



Relay modules

Switch, isolate, and amplify signals reliably

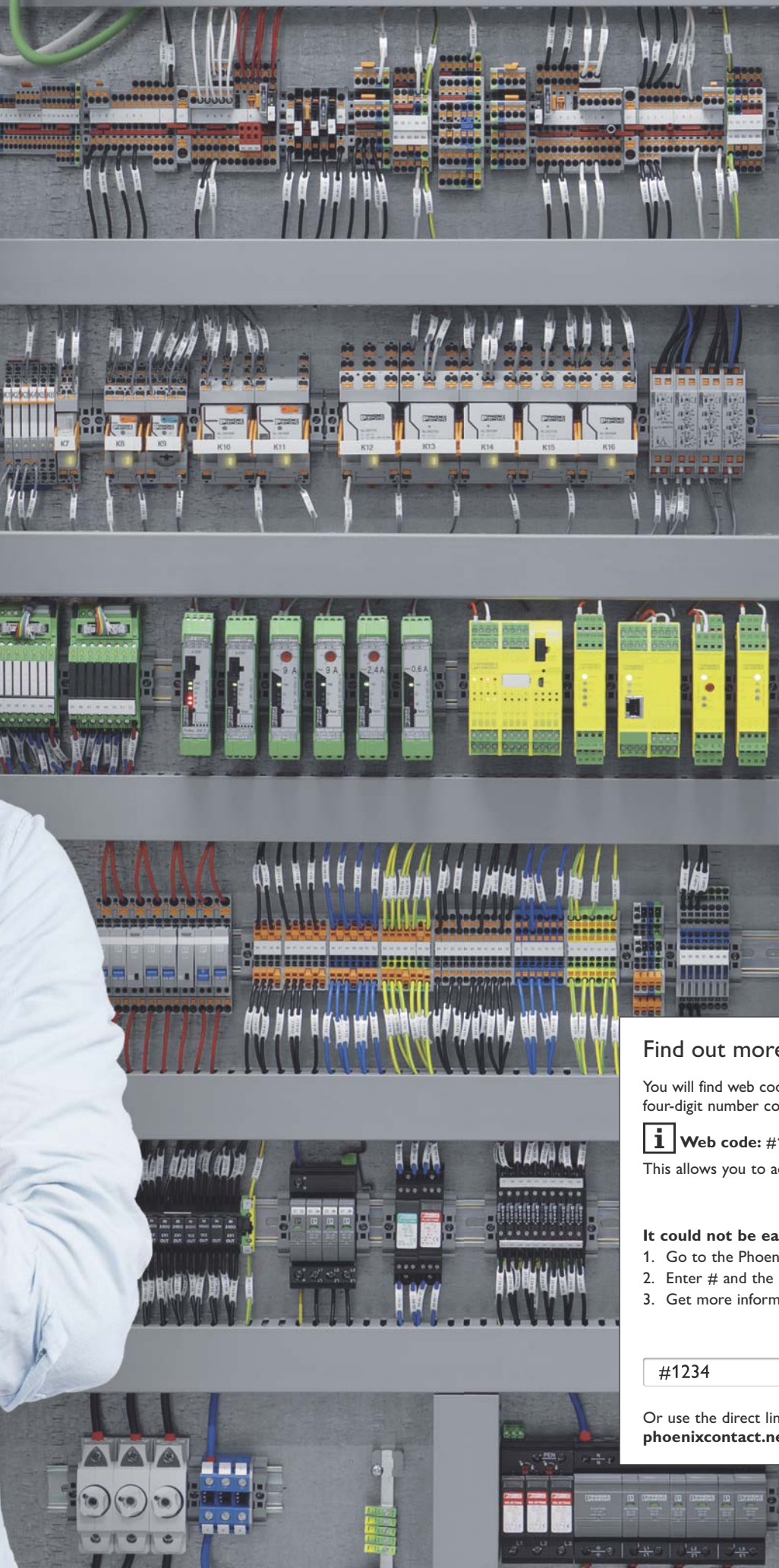
Switch, isolate, and amplify signals reliably

Relays are used as interface modules. They perform different tasks depending on the version and are used to switch circuits on, off, and over. Switching devices that are susceptible to faults compromise the availability of machines and systems.

Thanks to the wide range of products from Phoenix Contact, cost-effective solutions are available that meet all the requirements of modern system concepts.

“When it comes to signal conditioning and power adaptation, relay modules are needed which switch signals reliably even in unfavorable ambient conditions. The modules must support quick and easy mounting and, where possible, should feature a compact housing design.”





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Find out more with the web code

You will find web codes in this brochure: a pound sign followed by a four-digit number combination.

i Web code: #1234 (example)

This allows you to access information on our website quickly.

It could not be easier:

1. Go to the Phoenix Contact website
2. Enter # and the number combination in the search field
3. Get more information and product versions

Or use the direct link:
phoenixcontact.net/webcode/#1234

Relay modules – Overview of the product range

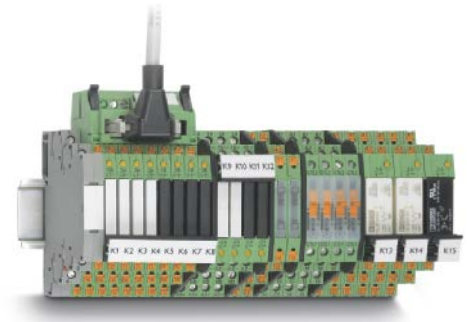
No need to look any further: you will be completely satisfied with our extensive and consistent range of relay modules.

Whatever the function you require: switching, isolating, monitoring, amplifying or multiplying. Our range satisfies all requirements. Whether for electromechanical and solid-state relays or time and monitoring relays.

You will find many other products under the following web code:

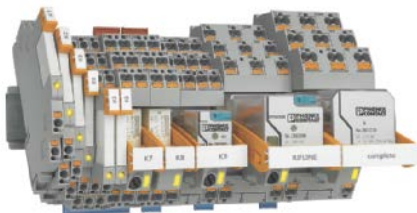
i Web code: [#0962](#)

PLC-INTERFACE highly compact relay modules



Whatever the required application or industry for your relay modules, you will find the best solution with PLC-INTERFACE.

RIFLINE complete industrial relay system



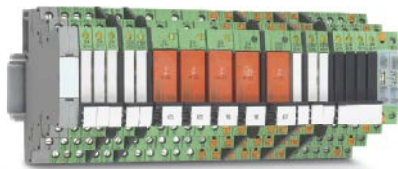
You can realize all standard relay applications with RIFLINE complete.

Force-guided coupling relays



The new force-guided coupling relay module ensures reliable signal exchange with feedback function between two systems.

Highly compact relay modules for the Ex area



The new highly compact relay modules for the hazardous area also allow you to safely disconnect and switch signals in potentially explosive areas of Zone 2.

Programmable logic relay system PLC logic



Extremely compact control and switching: PLC logic combines relays and analog modules with logic functions and intuitive software.

ETD-SL, ETD-BL and RIF-1 time relays



Time relays from Phoenix Contact are the cost-effective alternative to a PLC: with easy configuration and fast wiring. Choose from three product ranges for your time control application.

EMD-SL monitoring relays, compact EMD-BL monitoring relays



EMD monitoring relays can be used to detect deviations in important system parameters at an early stage. These can be indicated or system parts can be shut down selectively.

Industrial relay system with screw connection for reliable switching of loads

You can implement all of your standard relay applications using the RIFLINE complete industrial relay system. Whether you want to isolate, multiply or amplify signals, it makes no difference. The relay system with universal plug-in design ensures high machine and system availability. The field of application ranges from coupling and time relays to small power contactor replacement.

Your advantages

- Simple operation, thanks to state-of-the-art wiring and potential distribution concept
- Easily extended to create a time relay by means of a plug-in function module
- Complete product range covering all standard relay applications
- Reliable system for high machine and system availability
- Available as a complete module or modular system



Multifunctional timer module

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

Choose from the following time functions:

- Switch-on delay
- Passing make contact
- Flasher unit

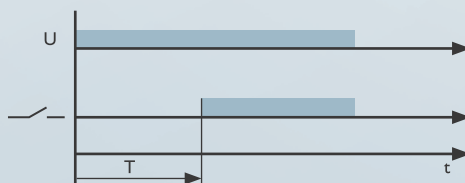
Push-in Technology

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The choice is yours

Wiring with screw connection
or fast and tool-free Push-in
technology

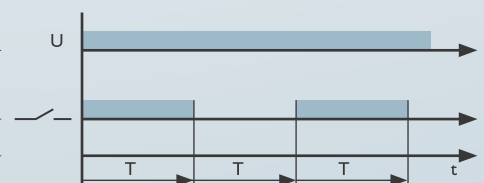
Switch-on delay

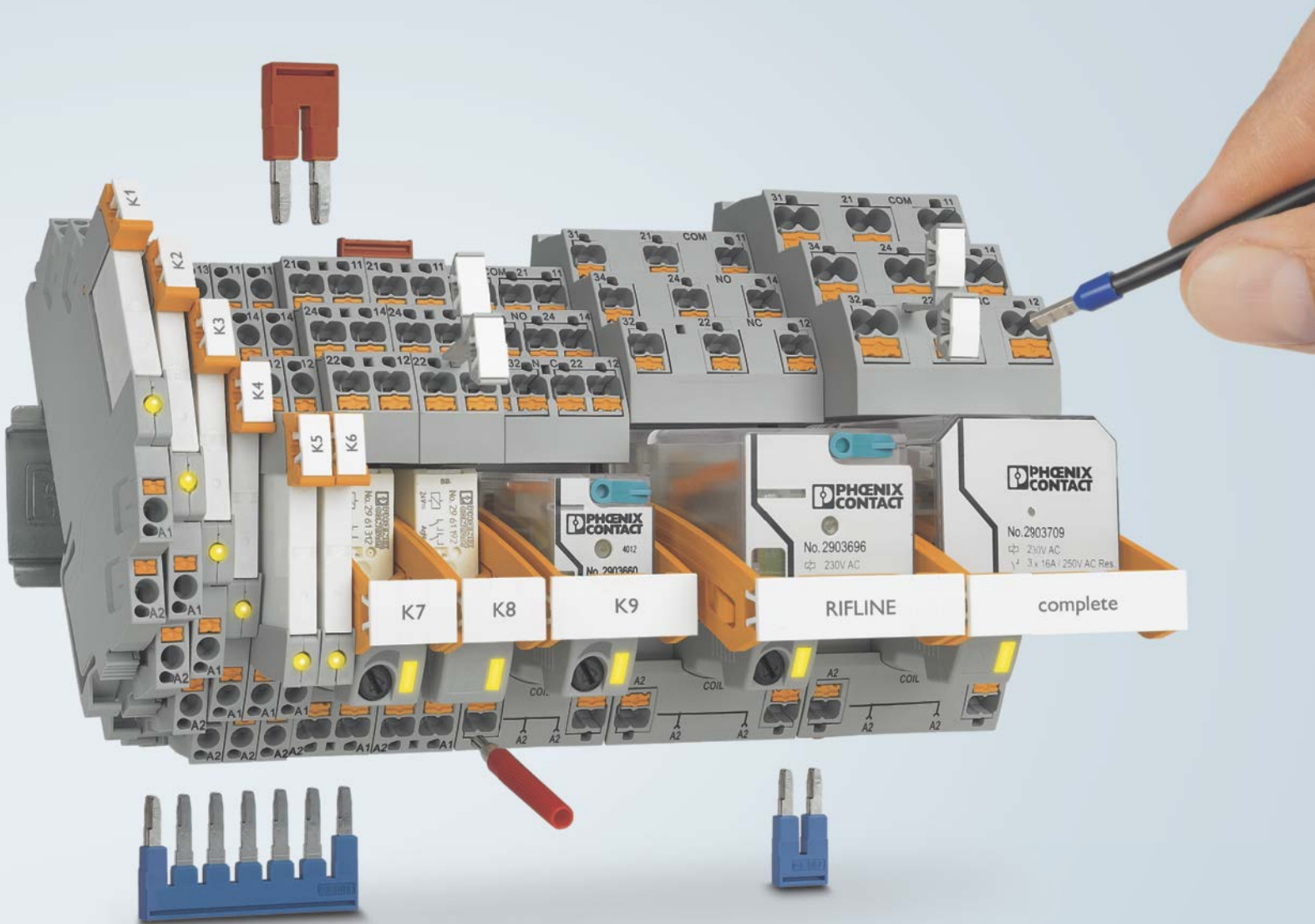


Passing make contact



Flasher unit





Easy handling in detail



Easy wiring

thanks to Push-in connection technology. This enables quick, tool-free wiring.



Easy potential distribution

with plug-in bridges from the CLIPLINE complete system accessories



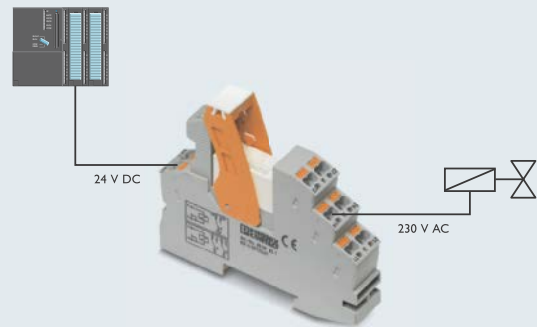
Easy expansion

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

Industrial relay system – From coupling relay to replacement for small power contactors

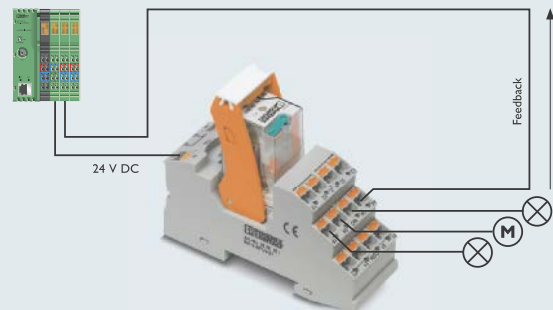
Coupling relay between the controller and the field

The RIF-0 and RIF-1 relay modules are used in particular to safely couple signals between the controller and the field. As such, power is amplified, voltages are adjusted or signals are electrically isolated.



Relay for signal multiplication

The RIF-2 relay modules are particularly suitable for applications in which a high number of contacts is required. A feedback signal to the controller can be switched parallel to different loads.

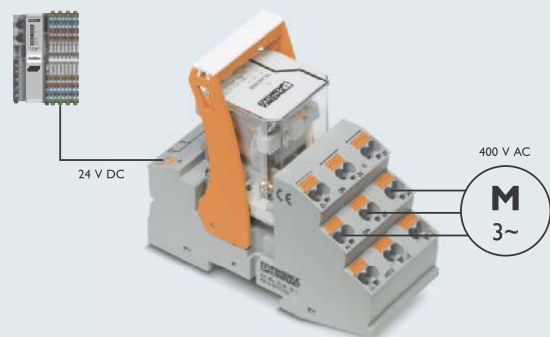


Power relay to small power contactor replacement

Thanks to their high switching capacity, the RIF-4 relay modules can be used in small power contactor applications.

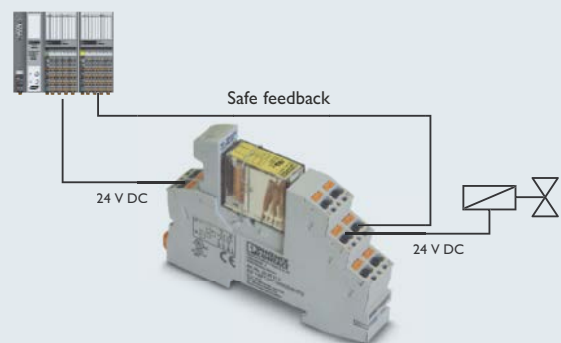
The advantages over contactors are:

- Easy maintenance, thanks to pluggability
- Status display via status LED
- Inexpensive
- Quick installation, thanks to bridgeability and Push-in connection



Coupling relay module with force-guided contacts

The force-guided coupling relay module ensures reliable signal exchange with feedback function between two systems.



		Input voltage	Contact type	Maximum switching current	Switching voltage	Order No. Push-in	Order No. Screw
RIF-0.../ 1	 6.2 mm	12 V DC	1 changeover contact	6 A	250 V AC/DC	2903362	2903367
		24 V DC		6 A		2903361	2903366
12 V DC		1 changeover contact	6 A	2903371		2903375	
24 V DC			6 A	2903370		2903374	
RIF-1.../ 1X21	 16 mm	24 V DC	1 changeover contact	11 A (13 A) ¹⁾	250 V AC/DC	2903342	2903358
		120 V AC		10 A (12 A) ¹⁾		2903340	2903356
		230 V AC		10 A (12 A) ¹⁾		2903339	2903355
RIF-1.../ 2X21		24 V DC	2 changeover contacts	8 A	250 V AC/DC	2903334	2903350
		120 V AC		8 A		2903332	2903348
		230 V AC		8 A		2903331	2903347
RIF-2.../ 2X21	 31 mm	24 V DC	2 changeover contacts	10 A	250 V AC/DC	2903315	2903326
		120 V AC		8.5 A		2903311	2903322
		230 V AC		8.5 A		2903310	2903321
RIF-2.../ 4X21		24 V DC	4 changeover contacts	6 A	250 V AC/DC	2903308	2903320
		120 V AC		5 A		2903305	2903317
		230 V AC		5 A		2903304	2903316
RIF-3.../ 3X21	 40 mm	24 V DC	3 changeover contacts	8.5 A	250 V AC/DC	2903294	2903300
		120 V AC		6 A		2903293	2903299
		230 V AC		6 A		2903292	2903298
RIF-4.../ 3X21	 43 mm	24 V DC	3 changeover contacts	10 A	440 V AC/250 V DC	2903278	2903288
		120 V AC		8 A		2903277	2903287
		230 V AC		8 A		2903276	2903285

¹⁾ When using the plug-in bridge between 11 and 21.

The table only shows a selection of products. You will find additional products from this area using our web code.
The modules are available in input voltages from 5 V DC to 230 V AC/DC.

Highly compact relay modules – Narrow and high-performance

The PLC-INTERFACE relay system from Phoenix Contact acts as the high-performance interface between the controller and system I/O devices. PLC-INTERFACE provides you with a comprehensive range of extremely narrow, plug-in relays and solid-state relays, plus a complete range of accessories. In addition, PLC-INTERFACE with the sensor/actuator versions, switch modules, and filter series always provide the right solution for special applications. PLC-INTERFACE plus system cabling – fast plug-in connection of the controller and I/O devices.

Broad product range

- Over 500 versions
- Universal series
- Sensor/actuator versions
- Filter series
- Variants for the Ex areas

Your advantages

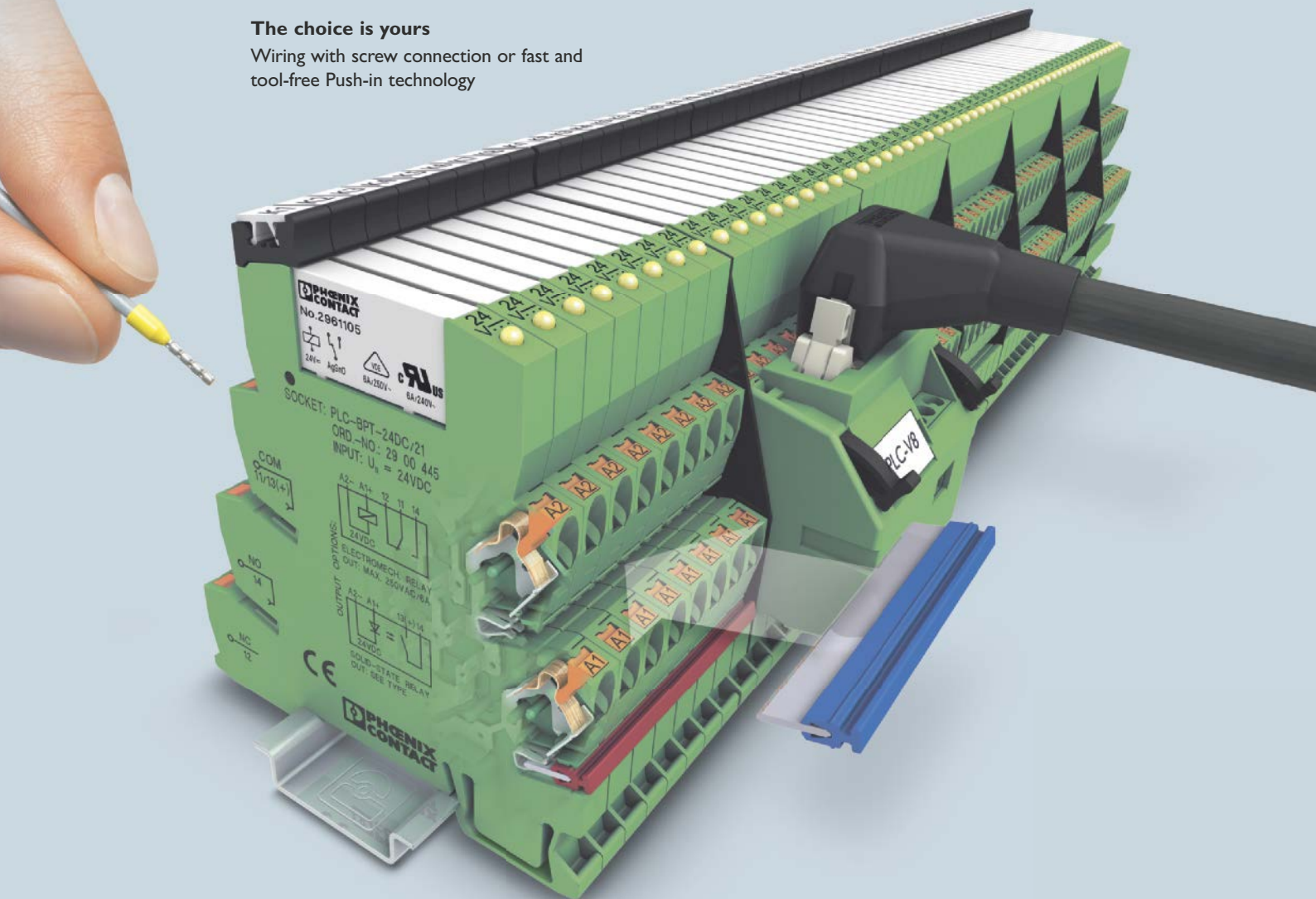
- Comprehensive product range with special versions for special applications
- Optimized installation effort, thanks to versatile accessories
- Just 6.2 mm wide with plug-in electromechanical and solid-state relays
- Your choice of easy connection technology: whether screw, spring-cage or Push-in connection technology
- Logic functions, thanks to extension with PLC logic
- Quick plug-in connection between controller and relay, thanks to system cabling adapter

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The choice is yours

Wiring with screw connection or fast and tool-free Push-in technology



Can be extended with:



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, thanks to plug-in bridges

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



Compact space-saving housing

For space-saving installation, we offer plug-in relays or solid-state relays in a narrow housing which is just 6.2 mm or 14 mm wide.

Highly compact relay modules with lockable manual actuation

The PLC-INTERFACE relay system acts as the high-performance interface between the controller and system I/O devices. The new electromechanical relay with manual actuation is particularly suited for maintenance and commissioning as it can be operated manually.

Main features

- Contact nominal load: 250 V AC/6 A
- Relay degree of protection: RTII
- Plug-in relay
- Operating functions:
 AUTO MODE: Relay is operated via on/off signal from the controlling signal source
 MANUAL ON: Relay is operated manually with mechanical activation
- Screw or Push-in connection



Rotary actuator

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The choice is yours
 Wiring with screw connection or fast and tool-free Push-in technology

Your advantages

- Space-saving, thanks to 6.2 mm narrow design
- Time-saving potential distribution, thanks to plug-in bridges
- Protection against operating errors due to manual operation that is lockable via screwdriver
- Quick and error-free connection to the controller via system cabling

i Web code: #1353



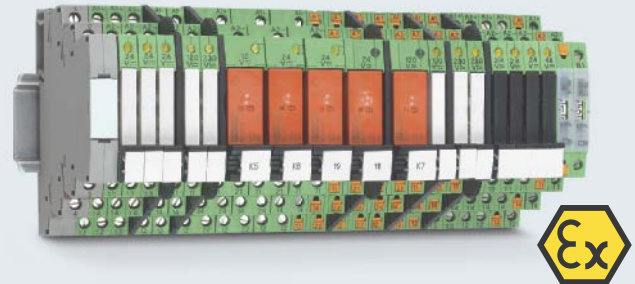
Description	Complete module			Single relay		
Input voltage	24 V DC		230 V AC	12 V DC	24 V DC	60 V DC
Type	PLC-RPT-24DC/21/MS	PLC-RPT-24DC/1/MS/ACT	PLC-RPT-230UC/1AU/MS/SEN	REL-MR-12DC/21/MS	REL-MR-24DC/21/MS	REL-MR-60DC/21/MS

Highly compact relay modules for switching loads in the Ex area

The PLC-INTERFACE relay system acts as the high-performance interface between the controller and system I/O devices. New variants allow you to isolate and switch signals safely in the potentially explosive areas of Zone 2.

Main features

- SPDT and DPDT with 6 A continuous current and HC variants for up to 10 A switching current
- Plug-in relays
- Various input voltages (12/24 V AC/DC, 120/230 V AC/DC)
- Maximum switching voltage: 250 V AC/DC
- Screw or Push-in connection



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Wiring with screw connection or fast and tool-free Push-in technology

Your advantages

- Can be used in potentially explosive areas of Zone 2
- Approval in accordance with IECEx, ATEX and Class 1 Zone 2
- Time-saving potential distribution, thanks to plug-in bridges
- Efficient connection to system cabling using V8 adapter
- Fulfills requirements of the corrosive gas test ISA G3 and of EN 60068-2-60

i Web code: #0690



Description	Complete module 6.2 mm		Complete module 14 mm	
	≤ 3 A	≤ 6 A	≤ 2 x 6 A	≤ 10 A
Contact current	≤ 3 A	≤ 6 A	≤ 2 x 6 A	≤ 10 A
Switching voltage	≤ 48 V DC	≤ 250 V AC/DC	≤ 250 V AC/DC	
Input voltage	24 V DC	24 V DC	24 V DC	
Approvals	Class I Zone 2	IECEx, ATEX, Class I Zone 2	IECEx, ATEX, Class I Zone 2	
Type	PLC-OSC- 24DC/ 24DC/2/C1D2	PLC-RSC-24DC/ 21/EX	PLC-RSC- 24DC/ 21-21/EX	PLC-RSC-24DC/ 21/HC/EX

Conventional wiring

Due to complex wiring using single wires, conventional wiring of sensors and actuators is complicated and time-consuming.

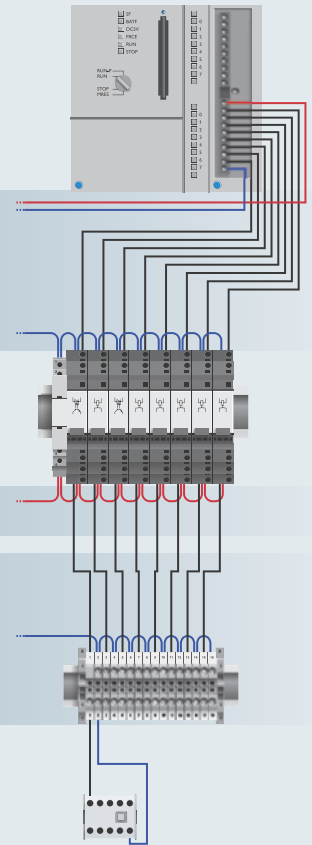
This graphic illustrates the savings you will achieve by switching to a state-of-the-art wiring solution from Phoenix Contact.

Your potential savings:

Wiring using single wires between the control and interface levels

Potential distribution with loop bridge

Potential terminal blocks for signal marshalling including wiring



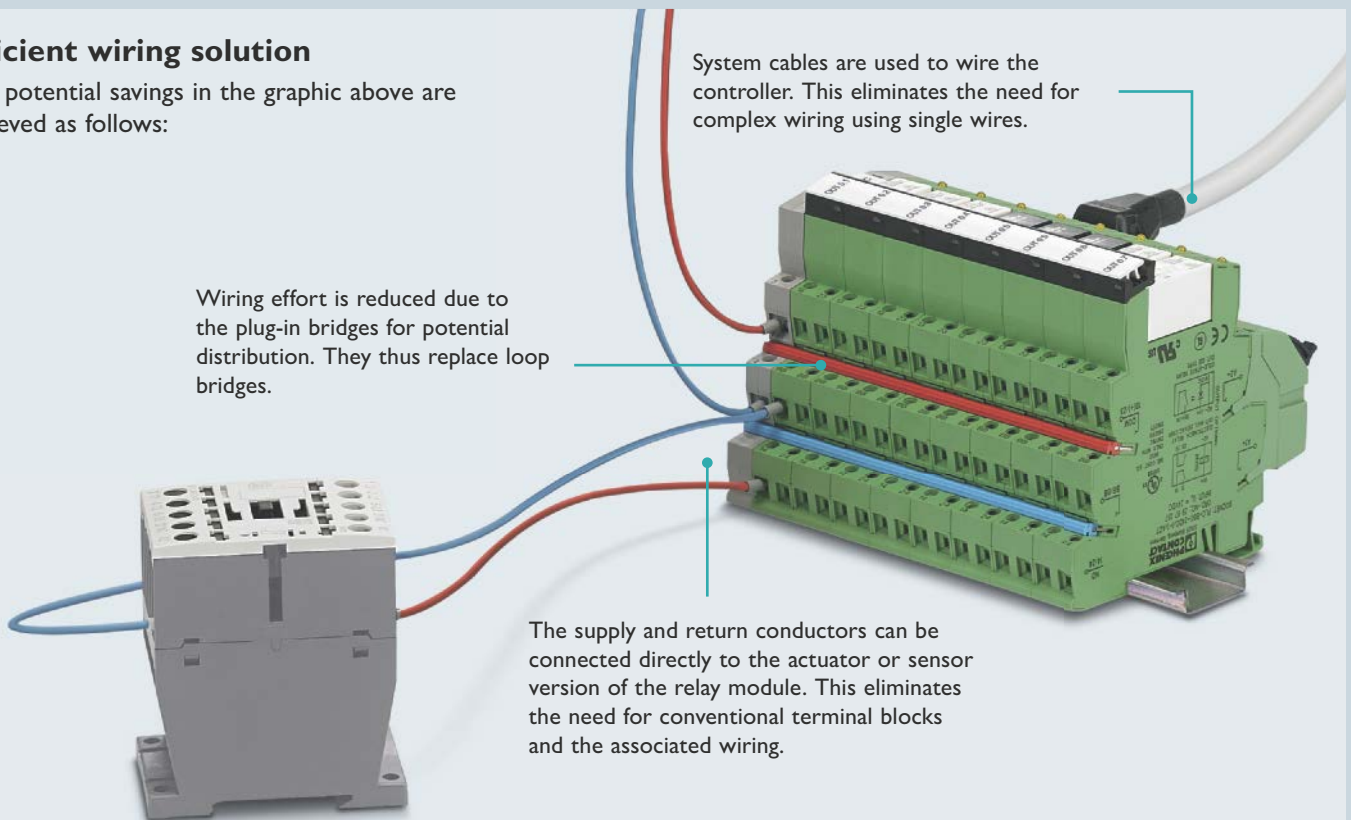
Efficient wiring solution

The potential savings in the graphic above are achieved as follows:

Wiring effort is reduced due to the plug-in bridges for potential distribution. They thus replace loop bridges.

System cables are used to wire the controller. This eliminates the need for complex wiring using single wires.

The supply and return conductors can be connected directly to the actuator or sensor version of the relay module. This eliminates the need for conventional terminal blocks and the associated wiring.




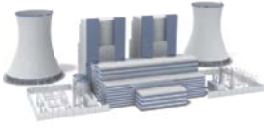
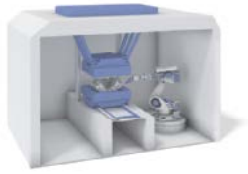






Product overview of highly compact relay modules

 Web code: #0688

	Description	Input voltage	Contact type	Maximum switching voltage	Order No. Push-in	Order No. Screw
PLC-R.../ 21	Assembled with plug-in power contact relay	24 V DC	1 changeover contact	250 V AC/DC	2900299	2966171
		120 V AC/DC			2900304	2966197
		230 V AC/DC			2900305	2966207
PLC-R.../ 21AU	Assembled with plug-in relay for small switching capacities, with gold-plated multi-layer contact	24 V DC	1 changeover contact	30 V AC/36 V DC	2900306	2966265
		120 V AC/DC			2900310	2966281
		230 V AC/DC			2900311	2966294
PLC-R.../ 21-21	Assembled with plug-in power contact relay	24 V DC	2 changeover contacts	250 V AC/DC	2900330	2967060
		120 V AC/DC			2900335	2967086
		230 V AC/DC			2900336	2967099
PLC-R.../ 21-21AU	Assembled with plug-in relay for small switching capacities, with gold-plated multi-layer contact	24 V DC	2 changeover contacts	30 V AC/36 V DC	2900338	2967125
		120 V AC/DC			2900342	2967138
		230 V AC/DC			2900343	2967141
PLC-R.../ 21HC	Assembled with plug-in miniature relay for high continuous current	24 V DC	1 changeover contact	250 V AC/DC	2900291	2967620
		120 V AC/DC			2900296	2967662
		230 V AC/DC			2900297	2967675
PLC-O.../ 24DC/100	Assembled with a plug-in solid-state input relay	24 V DC	DC voltage output	48 V DC	2900352	2966728
		120 V AC/DC			2900355	2966744
		230 V AC/DC			2900356	2966757
PLC-O.../ 24DC/2	Assembled with plug-in solid-state power relay	24 V DC	DC voltage output	33 V DC	2900364	2966634
		120 V AC/DC			2900367	2966650
		230 V AC/DC			2900368	2966663
PLC-O.../ 230AC/1	Assembled with plug-in solid-state power relay	24 V DC	AC voltage output	253 V AC	2900369	2967840
		120 V AC/DC			2900372	2967879
		230 V AC/DC			2900374	2967882


The table only shows a selection of products. You will find additional products from this area using our web code.

Product overview of highly compact relay modules – Special versions with accessories

Series for coupling sensors or actuators	Filter series for long control lines	Switch modules for manual intervention
 <p>PLC sensor and actuator series for coupling sensors, such as proximity switches, limit switches or auxiliary contacts and for coupling actuators such as motors, contactors, valves, etc.</p> <p>i Web code: #0617</p> <p>i Web code: #0618</p>	 <p>The PLC filter modules are designed specifically for applications in which interference voltages or interference currents may occur. This can be the case with long cable lengths.</p> <p>i Web code: #0689</p>	 <p>The PLC switch modules have an integrated manual-zero-automatic switch. This lets you manually intervene in the application at any time.</p> <p>i Web code: #0898</p>
Solid-state relays for wear-free switching	Ex-relays for Zone 2 applications	Hybrid solid-state relays for a long service life
 <p>The PLC solid-state relay series can be used universally and consists of a basic terminal block and plug-in solid-state relays.</p> <p>i Web code: #0899</p>	 <p>PLC relay modules for Zone 2 applications with ATEX Class 1 Division 2 and IECEx approvals.</p> <p>i Web code: #0690</p>	 <p>The hybrid solid-state relays combine the advantages of the electromechanical and solid-state switching technologies.</p> <p>i Web code: #0691</p>
Relay modules for railway applications	Relay modules for high switch-on currents	Reversing load relays for DC motors
 <p>PLC relay modules especially adapted for the needs of railway technology.</p> <p>i Web code: #0900</p>	 <p>PLC relay modules for up to 130 A high switch-on currents as they occur for capacitive loads, such as for LED lights.</p> <p>i Web code: #0901</p>	 <p>PLC modules for switching mechanically commutated DC motors.</p> <p>i Web code: #0693</p>


Accessories

 Web code: #0692

	Continuous plug-in bridge 500 mm long, insulated, can be cut to length, for potential distribution with PLC-INTERFACE Color Order No. Red 2966786 Blue 2966692 Gray 2966838	Plug-in bridge 2-pos., 6 mm long, bridges potentials of neighboring PLC-INTERFACE terminals Color Order No. Red 2966236 Blue 2966812 Gray 2966825	Plug-in bridge 2-pos., 8 mm long, bridges potentials of neighboring PLC-INTERFACE terminals with partition plate Color Order No. Gray 2967688
Plug-in bridge 2-pos., for connecting adjacent connections on a 14 mm PLC-INTERFACE terminal Color Order No. Black 2967691	Partition plate 2 mm thick, required at the start and end of every PLC terminal strip Color Order No. Black 2966841	Passive feed-through bridge Can be inserted instead of a relay or solid-state relay, bridges terminal points A1 and 14 Color Order No. Black 2980283	Power terminal For supplying up to four potentials Color Order No. Gray 2966508


System cabling adapters for PLC-INTERFACE

 Web code: #0694

	PLC-V8/FLK14... For 6.2 mm relays, with 14-pos. flat-ribbon cable connection, module width of 49.6 mm	PLC-V8/D15S/... For 6.2 mm relays, with 15-pos. D-SUB connection, module width of 49.6 mm	PLC-V8L/FLK14/... For 14 mm relays, with 14-pos. flat-ribbon cable connection, module width of 112.3 mm
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Logic modules

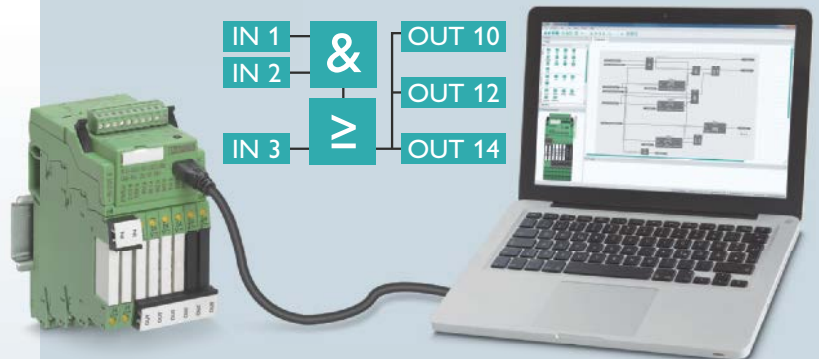
 Web code: #0897

	PLC-V8C.../SAM Stand-alone module With 16 I/Os, cannot be extended, connection to PC via micro USB socket, integrated real-time clock, accommodates IFS-CONFSTICK external memory block.	PLC-V8C.../BM Basic module With 16 I/Os, extendable up to a maximum of 48 I/Os, connection to PC via micro USB socket, integrated real-time clock, accommodates IFS-CONFSTICK external memory block. Optional connection to IFS gateways.	PLC-V8C.../EM Extension module With 16 I/Os, for extending the basic module. A maximum of two extension modules can be connected to each basic module.
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Highly compact switching and control – Logic relay system

On the logic module 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 using a single compact system.

You can combine the new PLC logic module with the corresponding plug-in relays as required. The modular structure opens up a wealth of applications.

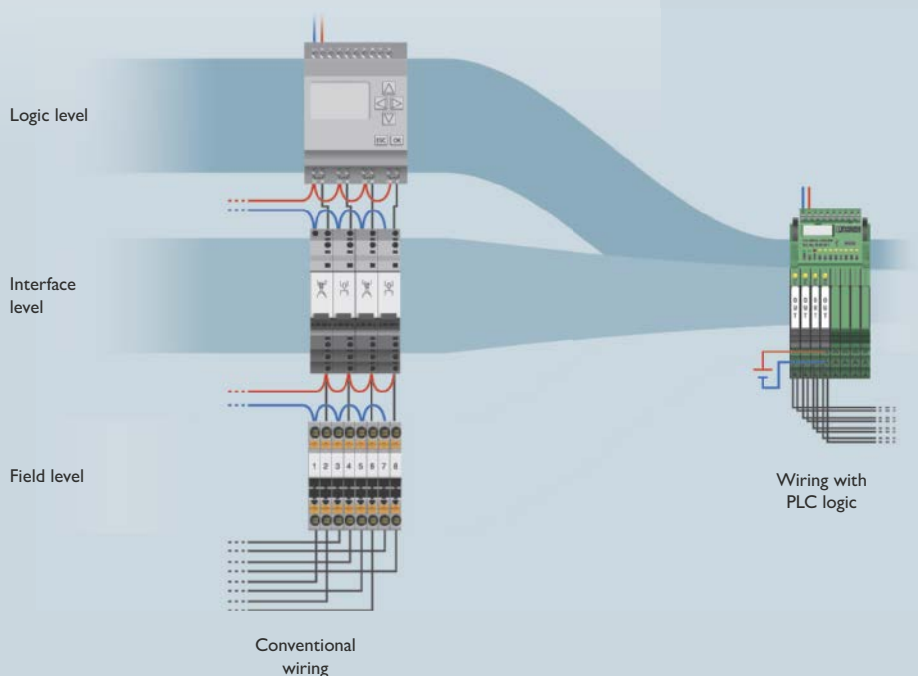


Programmable logic modules

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



Web code: #0687



Reduce wiring costs

With conventional logic modules, 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.

High availability

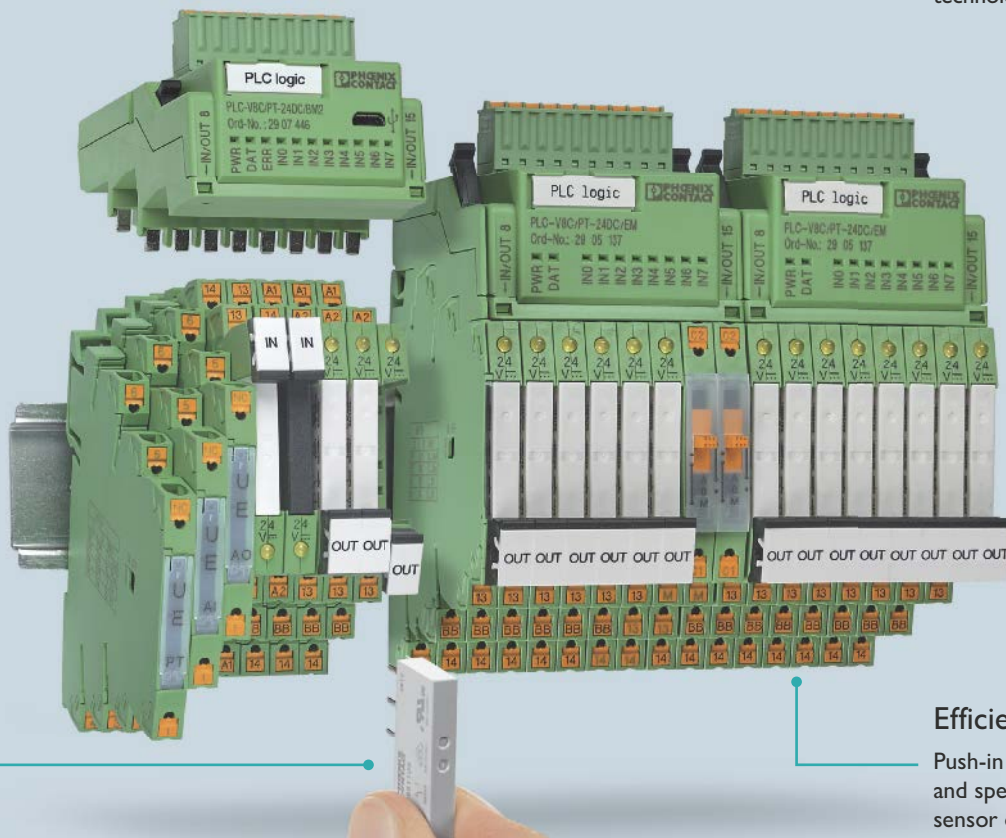
Benefit from a high level of machine and system availability. The modular design of PLC logic with plug-in switching elements enables relays to be replaced swiftly in the event of servicing.

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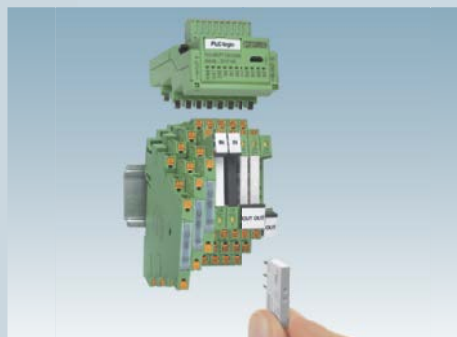
Wiring with screw connection or fast and tool-free Push-in technology



Efficient wiring

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

Additional features:



Flexible combinations and tailor-made configurations

Depending on the application requirement, you can use electromechanical or solid-state relays. Furthermore, analog input and output modules are available.



PLC logic app

Easy and quick parameter adjustments and monitoring using an app. Thanks to the corresponding Bluetooth adapter, you can access the process data quickly and wirelessly.



Intuitive programming using LOGIC+

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

Ultra-narrow time relays – Slim and precise

The ultra-narrow ETD-BL time relays are the space-saving and cost-efficient solution for simple time control applications: with one adjustable time and one fixed, predefined function.

The modules can also be conveniently connected to the highly compact relays in the PLC-INTERFACE series in the same housing. Plug-in bridges and system cabling save a lot of time here.

Your advantages

- Space savings of up to 70% compared to conventional time relays, thanks to the overall width of just 6.2 mm
- Precise and convenient time setting using the illuminated thumbwheel
- Easy and tool-free wiring, thanks to Push-in connection technology
- Quick installation, thanks to the use of plug-in bridges and system cabling







Particularly space saving:
The housing is just 6.2 mm
wide.

Easy to read and well
illuminated: you can set the
desired time on the
thumbwheel precisely and
conveniently.

Push-in Technology
Designed by PHOENIX CONTACT

The choice is yours

Wiring with screw connection
or fast and tool-free Push-in
technology

					
		Switch-on delay, voltage-controlled	Switch-on delay, with control contact	Switch-off delay, with control contact	Flashing function, beginning with pulse
Type		ETD-BL-1T-ON	ETD-BL-1T-ON-CC	ETD-BL-1T-OFF-CC	ETD-BL-1T-F
Setting range					
0.1 ... 10 s	Screw connection	ETD-BL-1T-ON-10S	ETD-BL-1T-ON-CC-10S	ETD-BL-1T-OFF-CC-10S	ETD-BL-1T-F-10S
	Order No.	2917379	2917418	2917450	2917492
	Push-in connection	ETD-BL-1T-ON-10S-PT	ETD-BL-1T-ON-CC-10S-PT	ETD-BL-1T-OFF-CC-10S-PT	ETD-BL-1T-F-10S-PT
	Order No.	2901476	2901480	2901485	2901489
3 ... 300 s	Screw connection	ETD-BL-1T-ON-300S	ETD-BL-1T-ON-CC-300S	ETD-BL-1T-OFF-CC-300S	ETD-BL-1T-F-300S
	Order No.	2917382	2917421	2917463	2917502
	Push-in connection	ETD-BL-1T-ON-300S-PT	ETD-BL-1T-ON-CC-300S-PT	ETD-BL-1T-OFF-CC-300S-PT	ETD-BL-1T-F-300S-PT
	Order No.	2901477	2901481	2901486	2901490
0.3 ... 30 min	Screw connection	ETD-BL-1T-ON-30MIN	ETD-BL-1T-ON-CC-30MIN	ETD-BL-1T-OFF-CC-30MIN	ETD-BL-1T-F-30MIN
	Order No.	2917395	2917434	2917467	2917515
	Push-in connection	ETD-BL-1T-ON-30MIN-PT	ETD-BL-1T-ON-CC-30MIN-PT	ETD-BL-1T-OFF-CC-30MIN-PT	ETD-BL-1T-F-30MIN-PT
	Order No.	2901478	2901483	2901487	2901491
3 ... 300 min	Screw connection	ETD-BL-1T-ON-300MIN	ETD-BL-1T-ON-CC-300MIN	ETD-BL-1T-OFF-CC-300MIN	ETD-BL-1T-F-300MIN
	Order No.	2917405	2917447	2917489	2917528
	Push-in connection	ETD-BL-1T-ON-300MIN-PT	ETD-BL-1T-ON-CC-300MIN-PT	ETD-BL-1T-OFF-CC-300MIN-PT	ETD-BL-1T-F-300MIN-PT
	Order No.	2901479	2901484	2901488	2901492
Supply					
Supply voltage range		24 V DC, -20%... +25%	24 V DC, -20%... +25%	24 V DC, -20%... +25%	24 V DC, -20%... +25%

The table only shows a selection of products. You will find additional products from this area using our web code.

Multifunctional time relays – For universal use

The multifunctional ETD time relays feature selectable time ranges and a wide range of functions for universal use. Available in three versions, they cover all applications associated with conventional time control.

Indicate errors or shut down system parts selectively: with an overall width of just 22.5 mm, the multifunctional time relays are equipped with two PDT outputs.



Error indication and selective shutdown

With two PDT outputs with an overall width of just 22.5 mm







Easy handling: times and functions can be conveniently set using rotary switches on the front of the housing.

Your advantages

- Universal use, thanks to wide range of functions
- Worldwide use, thanks to power supply via wide range power supply unit
- Easy handling – parameters can be conveniently set using rotary switches on the front of the housing
- Space saving, with two PDT outputs with an overall width of just 22.5 mm
- Optimum time control with setting ranges from milliseconds to several days

Product overview of multifunctional time relays

 Web code: #0699

				
	Multifunctional time relay, one adjustable time	Multifunctional time relay, two adjustable times	Multifunctional time relay, one adjustable time	Impulse encoder, adjustable pulse and pause times
Screw connection	ETD-BL-1T-230-PT	ETD-FL-2T-DTI	ETD-SL-1T-DTF	ETD-SL-2T-I
Order No.	2905814	2866187	2866161	2866174
Functions				
Switched-mode beginning with pause		•		•
Switched-mode beginning with pulse		•		•
Flashing beginning with pause			•	
Flashing beginning with pulse			•	
With switch-on delay	•		•	
With release delay, with control contact	•		•	
With switch-on delay, with control contact	•		•	
With switch-on and release delay, with control contact		•		
With switch-on delay and passing make contact,		•		
voltage-controlled With switch-on delay and passing make contact,		•		
with control contact				
With passing make and passing break contact, with control contact		•		
Passing make contact, voltage-controlled			•	
Passing make contact, with control contact	•		•	
Passing break contact, with control contact			•	
Pulse sequence evaluation (retriggerable release delay)		•		
Setting range	50 ms ... 1 h	50 ms ... 10 h	50 ms ... 100 h	50 ms ... 100 h
Adjustable times	1	2	1	2
Time ranges	5	10	7	7
Supply				
Supply voltage range	24 ... 240 V AC/DC	24 ... 240 V AC/DC	24 ... 240 V AC/DC	24 ... 240 V AC/DC
Frequency range	48 ... 63 Hz	48 ... 400 Hz	48 ... 63 Hz	48 ... 63 Hz

The table only shows a selection of products. You will find additional products from this area using our web code.

Compact monitoring relays – Quick wiring and space saving

The EMD-BL compact monitoring relays are ideal for simple monitoring tasks. The devices are particularly suitable for use in building installation and in the series production of machines and systems. Monitor the following efficiently and reliably:

- Currents
- Voltages, 1- and 3-phase
- Phase sequence
- Temperature monitoring of motor windings

Push-in Technology

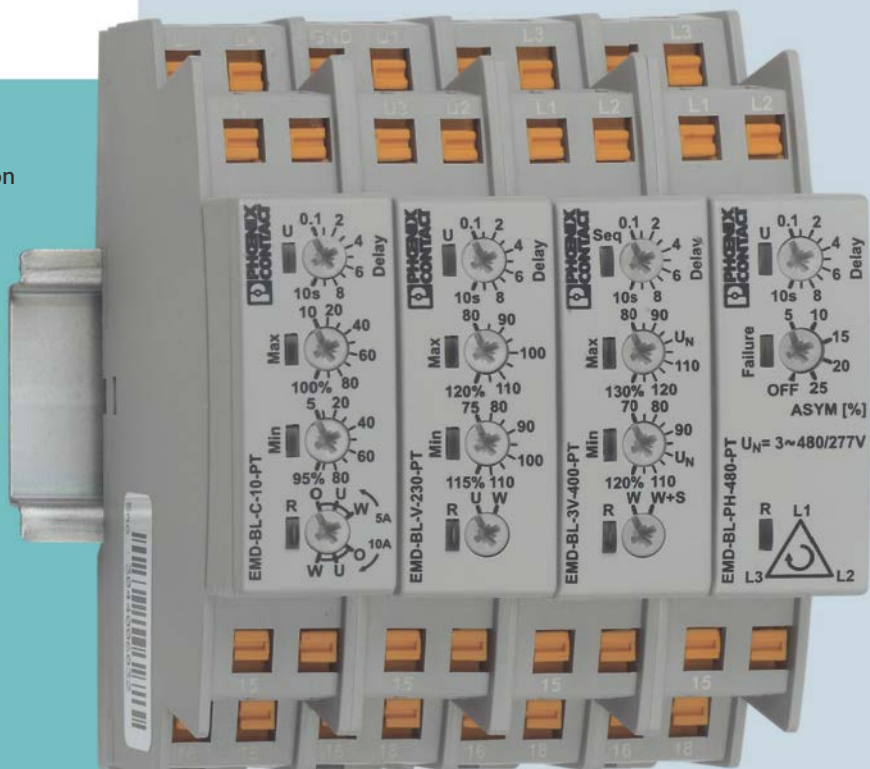
Designed by PHOENIX CONTACT





The choice is yours

Wiring with screw connection or fast and tool-free Push-in technology

Your advantages

- Space saving, thanks to compact installation housing
- Easy and tool-free wiring, thanks to Push-in connection technology
- 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



				
	Current monitoring, 1-phase	Voltage monitoring, 1-phase	Voltage monitoring, 3-phase	Phase monitoring
Screw connection	EMD-BL-C-10	EMD-BL-V-230	EMD-BL-3V-400	EMD-BL-PH-480
Order No.	2903521	2903523	2903525	2903527
Push-in connection	EMD-BL-C-10-PT	EMD-BL-V-230-PT	EMD-BL-3V-400-PT	EMD-BL-PH-480-PT
Order No.	2903522	2903524	2903526	2903528
Monitoring range	5 A	U1/24V DC	3~400/230 AC	3~208 V/120V
	10 A	U2/24V AC		Up to 480 V/277 V
		U3/230 V AC		
Functions				
Undervoltage		•		
Undercurrent	•			
Overcurrent	•			
Window function	•	•	•	
Phase sequence			•	•
Phase failure				•
Asymmetry				•
Overload	13 A	$U_N + 20\%$	$U_N \pm 30\%$	$U_N \pm 10\%$
Configuration				
Threshold value	•	•	•	
Hysteresis	•	•	•	•
Tripping delay	0.1 s ... 10 s	0.1 s ... 10 s	0.1 s ... 10 s	0.1 s ... 10 s
Signaling	1 pot. changeover contact	1 pot. changeover contact	1 pot. changeover contact	1 pot. changeover contact
Switching capacity	1250 VA (5 A/230V AC)	1250 VA (5 A/230V AC)	1250 VA (5 A/230V AC)	1250 VA (5 A/230V AC)
Switching threshold				
In relation to max.	10% ... 100% of I_N	80% ... 120% of U_N	80% ... 130% of U_N	5% ... 25% OFF, asym.
In relation to min.	5% ... 95% of I_N	75% ... 115% of U_N	70% ... 120% of U_N	5% ... 25% OFF, asym.
Supply				
Supply voltage range	230 V AC $\pm 15\%$	Measuring voltage -25% ... +20% of U_N	Measuring voltage $\pm 30\%$ of U_N	Measuring voltage $\pm 10\%$ of U_N
Frequency range	48 Hz ... 63 Hz	48 Hz ... 63 Hz	48 Hz ... 63 Hz	48 Hz ... 63 Hz

The table only shows a selection of products. You will find additional products from this area using our web code.

Multifunctional monitoring relays – Extremely versatile

With the multifunctional EMD monitoring relays, you can monitor electrical as well as physical system parameters. Benefit from a wide functional spectrum, extended setting options and a variety of supply voltage ranges.

With the EMD series, you can monitor:

- Currents
- Voltages, 1- and 3-phase
- Phase sequences
- Real powers
- Loads, $\cos \varphi$
- Motor winding temperatures
- Levels








Worldwide use – without additional power supply unit

Two versions are available: with integrated wide range power supply unit for voltages from 24 to 240 V or with plug-in transformer for various voltage ranges between 24 and 500 V.



Your advantages

- Universal use, thanks to wide range of functions
- Worldwide use, thanks to wide range power supply unit or plug-in transformer
- Easy handling – parameters can be conveniently set using rotary switches on the front of the housing
- Space saving – with two PDT outputs in narrow 22.5 mm housing
- Clear diagnostics, thanks to color status LED
- Fast error detection, thanks to fine tuning and short response times
- Safe operation with electrically isolated measuring and supply circuits

					
	Undervoltage and overvoltage monitoring, 1-phase	Undervoltage and phase monitoring, 3-phase	Phase monitoring, 3-phase	Undercurrent and overcurrent monitoring, 1-phase	Temperature monitoring (motor winding)
Type	EMD-FL-V-300	EMD-FL-3V-400	EMD-SL-PH-400	EMD-FL-C-10	EMD-SL-PTC
Screw connection	EMD-FL-V-300	EMD-FL-3V-400	EMD-SL-PH-400	EMD-FL-C-10	EMD-SL-PTC
Order No.	2866048	2866064	2866077	2866022	2866093
Monitoring range	3 ... 300 V AC/DC	3 x 280 ... 520 V AC	3 (N) 342 ... 477 V AC	10 mA ... 10 A AC/DC	< 1.8 kΩ ... ≥ 3.6 kΩ
Functions					
Window function	•	•		•	
Overcurrent				•	
Undercurrent				•	
Thermistor monitoring					•
Undervoltage	•	•			
Surge voltage	•				
Phase sequence		•	•		
Phase failure		•	•		
Asymmetry		5% ... 25% / Off	30% fixed		
Configuration					
Threshold value	•	•		•	
Hysteresis	•	•	Defined	•	
Test function/ reset int./ext.					•
Startup delay	0 s ... 10 s			0 s ... 10 s	
Tripping delay	0.1 s ... 10 s	0.1 s ... 10 s		0.1 s ... 10 s	
Signaling	2 changeover contacts	2 changeover contacts	2 changeover contacts	2 changeover contacts	2 changeover contacts
Switching threshold					
In relation to max.	10% ... 100%	-20% ... +30%		10% ... 100%	≥ 3.6 kΩ operate value
In relation to min.	5% ... 95%	-30% ... +20%		5% ... 95%	≤ 1.8 kΩ release value
Supply					
Supply voltage range	24 ... 264 V AC/DC	24 ... 264 V AC/DC	Measuring voltage	24 ... 264 V AC/DC	Var. ranges ¹⁾
Frequency range	48 Hz ... 400 Hz	48 Hz ... 400 Hz	48 Hz ... 63 Hz	48 Hz ... 400 Hz	

¹⁾ With EMD-PS-... power module (20 ... 30 V DC; 20,2 ... 26,4 V AC; 88 ... 121 V AC; 108 ... 132 V AC; 195 ... 264 V AC)

²⁾ With EMD-PS45-... power module (88 ... 121 V AC; 108 ... 132 V AC; 195 ... 264 V AC; 400 V AC; 500 V AC)

The table only shows a selection of products. You will find additional products from this area using our web code.

Additional switching devices from PHOENIX CONTACT

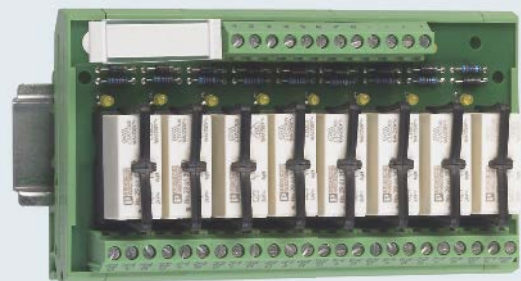
Product and technology expertise from a single source

Phoenix Contact offers all the components you need for your control cabinet. From relay and logic modules to hybrid motor starters – benefit from the clever advantages of our wide range of switching devices. Discover our cutting-edge technological products and master any challenge.

UMK multi-channel relay modules

The versions for 4, 8 and 16 relay boards of the UMK series can either be assembled with electromechanical or solid-state relays.

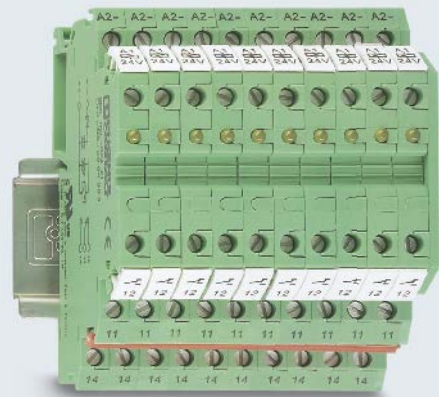
i Web code: [#1572](#)



Relay modules in DEK terminal block design

The DEK series is characterized by its very flat design of only 56 mm in addition to its low overall width of only 6.2 mm. This makes the DEK solid-state or electromechanical relays ideally suited for distributed control boxes.

i Web code: [#0697](#)



Relay input and output modules

Whether relay, fuse or signal interruption, you can implement various functions very easily with the compact VIP modules. The direct connection technology ensures quick and easy connection of field and automation level.

i Web code: [#0300](#)



Electronic switching device and motor control

The CONTACTRON hybrid motor starters combine up to four functions in one device: motor starter, reversing function, motor protection against overload, and emergency stop. In addition to standard devices for parallel wiring, network-capable versions (incl. IO-Link) are also available that can be integrated into fieldbus environments. For protection of the entire system, the product range now includes the electronic motor manager (EMM).

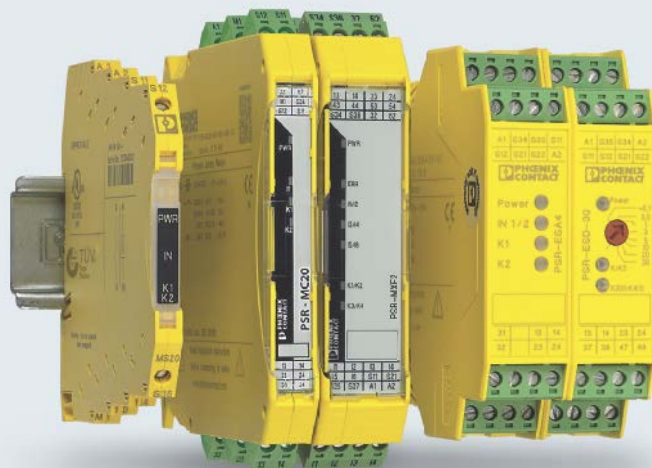
i Web code: [#0703](#)



Safety relay modules

Benefit from our experience in safety technology. If you only require a few safety functions in your machine, our PSR safety relay modules are the ideal solution.

i Web code: [#0704](#)



PHOENIX CONTACT

Products and solutions for your success

As a leading manufacturer of connection technology and automation components, we are always working to transform the growing requirements placed on your application and markets into new innovations. Our products are the nervous system of your industrial system and help you design more efficient processes and reduce costs.

Your advantages:

- Unique product portfolio, thanks to future-oriented innovations and a high degree of variety
- High quality, thanks to standardized laboratory tests and high-quality materials
- Professional service through personal consultation:
With 50 subsidiaries and over 30 agencies, we are always close by.
- High delivery reliability, thanks to modern production processes, worldwide production locations, and local warehousing





“Made by Phoenix Contact”

Phoenix Contact relies on in-house competence and expertise in a range of contexts. Product ideas aimed at developing solutions to customer requests are continuously being realized in the design and development departments. Numerous patents emphasize the company's innovation strength.

Quality down to the smallest detail

It is only when you keep sight of every little detail that you can be sure of the quality. That's why we even produce our own screws. We produce items that later form the basis for high-quality components at our own plastic, metal, and SMD production facilities.

Global approvals and certificates

Our numerous certificates are proof that you can fully trust in our products, because quality is essential.

We strive to satisfy this requirement in every respect. For this reason, our systems, processes, and products are inspected and certified several times over.

In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 15,000 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



You will find our complete product range at:
phoenixcontact.com

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