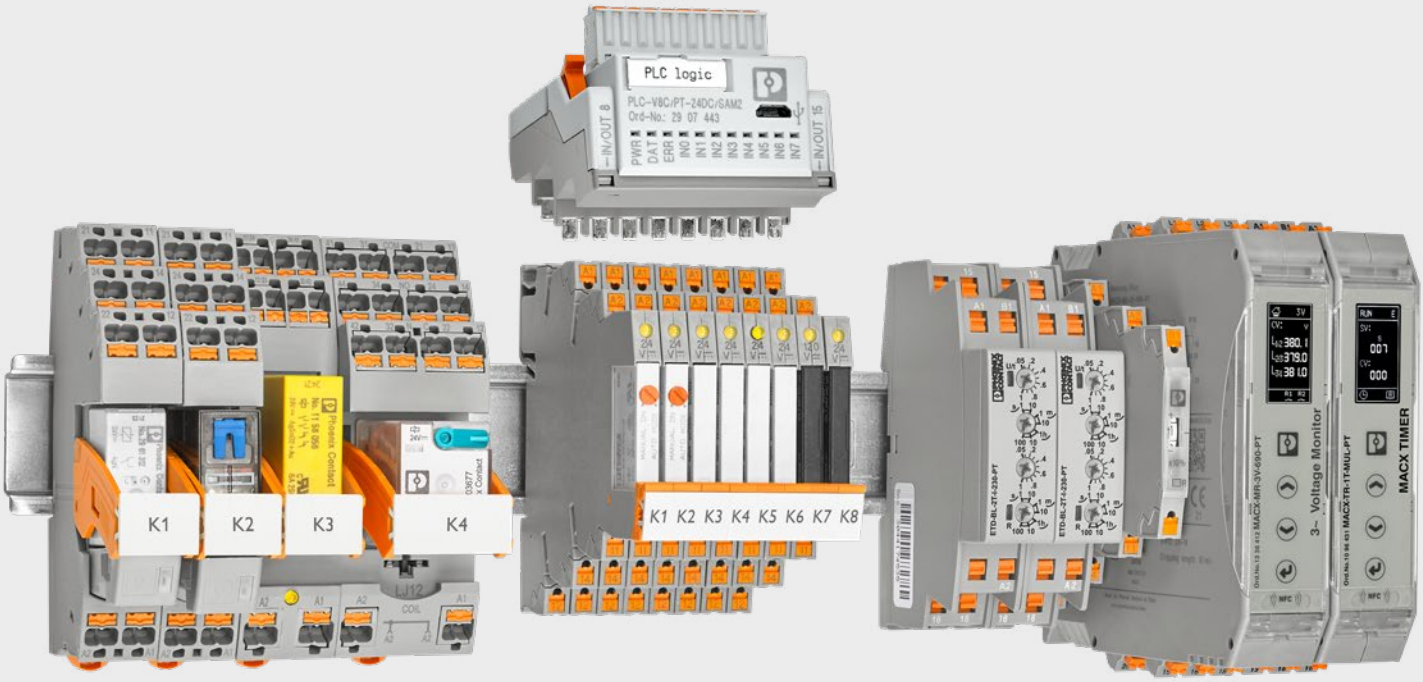
COMPLETE line

2024



Relays, optocouplers, and logic modules

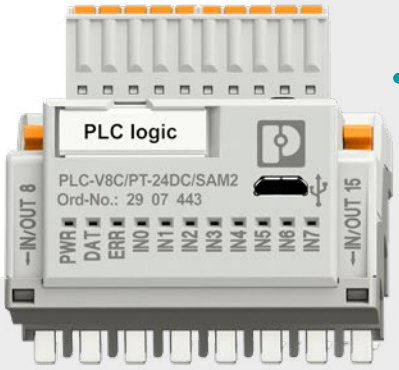
Switch, isolate, and amplify signals reliably

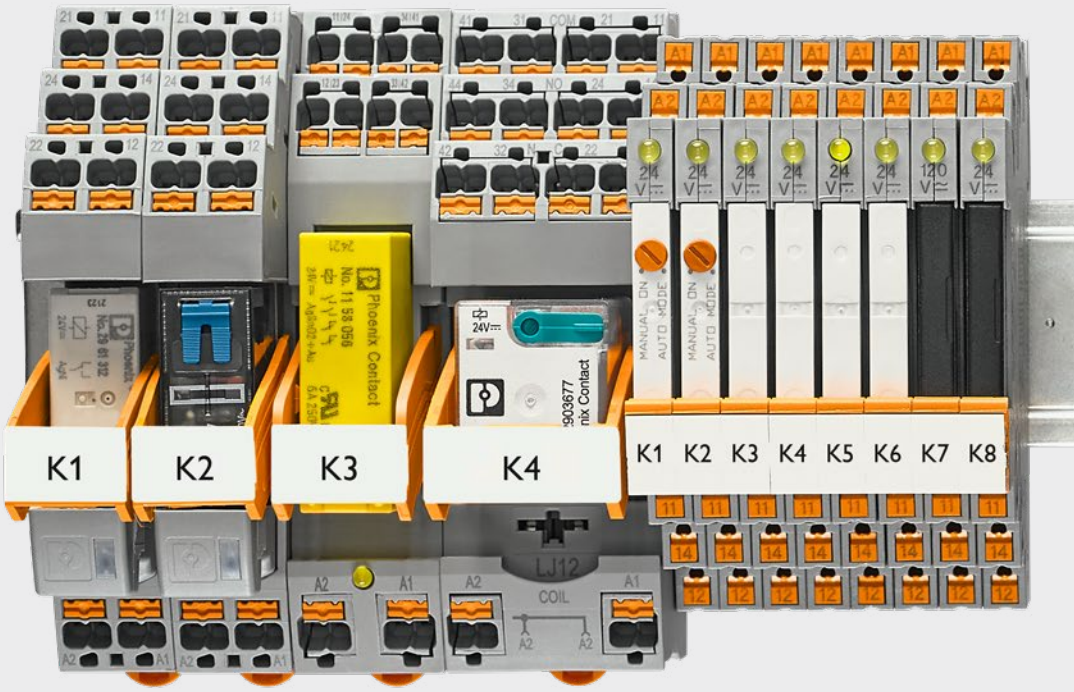
PHOENIX CONTACT

Relays, optocouplers, and logic modules

The product range at a glance

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

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COMPLETE line

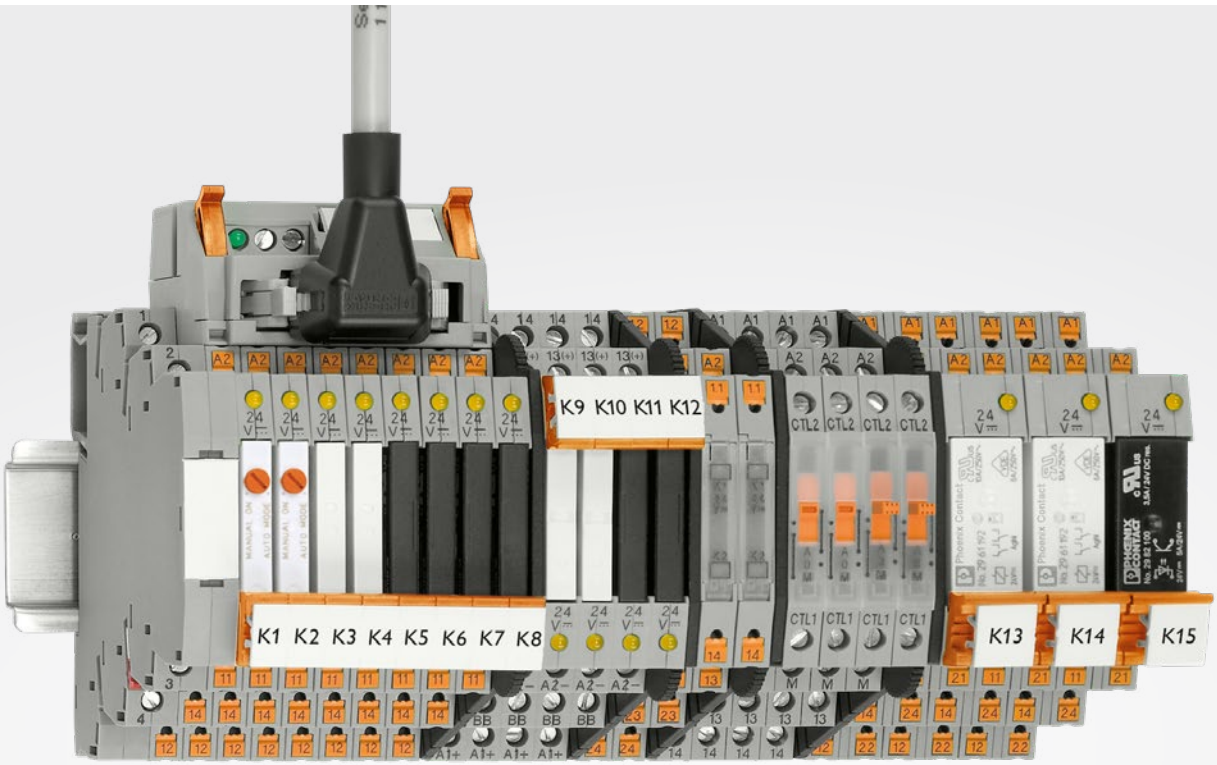
The new standard for the control cabinet.

› More information starting on page 66

Electromechanical and solid-state relay modules for every application

1

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.



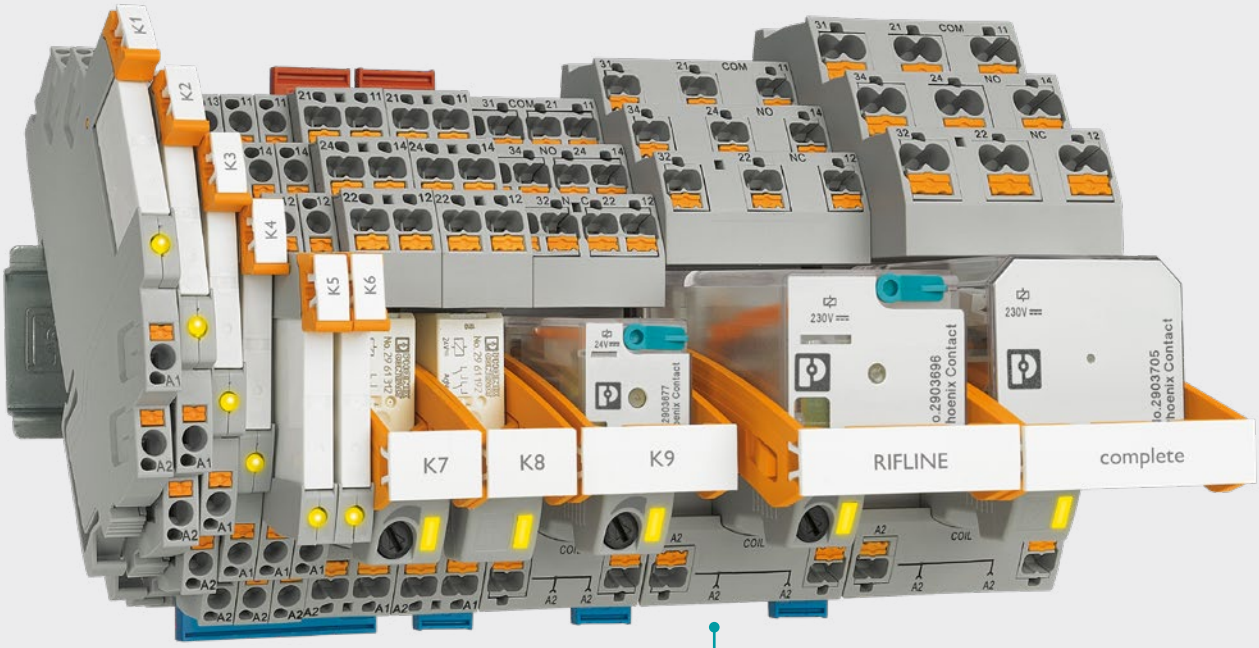
PLC-INTERFACE highly compact relay modules

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
Bridging	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 manual 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 manual switches, variants with Ex approvals for Zone 2, force-guided coupling relays



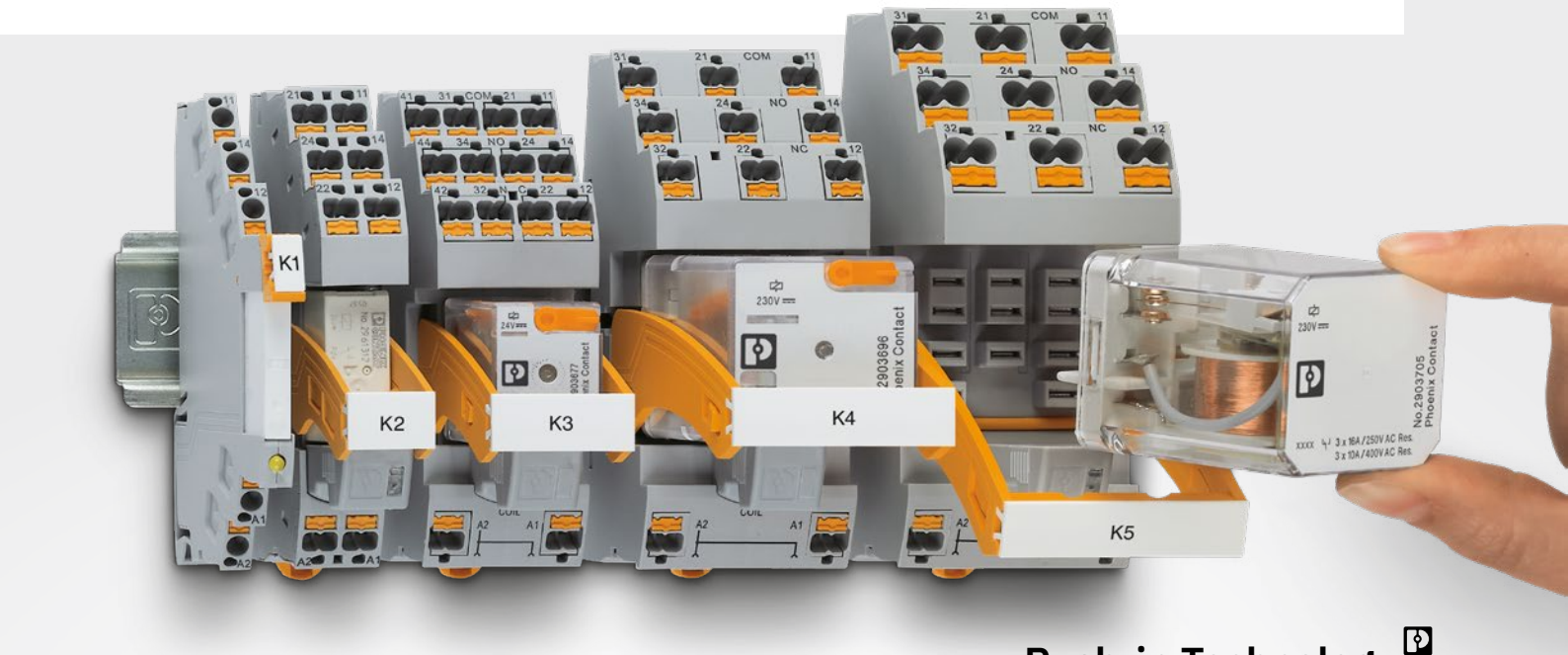
Universal industrial relay system RIFLINE complete

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

Universal relay system – from coupling relays to a replacement for miniature contactors

You can implement all of your standard relay applications using the RIFLINE complete universal relay system. 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.



Push-in Technology

Designed by Phoenix Contact

Your advantages

- Complete product family that covers all standard relay applications
- Easy handling, thanks to 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

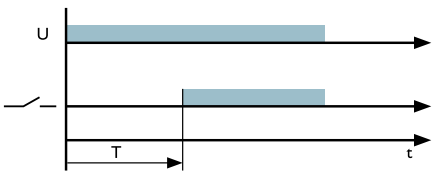
Easy extension with the plug-in, multifunctional timer module. You can select three time functions in a time range from 0.5 seconds to 100 minutes.

Multifunctional timer module

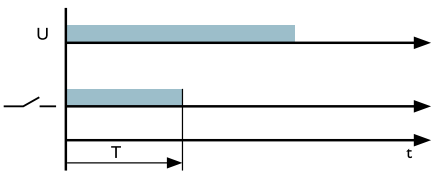
The multifunctional plug-in timer module for 24 V DC transforms the relay module into a timer relay. You can fit the RIF-1 to RIF-4 bases with this module.

Choose from the following time functions:

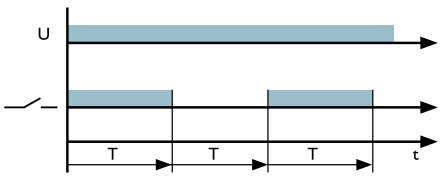
- Switch-on delay
- Passing make contact
- Pulse generator



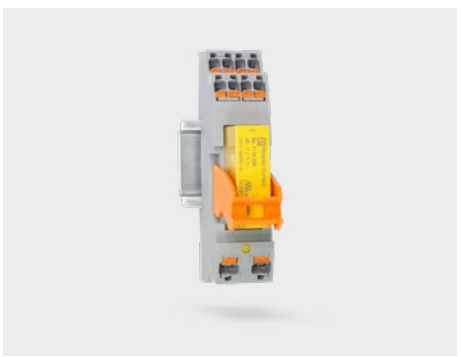
Switch-on delay



Passing make contact

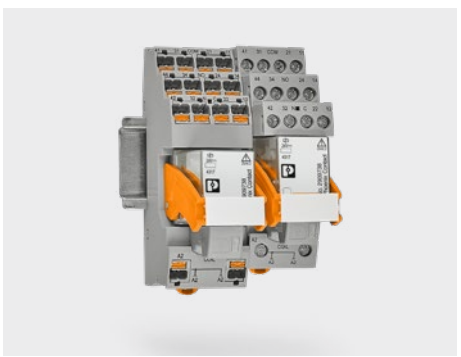


Pulse generator



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.

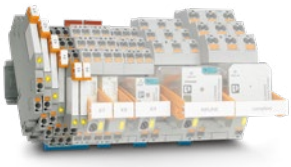
High inrush currents

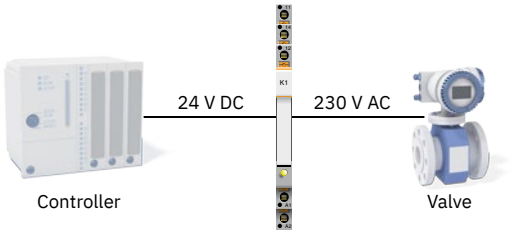
Coupling relay modules for high inrush currents up to 800 A_{peak}.

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 switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	12 V DC	1 N/O contact	10 mA (12 V)	6 A	10 A (4 s)	250 V AC/DC	2903362
		1 changeover contact					2903371
	24 V DC	1 N/O contact			10 A (4 s)		2903361
		1 changeover contact					2903370

RIF-0 electromechanical relay modules with power contact and manual activation							
	Nominal input voltage	Contact switching type	Minimum 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		250 V AC/DC	NEW 1550107

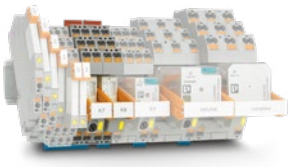
RIF-0 electromechanical relay modules with gold contact							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	12 V DC	1 N/O contact	1 mA (12 V)	50 mA	50 mA	30 V AC 36 V DC	2903360
		1 changeover contact					2903369
	24 V DC	1 N/O contact					2903359
		1 changeover contact					2903368

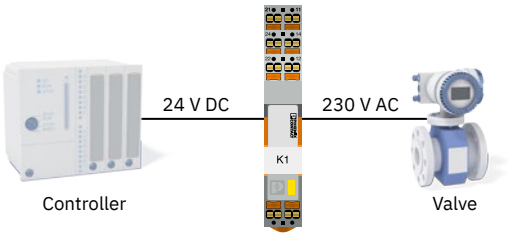
RIF-0 solid-state relay modules					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection
	24 V DC	300 Hz	100 mA	3 V DC ... 48 V DC	2905294
			3 A	3 V DC ... 33 V DC	2905293
		10 Hz	750 mA	24 V AC ... 253 V AC	2905295

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 switching type**	**Minimum switching current**	**Limiting continuous current**	**Maximum inrush current**	**Maximum switching voltage**	**Push-in 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
		2 changeover contacts	10 mA (5 V)	8 A	25 A (20 ms, N/O contact)		2906223
	24 V DC	1 changeover contact	10 mA (12 V)	11 A	50 A (20 ms, N/O contact)		2903342
		2 changeover contacts	10 mA (5 V)	8 A	25 A (20 ms, N/O contact)		2903334
	24 V AC	1 changeover contact	10 mA (12 V)	10 A			2903341
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903333
	120 V AC	1 changeover contact	10 mA (12 V)	10 A	25 A (20 ms, N/O contact)		2903340
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903332
	230 V AC	1 changeover contact	10 mA (12 V)	10 A	25 A (20 ms, N/O contact)		2903339
		2 changeover contacts	10 mA (5 V)	8 A	12 A (20 ms, N/O contact)		2903331

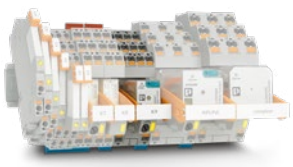
RIF-1 electromechanical relay modules with gold contact							
	Nominal input voltage	**Contact switching type**	**Minimum switching current**	**Limiting continuous current**	**Maximum inrush current**	**Maximum switching voltage**	**Push-in connection**
	24 V DC	2 changeover contacts	1 mA (24 V)	50 mA	50 mA	30 V AC 36 V DC	2903330
	24 V AC						2903329
	120 V AC						2903328
	230 V AC						2903327

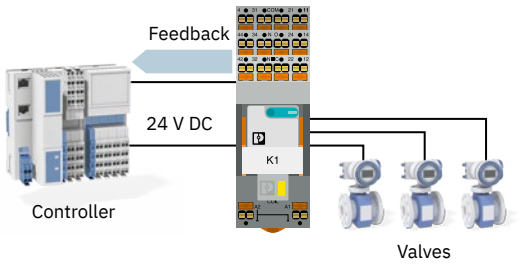
RIFLINE complete relay modules

RIF-1 electromechanical relay modules with power contact and manual activation							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in 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
		2 changeover contacts		8 A	12 A (20 ms, N/O contact)		2905291
	120 V AC	1 changeover contact			32 A (20 ms, N/O contact)		2909776
		2 changeover contacts		5 A	16 A (20 ms, N/O contact)		2909775
	230 V AC	1 changeover contact		8 A	32 A (20 ms, N/O contact)		2905290
		2 changeover contacts		5 A	16 A (20 ms, N/O contact)		2905292

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.





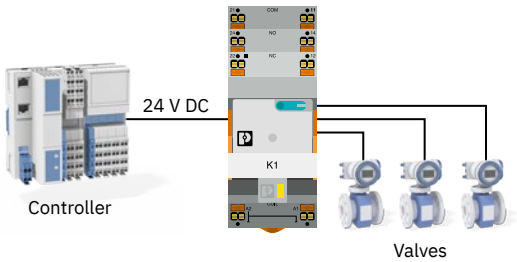
RIF-2 electromechanical relay modules with power contact							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	2 changeover contacts	5 mA (24 V)	10 A	30 A (20 ms, N/O contact)	250 V AC/DC	2903315
		4 changeover contacts		6 A	16 A (20 ms, N/O contact)		2903308
	24 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903313
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903306
	120 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903311
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903305
	230 V AC	2 changeover contacts		8.5 A	30 A (20 ms, N/O contact)		2903310
		4 changeover contacts		5 A	16 A (20 ms, N/O contact)		2903304

RIF-2 electromechanical relay modules with power contact and reinforced retaining bracket							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	2 changeover contacts	5 mA (24 V)	10 A	30 A (20 ms, N/O contact)	250 V AC/DC	NEW 1577412

RIFLINE complete relay modules

RIF-3

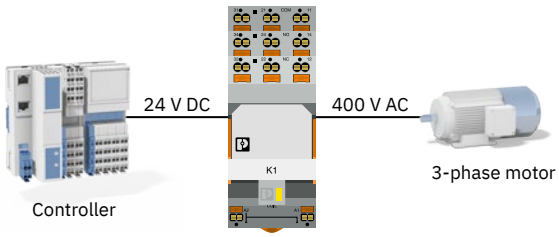
The 40 mm wide RIF-3 base series is designed for octal relays with up to three contacts. Switching currents up to 10 A are implemented here.



RIF-3 electromechanical relay modules with power contact							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in 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
	120 V AC			6 A			2903293
	230 V AC						2903292

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.

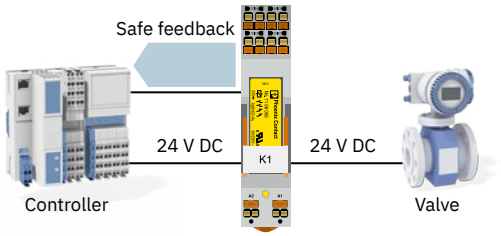


RIF-4 electromechanical relay modules with power contact							
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	3 changeover contacts	10 mA (24 V)	10 A	50 A (20 ms, N/O contact)	440 V AC 250 V DC	2903278
	120 V AC			8 A			2903277
	230 V AC						2903276

RIFLINE complete relay modules for special applications

Force-guided contacts

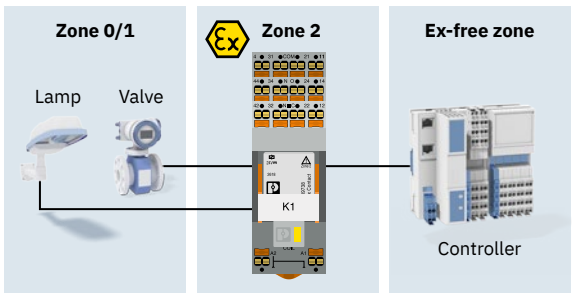
The coupling relay modules with up to four force-guided contacts in accordance with DIN EN 61810-3 are suitable for switching currents up to 6 A. Realize the standardized applications with safe feedback.



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

Potentially explosive applications

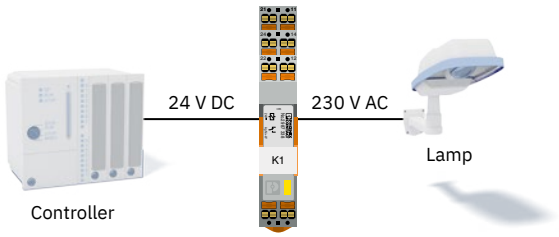
The coupling relay modules of the RIF-2 base series with ATEX, IECEx, and Class 1 Division 2 approval are suitable for use in Zone 2 potentially explosive applications.



Single relay with force-guided contacts							
	Nominal input voltage	Contact switching type	Minimum 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
		2 N/O contacts, 2 N/C contacts, force-guided	5 mA (10 V)		35 A (20 ms)	250 V AC 300 V DC	1158056
		3 N/O contacts, 1 N/C contact, force-guided					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

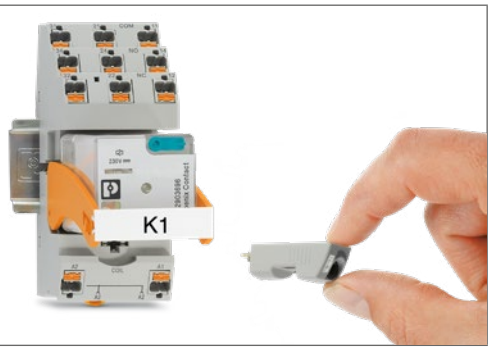
	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection
	24 V DC	4 changeover contacts	5 mA (24 V)	6 A	16 A (20 ms, N/O contact)	250 V AC/DC	2909741
	120 V AC			5 A			2909740
	230 V AC					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

RIFLINE complete electromechanical relay modules for high inrush currents

	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in 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
	24 V DC						2909884
					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	Type	Item no.
	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	RIF-BR-12-230 AC	2907060
	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+	RIF-LDM-12-24 DC	2907057
	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%	RIF-LDP-110 DC	2900941
	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%	RIF-LDP-12-24 DC	2900939
	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%	RIF-LDP-48-60 DC	2900940
	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%	RIF-LV-120-230 AC/110 DC	2900944
	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%	RIF-LV-12-24 UC	2900942
	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%	RIF-LV-48-60 UC	2900943
	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%	RIF-RC-120-230 UC	2900951
	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%	RIF-RC-12-24 UC	2900949
	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%	RIF-RC-48-60 UC	2900950
	Plug-in module for extending a relay module to create a timer relay, 3 time functions, 4 time ranges, for mounting on RIF-1, RIF-2, RIF-3, and RIF-4, input voltage: 12 V DC ... 24 V DC	RIF-T3-24UC	2902647
	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%	RIF-V-120-230 UC	2900948
	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%	RIF-V-12-24 UC	2900945
	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%	RIF-V-48-60 UC	2900947

Accessories

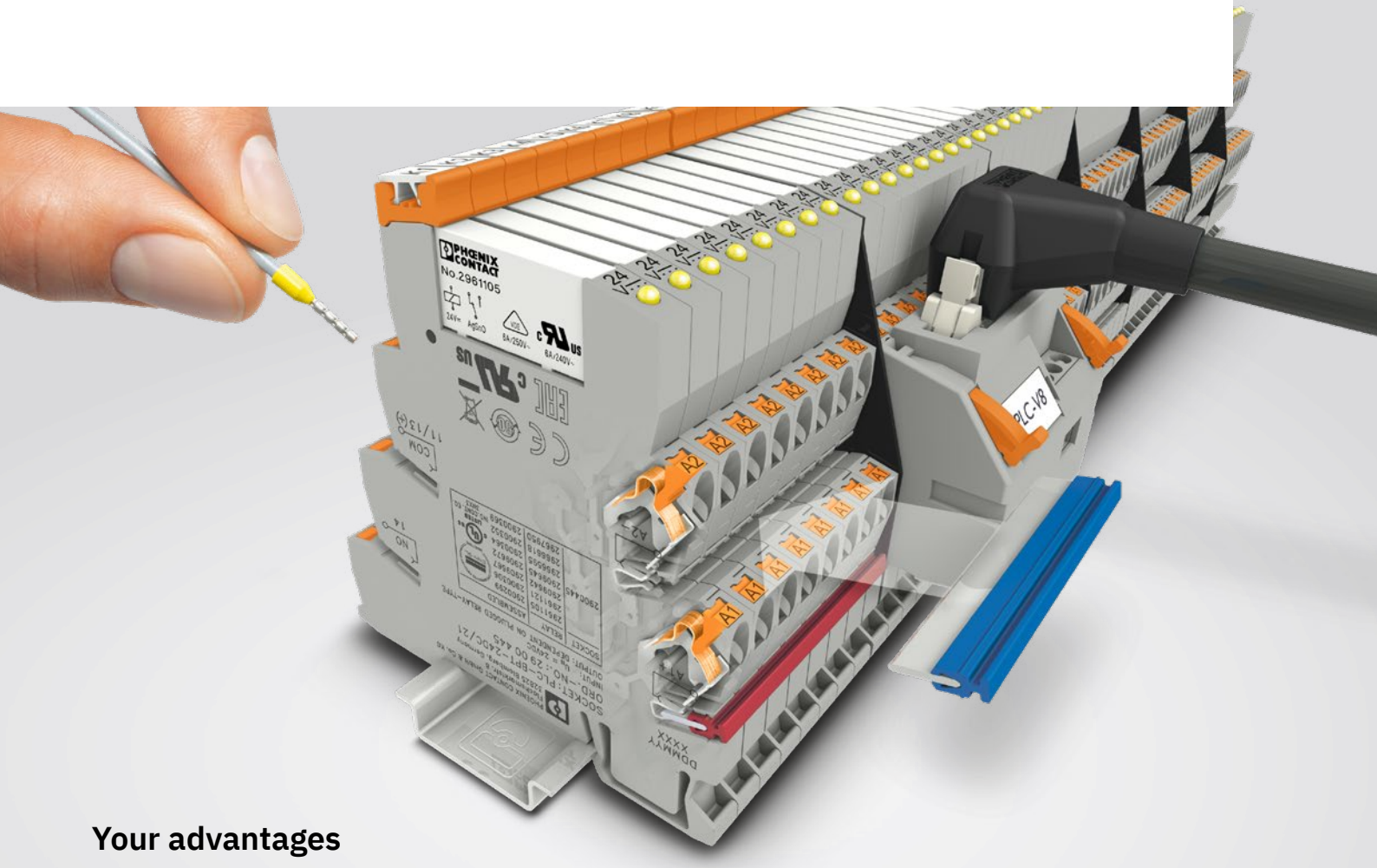
Ejector lever			
	Description	**Type**	**Item no.**
	Relay retaining bracket, with ejector function and holder for marking material, suitable for RIF-1 relay base, for 16 mm high miniature power relays and solid-state relays	RIF-RH-1	2900953
	Relay retaining bracket, with ejector function and holder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

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

Highly compact relay modules

Narrow and powerful switching

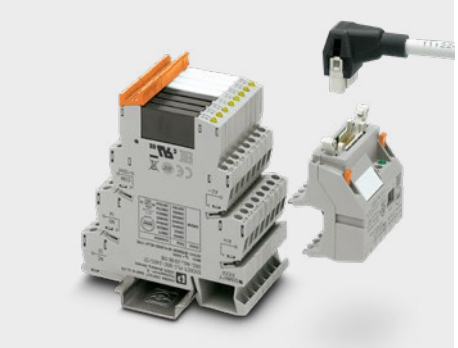
The PLC-INTERFACE relay series for universal use provides a wide range of plug-in electromechanical relays and solid-state relays. The following special variants are available: series for coupling sensors or actuators, solid-state relays, and hybrid variants for wear-free switching, Ex relays for Zone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



Your advantages

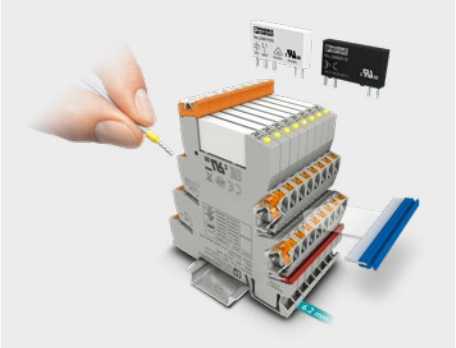
- Comprehensive product range with special versions for special applications
- Optimized installation effort with versatile accessories
- Just 6.2 mm wide with plug-in electromechanical and solid-state relays
- Simple connection technology of your choice: whether Push-in, spring-cage, or screw connection 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 up to 70% wiring time.

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.

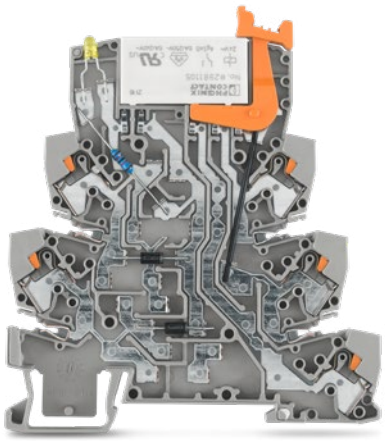
Lead-frame technology

Switch signals reliably – in particularly tight 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.



PLC-INTERFACE with circuit breaker – switching and fuse protection

Highly compact circuit breaker

PLC-INTERFACE offers the innovative combination of a relay interface and electronic fuse (circuit breaker) in an overall width of just 6.2 mm, for more space in the control cabinet.

The nominal current and shutdown behavior can be configured individually via DIP switches on the device.

Easy handling

The manual configuration enables the easy setting of different trigger characteristics:

- “Fuse mode” (switch-off after overcurrent)
- “Hiccup mode” (cyclic, independent restart attempt)
- Setting of tripping thresholds from 1 to 6 A, in increments of 1 A

Our relay modules in use

❶ Railway technology

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

❷ Shipbuilding

DNV approval for the entire product range

❸ Renewable energy

Space-saving relay modules for onshore and offshore applications

❹ Logistics

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

❺ 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

❻ Machine building and systems manufacturing

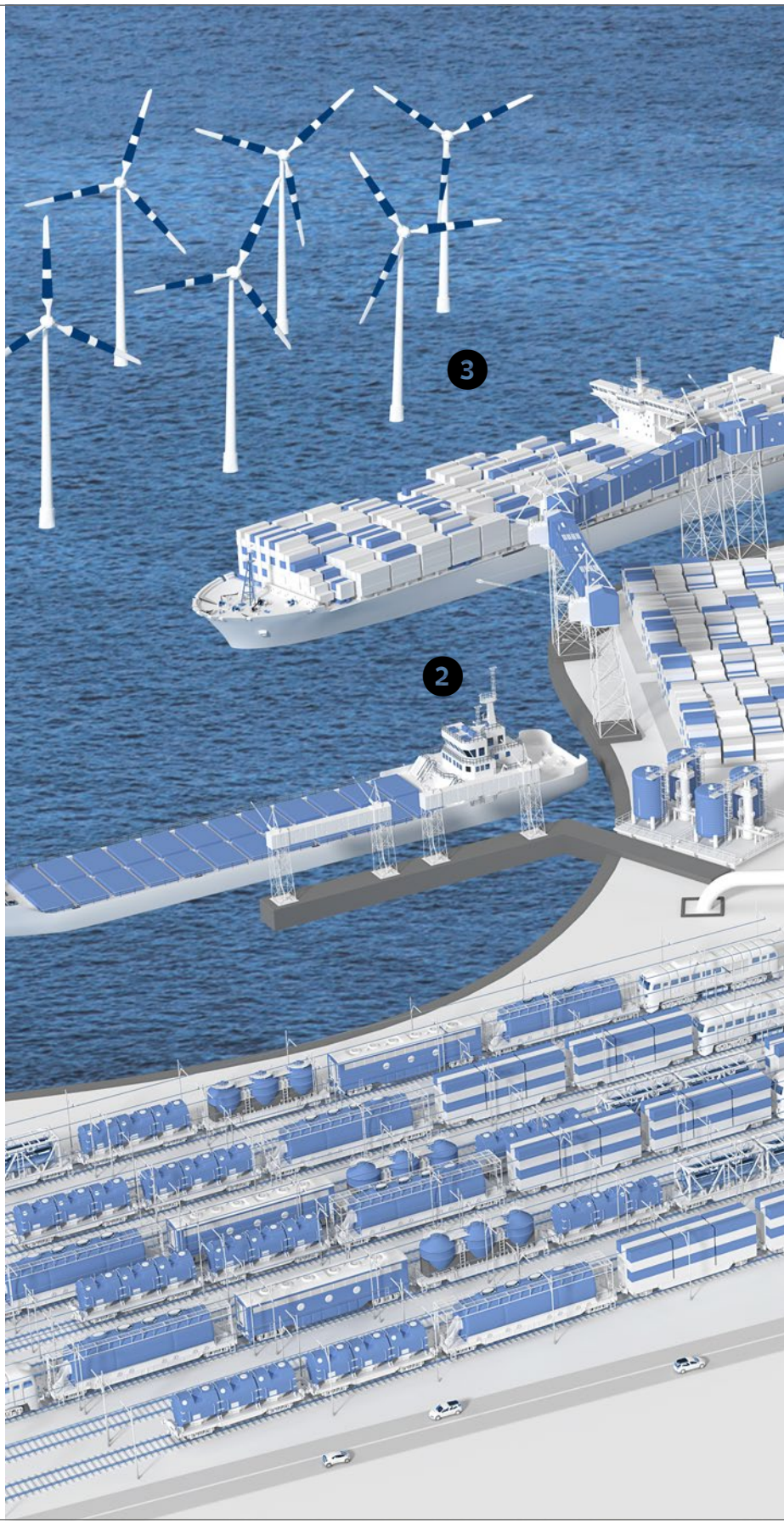
Comprehensive product range with special types such as relay modules with safe feedback through force-guided contacts or hybrid technology in accordance with DIN EN 61810-3 type A

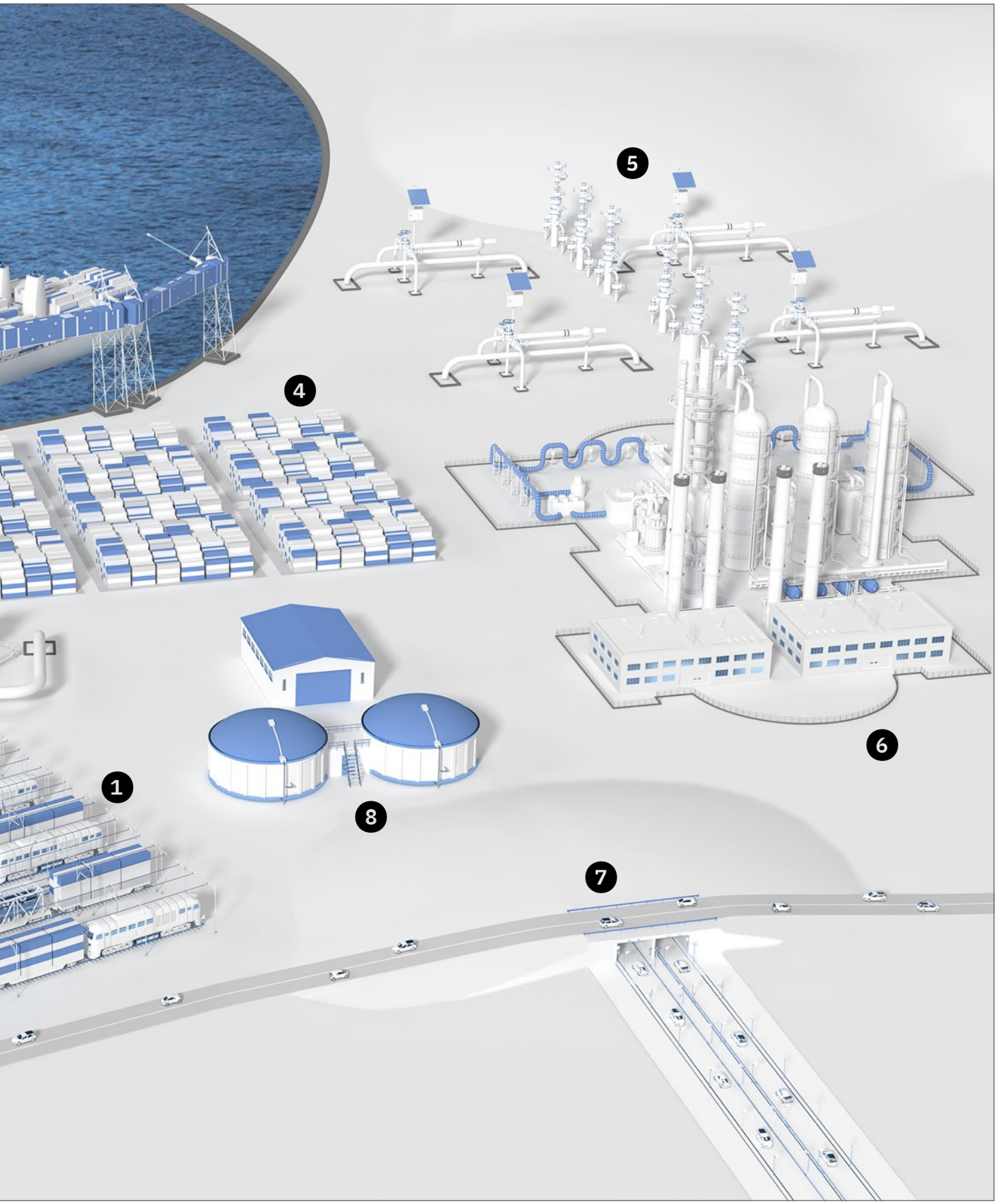
❼ Infrastructure

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

❽ Water and wastewater

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

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PLC-INTERFACE relay modules

PLC-INTERFACE electromechanical relay modules with power contact, 1 changeover contact								
	Nominal input voltage	**Contact switching type**	**Minimum 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 gold contact, 1 changeover contact								
	Nominal input voltage	**Contact switching type**	**Minimum 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

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

	Nominal input voltage	Contact switching type	Minimum 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 gold contact, 1-changeover contact, and manual activation

	Nominal input voltage	Contact switching type	Minimum 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	
	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 switching type	Minimum 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 contact	10 mA (5 V)		25 A (20 ms)		NEW 1176847	2967109

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

	Nominal input voltage	Contact switching type	Minimum 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 switching type	Minimum 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				On request		2966249
	230 V AC 220 V DC						2966252

PLC-INTERFACE electromechanical relay modules with gold contact, sensor variant

	Nominal input voltage	Contact switching type	Minimum 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 switching type	Minimum 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 power contact, 2 changeover contacts

	Nominal input voltage	Contact switching type	Minimum 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

PLC-INTERFACE electromechanical relay modules with gold contact, 2 changeover contacts								
	Nominal input voltage	**Contact switching type**	**Minimum 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 power contact, 2 changeover contacts, and manual activation								
	Nominal input voltage	**Contact switching type**	**Minimum 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 gold contact, 2-changeover contacts, and manual activation								
	Nominal input voltage	**Contact switching type**	**Minimum 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
	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 power contact, 1 changeover contact, for high continuous currents								
	Nominal input voltage	**Contact switching type**	**Minimum 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 power contact, 1 changeover contact, and manual activation for high continuous currents								
	Nominal input voltage	**Contact switching type**	**Minimum 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
	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

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

	Nominal input voltage	Contact switching type	Minimum 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 for railway applications

	Nominal input voltage	Contact switching type	Minimum 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 switching type	Minimum 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						2900323
		2 changeover contacts					2900351

PLC-INTERFACE electromechanical relay modules for 16.7 Hz input frequency

	Nominal input voltage	Contact switching type	Minimum 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

Single relay with force-guided contacts

	Nominal input voltage	Contact switching type	Minimum 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 relay modules with force-guided contacts

	Nominal input voltage	Contact switching type	Minimum 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 safe coupling relays with force-guided contacts

	Nominal input voltage	Contact switching type	Category	Performance level	Safety integrity level (SIL)	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 changeover contacts, force-guided	1	c	2	250 V AC/DC	1480212	1480226

PLC-INTERFACE relay modules for potentially explosive areas

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

	Nominal input voltage	Contact switching type	Minimum 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 power contact, 1-changeover contact, for high continuous currents for potentially explosive areas

	Nominal input voltage	Contact switching type	Minimum 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		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 power contact, 2 changeover contacts, for potentially explosive areas

	Nominal input voltage	Contact switching type	Minimum 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 switching type**	**Minimum 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
					165 A (20 ms) 800 A (200 µs)		1078683	1078680

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 switching type**	**Minimum 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	2980500

PLC-INTERFACE electromechanical relay modules with defined input and output thresholds against very high interference signals								
	Nominal input voltage	**Contact switching type**	**Minimum 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

PLC-INTERFACE input solid-state relay modules with DC output max. 100 A						
	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
	125 V DC	50 Hz				2980047
	120 V AC 110 V DC	10 Hz			2900355	2966744
	230 V AC 220 V DC				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
	125 V DC					2980050
	120 V AC 110 V DC	10 Hz			2900367	2966650
	230 V AC 220 V DC				2900368	2966663

PLC-INTERFACE output solid-state relay modules with AC output max. 750 A						
	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	
	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
	220 V DC				2900387	2980704
	120 V AC	10 Hz			2900388	2980717
	230 V AC				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	2905494	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

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	2982786

PLC-INTERFACE solid-state relay modules with AC output (actuator variant)						
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Push-in connection	Screw connection
	24 V DC	10 Hz	0.75 A	24 V AC ... 253 V AC		2967947
			2 A		NEW 1176854	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 switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V DC	2 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 switching type	Minimum 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 manual switch

	Nominal input voltage	Contact switching type	Minimum switching current	Limiting continuous current	Maximum inrush current	Maximum switching voltage	Push-in connection	Screw connection
	24 V AC/DC	1 N/O contact	10 mA (12 V)	6 A	On request	250 V AC/DC	2900328	2982236

PLC-INTERFACE relay modules for special applications

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

PLC-INTERFACE inverter module for NPN/PNP transistor outputs						
	Supply voltage	Transmission frequency	Activation threshold	Shutoff threshold	Push-in connection	Screw connection
	20 V DC ... 30 V DC	15 kHz	NPN input: ≤5 V PNP input: ≥19 V	NPN input: ≥15 V PNP input: ≤9 V	NEW 1395232	NEW 1395229

PLC-INTERFACE electronic circuit breaker						
	Operating voltage (UN)	Adjustable tripping current (IN)	Current consumption (In+)	Maximum capacitive load	Push-in connection	Screw connection
	24 V DC	1 A; 2 A; 3 A; 4 A; 5 A; 6 A	12 mA	12000 µF	NEW 1328360	NEW 1328357

PLC-INTERFACE accessories

Bridges

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

Feed-in terminal

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

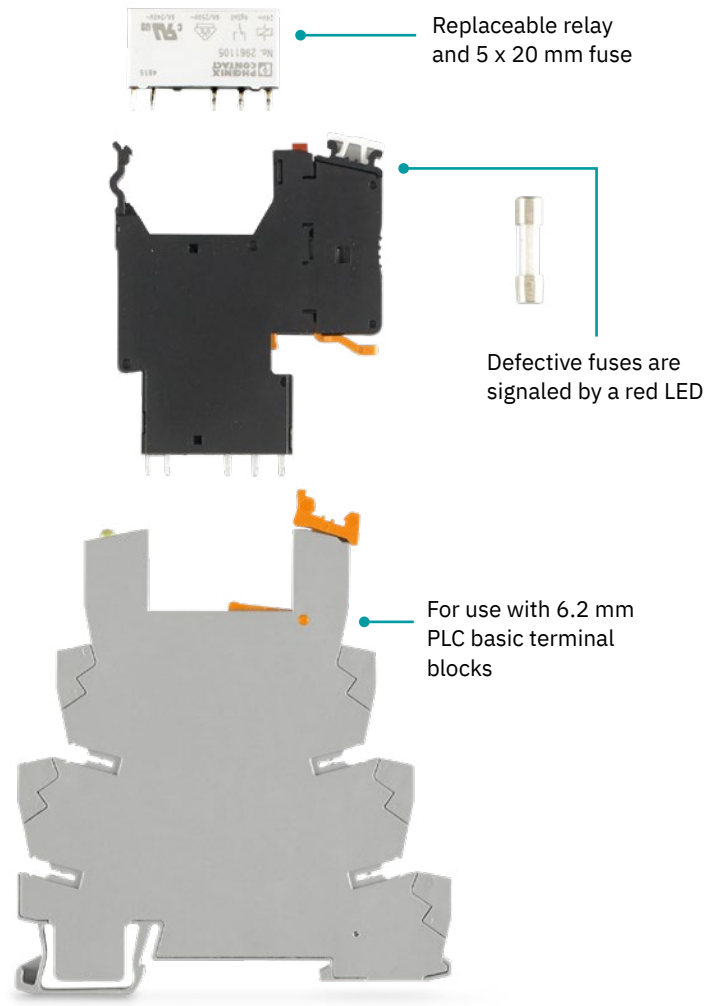
Partition plate

	Description	Type	Item no.
	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	PLC-ATP BK	2966841

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

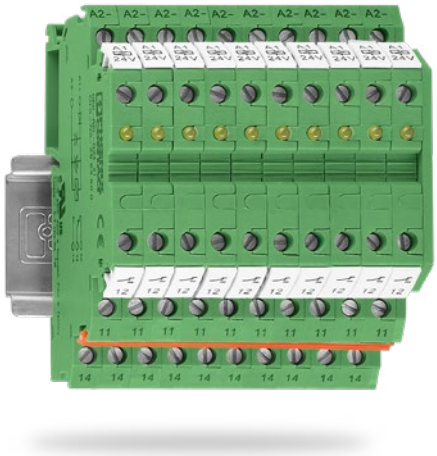
Fuse adapters

	Description	Type	Item no.
	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.	PLC-FA-I-5X20-12-24UC	1186499
	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.	PLC-FA-I-5X20-120-230UC	1186508
	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.	PLC-FA-5X20	1186510

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 with the use of standard terminal block accessories.



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

	Nominal input voltage	Contact switching type	Minimum 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 switching type	Minimum 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 switching type	Minimum 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

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 A					
	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 A					
	Rated actuating voltage	Transmission frequency	Limiting continuous current	Switching voltage	Screw connection
	5 V DC	100 Hz	10 A	8 V DC … 33 V DC	2961752
	12 V DC				2961749
	24 V DC				2964322

Relay terminal block with DC voltage output / max. = 800 mA					
	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 manual switch and integrated relay							
	Nominal input voltage	Contact switching type	Minimum 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 125 V DC	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	**Type**	**Item no.**
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm, loop length: 90 mm, ferrule length: 8 mm, color: black	DB 50- 90 BK	2820916
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm, loop length: 90 mm, ferrule length: 8 mm, color: blue	DB 50- 90 BU	2821180
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm, loop length: 90 mm, ferrule length: 8 mm, color: gray	DB 50- 90 GY	2820929
	Flexible wire loop bridge, 50-pos., conductor cross-section: 0.5 mm, loop length: 90 mm, ferrule length: 8 mm, color: red	DB 50- 90 RD	2864639
	Cover as termination of a terminal block row, color: green	D-DEK 1,5 GN	2716949

Programmable logic relay system

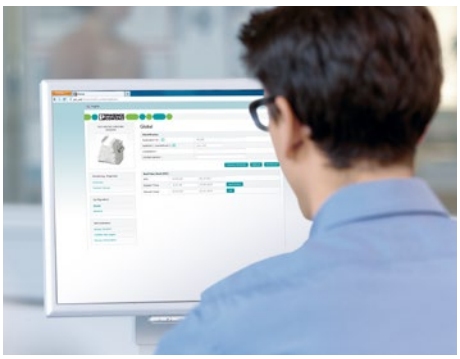
2

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.

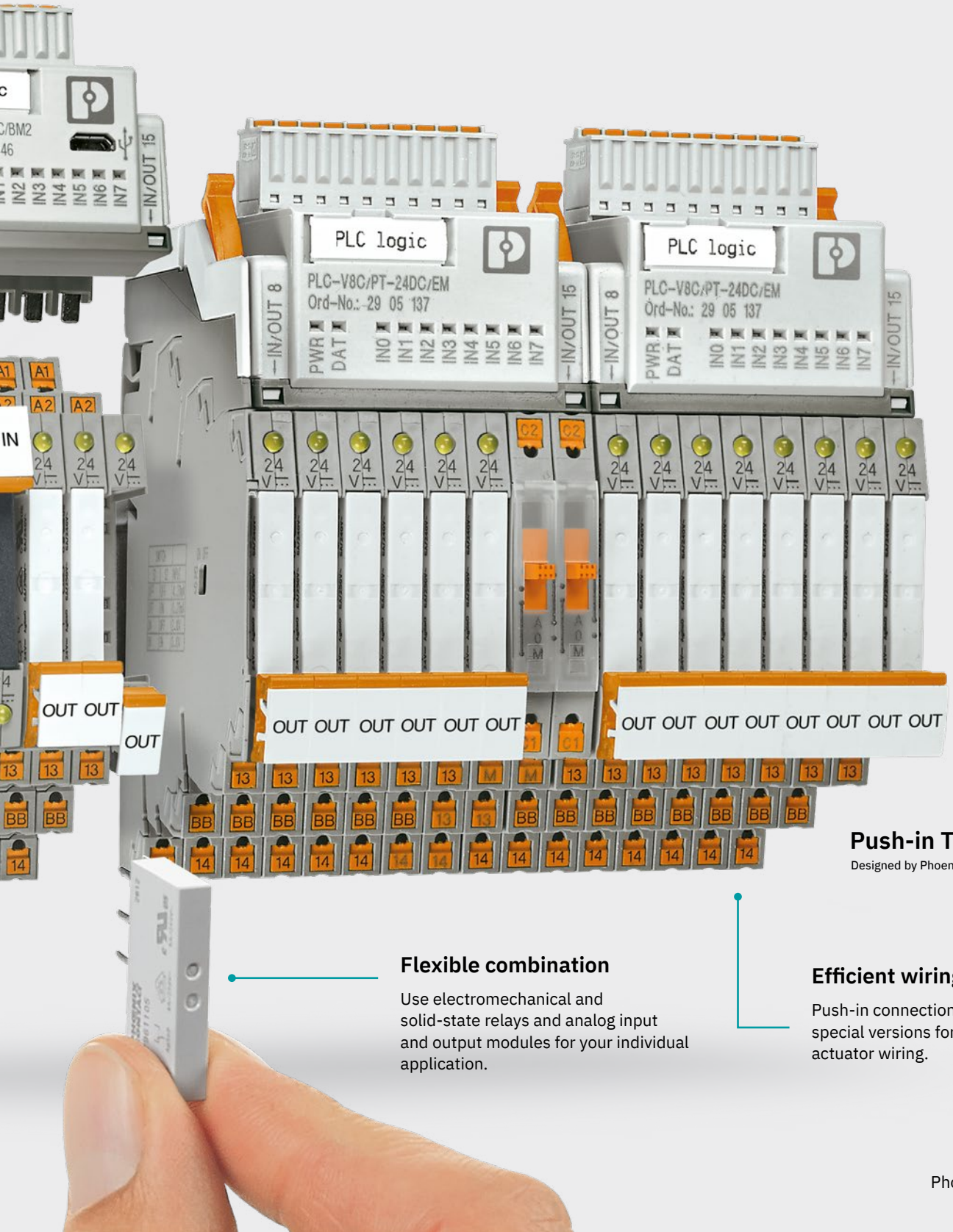
High availability

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



Intuitive programming

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



Push-in Technology

Designed by Phoenix Contact

Flexible combination

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

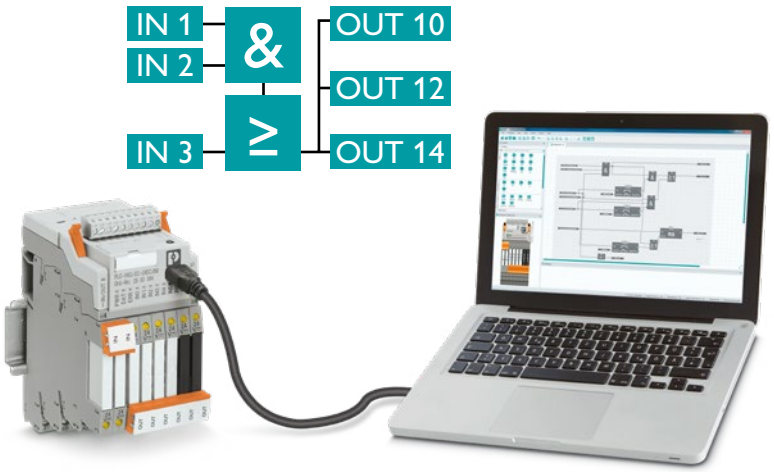
Efficient wiring

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

Easy handling

Programmable logic modules

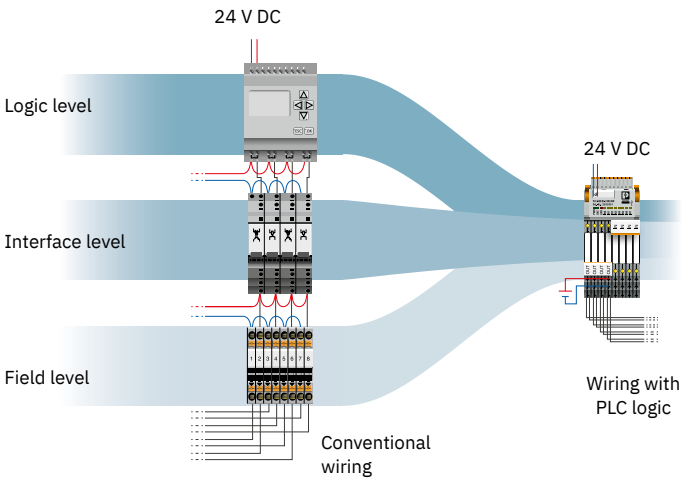
Combine the advantages of plug-in relays with logic functions and intuitive software, and implement small automation tasks with PLC logic.



Reduce wiring costs

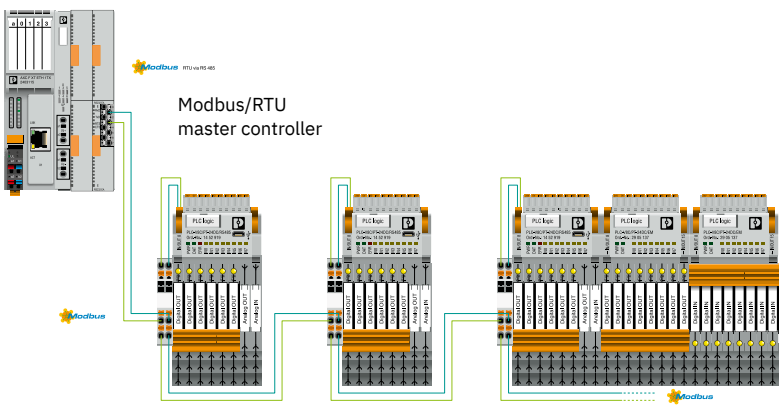
With conventional logic modules, module wiring is complex and time-consuming. To avoid the disadvantages of permanently soldered relays, additional relay modules are often used in front of the inputs and outputs.

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



Easy networking via Modbus/RTU

The new logic modules with an integrated RS-485 interface enable easy integration into Modbus/RTU networks. As decentral basic modules with 16 I/Os or in a full configuration with two extension modules and 48 I/Os, the modules are connected as devices of higher-level automation systems. The independent control concept means that the functionality of the local application is ensured even if Modbus communication is lost.



PLC logic modules as Modbus network devices

PLC logic modules and PLC-INTERFACE relays

Logic modules

	Description	Push-in connection
	PLC logic stand-alone module, Generation 2, with 16 I/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, Push-in connection	2907443
	PLC logic basic module, Generation 2, with 16 I/Os, for plug-in connection to eight digital or analog PLC-INTERFACE terminal blocks, can be extended to 48 I/Os, real-time clock, micro USB female connector, accommodates memory module and Bluetooth adapter, Push-in connection	2907446
	PLC logic basic module with RS-485 connection for Modbus/RTU communication, with 16 I/Os, for plug-in connection to 8 digital or analog PLC-INTERFACE terminal blocks, can be extended to 48 I/Os, real-time clock, micro USB female connector, accommodates memory module and Bluetooth adapter, Push-in connection	NEW 1452919
	PLC logic extension module with 16 I/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), Push-in connection	2905137

Relay output

	Description	Push-in connection	Screw connection
	PLC-INTERFACE, consisting of PLC-BPT.../21 basic terminal block with Push-in connection and plug-in miniature relay with power contact, for mounting on NS 35/7,5 DIN rail, 1 changeover contact, input voltage 24 V DC	2900299	2966171
	PLC-INTERFACE, consisting of PLC-BPT.../21 basic terminal block with Push-in 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	2900306	2966265
	PLC-INTERFACE for output functions, consisting of PLC-BPT.../ACT basic terminal block with Push-in connection and plug-in miniature relay with power contact, for mounting on DIN rail NS 35/7,5, 1 N/O contact, input voltage 24 V DC	2900312	2966210
	PLC-INTERFACE with switch (manual operation) for the “Manual, Zero and Automatic” functions, with Push-in 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	2900328	2982236

Solid-state relay output

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

PLC-INTERFACE relays

Relay input			
	Description	**Push-in connection**	**Screw connection**
	PLC-INTERFACE for input functions, consisting of PLC-BPT.../SEN basic terminal block with Push-in 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	2900313	2966317
	PLC-INTERFACE for input functions, consisting of PLC-BPT.../SEN basic terminal block with Push-in 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	2900314	2966320
	PLC-INTERFACE for input functions, consisting of PLC-BPT.../SEN basic terminal block with Push-in 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	2900315	2966333
	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	**Push-in connection**
	PLC-INTERFACE for input functions with PLC logic, with Push-in connection and plug-in miniature solid-state relay, for mounting on a DIN rail, 1 N/O contact, input: 24 V DC	2908172
	PLC-INTERFACE for input functions with PLC logic, with Push-in connection and plug-in miniature solid-state relay, for mounting on a DIN rail, 1 N/O contact, input: 120 V AC/110 V DC	2908174
	PLC-INTERFACE for input functions with PLC logic, with Push-in connection and plug-in miniature solid-state relay, for mounting on a DIN rail, 1 N/O contact, input: 230 V AC/220 V DC	2908176

PLC-INTERFACE relays and accessories

Analog input and output discs

	Description	Push-in connection
	Analog input module for PLC logic modules (Generation 2 only), 1-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, Push-in connection	2906917
	Pt 100/Pt 1000 temperature measuring transducer for PLC logic modules (Generation 2 only), 1-channel, signal type (Pt 100, Pt 1000) can be configured via DIP switch, Push-in connection	2906919
	Analog output module for PLC logic modules (Generation 2 only), 1-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, Push-in connection	2906921

Basic touch panel

	Description	Type	Item no.
	Touch panel with 10.92 cm / 4.3" TFT display (analog-resistive), 480 x 272 pixels (WQVGA), 16.7 million colors, Arm® Cortex®-A7, 528 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)	BTP 2043W	1050387
	Touch panel with 17.8 cm / 7″ TFT active display (analog-resistive) 800 x 480 pixels (WVGA), 16.7 million colors, Arm® Cortex®-A7, 528 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)	BTP 2070W	1046666
	Touch panel with 25.7 cm / 10.1″ TFT display (analog-resistive) 1024 x 600 pixels (WSVGA), 16.7 million colors, Arm® Cortex®-A7, 528 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)	BTP 2102W	1046667
	Data cable for RS-232 communication between the PLC logic modules and the BTP 2000 device series touch panels. Cable length: 2 m	IFS-V8C-RS232-DATCABLE	1076342

Timer relays

3

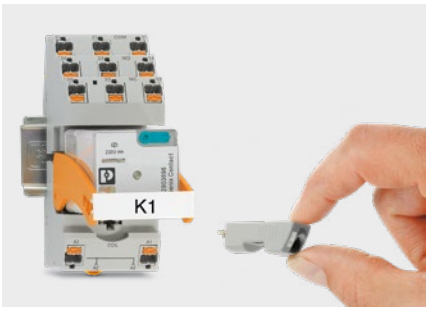
Simple time control applications, narrow and precise

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

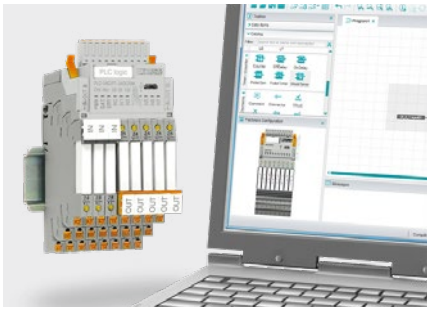
The 6 mm timer relays are the space-saving, cost-effective solution for simple time control applications. The compact timer relays in compact installation housing are particularly suitable for use in building installation and the series production of machines and systems.

› More information starting on page 50.



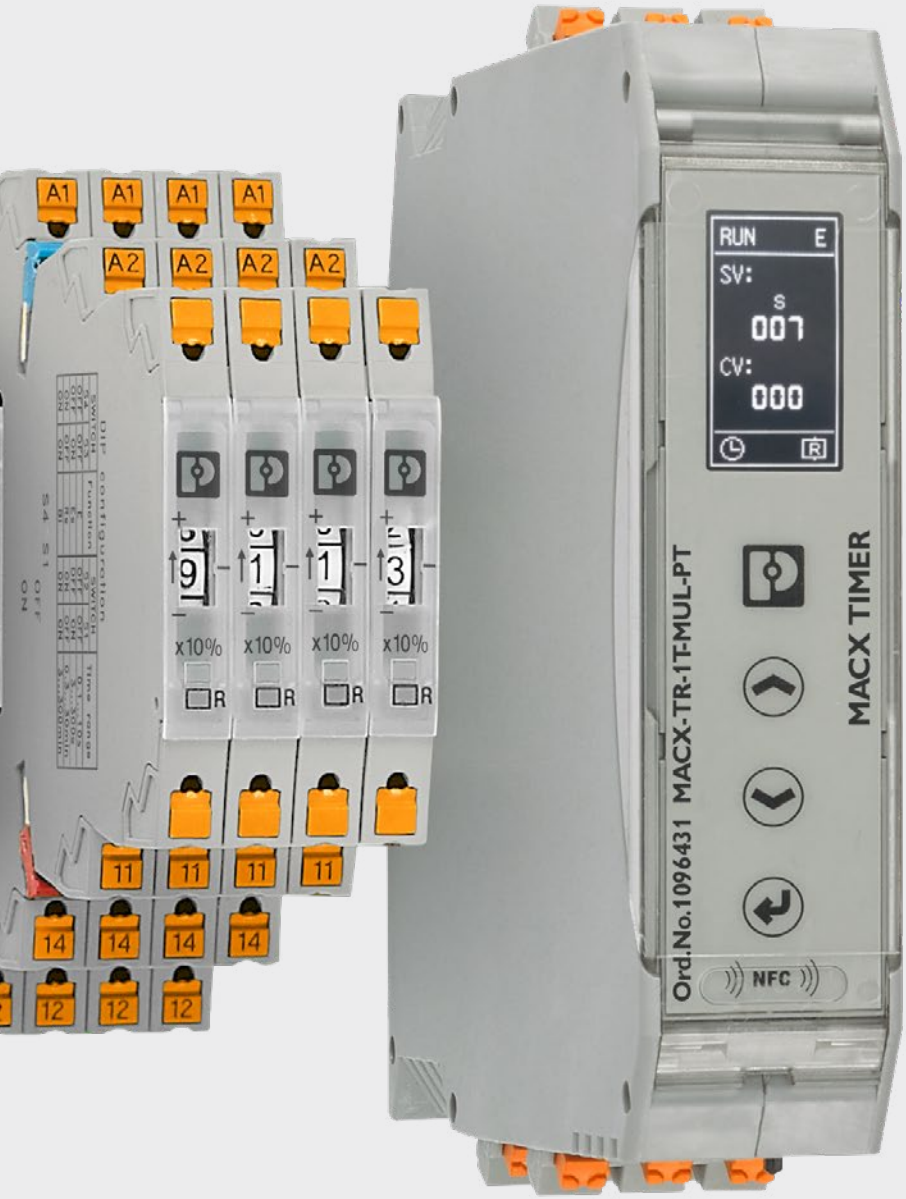
The universal industrial relay system with multifunctional timer module.

› 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

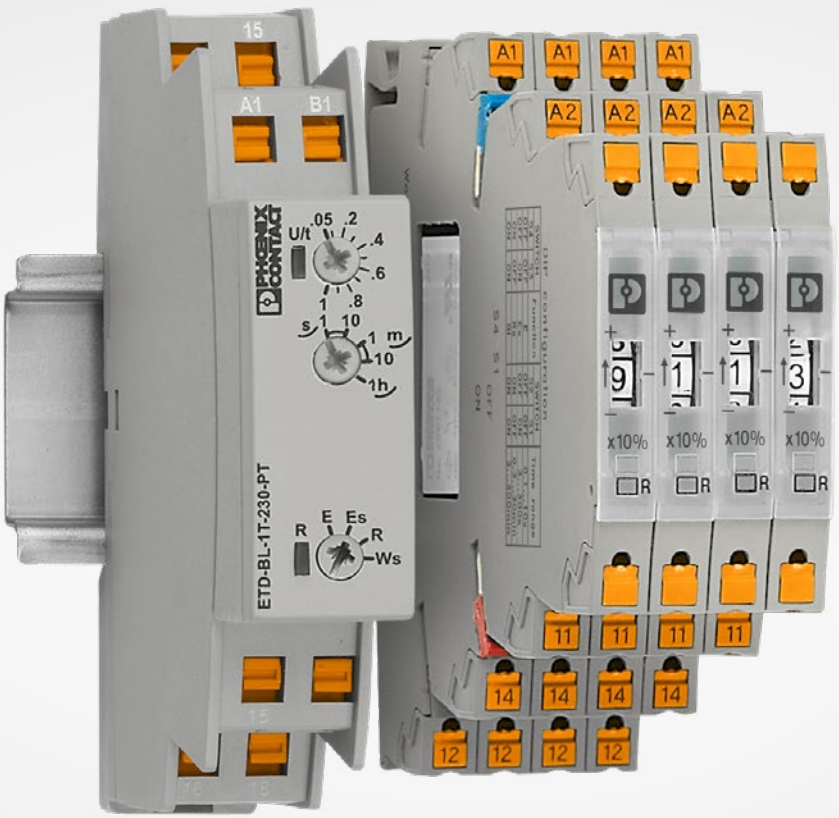
Smart and versatile: multifunctional timer relays with OLED display and optional NFC communication, plus a smartphone app.

› More information starting on page 52.

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 PDT 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 applications 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 clearly visible status LEDs

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 clearly visible status LEDs
- Fast installation with the use of plug-in bridges and system cabling

Smart 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

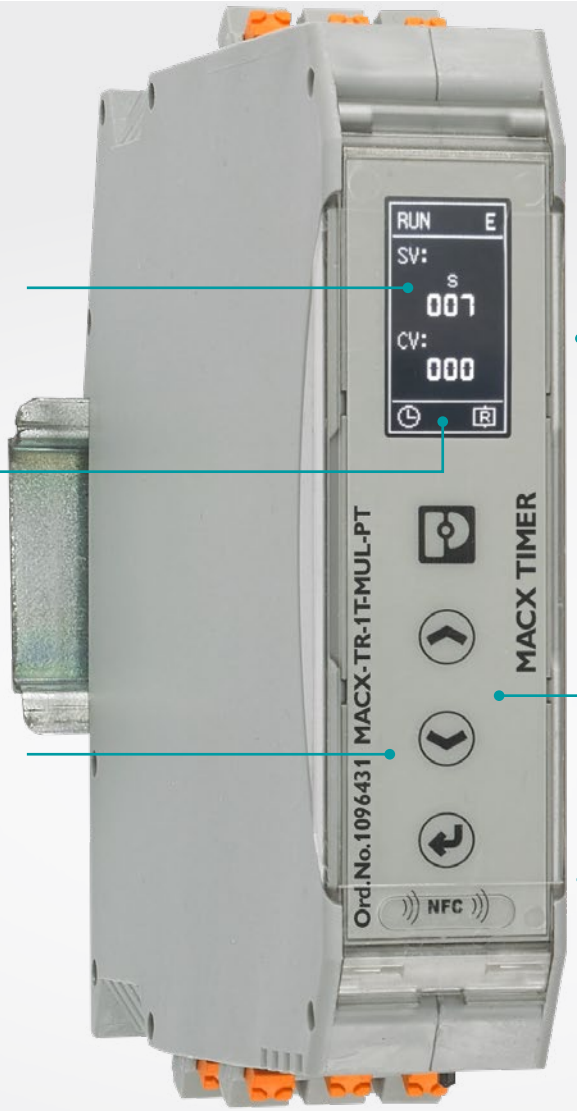
With countdown display for monitoring the module status

PIN coding

For protection against unauthorized changes

Guided configuration

Via the device buttons or via app



Rapid selection of the time functions

With 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

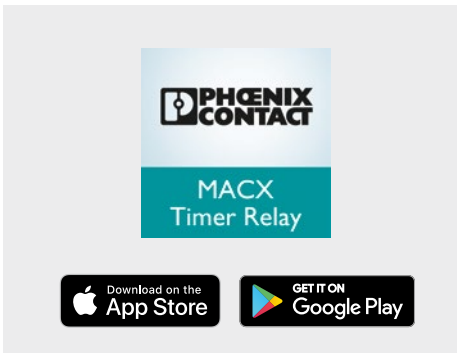
Easy handling in detail

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.

Smart 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.

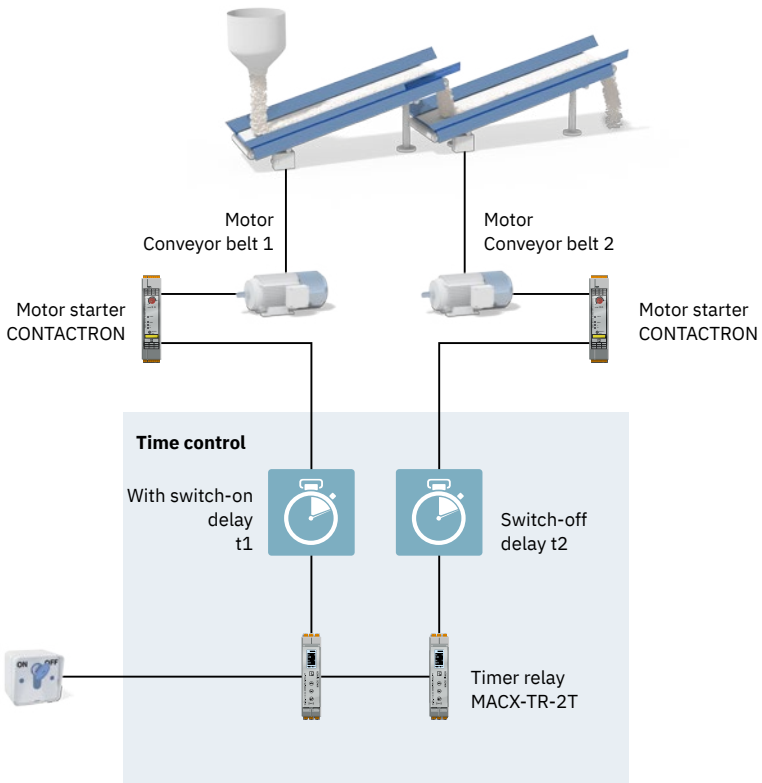
Application example: Conveying technology

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	•	•			•	
Ii: 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 start		•				
POFF: switch-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 switching 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

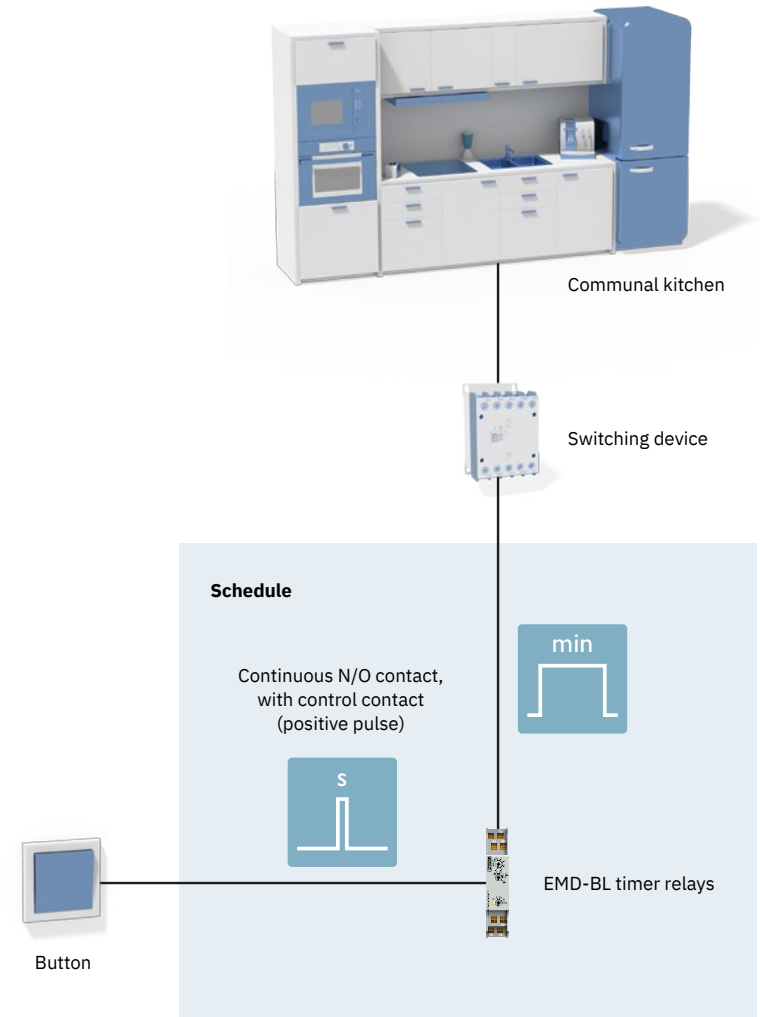
Time function in a communal kitchen

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

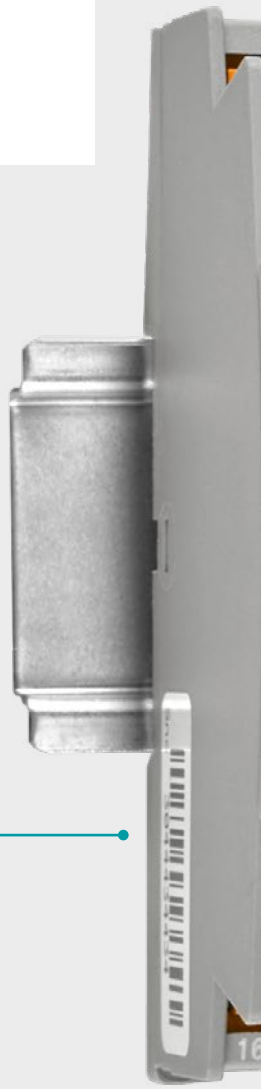


Monitoring relays

4

Increase your system availability

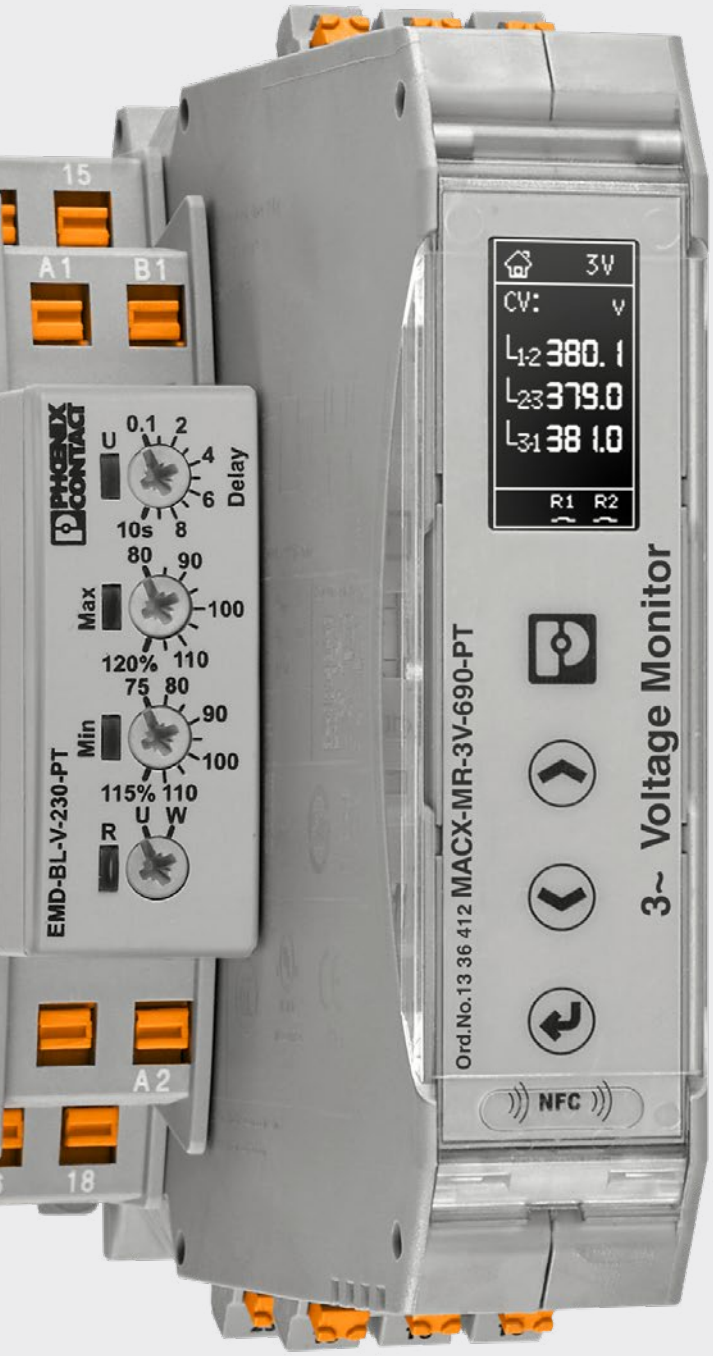
Using our monitoring relays, you can detect errors as soon as they occur. This increases your system availability and avoids expensive downtimes and repairs. Shut down system parts selectively or report an error to a controller as soon as the set limit value is exceeded or not reached. For the monitoring 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

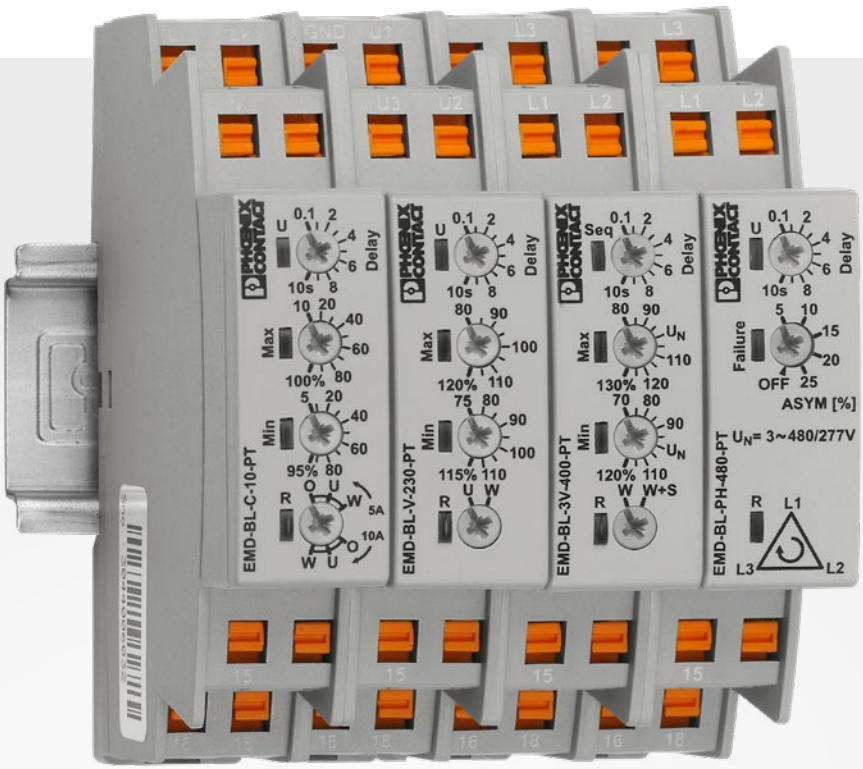
The smart MACX-MR monitoring relays provide you with many monitoring functions with extended setting options, large measuring ranges, and a broad supply voltage range.

› More information starting on page 60.

Compact monitoring relays

For simple monitoring tasks

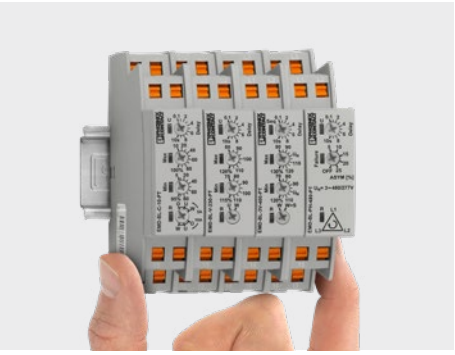
The compact EMD-BL monitoring relays are ideal for simple monitoring tasks, and are suitable both for use in building installation and in the series production of machines and systems. The devices monitor current, voltage, and phase parameters efficiently and reliably. With Push-in Technology, they can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



Your advantages

- Space saving with the 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

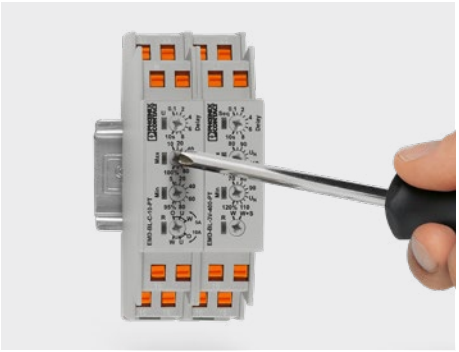


Compact and cost-effective

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 and wire breaks. 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

Phase monitoring

In three-phase mains supplies, all phase sequences such as phase failure, phase sequence, and asymmetry should be monitored.

- 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

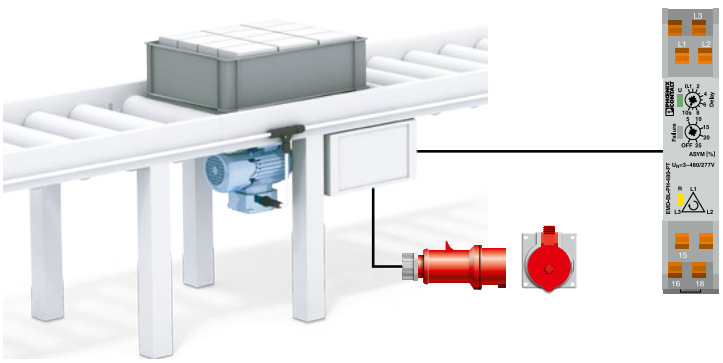
When monitoring motor winding temperatures, temperature-dependent resistors detect motor heating and activate the relay to signal it.

- 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 underdimensioning

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 in conveyor drives

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

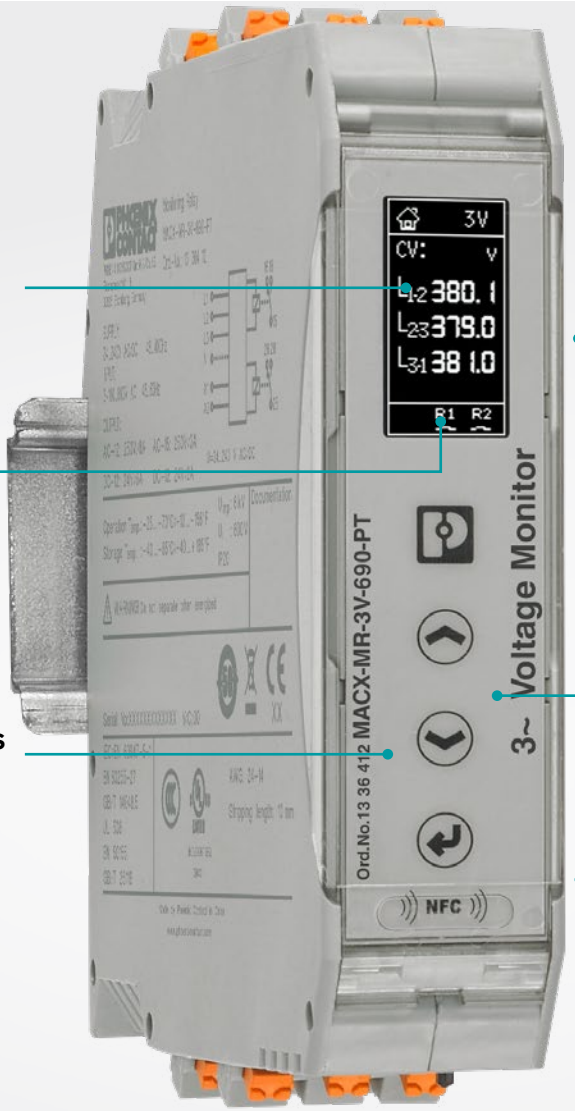
For guided configuration for users and display of the current values on site

PIN code

For protection against unauthorized changes

Extended measuring ranges

And high measuring accuracy thanks to true-RMS measurement



Smart configuration

Guided settings for users 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

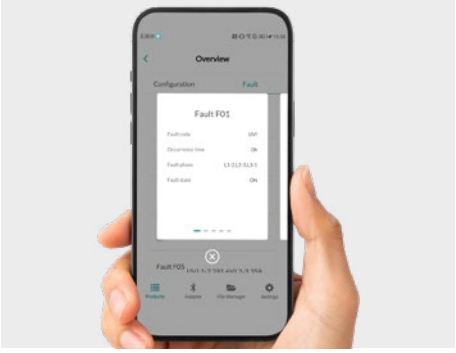
The new standard for the control cabinet.

› More information starting on page 6

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.

The MACX-MR app is used to perform an accurate parameter configuration. 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.

Download on the App Store

GET IT ON Google Play

Product overview of monitoring relays

Voltage monitoring, 3-phase			
	Industrial housings		
			
Width	22.5		45
Functions			
Phase sequence	•	•	•
Phase failure	•	•	•
Asymmetry	•	•	•
Window	•		•
Undervoltage	•		•
Overvoltage	•		•
Input voltage range	160 V ... 690 V		480 V ... 900 V
Supply voltage	24 V AC ... 240 V AC -15% ... +10% 24 V DC ... 240 V DC -25% ... +30%	24 V DC ... 240 V DC -25% ... +30%	24 V AC ... 240 V AC -15% ... +10% 24 V DC ... 240 V DC -25% ... +30%
Contact switching 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 switching 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 AC ... 240 V AC -15% ... +10% 24 V DC ... 240 V DC -25% ... +30%	-25% ... +20% (= measuring voltage)
Contact switching 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 switching 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 AC ... 240 V AC -15% ... +10% 24 V DC ... 240 V DC -25% ... +30%	195.5 V AC ... 253 V AC
Contact switching 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

COMPLETE line is a system comprising 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:

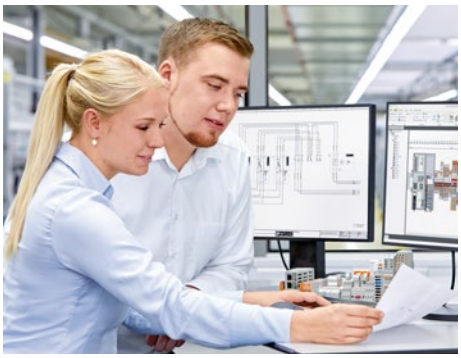
Comprehensive product portfolio

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

- 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

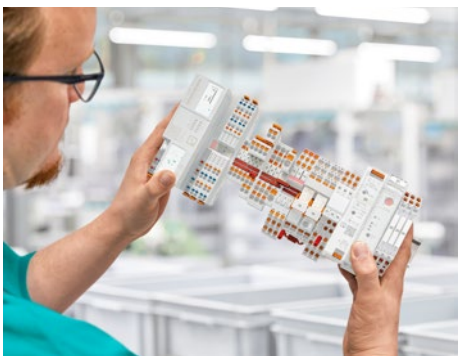
Intuitive handling

Thanks to the simple, intuitive handling of the coordinated hardware products you will save time regarding assembly, startup, and maintenance. Push-in connection technology enables you to wire applications quickly – completely tool-free. The broad, technologically leading product portfolio will always provide you with the right product for standard or special applications.



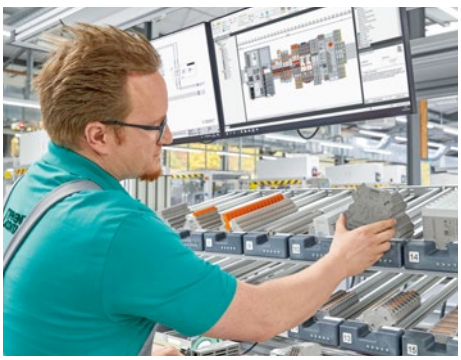
Save time throughout the entire engineering process

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

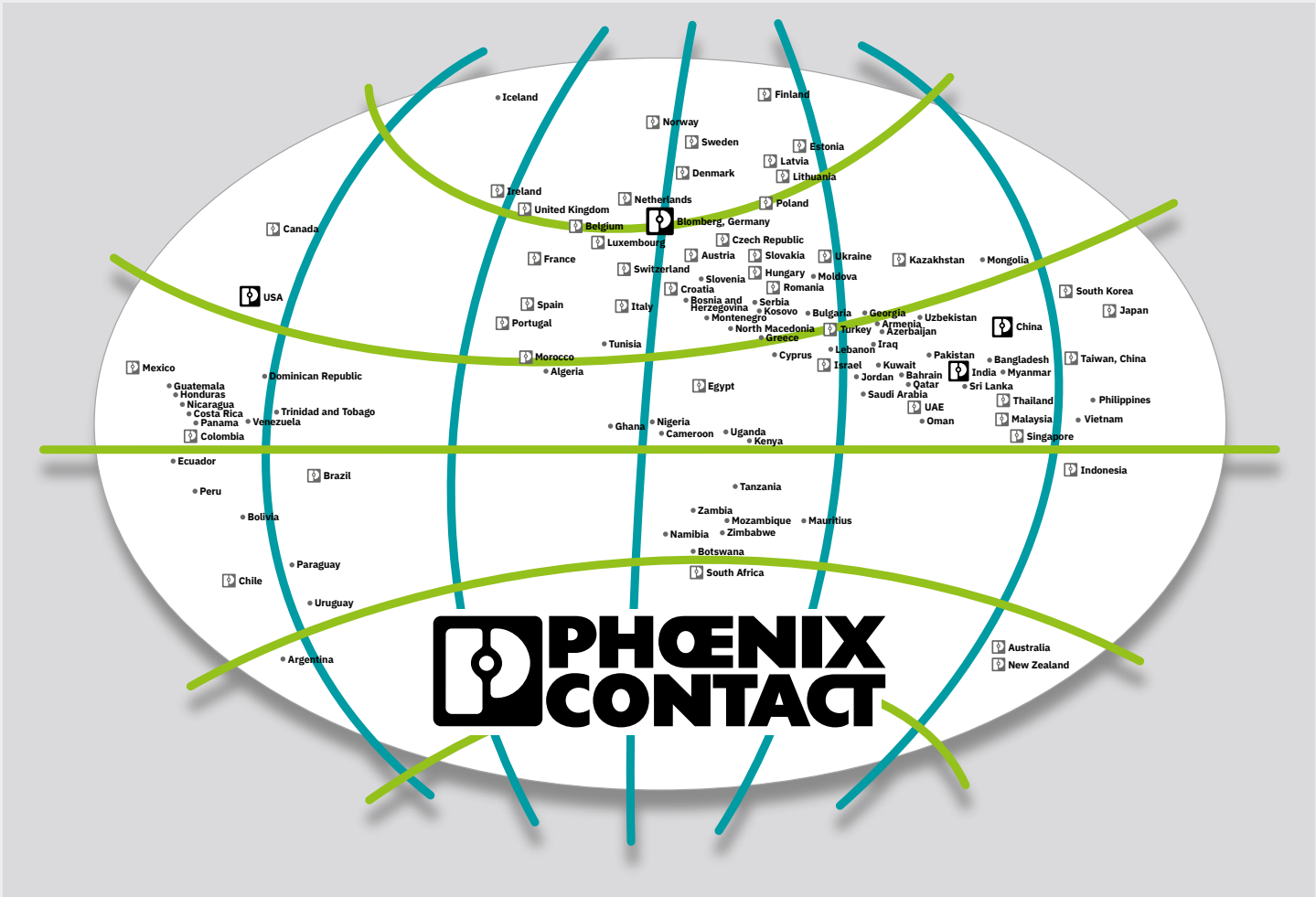
COMPLETE line supports you, from engineering through to manufacturing, in designing your control cabinet production as efficient as possible. Thus, your customized concept for optimizing your processes in control cabinet building is created. Our terminal strip production helps you to flexibly manage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

COMPLETE **line**

The new standard for the control cabinet

Discover the extensive COMPLETE line product portfolio and find out more about COMPLETE line and your comprehensive solutions for the 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 21,000 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

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