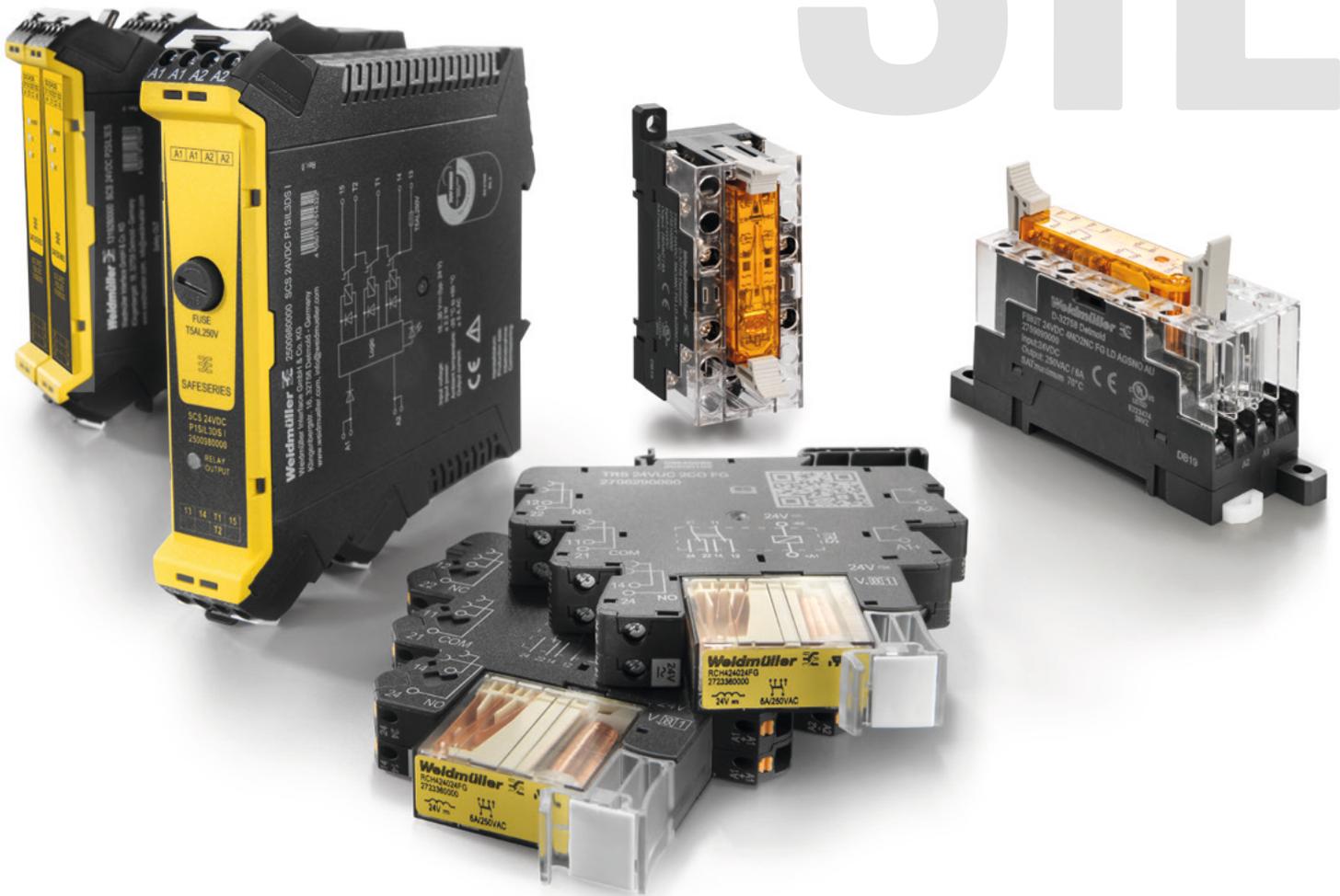


Klippon® Relay

Safety relays and relays with forcibly guided contacts

Application range – Functional safety

SIL



Focus on the right one

Safety relays for signals in safety-relevant systems

Functional safety – SIL3 Safety Relays

Industrial safety has become an important focus topic. There is an ever-increasing demand for safety-related systems. At the same time, the demands placed on them are increasing. In order to optimally protect plants, users, goods and the environment, hazards and incidents of all kinds are to be avoided. This is also evident in the ever stricter international standards and directives. We have specially developed safety relays in our range for processing safety-related signals. They achieve a safety integrity level of up to SIL3 in accordance with EN 61508 and can therefore be used flexibly.

Relay modules with forcibly guided contacts

Relay modules with positively-driven contacts are used in safety-related applications to provide reliable feedback on the switching state of the operating contact to the control system. They enable safe diagnosis via a positively-driven NC contact and ensure reliable exchange of signals between two systems with feedback function. In elementary relays with positively-driven NO and NC contacts, the contacts are mechanically connected to each other. This means that NO and NC contacts can never be closed at the same time, so that a diagnostic coverage of 99 % is achieved.

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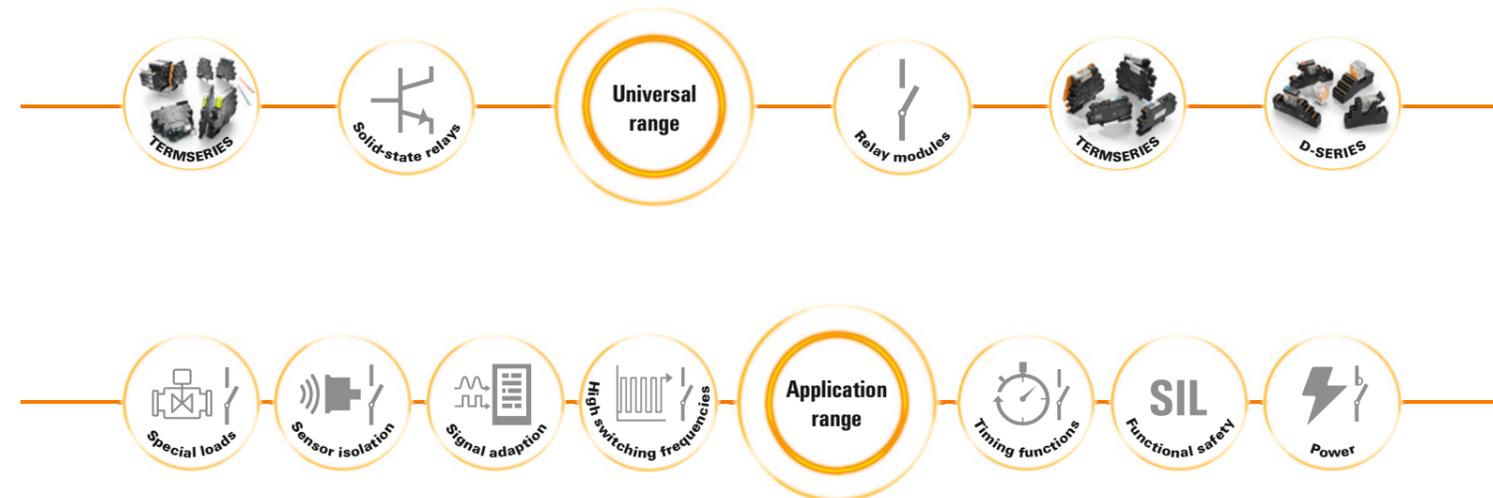
Solutions for more productivity

Highly flexible design processes – with Klippon® Relay

For more than 40 years, we have specialised in the optimisation of cabinet infrastructures. Our wide range of relay modules, solid-state relays and additional value-added services combine the highest standards with ultimate quality. Less wiring effort, housing optimisation through space saving, optimal marking and cost reductions – our customers challenges are our motivation.

Our assortment impresses through reliability, longevity and safety. Supplemented by our digital data support, switching load consulting and online selection guides, we support our customers throughout the entire work process – from the planning phase to installation and operation.

In our universal range, you will find an extensive portfolio of relay modules and solid-state relays in various designs.



In our application range, you will find a tailor-made portfolio of products to increase your productivity and safety for various fields of application.



Visit our website for more information
www.weidmueller.com/klipponrelay

Application range

Relay modules and solid-state relays for specific applications

In many industrial applications today, individual, customised solutions and components are used to increase system efficiency and system productivity. These include, for example, protective circuits for greater fail-safe performance, timing relays for adjusting signals, relays for functional safety and space-saving components for use in limited installation spaces.

With our application range we provide you with a customised portfolio to increase your productivity, efficiency and safety in the most diverse fields of application. What's more, we work with you to develop customised solutions, combining the advantages and features of our portfolio with our expertise and consulting services.

We have a wide range of products that combine application-specific designs, the latest technologies and well-proven components to meet all your requirements.





Sensor isolation
Space-saving and fast switching coupling elements to decouple sensors from the field.



Power
Power solid-state contactor up to 75 A and miniature contactors up to 30 A.



High switching frequencies
Specially designed solid-state relays for reliable and fast decoupling of signals up to 550 kHz.



Timing functions
Timing relays are used in automation technology to compensate for errors due to short cycle times.



Signal adaption
Adaptation of signals and their transmission from other systems to the control cabinet level.



Special loads
Relays to switch and monitor special loads, such as inductors and high inrush currents, safely and reliably.



Functional safety
Specific safety relays required for signals in process safety-related systems

SIL

The following pages will guide you through our product range for functional safety, show you their special features and are intended to support you in making the right choice.

>>>

Functional safety

SIL3 safety relays for process applications



Whether for a burner control system, secure emergency shut down or, for example, for pump controllers – our safety relay guarantees safe conditions and convince with superior and significant features.

Their integration into distributed control systems (DCS) is even better, with an input filter which makes the SIL circuit immune to the test impulse which is typically used by a DCS. You will also benefit from simple maintenance: the fuses are accessible from the outside and can easily be changed. You can see the status of the safety and the monitoring devices clearly with status LED on the device. All devices are accredited though certification by the internationally recognised TÜV-NORD group – for secure process applications around the globe.



SIL-Relays of the SAFESERIES

in combination with distributed control systems

A distributed control system is characterised by a high availability of hardware and software components. Weidmüller offers you the advantage that the safety relays are working reliably with different distributed control systems, proven by extensive integration tests.



Available for

Type	SCS 24VDC P1SIL3DS	SCS 24VDC P1SIL3DS M	SCS 24VDC P1SIL3DS MG3	SCS 24VDC P2SIL3DSES	SCS 24VDC P1SIL3DS I	SCS 24VDC P1SIL3ES LL-T
Order No.	1303890000	1303760000	1304040000	1319270000	2500980000	2634010000
						SCS 24VDC P1SIL3ES LL
						2633940000
YOKOGAWA ProSafe RS digital output card SDV 541	●	●	●	●		●
ProSafe RS digital output card S2MMM843	●					●
SCHNEIDER ELECTRIC Compatibility with Tricon™, Trident™ and Tri-GP™ systems					●	●
HONEYWELL Can be connected to classic digital output: • Safety Manager IO-Module type FC-SDO-824 und FC-SDOL-0424 • Universal Safety IO-Module type FC-RUSIO-3224	●	●	●	●		●
HIMA HIMax System, output module X-DO 2401	●	●	●			
EMERSON Tested according Delta V SIS test protocols with: • Simplex CHARM LSDO 24VDC DTA (KL3302X1-BA1) • Redundant CHARM LSDO 24VDC DTA (R) (KL3302X1-BB1) • Simplex CHARM LSDO 24VDC ETA (KL3302X1-BC1)	●	●	●	●		●
Tested according Delta V SIS test protocols with: • Simplex CHARM LSDO 24VDC DTA (KL3302X1-BA1) • Redundant CHARM LSDO 24VDC DTA (R) (KL3302X1-BB1)					●	

SIL3 safety relays De-energized to Safe

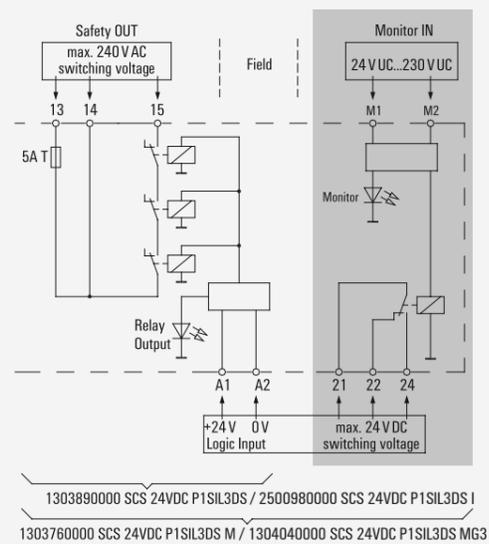
SCS 24VDC P1SIL3DS



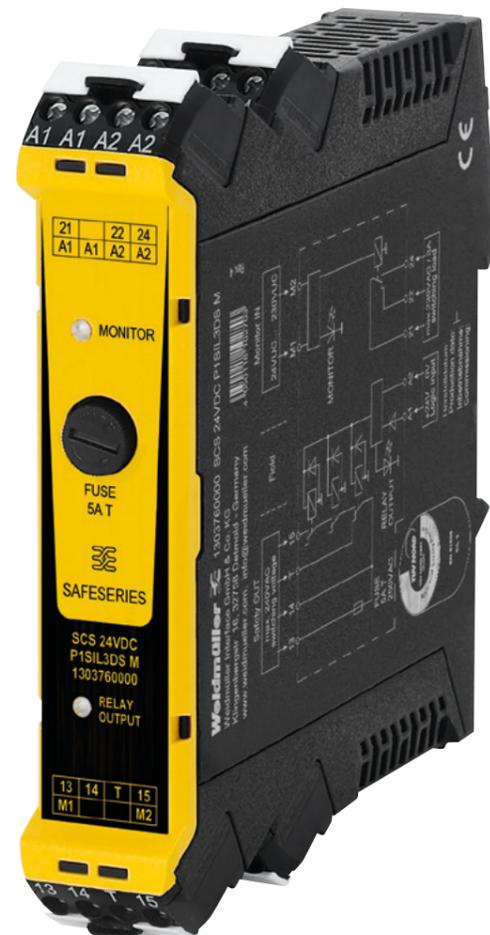
These safety relays are used in areas of process automation that require a functionally safe switch-off. The module meets the requirements for SIL3 according to EN 61508.

- Variants with and without monitoring circuit
- TUV certified "Approved Safety Function"
- cULus certified
- Multi-voltage input (24 - 230 V UC) in the monitoring circuit
- Available with G3 conform paint according to EN 60068-2-60
- Externally accessible fuse

Schematic diagram

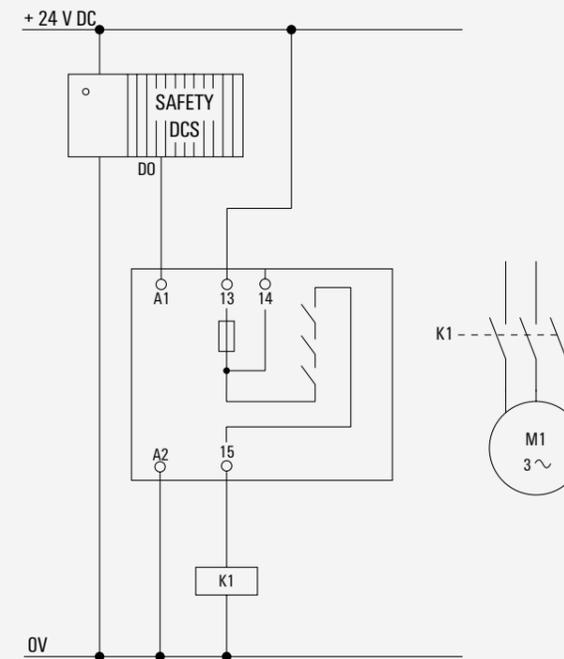


You will find more information in our online catalogue



Application example

De-energised to Safe motor control in the process industry



SIL3 safety relays De-energized to Safe

Type	Output	Internal fuse	SIL level	Version	Rated control voltage	Qts	Order No.
SCS 24VDC P1SIL3DS M	1 de-energized to safe	5 A	SIL 3 (DIN EN 61508)	With monitoring circuit	24 V DC	1	1303760000
SCS 24VDC P1SIL3DS MG3	1 de-energized to safe	5 A	SIL 3 (DIN EN 61508)	With monitoring circuit and G3 paint	24 V DC	1	1304040000
SCS 24VDC P1SIL3DS	1 de-energized to safe	5 A	SIL 3 (DIN EN 61508)	Without monitoring circuit	24 V DC	1	1303890000
SCS 24VDC P1SIL3DS I	1 de-energized to safe	5 A	SIL 3 (DIN EN 61508)	Compatible with Triconex® output modules	24 V DC	1	2500980000

SIL3 safety relays De-energized / energized to Safe

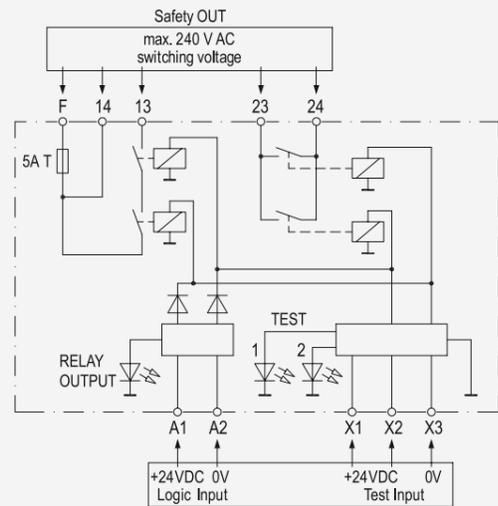
SCS 24VDC P2SIL3DSES



For areas of process automation that require a functionally safe switch-on or switch-off. The module complies with SIL3 and meets the requirements of EN 61508.

- TUV certified "Approved Safety Function"
- Designed for "Energized to Safe" and "De-energized to Safe" functions
- All-pole switch-off possible
- Test inputs for testing the relay contacts
- Externally accessible fuse

Schematic diagram

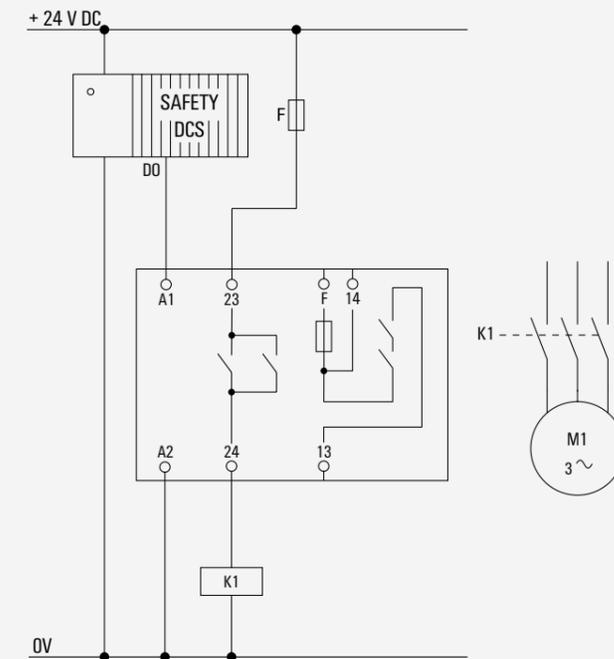


You will find more information in our online catalogue



Application example

Energized to Safe motor control in the process industry



SIL3 safety relays De-energized / energized to Safe

Type	Output	Internal fuse	SIL level	Rated control voltage	Qts	Order No.
SCS 24VDC P2SIL3DSES	1 de-energized to safe, 1 energized to safe	5 A	SIL 3 (DIN EN 61508)	24 V DC	1	1319270000

SIL3 safety relays Energized to Safe

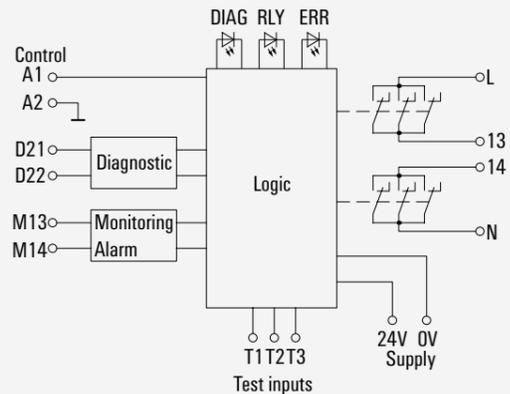
SCS 24 V DC P1SIL3ES LL/-T



This SIL3 safety relay has been specially developed for applications in which a functionally safe switch-on in the process industry is required. The approval for Ex-areas as well as the extended temperature range up to 70 °C enables the usage even under challenging environmental conditions. The integrated diagnostic and alarm output of the relay ensures permanent monitoring for wire breakage and load faults.

- Line (Wire break detection) and load monitoring
- Approval for Ex areas Zone 2
- Certified according to EN 61508
- Optional narrow 17.5 mm safety relay with temperature range up to 50 °C

Schematic diagram

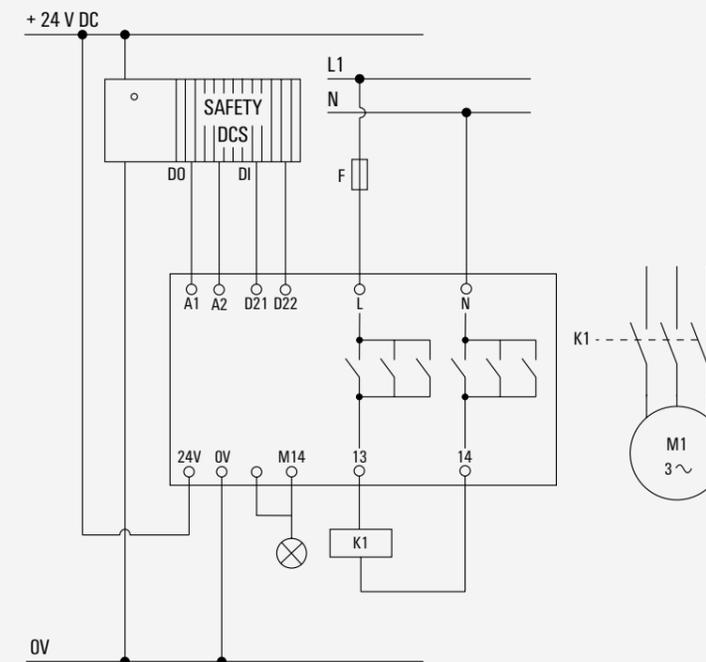


You will find more information in our online catalogue



Application example

Energized to Safe motor control in the process industry with line and load monitoring



SIL3 safety relays Energized to Safe

Type	Output	Max. Switching current	SIL level	Version	Rated control voltage	Qts	Order No.
SCS 24VDC P1SIL3ES LL	1 energized to safe	2,5 A	SIL 3 (DIN EN 61508)	17.5 mm up to 50°C	24 V DC	1	2633940000
SCS 24VDC P1SIL3ES LL-T	1 energized to safe	2,5 A	SIL 3 (DIN EN 61508)	22.5 mm up to 70°C	24 V DC	1	2634010000

SIL3 Emergency Stop Safety Relays / Fire & Gas

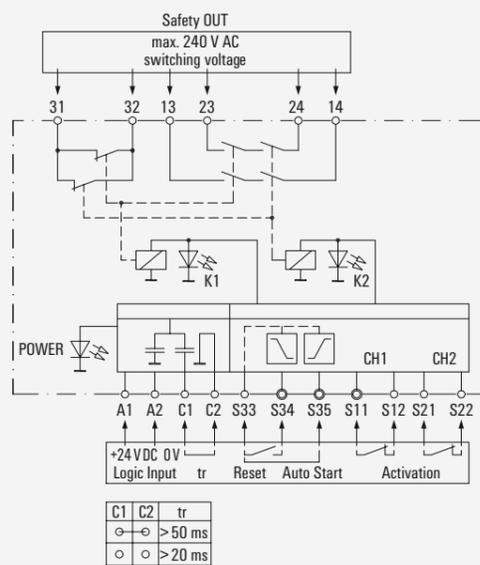
SCS 24VDC P2SIL3ES



Especially for areas of process automation in which the functionally safe shut down of the fuel supply to combustion plants is necessary. The relay complies with SIL3 and meets the requirements of EN ISO 13849-1 (PLe).

- TUV certified "Approved Safety Function"
- Forcibly guided contacts according to EN 61810-3 type B
- 2-channel design
- Can be used for electrical equipment of combustion plants according to EN 50156

Schematic diagram

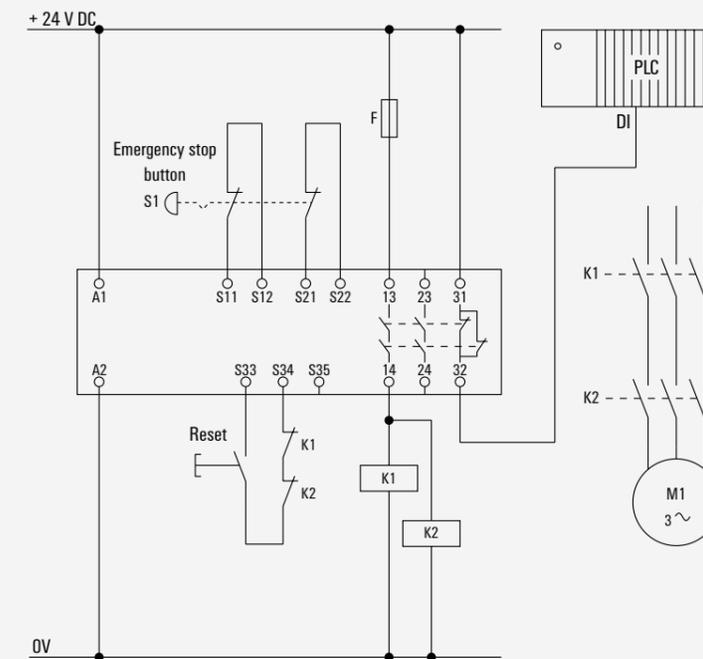


You will find more information in our online catalogue



Application example

2-channel emergency stop switch-off in machine safety



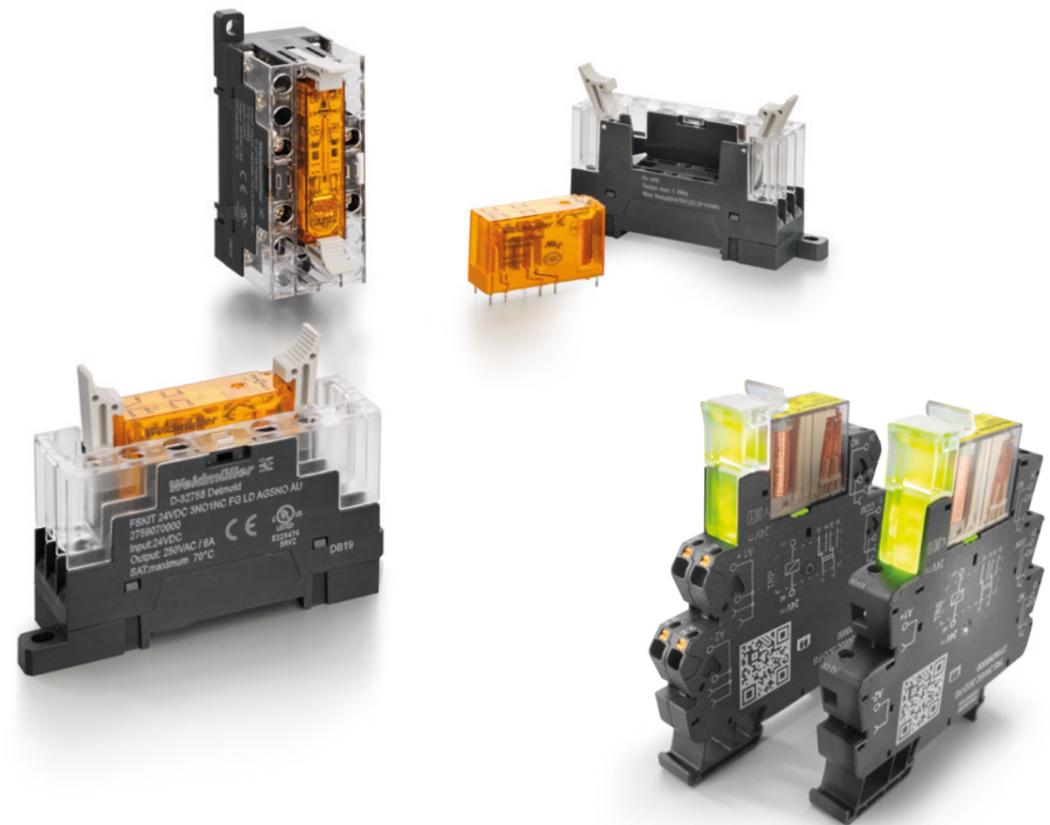
SIL3 Emergency Stop Safety Relays / Fire & Gas

Type	Output	Max. Switching current	SIL level	Performance level	Rated control voltage	Qts	Order No.
SCS 24VDC P2SIL3ES	2 enabling current paths, 1 signalling current path	5 A	SIL 3 (DIN EN 61508)	PLe (EN ISO 13849-1)	24 V DC	1	1319280000

Relay with forcibly guided contacts

Relay modules for reliable feedback of the switching status

Relay modules with positively-driven contacts are used in safety-related applications to provide reliable feedback on the switching state of the operating contact to the control system. They enable safe diagnosis via a positively-driven NC contact and ensure reliable exchange of signals between two systems with feedback function. In elementary relays with positively-driven NO and NC contacts, the contacts are mechanically connected to each other. This means that NO and NC contacts can never be closed at the same time, so that a diagnostic coverage of 99 % is achieved.



Forced guided contacts explained in detail

The difference to relays with conventional contacts

Relay modules with forcibly guided contacts use elementary relays according to IEC 61810-1 with a contact set according to IEC 61810-3. From the outside, they can hardly be differentiated from relays with conventional contacts, if at all.

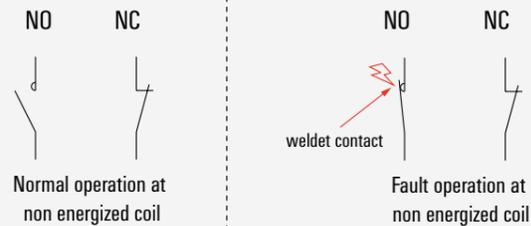
Due to their design, an opening failure of forcibly guided contacts can be reliably detected. Relays with such contacts have the following additional characteristics compared to relays with conventional contacts:

- Forcibly guided NC and NO contacts are designed in such a way that they cannot be closed at the same time
- If a contact of a forcibly guided contact set is welded, the antivalent contacts cannot close and the contact opening must be > 0.5 mm
- The contacts are located in contact chambers and are thus specially protected against other contacts and against the coil

Due to these normative requirements, the design and manufacturing effort for relays with positively driven contacts is much higher.

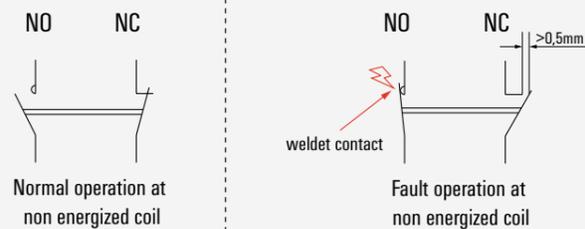
The normally open contact (NO) is welded in this example. With standard relays, a normally closed contact (NC) can also be closed in case of the de-energized state. In this way, the NC and NO contacts can be closed at the same time and an opening failure cannot be reliably detected.

conventional relay



The normally open contact (NO) is welded in this example. In this case, relays with forcibly guided contacts cannot have a normally closed contact (NC) which is closed in the de-energized state. In this way, the NC and NO contacts cannot be closed at the same time and an opening failure can be reliably detected. It is mechanically ensured that the NC contact remains open with a minimum contact gap of 0.5 mm even in the de-energized state.

relay with forcibly guided contacts



In addition, the standard distinguishes between two types of positive guidance, type A and type B:

Type A

With type A relays, **all** contacts are mechanically positively driven with each other.

In an example of a six-pole relay with four NO contacts and two NC contacts, the four NO contacts are forcibly guided with both NC contacts. In this example, if one of the NO contacts welds, both NC contacts may no longer close if the relay is de-energized.

Type A relays with forcibly guided contacts can be found in our SAFESERIES Contact Extension.Extension.

Type B

In a type B relay, **not all** contacts of a contact set are positively driven with each other.

In an example of a six-pole relay with four NO contacts and two NC contacts, the four NO contacts are forcibly guided with just one of the NC contacts. In this example, if one of the NO contacts welds, the non-force-guided NC contact can still close if the relay is de-energized. The other forcibly guided NC contact may not close. The status of the other NO contacts is undetermined. The non-force-guided NC contact can close because it is not forcibly guided to the other contacts in the relay. The contacts which are not forcibly guided must be specified in the data sheet.

Positively driven relays with changeover contacts (CO) are assigned to type B by the standard, only one NC or NO contact may be used per changeover contact. The reason for this is that the phenomenon of contact spring breakage cannot be excluded, so that in the event of a spring breakage of a changeover contact set, the NO and NC contacts of this contact set can be short-circuited.

Type B relays with forcibly guided contacts can be found in our TERMSERIES FG and RIDERSERIES FG.

TERMSERIES FG

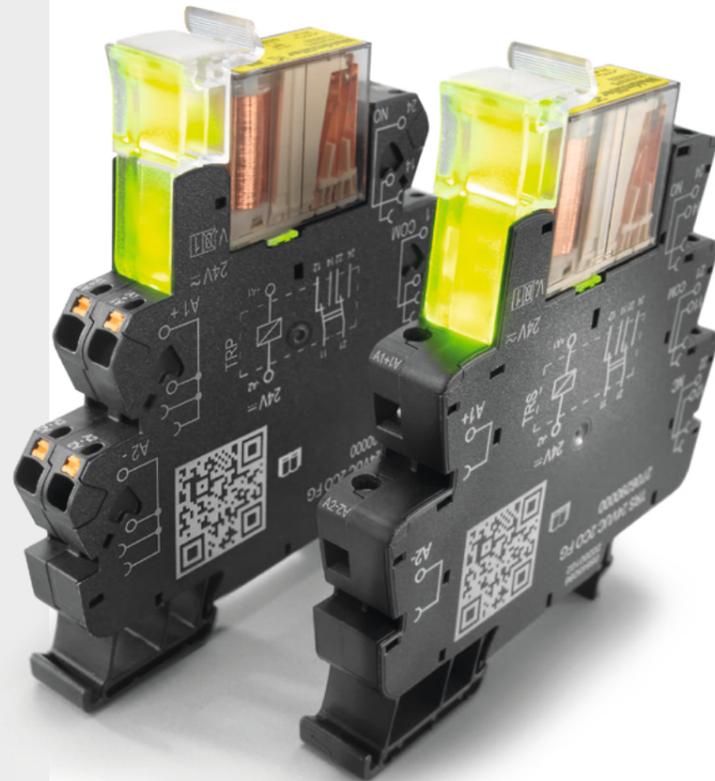
Reliable switching status monitoring in our all-rounder

In safety-related applications, relays with positively-driven contacts have proven themselves many times over. Our TERMSERIES relay modules with positively driven contacts are predestined for safe signal monitoring in a wide variety of applications.

Their switching function is clearly indicated by an illuminated ejector lever, which also has an integrated marker holder. Compatibility with all TERMSERIES accessories allows high flexibility and easy integration into existing systems. TERMSERIES relay modules have cULus certification which is required for use in the North American market.

Your special advantages

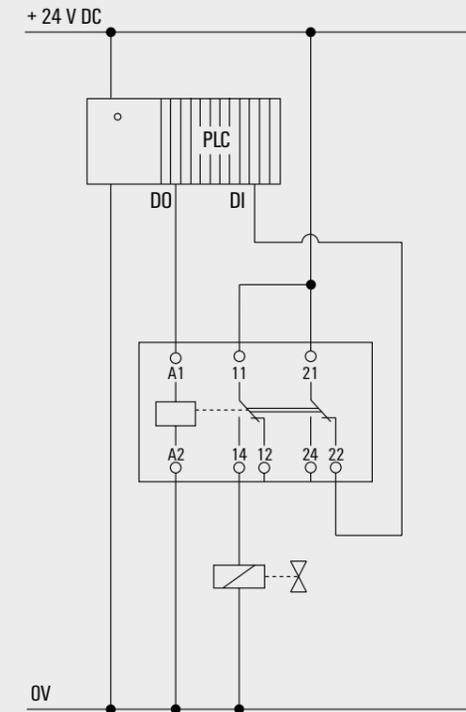
- Modular interface relay in 12.8 mm width
- 2 CO contacts with 6 A, forcibly guided according to EN 61810-3 type B
- cULus listed" for high acceptance in the on the North American market
- Positive guidance ensures a synchronous switching status at both contacts and achieves a diagnostic coverage of 99 %
- Compatibility with all accessories of the TERMSERIES
- Variants with screw and PUSH IN connection technology
- Assembled and 100 % functionally tested KIT, consisting of relay and socket



You will find more information in our online catalogue

Application example

Control of a solenoid valve with feedback to the control system



With the forcibly guided contacts, we address the segments machinery, signalling for railway, wind power and elevator / escaator.

TERMSERIES FG

Type	Version	Contact	Continuous current	Rated control voltage	Connection	Qts	Order No.
TRP 24VUC 2CO FG	Complete module	2 CO contacts forcibly guided (EN 61810-3 type B) AgNi	6 A	24 V UC	PUSH IN	5	2706430000
TRS 24VUC 2CO FG	Complete module	2 CO contacts forcibly guided (EN 61810-3 type B) AgNi	6 A	24 V UC	Screw	5	2706290000
RCH424024FG	Individual relay	2 CO contacts forcibly guided (EN 61810-3 type B) AgNi	6 A	24 V DC	-	20	2723360000

SAFESERIES Contact Extension

Reliably monitor switching states of multi-channel signals

The SAFESERIES Contact Extension uses relays with forcibly guided contacts in accordance with EN 61810-3 Type A. This makes it predestined for signal monitoring in applications for the protection of people and machinery.

It ensures safe feedback to the control level. It consists of 4 different pluggable relays with matching screw sockets. When the application is designed according to EN/ISO 13849-1, a performance level of PL "e" can be achieved. The basic component is also suitable for safety applications according to IEC/EN 62061 in order to achieve a safety integrity level of SIL3.

Your special advantages

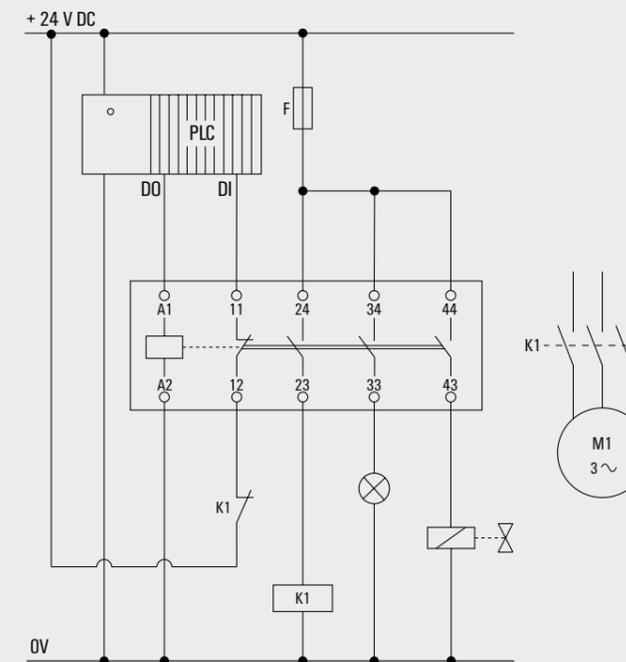
- Industrial relay modules from 22.4 mm width in the contact versions 2 NO + 2 NC, 3 NO + 1 NC, 5 NO + 1 NC, 4 NO + 2 NC, and 3 NO + 3 NC
- Relays with forcibly guided contacts according to EN 61810-3 type A
- Status LED: green and free-wheeling diode in the socket on the control side
- "cULus listed" for high acceptance on the North American market
- CQC approval for conformity with the Chinese quality standards
- Assembled and 100 % functionally tested KIT, consisting of relay and socket



You will find more information in our online catalogue

Application example

Control of multiple loads with feedback to the controller



KITs - Socket inclusive relay

Type	Contact	Continuous current	Rated control voltage	Version	Connection	Qts	Order No.
FSKIT 24VDC 3NO1NC FG LD AGSNO AU	3NO1NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	Status LED, polarity protection	Screw	1	2759070000
FSKIT 24VDC 2NO2NC FG LD AGSNO AU	2NO2NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	Status LED, polarity protection	Screw	1	2759080000
FSKIT 24VDC 5NO1NC FG LD AGSNO AU	5NO1NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	Status LED, polarity protection	Screw	1	2860020000
FSKIT 24VDC 4NO2NC FG LD AGSNO AU	4NO2NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	Status LED, polarity protection	Screw	1	2759090000
FSKIT 24VDC 3NO3NC FG LD AGSNO AU	3NO3NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	Status LED, polarity protection	Screw	1	2759100000

Individual relays

Type	Contact	Continuous current	Rated control voltage	Contact material	Qts	Order No.
FSR0315024 FG	3NO1NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	AgSnO gold plated	1	2759030000
FSR0225024 FG	2NO2NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	AgSnO gold plated	1	2759040000
FSR0515024 FG	5NO1NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	AgSnO gold plated	1	2860030000
FSR0425024 FG	4NO2NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	AgSnO gold plated	1	2759050000
FSR0335024 FG	3NO3NC, forcibly guided (EN 61810-3 Typ A)	6 A	24 V DC	AgSnO gold plated	1	2759060000

The perfect match in engineering

Product data and configurator from Weidmüller

We understand data as a digital product from Weidmüller and set standards for our customers – high-quality and reliable, consistent and future-oriented.



The best data for the best solutions

Data is the basic for time-saving planning and project planning, error-free wiring, simple marking and consistent documentation of your product. More successful through standards: our product data are based on the industry standard eCl@ss. This offers a consistent semantics, which is especially needed for industry 4.0. Get started right away instead of tiresome converting data!

Faster, better, safe in engineering – the WMC

Configure your required solutions and components simple and convenient with the Weidmüller Configurator and choose from over 10,000 Weidmüller products. The software is cross-platform ready, user-friendly and compatible with all major E-CAD planning tools. Thus, it actively supports you in solving configuration challenges with mounting rails, housings and HDC's.

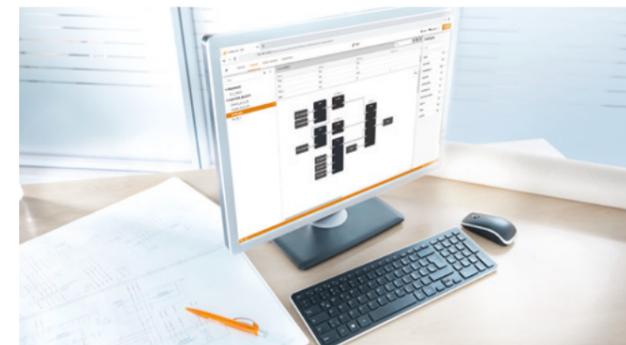


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Scan QR-Code and download the WMC

Weidmüller provides you with all of the data, software tools and interfaces that you need throughout your processes - from electrical and mechanical planning, ordering and production of configured products up to single products. No matter whether for cabinet building, automation, building planning or printed circuit board design: we offer you the solutions that accelerate your processes, tailored to your requirements.



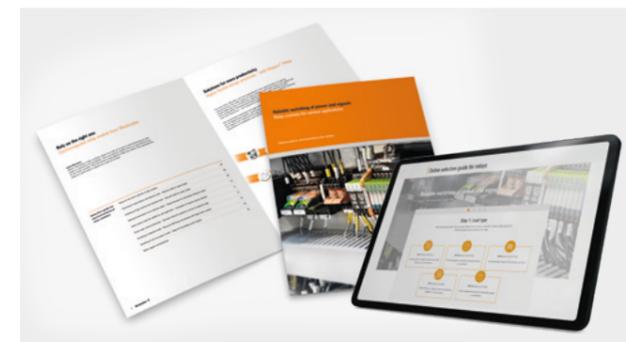
Engineering

Integrated engineering is the key to efficient product development. This requires a combination of engineering tools that can work together via interfaces and common data formats and sources. High-quality product information is required for planning in engineering systems such as Zuken or EPLAN. Weidmüller makes this information available in all common formats both in the data portals and on the Weidmüller website for you to download.



Automation and manufacturing support

Engineering data from Weidmüller is based on the industry standard eCl@ss. This ensures both high quality and a depth of data that, together with our „ready-to-robot“ components, allows a high degree of automation. By using and combining such standardized formats as AutomationML and eCl@ss, the result of the integrated engineering - the digital product description - can even be used in production processes.



Selection guide for electromechanical relay modules

Our selection guide in digital and printed form support you in finding the right relay for safe and reliable switching of special loads:

www.weidmueller.com/relayselector



Download link of the print version

Weidmüller – Your partner in Smart Industrial Connectivity

As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Smart Industrial Connectivity.

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All orders are based on our general terms of delivery, which can be reviewed on the websites of our group companies where you place your order. On demand we can also send the general terms of delivery to you.

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