



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.

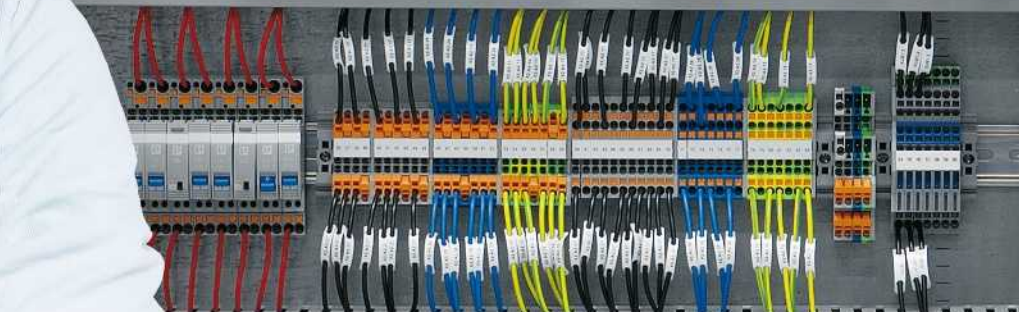
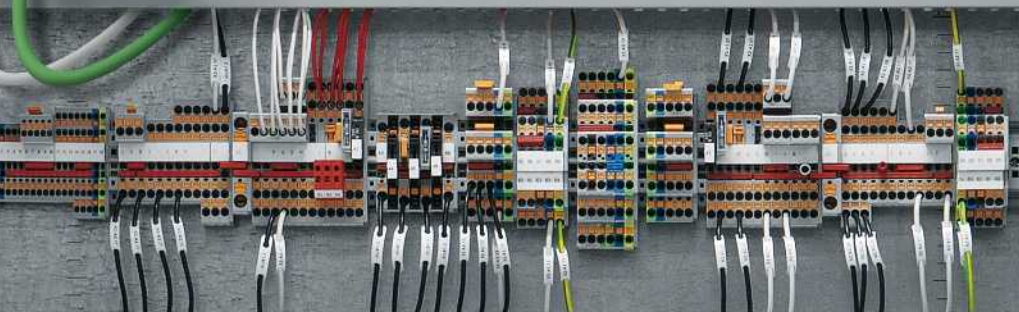
Thanks to the wide range of products from Phoenix Contact, cost-effective solutions are available that meet all the requirements of modern system concepts.

“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.”

COMPLETE line

The new standard for the control cabinet.
More information is available on pages 32 to 38.





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Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

i Web code: #1234 (example)

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

Relay modules – Overview of the product range

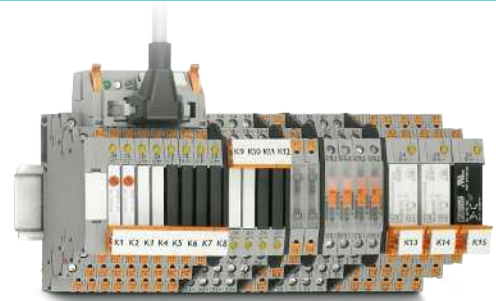
No need to look any further: you will be completely satisfied with our extensive and consistent range of relay modules.

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 implement 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 Ex area also allow you to safely isolate and switch signals in zone 2 potentially explosive areas.

PLC logic programmable logic relay system



Highly compact control and switching: PLC logic combines relay 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, EMD-BL compact 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 for the reliable switching of loads

You can implement all standard relay applications with 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

- Easy handling, 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
- Flashing

Push-in Technology

Designed by PHOENIX CONTACT

The choice is yours

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

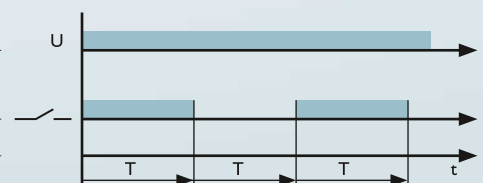
Switch-on delay

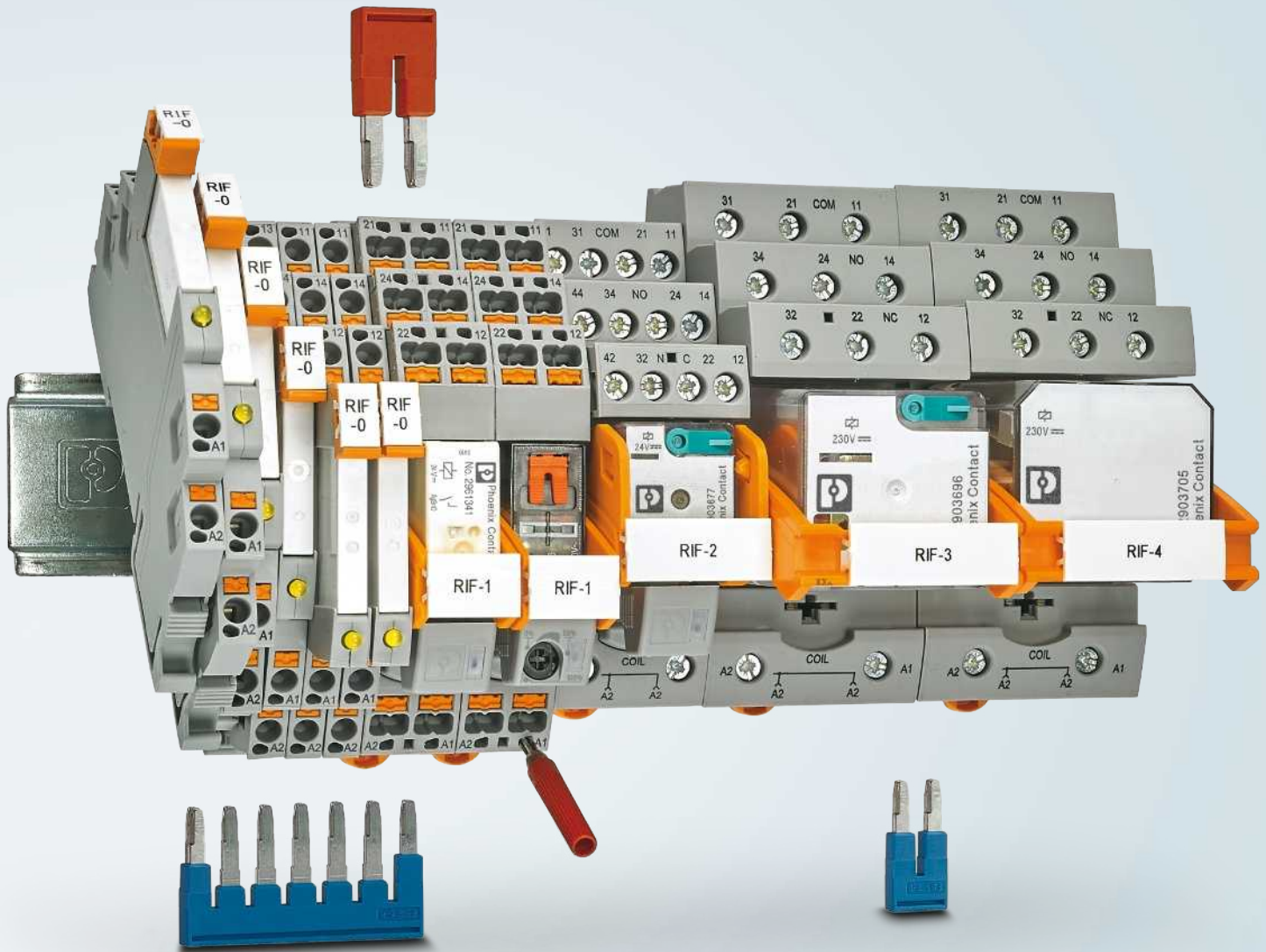


Passing make contact



Flashing





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

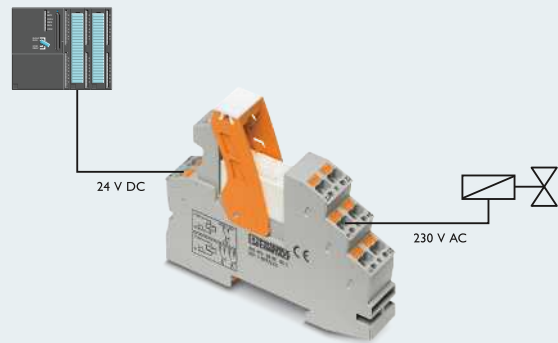
with the plug-in, multifunctional timer module. You can select three time functions in a time range from 0.5 seconds to 100 minutes.

Industrial relay system – From the coupling relay to a 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.

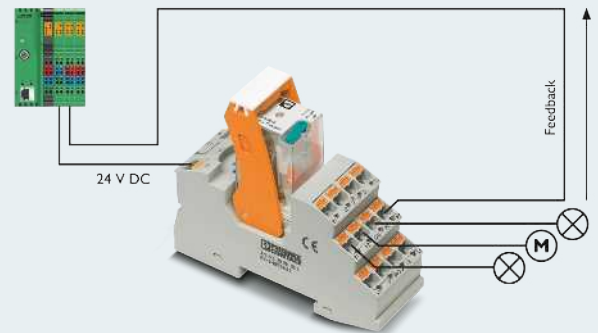
As such, power is amplified, voltages are adjusted or signals are electrically isolated.



Relay for signal multiplication

The RIF-2 relay modules are particularly suitable for applications in which a high number of contacts are required.

A feedback signal to the controller can be switched parallel to different loads.



From power relays to a replacement for small power contactors

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

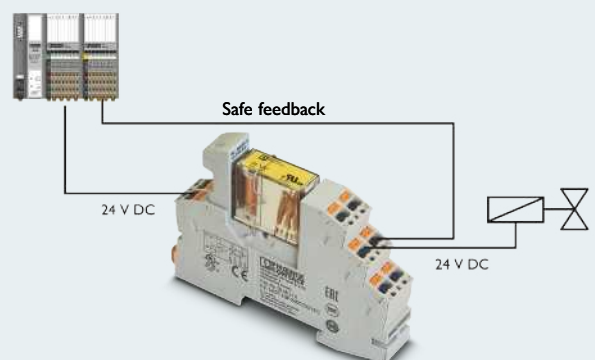
The advantages over contactors are:

- 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	
RIF-0.../21		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 can find other products from this area using our web codes.
The modules are available in input voltages from 5 V DC to 230 V AC/DC.

Highly compact relay modules – Narrow and powerful

The PLC-INTERFACE relay system from Phoenix Contact is 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 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
- Versions for Ex areas

Your advantages

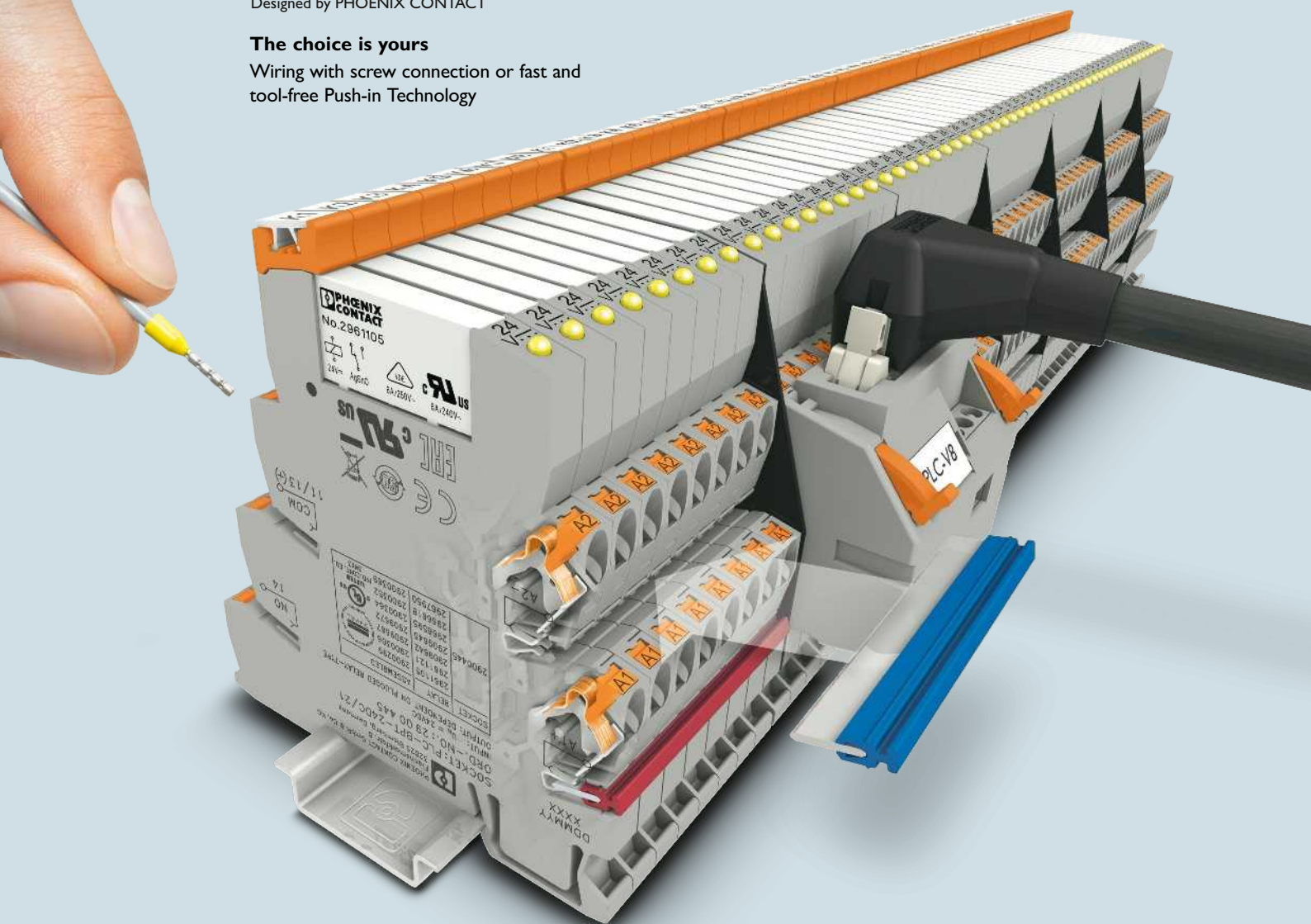
- Comprehensive product range with special versions for special applications
- Optimized installation effort, thanks to versatile accessories
- Just 6.2 mm wide with plug-in electromechanical and solid-state relays
- Your choice of easy connection technology: whether screw, spring-cage or Push-in connection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

Push-in Technology[®]

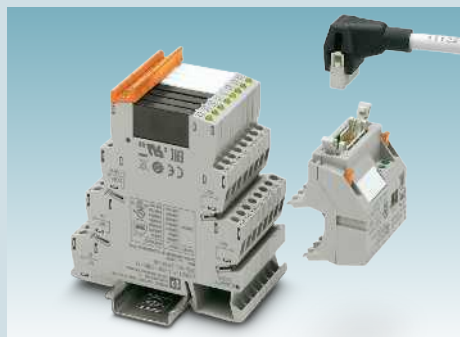
Designed by PHOENIX CONTACT

The choice is yours

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



Can be extended with:



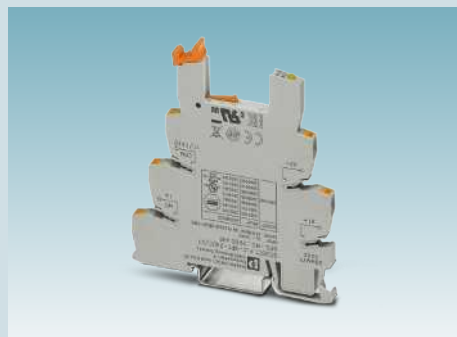
System cabling adapter

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



Compact space-saving housing

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

Highly compact relay modules with lockable manual actuation

The PLC-INTERFACE relay system is the high-performance interface between the controller and system I/O devices. The new electromechanical relays with manual actuation are particularly suitable for maintenance and startup, as they are operated manually.

Main features

- Nominal contact load: 250 V AC/6 A
- Relay degree of protection: RTII
- Plug-in relays
- 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

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 the narrow 6.2 mm 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 is the high-performance interface between the controller and system I/O devices. The new versions allow you to safely isolate and switch signals in zone 2 potentially explosive areas.

Main features

- SPDT and DPDT relays with 6 A continuous current and HC versions 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



Push-in Technology[®]
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The choice is yours
Wiring with screw connection or fast and tool-free Push-in Technology

Your advantages

- Can be used in zone 2 potentially explosive areas
- 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
- Satisfies the requirements of the ISA G3 corrosive gas test and of EN 60068-2-60

i Web code: #0690

Description	Complete module, 6.2 mm		Complete module, 14 mm	
Contact current	≤ 3 A	≤ 6 A	≤ 2 × 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.

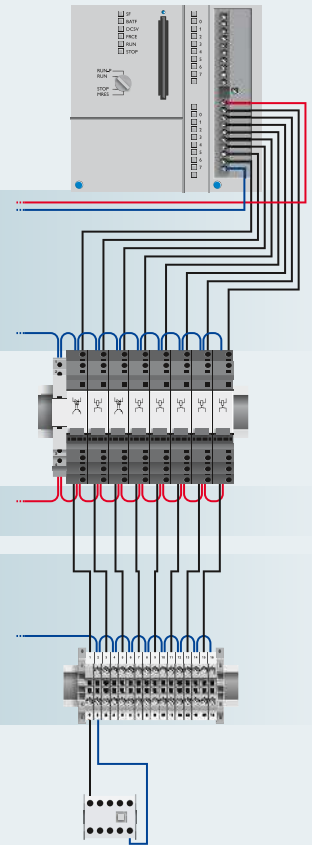
This graphic illustrates the potential savings you could achieve by switching to a state-of-the-art wiring solution from Phoenix Contact.

Your potential savings:

Wiring using single wires between the control and interface levels

Potential distribution with loop bridge

Potential terminal blocks for signal marshaling including wiring



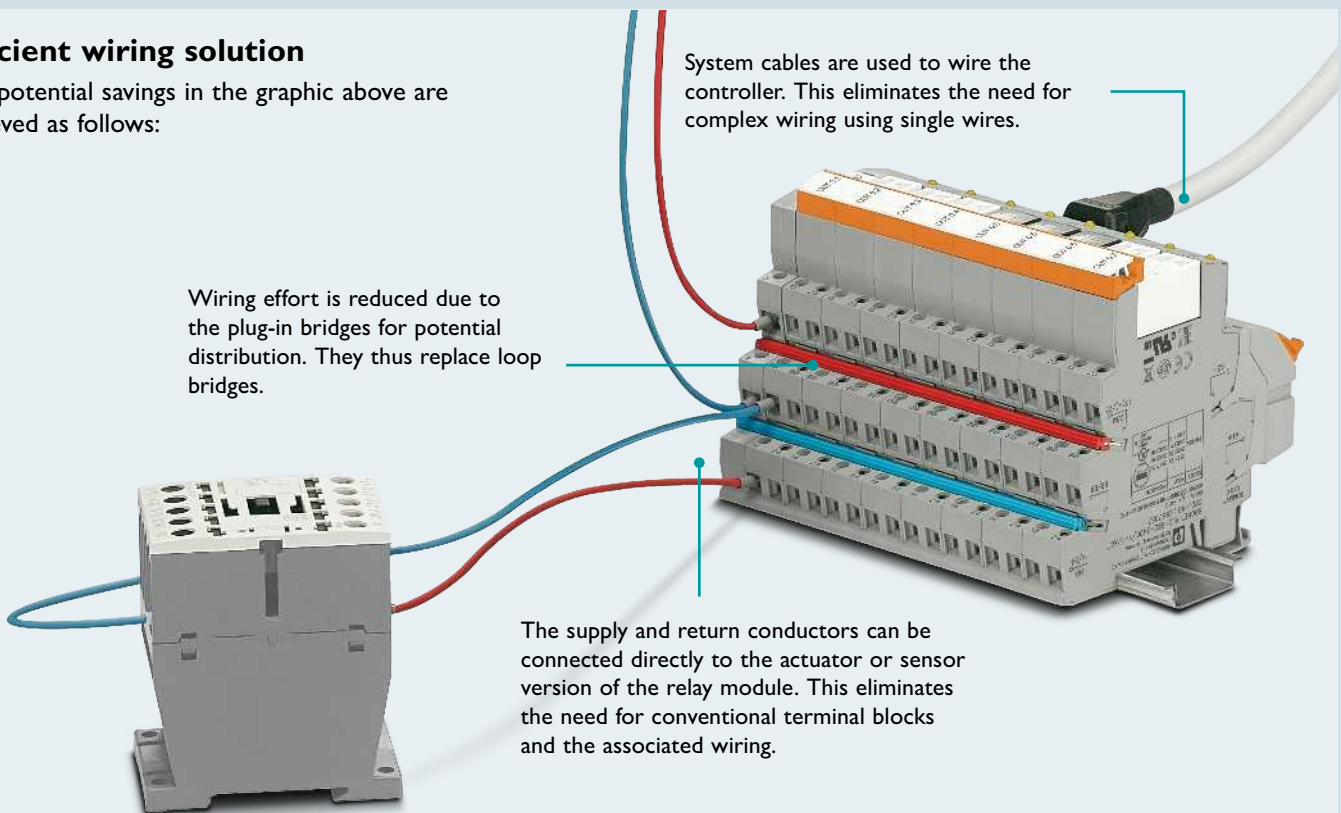
Efficient wiring solution

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.




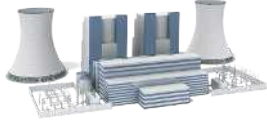







Product overview of highly compact relay modules

 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 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 can find other products from this area using our web code.

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

<p>Series for coupling sensors or actuators</p>  <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>Filter series for long control cables</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>Switch modules for manual intervention</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>
<p>Solid-state relays for wear-free switching</p>  <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>Ex relays for zone 2 applications</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>Hybrid solid-state relays for a long service life</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>
<p>Relay modules for railway applications</p>  <p>PLC relay modules specifically adapted to the needs of railway technology.</p> <p>i Web code: #0900</p>	<p>Relay modules for high inrush currents</p>  <p>PLC relay modules for up to 130 A high inrush currents as they occur for capacitive loads, such as for LED lights.</p> <p>i Web code: #0901</p>	<p>Reversing load relays for DC motors</p>  <p>PLC modules for switching mechanically commutated DC motors.</p> <p>i Web code: #0693</p>

Accessories

i 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 adjacent PLC-INTERFACE terminal blocks

Color	Order No.
Red	2966236
Blue	2966812
Gray	2966825

Plug-in bridge

2-pos., 8 mm long, bridges potentials of adjacent PLC-INTERFACE terminal blocks with separating plate

Color	Order No.
Gray	2967688

Plug-in bridge

2-pos., for connecting adjacent connections on a 14 mm PLC-INTERFACE terminal block

Color	Order No.
Black	2967691

Separating 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

Feed-in terminal

For supplying up to four potentials

Color	Order No.
Gray	2966508

System cabling adapters for PLC-INTERFACE

i 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

Logic modules

i Web code: #0897



PLC-V8C.../SAM Stand-alone module

With 16 I/Os, cannot be extended, connection to PC via micro USB female connector; integrated real-time clock, accommodates IFS-CONFSTICK external memory module.

PLC-V8C.../BM Basic module

With 16 I/Os, extendable up to max. 48 I/Os, connection to PC via micro USB female connector; integrated real-time clock, accommodates IFS-CONFSTICK external memory module. Optional connection to IFS gateways.

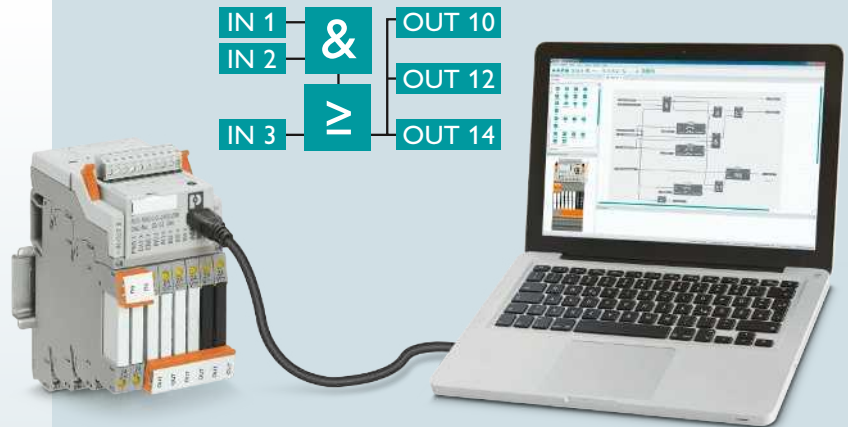
PLC-V8C.../EM Expansion module

With 16 I/Os, for extending the basic module. A maximum of two expansion modules can be connected to each basic module.

Highly compact control and switching – 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.

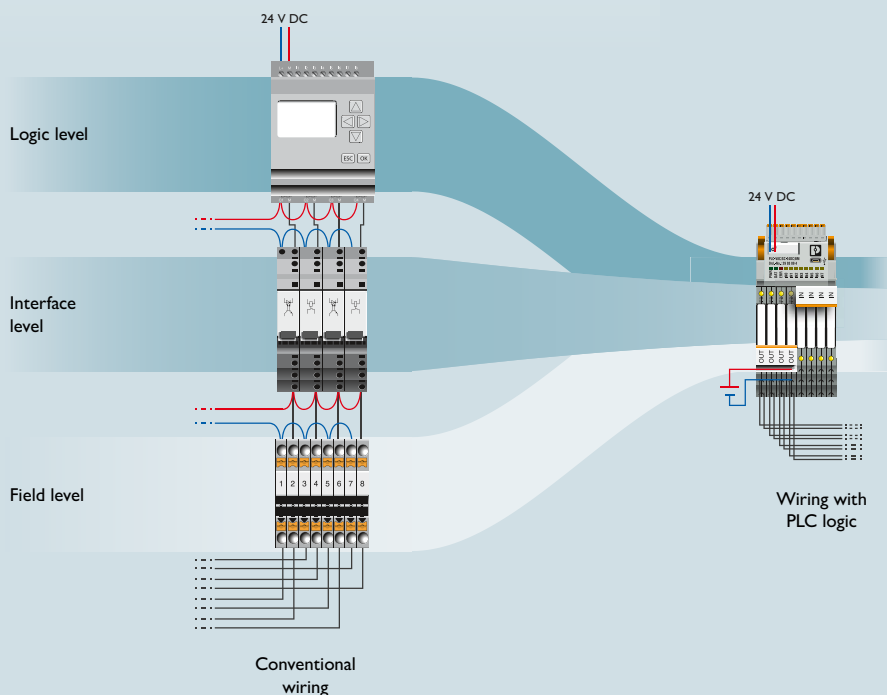
You can combine the new PLC logic module with the appropriate plug-in relays as required. The modular structure enables a wide range of possible applications.



Programmable logic modules

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

i Web code: #0687



Reduce wiring costs

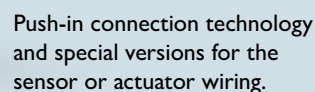
With conventional logic modules, module wiring is complex and time-consuming. To avoid the disadvantages of permanently soldered relays, additional relay modules are often used upstream of the inputs and outputs.

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

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.

Designed by PHOENIX CONTACT

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



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



Quick and easy parameter adjustments and monitoring via the app. The corresponding Bluetooth adapter enables you to access process data quickly and wirelessly.



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

Ultra-narrow time relays – Slim and precise

The ETD-BL ultra-narrow time relays are the space-saving and cost-effective 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

Product overview of highly compact time relays

 Web code: #0698

		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 can find other 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 on 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 on 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	Pulse 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 off-delay, with control contact	•		•	
With switch-on delay, with control contact	•		•	
With switch-on delay and off-delay, with control contact		•		
With switch-on delay and passing make con- tact, voltage-controlled		•		
With switch-on delay and passing make contact, with control contact		•		
With passing make and passing break contact, with control contact		•		
With passing make con- tact, voltage-controlled			•	
With passing make con- tact and control contact	•		•	
With passing break con- tact and control contact			•	
Pulse sequence evaluation (retriggerable off-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 can find other products from this area using our web code.

Compact monitoring relays – Space saving and can be wired quickly

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	U1/24 V DC	3~400/230 AC	3~208 V/120 V
	10 A	U2/24 V 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/230 V AC)	1250 VA (5 A/230 V AC)	1250 VA (5 A/230 V AC)	1250 VA (5 A/230 V 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 can find other 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 range of functions, 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
- Active power
- Loads, $\cos \varphi$
- Motor winding temperatures
- Fill 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	•	•			
Overvoltage	•				
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	Variable 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 can find other products from this area using our web code.

Other switching devices from PHOENIX CONTACT

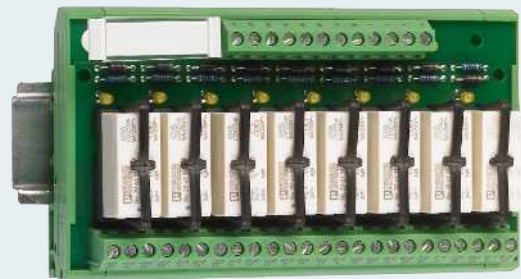
Product and technology expertise from a single source

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 in the UMK series can either be assembled with electromechanical or solid-state relays.

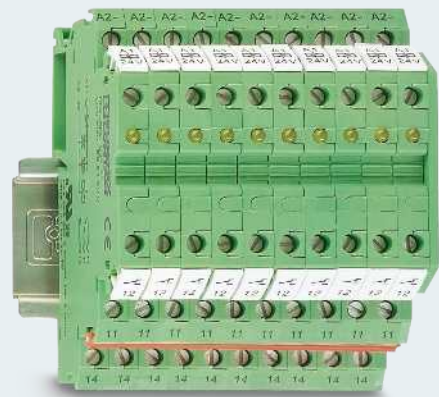
i Web code: [#1572](#)



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 just 6.2 mm. This makes the DEK solid-state or electromechanical relays ideal for use in 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 secure connection of the field and automation level.

i Web code: [#0300](#)



Electronic switching devices 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 manufacturing 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. The design and development departments constantly come up with innovative product ideas, developing special solutions to meet customer requirements. Numerous patents emphasize the innovative prowess of the company.

Quality down to the smallest detail

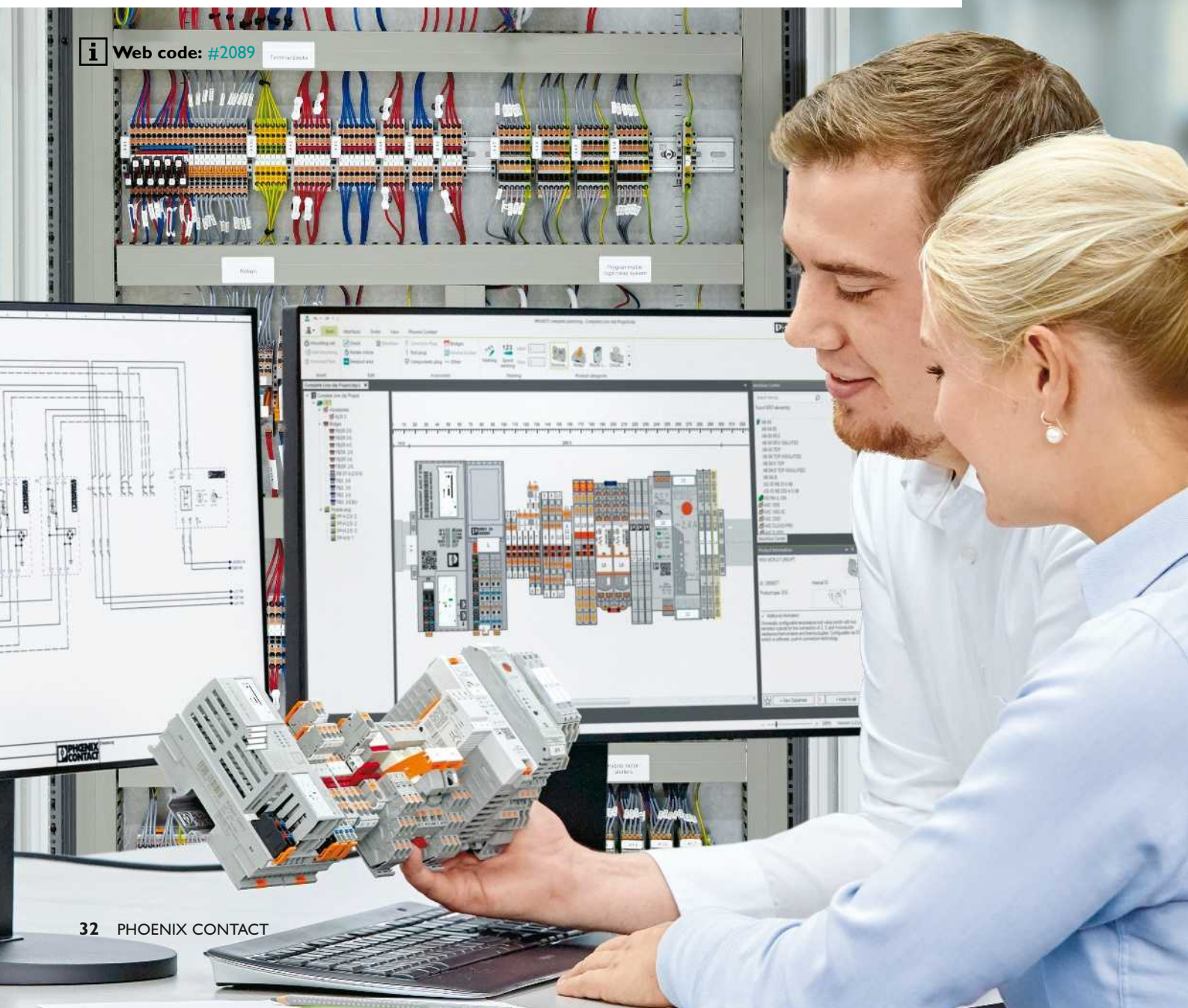
It is only when you keep sight of every little detail that you can be sure the quality is right. That's why we even produce our own screws. We produce items that later form the basis for high-quality components at our own plastic, metal, and SMD production facilities.

Global approvals and certificates

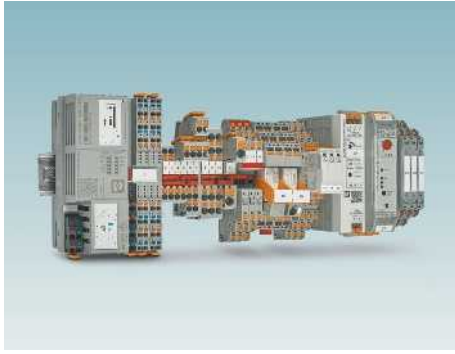
Our numerous certificates are proof that you can put your full trust in our products, because quality is essential. We strive to satisfy this requirement in every respect. For this reason, our systems, processes, and products are inspected and certified several times over.

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 manufacturing. Engineering, purchasing, installation, and operation become significantly easier for you.



Your advantages in detail:



Comprehensive product portfolio

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

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



Intuitive handling

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



Time savings across the entire engineering process

The PROJECT complete planning and marking software supports the entire process of control cabinet manufacturing. 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, thanks to 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 manufacturing

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 manufacturing is created. Our terminal strip production helps you to flexibly manage order peaks or to supply your control cabinet production with fully assembled DIN rails just in time.



The new standard for the control cabinet

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

Visit our website:
phoenixcontact.com/completeline

Worldwide service and support – We are there for you

At Phoenix Contact, the focus is always on you, the customer. With over 50 subsidiaries and more than 30 agencies around the world, we are always close by.

As a result, you receive expert, first-hand advice and benefit from fast and timely delivery of a complete package consisting of high-quality, optimally coordinated components. Our expertise and high level of in-house production also allow customized solutions tailored to you. We also support you after your purchase with our comprehensive after-sales services.

 Web code: #2247



Your advantages in detail:



Fast terminal strip production

The terminal strip production service provides help in managing order peaks flexibly, and enables terminal strips to be delivered just in time for series production. The fully assembled and marked terminal strips, complete with accessories, then simply have to be installed and connected.



Individual set solutions

To reduce the effort of materials and stock management, you can order pre-picked material sets under a single order number.



Customer-specific solutions

Can't find what you're looking for in our range? No problem: from minor adaptations to completely new product developments, we focus on your specific requirements.



Global approvals and certificates

Our numerous certificates are proof that you can put your full 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.



Comprehensive after-sales services

We are there for you – not just before your purchase, but also afterwards with our comprehensive after-sales services. These include our repair service, exchange service, and replacement parts service.



Comprehensive training program

From the basics to specialist expertise: we provide you with the skills you need in line with your specific requirements.

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 17,400 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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