DOLD, реле

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Электронные компоненты, радиодетали

DOLD каталог

Твердотельные реле

где и как купить в Минске?

Сделать заявку или запрос можно по телефону факсу или по электронной почте, viber
Просим Вас указывать в заявке:
— название предприятия, факс, контактный телефон, контактное лицо;
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каталог, описание, технические, характеристики, datasheet, параметры, аналог, замена, чем заменить, маркировка, габариты, фото , модуль

электронные компоненты, радиодетали купить в Минске

https://www.dold.com/en/

Product overview

POWERSWITCH

Reliable solid-state switching devices for frequent switching

DOLD

Our experience. Your safety.

Reliable solid-state switching devices from DOLD

POWERSWITCH

Always safe and reliable switching - with the POWERSWITCH series you get solid-state switching devices with real added value.

DOLD has been developing and producing solid-state switching devices for industrial switching technology for decades. Thanks to the extensive portfolio from a single source, DOLD solid-state relays / contactors offer the possibility of switching loads in a wide variety of areas.

Plug-in, connect, done!
The ready-to-use design, thanks to the optimally adapted heat sink, allows quick and easy commissioning in just a few steps.

High switching frequencies, long service life
Wherever high switching frequencies and cycles are required, our solid-state switching devices are the ideal solution. Once installed, the devices remain operational for an almost infinite period of time. Regular time- and cost-intensive device replacement is thus saved.

Wear-free and noiseless switching
The POWERSWITCH series is characterized by wear-free and noiseless switching and is capable of safely and reliably withstanding repeated loads and high temperatures. This makes our solid-state switching devices particularly suitable for use in medical applications and stage technology.

Fields of application

- Heating controls
- Hot glue robots
- Soldering lines
- Tapping systems
- Pumps
- Photocopying machines
- Automat construction
- Extruder plants
- Injection molding machines
- Furnace controls
- Three-phase motors
- Lighting controls
- Funding agencies
- Packaging machinery

DCB - Technology

DCB Technologie

The DCB technology (Direct-Copper-Bonding-Process) ensures very good heat transfer properties.

High switching frequencies, long service life with minimum overall width

POWERSWITCH - Your advantages at a glance:

Long service life
Long service life for high system availability and low maintenance costs

Noiseless operation
Since no mechanical components are present, the switching process is noiseless

High switching frequencies
Wear-free switching is reliably possible even at high switching frequencies

Ready to use
Ready for immediate use thanks to optimally adapted heat sink

Minimum overall width
The compact design allows a space-saving installation

High temperatures
Reliable switching even under the most difficult environmental conditions

1-, 2- and 3-pole versions
For switching 1-, 2- or 3-phase loads up to 600 V

Version ohmic loads
The „zero point switching“ method is used to switch ohmic loads

Version inductive loads
For inductive loads the „switching at voltage maximun“ version is suitable

Load monitoring
For detection of over- and undercurrent in alternating current networks

Extreme environmental conditions
Vibration and shock resistant for use even under the most difficult environmental conditions

Fast commissioning
Flexible wiring and fast commissioning as well as simple snap-on option on DIN top-hat rail

Solid-state relay PH 9270

More functionality, more possibilities
Solid-state relay / contactor

Solid-state relays of the **POWERSWITCH** series are ideally suited for mounting on existing cooling surfaces and allow fast and simple mounting with just two screws. With a narrow width from 22.5 mm, the solid-state relays are absolutely space-saving.

The DCB technology (Direct-Copper-Bonding-Process) ensures very good heat transfer properties. Depending on the property of the heat sink, continuous currents of up to approx. 90 A are possible. If a large number of resistive loads have to be switched, the solid-state relays can be mounted on a collective heat sink.

Depending on the application, it is recommended to protect the solid-state relays against short circuits with special fuses.

The solid-state relays offer a wide range of applications, e.g. in injection moulding machines in the plastics and rubber industries, in packaging machines, soldering systems and in the food industry.

Solid-state contactors of the **POWERSWITCH** series consist of a solid-state relay plus an optimized heat sink and are therefore ready for immediate use. Depending on the version, currents of up to 50 A are permitted.

Like all solid-state switching devices, the solid-state contactors also impress with their narrow and space-saving design. Thanks to the pre-dimensioned heat sink, the devices can easily be snapped onto a DIN rail or mounted on carrier plates using fastening screws.

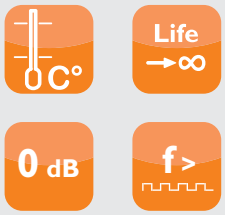
Overview

					
Device type	PK 9260	PK 9261	PH 9260.91/042	PH 9260.91	
Classification	**Solid-state relay / contactor 1-pole**	**Solid-state relay / contactor 1-pole**	**Solid-state relay / contactor 1-pole**	**Solid-state relay / contactor 1-pole**	
Load voltage	**230, 480, 600 V**	**480, 600 V**	**480 V**	**240, 480, 600 V**	
Peak reverse voltage	**650, 1200, 1600 V**	**1200, 1600 V**	**1200 V**	**1200, 1600 V**	
Load current	**25, 35, 50, 72, 88 A 10, 15, 20, 30, 40, 50, 88 A with heat sink**	**7,5, 15 A**	**25, 50 A**	**25, 50 A**	
Control input	**DC 4 ... 32 V AC 100 ... 230 V AC/DC 18 ... 30 V**	**DC 4 ... 32 V AC 100 ... 230 V**	**DC 4 ... 20 mA**	**DC 4 ... 32 V AC/DC 18 ... 36 V AC/DC 100 ... 240 V**	
Signal output	—	—	—	—	
Heat sink	**optional**	**optional**	**optional**	**optional**	
DIN rail	•	•	•	•	
Approval	UL [1]	—	—	UL [1]	
Specification	**for ohmic loads**	**for motor loads**	**with impulse packet control**	—	
Width	**22,5 mm**	**22,5 mm**	45 mm	45 mm	

[1] Depending on variant

1-, 2- and 3-pole versions available

Solid-state contactor PK 9260



Your advantages at a glance

- Immediately ready for use - thanks to optimally adapted heat sinks
- Long service life for high system availability
- Noiseless and wear-free switching
- Simple mounting on the heat sink
- Easy integration into existing automation systems
- Compact design from 22.5 mm overall width
- 1-, 2- and 3-pole versions available
- Use even under extreme environmental conditions (vibration and shock resistant)

			
PH 9270.91/003	PH 9270.91	PH 9260.92	PI 9260.92 /.93
Solid-state relay / contactor 1-pole	**Solid-state relay / contactor 1-pole**	**Solid-state relay / contactor 2-pole**	**Solid-state relay / contactor 2-, 3-pole**
240 V	480 V	240, 480 V	230, 480, 600 V
800, 1200 V	1200 V	1200 V	650, 1200, 1600 V
25, 45 A	40 A	2 x (32, 48 A)	20, 30, 50, 60 A 2 x (20, 30 A) with heat sink 3 x 20 A with heat sink
DC 20 ... 32 V	DC 20 ... 32 V	DC 18 ... 30 V	DC 10 ... 32 V AC 100 ... 230 V
0 ... 10 V	—	—	—
optional	optional	optional	optional
•	•	•	•
—	—	—	—
with load circuit monitoring and analogue output	with load circuit monitoring and PNP semiconductor output	—	2- or 3-phase controlled version
45 mm	45 mm	45 mm	67,5 mm

Solid-state contactors, also with load monitoring

The **solid-state contactors** of the **POWERSWITCH** series are particularly suitable for installation in switch cabinets due to their simple snap-on mounting on the DIN rail and are available in 1-, 2- and 3-pole versions. Optionally up to 3 separate solid-state contactors in one device.

The devices are characterized by a compact and space-saving design and allow fast mounting by snapping onto the DIN rail. Due to the ready-to-use design, the devices are immediately ready for use.

With the device characteristics „zero point switching“ or „instantaneous switching“ you are equipped for all applications with AC loads.

Whether current monitoring, load control or analogue control, the solid-state contactors offer a wide range of applications, such as switching motors, heaters, valves or lighting. Special solid-state contactors can also monitor the load circuit.

The solid-state contactors operate in a load voltage range of up to 600 V and, thanks to the wide control voltage range, can be operated with a PLC or simple temperature controllers. The devices cover a current range up to 90 A with only a few versions.

Overview

				
Device type	BF 9250/001	BF 9250/003	**BF 9250/008**	
Classification	**Solid-state contactor 1-, 2-, 3-pole**	**Solid-state contactor 2-, 3-pole**	**Solid-state contactor 1-, 2-, 3-pole**	
Load voltage	**480 V**	**480 V**	**230, 480 V**	
Peak reverse voltage	**1200 V**	**1200 V**	**1200 V**	
Load current	**10, 25, 50 A 2 x (6,5, 15, 25 A) 3 x (5, 10, 15 A)**	**2 x (6,5, 15, 25 A) 3 x (5, 10, 15 A)**	**10, 25, 50 A 2 x (6,5, 15, 25 A) 3 x (5, 10, 15 A)**	
Control input	**DC 24 V**	**DC 24 V**	**DC 24 V**	
Signal output	•	—	—	
Heat sink	•	•	•	
DIN rail	•	•	•	
Approval	UL	UL	UL	
Specification	**with temperature monitoring (storing)**	**Control inputs galvanically isolated from each other**	**Control via separate terminals (A1/A2)**	
Widths	**22,5, 45, 90 mm**	**22,5, 45, 90 mm**	**22,5, 45, 90 mm**	

Versatile options
for individual configuration

Solid state contactor BF 9250/008

Your advantages at a glance

- Long service life for high system availability
- Noiseless and wear-free switching
- Simple mounting by snapping onto DIN rail
- Easy integration into existing automation systems
- For 1-, 2- or 3-pole loads
- Available with UL approval
- With load circuit monitoring (BH 9251)

						
	BF 9250/004	BF 9250/042	BF 9250/002	BH 9250/001	BH 9250.03/006	BH 9251
	Solid-state contactor 2-, 3-pole	Solid-state contactor 1-pole		Solid-state contactor 1-, 2-, 3-pole	Solid-state contactor 3-pole	Solid-state contactor 1-pole
	480 V	115, 240, 480 V		480 V		48, 230, 400 V
	1200 V	1200 V		1200 V		1200 V
	10, 25, 50 A	2 x (6,5, 15, 25 A) 3 x (5, 10, 15 A)		10, 25, 50 A 2 x (6,5, 15, 25 A) 3 x (5, 10, 15 A)	3 x 3 A 2 x 1 A	10, 20, 40 A
	DC 24 V	0 - 10 V 4 - 20 mA 0 - 10 kΩ		DC 24 V		AC/DC 9,6 ... 270 V
	—	—		•	—	•
	•	•		•		•
	•	•		•		•
	UL	UL		UL		—
	Control inputs with common ground	Output with impulse control		with temperature monitoring (storing)	additional 2 semiconductor outputs	with load monitoring
	22,5, 45, 90 mm			45, 67,5, 112,5 mm		45, 67,5, 112,5 mm

Our experience. Your safety.

DOLD - Your solution provider with over 80 years of experience

Hybrid relays - perfectly combined

Hybrid relays combine the advantages of robust relay technology with wear-resistant semiconductor technology in a perfect way.

Classic electromechanical relays offer a significant advantage over solid-state relays. While solid-state relays generate heat permanently due to the forward voltage, which must be dissipated by heat sinks at higher load currents, the current-carrying relay contact has a very low contact resistance and thus generates hardly any heat loss.

Solid-state relays are insensitive to shock and vibration. Their strengths lie above all in the switch-on and switch-off processes. No bouncing, no electric arcs, no mechanical wear - and thus an almost unlimited electrical service life.

The **hybrid relay IK 3070/200** from DOLD perfectly combines the advantages of both worlds. When switched on, the solid-state first switches in the zero crossing of the alternating voltage. A few milliseconds later, the relay contact takes over the continuous current and ensures low power dissipation. When the relay is switched off, the current is first transferred from the relay to the solid-state, which then switches off at zero current. In this way, surge voltages and currents in the load circuit are minimized and minimal electromagnetic interference is caused.

Due to the combination of the different switching technologies, the IK 3070/200 is particularly suitable for applications that require a high switching capacity and a long service life at the same time. It is therefore particularly suitable for systems in which a standstill leads to high costs, i.e. the relay should function reliably over as long a period as possible. Such applications can be found in automation technology and the process industry as well as in offshore wind turbines.

Technical features	
Output contacts max.	1 NO
Thermal current I_{th} max.	16 A
Nominal voltage AC/DC	24 V
Nominal voltage AC	110 ... 127 V, 220 ... 240 V
Electrical lifetime	10^6 switching operations with AC 15, 10 A inductive
Rated operational current	20 A
Width	17,5 mm

More
Info

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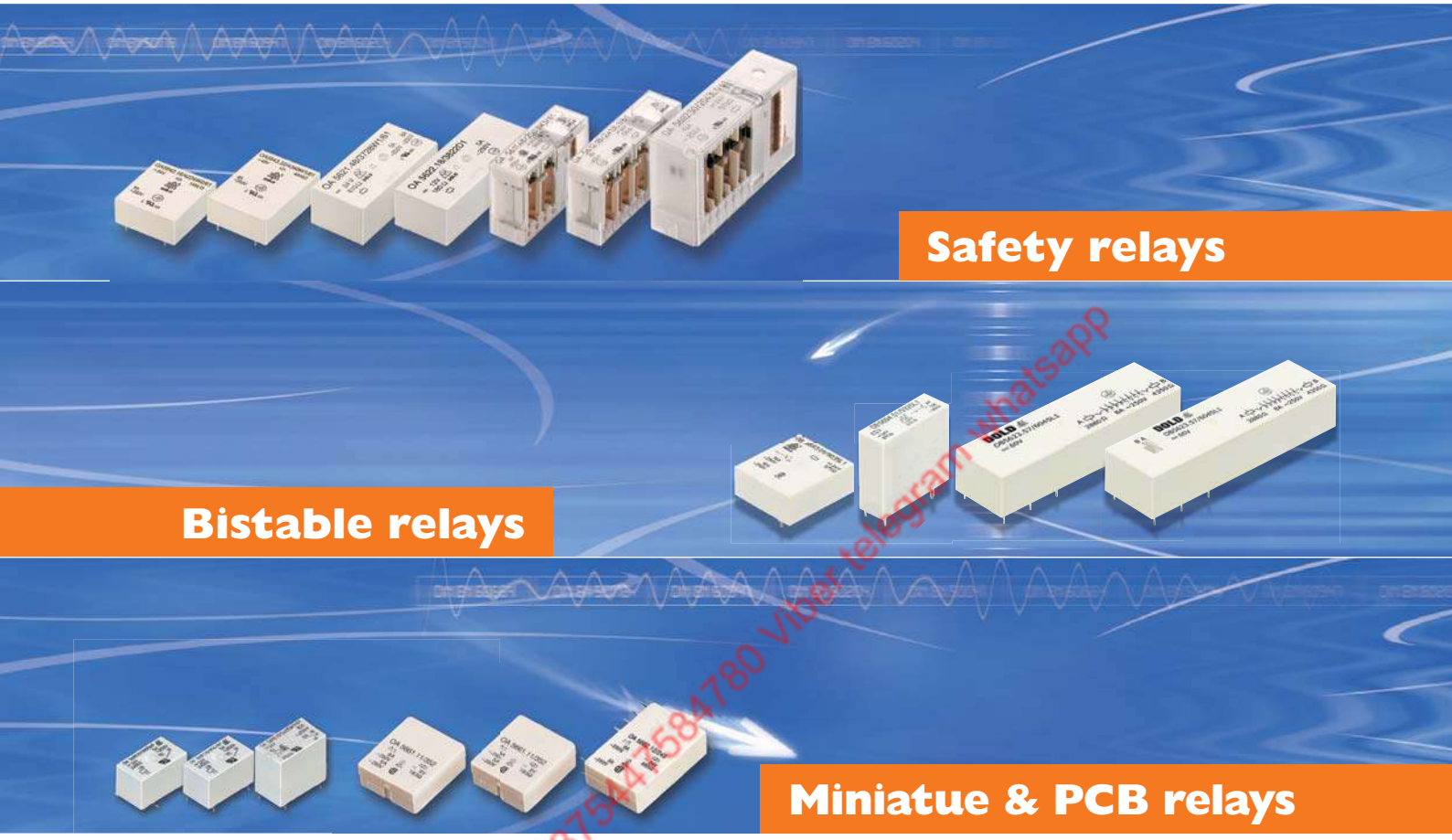


Safety relays

Bistable relays

Miniatue & PCB relays

The right relay for every application

DOLD

Our experience. Your safety.

Printed circuit board relays from Dold

Dold PCB relays. Your solution provider.

Dold is a family company based in the Black Forest town of Furtwangen and with over 90 years of experience, traditionally stands for "Made in Germany" quality.

Dold is one of the leading manufacturers in the field of PCB relays and offers suitable electro-mechanical relays for a multitude of application fields. The comprehensive product portfolio encompasses miniature relays, PCB relays, bistable relays and safety relays with mechanically forcibly guided contacts.

As a specialist in PCB relays, we stand for quality and reliability from a single source. In order to meet the highest quality requirements, we rely on high production depth, the most up-to-date manufacturing equipment and the combination of experience and knowledge.

Our PCB relays are available in a great variety of different contact variants and construction forms and guarantee the highest switching safety with minimal dimensions.

Our relays are used throughout the world. They have the task of switching loads and galvanically separating electrical circuits. Classical applications, particularly for relays with mechanical forcibly guided contacts, are in the monitoring of emergency stop switches, safety doors or light barriers, for example. They are also essential in railway signalling equipment, in the controllers for passenger and goods elevators as well as in medical equipment. Wherever people and machines must be protected from injury and damage - Dold relays are in use.

Certified safety. Made in the Black Forest.

The expert knowledge of our personnel, the high level of production depth as well as the most modern production and testing systems are the prerequisites to be able to manufacture robust, reliable and high quality relays.


Laboratory/medical equipment

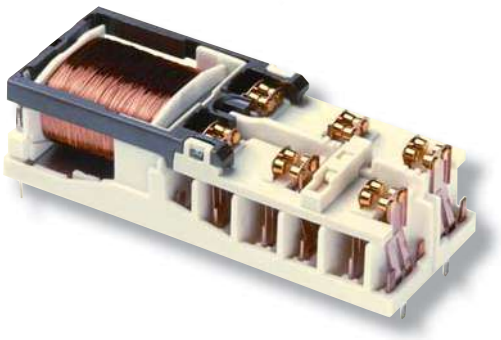

Paper/printing industry

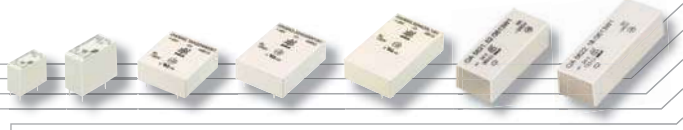

Elevator equipment


Machinery safety


Automation technology


Railway equipment





Dold PCB relays – when you need to switch high power with high reliability in small spaces.

The right relay - for every application

Individual, customer-specific safety relays.

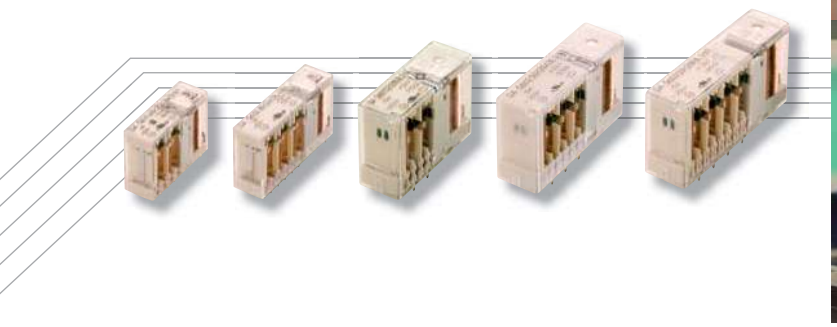
Partially equipped contact sets for increased insulation values, mixed contact equipping with single and double contacts as well as different contact materials for the loads to be switched require only a few minor adjustments for us to adapt our relays to individual, customer-specific requirements.

As a pioneer and technology leader for safety relays with forcibly guided contacts, PCB relays and miniature relays, we offer our customers technically advanced solutions for the secure switching of electrical power with minimal dimensions.

Our relays are suitable for inserting into relay sockets or for soldering into PCBs. The combination of plug-in sockets and relays enables rapid replacement during maintenance or in the event of a service call.

Features that distinguish our relays:

- Galvanic separation between control and load circuits
- Switching of loads up to 16 A with low nominal drive power
- Up to 8 contacts in one contact set
- Low contact transfer resistance
- Increased insulation values through partially equipped contact sets
- Energy efficiency through sensitive relays or bistable switching behaviour
- Smallest dimensions
- Suitable relay sockets for quick component replacement



A state-of-the-art machinery suite - that means highest process reliability, flexibility and quality.
The expectations and needs of our customers are always the focus of our attention here.
In doing so, we work with short information paths and the highest levels of professionalism.

Safety relays
with forcibly guided contacts

Safety relays, i.e. relays with mechanically forcibly guided contacts per DIN EN 61810-3, are used wherever people, machines and valuable goods must be protected from injury and damage.

One such relay comprises at least one NC contact set and one NO contact set and is constructed such that the NC set and the NO set can never be closed at the same time. For example, if a NO contact fails when trying to open, the associated NC contact cannot close when the power supply is switched off.

This behaviour enables simple diagnostics and fault detection when monitoring the forcibly guided feedback contacts.

Relays with forcibly guided contacts are differentiated into two separate types. Type A describes relays where all contacts are mechanically linked to one another. Type B refers to relays with contacts that are linked to one another mechanically and contacts that are linked to one another in a non-mechanical manner.

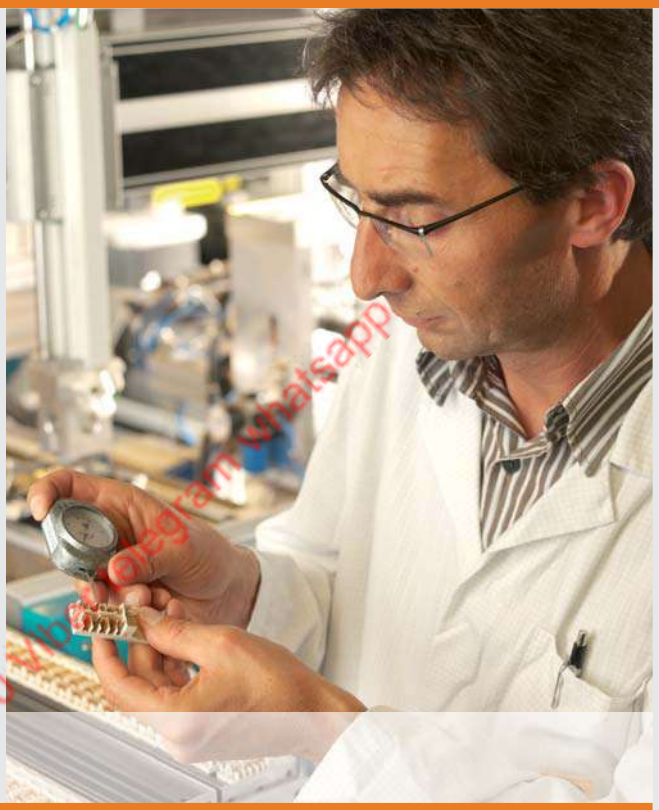
Safety relays with forcibly guided contacts

						
Relay	Relay type	OA 5611	OA 5612	OA 5601	OA 5602	
	Type of relay	Monostable	Monostable	Monostable	Monostable	
Contacts	Contact equipping	4	6	4	6	
	Contact material	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	
	Limit continuous current I_{th} max.	3 x 8 A	5 x 8 A	3 x 16 A	4 x 16 A	
Coils	Nominal voltage U_N	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	
	Voltage range	0.7 - 1.4 U_N	0.7 - 1.4 U_N	0.7 - 1.6 U_N	0.7 - 1.6 U_N	
Insulation	Test voltage (AC) Contact set - coil	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	
	Clearance and creepage distances, contact set - coil	8 mm	8 mm	8 mm	8 mm	
Other data	Temperature range	- 40 ... + 85 °C	- 40 ... + 85 °C	- 40 ... + 85 °C	- 40 ... + 85 °C	
	Type per DIN EN 61810-3	A	A	A	A	
	Protection type	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)	
	Size L x W x H [mm]	41.9 x 14.5 x 30.5	51.5 x 14.5 x 30.5	57 x 20 x 39.5	67 x 20 x 39.5	
	Approvals	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	

The safety relays are available in vertical and horizontal designs and offer up to 8 mechanically forcibly guided contacts. With different construction forms, contact materials and also with partially equipped contact sets if required, we offer you maximum flexibility.

Types **OA 5601, OA 5602** and **OA 5603** with 4, 6 or 8 contacts are rated for max. continuous currents up to 10 A. It is also possible to choose between single contacts and double contacts for challenging tasks with the **OA 5621** and **OA 5622** relays.

With Dold you can always switch safe and reliably. You can find more detailed information on our PCB relays at **www.dold.com.**



						
	OA 5603	OA 5621	OA 5621 With twin contacts	OA 5622	OA 5622 With twin contacts	OA 5623
	Monostable	Monostable	Monostable	Monostable	Monostable	Monostable
	8	4	4	6	6	8
	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	AgNi + 5 µm Au	$AgSnO_2$; AgNi	AgNi + 5 µm Au	$AgSnO_2$; AgNi
	4 x 16 A	3 x 8 A	3 x 5 A	5 x 8 A	5 x 5 A	7 x 8 A
	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V
	0.7 - 1.6 U_N	0.75 - 1.4 U_N	0.75 - 1.2 U_N	0.75 - 1.4 U_N	0.75 - 1.2 U_N	0.8 - 1.2 U_N
	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}
	8 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm	5.5 mm
	- 40 ... + 75 °C	- 40 ... + 80 °C	- 40 ... + 80 °C	- 40 ... + 80 °C	- 40 ... + 80 °C	- 40 ... + 80 °C
	A	A	A	A	A	A
	RT II (flux-proof relay), optional RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)
	77.1 x 20 x 39.5	46.5 x 22 x 15.5	46.5 x 22 x 15.5	55 x 22 x 15.5	55 x 22 x 15.5	67 x 22 x 15.8
	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus

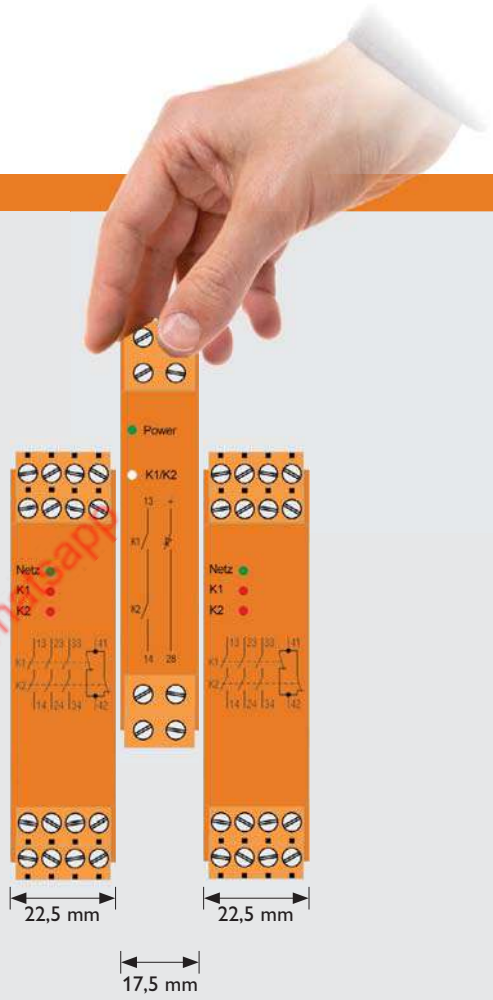
Safety relays
with forcibly guided contacts

Relays with mechanically forcibly guided contacts are used in safety relay modules or controllers amongst other things. The simplicity in the use of safety relays makes them the ideal component for detecting faults due to the forced driving of NC and NO contacts without the need for complex circuitry. In these safety relevant applications, particular attention is paid to the compact form alongside the high degree of switching security.

At just 10.3 mm height, the extremely flat relay family **OA 5642, OA 5643** and **OA 5644** with 2, 3 or 4 contacts takes account of the desire for components to be ever smaller and more compact. In doing so, the limits of the miniaturisation of electro-mechanical relays are determined primarily by the necessary clearance and creepage distances.

Our safety relays are known for their robustness and reliability and at the same time are extremely energy efficient.

With the extremely flat relay series, Dold sets new standards in the miniaturisation of switching devices. With an overall height of only 10.3 mm, the relays with mechanically forcibly guided contacts are ideally suited for the realisation of compact safety switching devices.



Safety relays with forcibly guided contacts

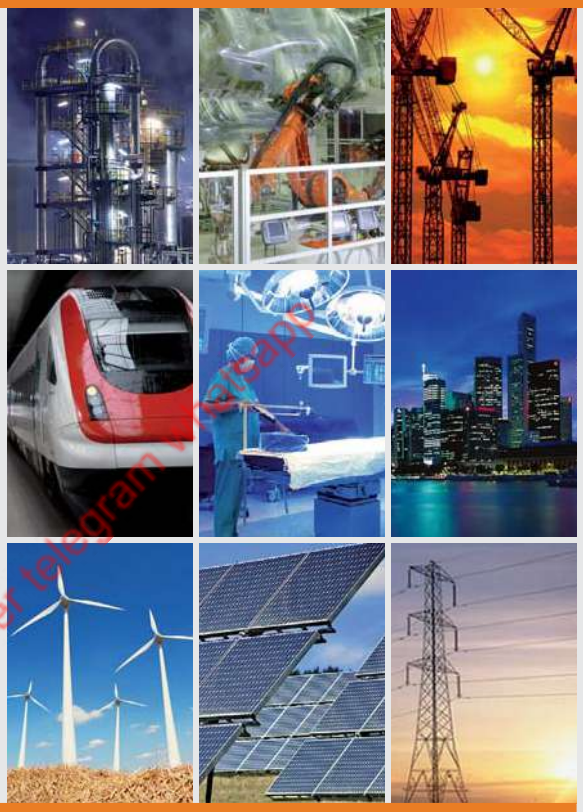
					
Relay	Relay type	OA 5642	OA 5643	OA 5644	
	Type of relay	Monostable	Monostable	Monostable	
Contacts	Contact equipping	2	3	4	
	Contact material	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	
	Limit continuous current I_{th} max.	8 A	2 x 8 A	3 x 8 A	
Coils	Nominal voltage U_N	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	
	Voltage range	0.7 - 1.6 U_N	0.7 - 1.6 U_N	0.7 - 1.6 U_N	
Insulation	Test voltage (AC) Contact set - coil	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	
	Clearance and creepage distances, contact set - coil	5.5 mm	5.5 mm	5.5 mm	
Other data	Temperature range	- 40 ... + 85 °C	- 40 ... + 85 °C	- 40 ... + 85 °C	
	Type per DIN EN 61810-3	A	A	A	
	Protection type	RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)	
	Size L x W x H [mm]	26.6 x 25 x 10.3	34.2 x 25 x 10.3	41.7 x 25 x 10.3	
	Approvals	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	

Sockets for PCB mounting are available for many safety relays. These enable the safety relays to be quickly replaced during preventative maintenance. In addition, sockets are also available for DIN rail mounting.

Typical areas of application are:

- Railway equipment
- Lift controllers
- Combustion technology
- Automation and process technology
- Medical equipment
- Materials handling

With Dold you can always switch safe and reliably. You can find more detailed information on our PCB relays at **www.dold.com.**



				
	OA 5667	OA 5669	OA 5670	
	Monostable	Monostable	Monostable	
	2	2	4	
	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	
	2 x 6 A	2 x 5 A / 1 x 8 A	3 x 6 A	
	DC 6 - 110 V	DC 6 - 110 V	DC 6 - 110 V	
	0.75 - 1.3 U_N	0.8 - 1.6 U_N / 0.75 - 1.4 U_N	0.7 - 1.4 U_N	
	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	
	8 mm	8 mm	8 mm	
	- 40 ... + 85 °C	- 40 ... + 70 °C / - 40 ... + 85 °C	- 40 ... + 75 °C	
	A / B	A / B	A	
	RT II (flux-proof relay)	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)	
	37 x 25 x 10.8	29 x 13 x 25.5	35 x 13 x 25.5	
	TÜV, cRUus	TÜV, cRUus	TÜV, cRUus	

PCB relays

PCB relays, also known as plug-in/print relays, are used for galvanic separation of circuits as well as for signal adaptation and signal strengthening. Our vertical and horizontal designs enable optimum adaptation to your application.

Our PCB relays, with max. continuous currents up to 16 A, are available with one or two contacts, in different installation heights and with different contact materials.

Typical areas of application are:

- Building automation
- Installation technology
- Energy technology
- Remote switching
- Staircase timers

PCB relays

						
Relay	Relay type	OA 5661	OA 5652 / OA 5662	OA 5661.12	OA 5662.12	
	Type of relay	Monostable	Monostable	Monostable	Monostable	
Contacts	Contact equipping	1	1	2	2	
	Contact material	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	
	Limit continuous current I_{th} max.	8 A	8 A	2 x 6 A	2 x 6 A	
Coils	Nominal voltage U_N	DC 6 - 60 V	DC 6 - 60 V	DC 6 - 60 V	DC 6 - 60 V	
	Voltage range	0.7 - 1.8 U_N	0.7 - 1.8 U_N	0.7 - 1.4 U_N	0.7 - 1.4 U_N	
Insulation	Test voltage (AC) Contact set - coil	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	
	Clearance and creepage distances, contact set - coil	8 mm	8 mm	8 mm	8 mm	
Other data	Temperature range	- 40 ... + 80 °C	- 40 ... + 80 °C	- 40 ... + 70 °C	- 40 ... + 70 °C	
	Protection type	RT II (flux-proof relay)	RT II (flux-proof relay)	RT II (flux-proof relay)	RT II (flux-proof relay)	
	Size L x W x H [mm]	28 x 25 x 10.8	28 x 10.8 x 25	37 x 25 x 10.8	37 x 10.3 x 25	
	Approvals	cRUus	cRUus	cRUus	cRUus	

* only OA 5682

Bistable relays

Whilst the contacts of the monostable PCB relays return to their original switch position after the excitation power is switched off, with bistable relays **OB 5693, OB 5694** and **OB 5623** the switching position is retained after the excitation power is switched off. Energy is thus required only briefly to change the switching position.

Because the bistable relays require only a fraction of the energy required by monostable solutions, they are the preferred choice in energy-efficient and battery-powered systems. The characteristic of retaining the switching position in the event of the power supply failing, is essential in certain applications.

With bistable relays, applications can be switched in an energy-saving and reliable manner.

The bistable relay **OB 5623** with its 8 mechanical forcibly guided contacts was developed especially for these applications, which are found for example in railway and signal technology. The relay is available with a manual activation option. It also stands out for its good vibration and shock resistance.

Typical areas of application are:

- Railway and signaling technologies
- Automation
- Medical devices
- Radio and remote control technology
- Firing technology
- Process technology

With Dold you can always switch safe and reliably. You can find more detailed information on our PCB relays at **www.dold.com.**

Bistable relays

					
	OA 5668 / OW 5668	OA 5672 / OA 5682	OB 5693	OB 5694	OB 5623
	Monostable	Monostable	Bistable	Bistable	Bistable
	2	1	1	1	8
	$AgSnO_2$; AgNi	$AgSnO_2$	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi
	2 x 5 A	10 A / 16 A*	16 A	16 A	7 x 8 A
	DC 5 - 110 V	DC 6 - 110 V	DC 6 - 110 V ; AC 12 - 230 V		DC 6 - 110 V
	0.7 - 2.0 U_N	0.7 - 2.2 U_N	0.8 - 1.1 U_N	0.8 - 1.1 U_N	0.85 - 1.2 U_N
	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}
	8 mm	8 mm	8 mm	8 mm	5.5 mm
	- 40 ... + 75 °C	- 40 ... + 110 °C	- 40 ... + 75 °C	- 40 ... + 75 °C	- 40 ... + 75 °C
	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay)	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)	RT II (flux-proof relay), optional RT III (wash-tight)
	29 x 13 x 25.5	29 x 12 x 25.5	28 x 25 x 10.8	28 x 10 x 26	83 x 22 x 15.8
	-	cRUus	-	-	TÜV

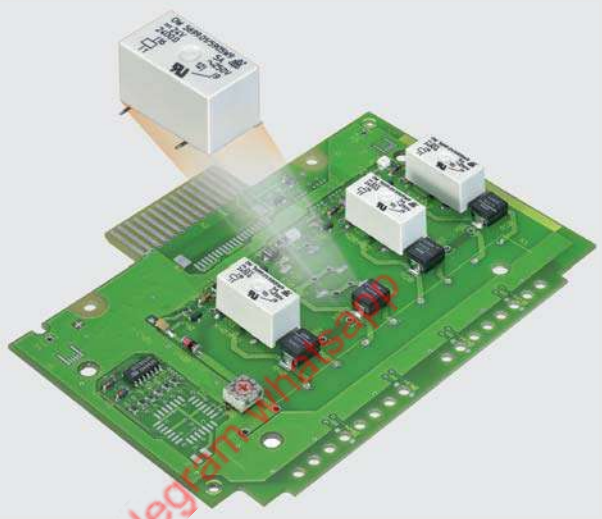
Miniature relays

If it is necessary to switch heavy currents reliably in a small space and galvanic separation of control and load circuits is also required, there is no better answer than the compact miniature power relays available in SMD (Surface Mount Device) form and in DIL (Dual In-Line) form. With the smallest of dimensions, at around 20 mm long and 10 mm wide, they can be inserted into conventional 16-pole IC-sockets.

The **OW 5691** and **OW 5699** relays also have an installation height of just 12.15 mm and can fit almost any situation.

The distinguishing features of the wash-tight miniature relays known by the DILAIS brand, are their high switching power, the large operating voltage range and their reliability.

All miniature relays can be selected as NO design or with changeover contacts. A great variety of different technologies, contact materials and contact equipping prove their strengths in diverse applications.



The miniature relays from Dold are distinguished through their small dimensions with high power and reliability. These mini-relays measure just 10 x 20 x 12 mm. Nonetheless, the switch contacts can easily deal with a continuous current of up to 8 A. In addition, the user can choose between different contact materials and contact designs.

Miniature relays

					
Relay	Relay type	OW 5691 / OW 5699	OW 5699	OW 5699 SMD	
	Type of relay	Monostable	Monostable	Monostable	
Contacts	Contact equipping	1	1	1	
	Contact material	AgNi	$AgSnO_2$	$AgSnO_2$; AgNi	
	Limit continuous current I_{th} max.	5 A	8 A	5 A	
Coils	Nominal voltage U_N	DC 4.5 - 48 V	DC 4.5 - 48 V	DC 4.5 - 48 V	
	Voltage range	0.75 - 2.2 U_N	0.75 - 1.6 U_N	0.75 - 1.6 U_N	
Insulation	Test voltage Contact set - coil	4 kV_{eff}	4 kV_{eff}	4 kV_{eff}	
	Clearance and creepage distances Contact set - coil	5.5 mm	5.5 mm	5.5 mm	
Other data	Temperature range	- 40 ... + 80 °C	- 40 ... + 80 °C	- 40 ... + 80 °C	
	Protection type	RT III (wash-tight)	RT III (wash-tight)	RT III (wash-tight)	
	Size L x W x H [mm]	20.2 x 10.1 x 12.15	20.2 x 10.1 x 12.15	20.2 x 10.1 x 13.5	
	Approvals	VDE, cRUus	VDE, cRUus	cRUus	

Thus the monostable miniature **OA 5690** power relays are always used wherever there are high requirements on galvanic separation between control circuits and load circuits. Clearance and creepage distances ≥ 8 mm between coil and contacts as well as low coupling capacitance make this relay the ideal component.

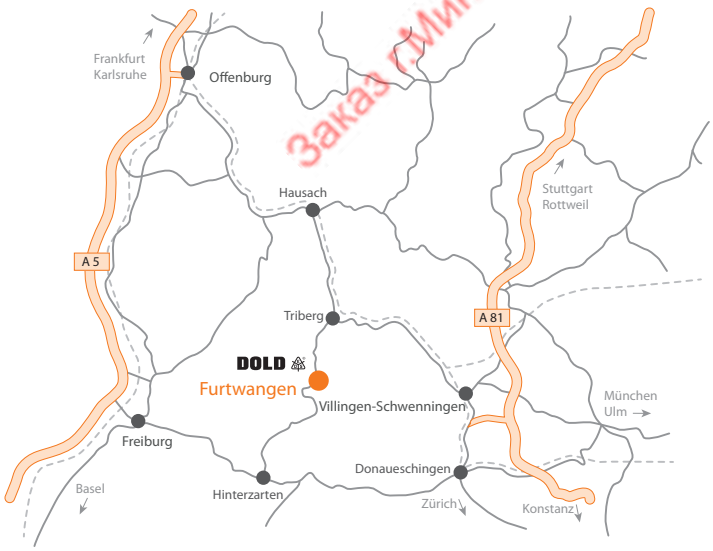
With the remanence relay **OR 5691**, the contacts remain in the working position after a current pulse by using the existing residual magnetism (remanence) until a reduced pulse is applied in the opposite current flow direction. As a result, this relay is used if the self-heating of the coil and the energy consumption have to be reduced to a minimum.

Typical areas of application are:

- Automation and process technology
- Measurement and monitoring technology
- Installation and energy technology

				
	OA 5690	OR 5691		
	Monostable	Remanence		
	1	1		
	$AgSnO_2$; AgNi	AgNi		
	5 A ; 10 A	5 A		
	DC 4.5 - 48 V	DC 4.5 - 48 V		
	0.75 - 2.0 / 1.8 U_N	0.8 - 1.3 U_N		
	4 kV_{eff}	4 kV_{eff}		
	8 mm	5.5 mm		
	- 40 ... + 80 °C	- 40 ... + 65 °C		
	RT III (wash-tight)	RT III (wash-tight)		
	20.2 x 10 x 16.5	20.2 x 10.1 x 12.15		
	cRUus	cRUus		

From Black Forest company to globally successful specialist - with sales partners on every continent, we are always there by your side.



From the very beginning it was the goal of the company founded by Emil Dold in 1928, to provide innovative products for the highest levels of safety and customer satisfaction. Dold has steadily and successfully developed and expanded:

From a pioneer in relay technology to one of Europe's leading branch representatives in safety and monitoring technology as well as power electronics, with over 400 employees throughout the world.

Our experience. Your safety.
Challenge us. We look forward to it!

DOLD

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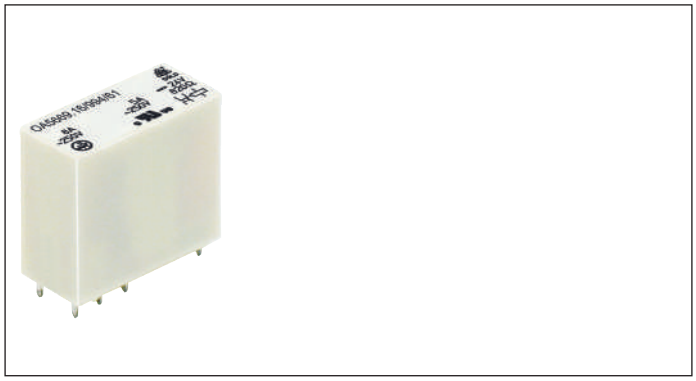
FE54 / 1212 co

Safety relay
OA / OW 5669

Translation of the original instructions

DOLD



- According to DIN EN 61810-1, DIN EN 61810-3 (Type A resp. Type B)
- With forcibly guided contacts
- Clearance and creepage distances:
  Contact - coil ≥ 8 mm,
  Contact - contact ≥ 5.5 mm
  Double and reinforced insulation between contact sets
- Low rated power consumption
- High mechanical service life
- Compact size, small height
- Wash proof model as option

Applications

- Switchgear for safety technology
- Escalators and walkways
- Elevators for men and load
- Press controls
- Railway technology

Approvals and Markings

Product Safety
TÜVRheinland CERTIFIED
www.tuv.com ID 0600000000
c UL us Canada / USA

Technical Data

Relay type		OA/OW 5669
1.0	**Relay coil**	
1.1	Nominal voltage	DC 6, 12, 20, 24, 48, 60, 110 V (other on request)
1.2	Nominal consumption	0.7 W
1.11	Voltage range	0.8 ... 1.6 U_N
1.3	Holding power (at 0.5 x U_N)	0.18 W
2.0	**Contacts**	
2.1	Contact arrangement	1 NC / 1 NO (type A) 2 changeover contacts (type B)
2.2	Contact material	$AgSnO_2$ + 0.2 µm Au; AgNi + 0.2 µm Au, AgNi + 5 µm Au
2.3	Rated insulation voltage Switching voltage min./max.	AC 250 V AC/DC 10 V / DC 250 V, AC 400 V (AC/DC 2 V / 60 V) [1]
2.4	Limiting continuous current I_{th} Switching current min./max.	2 x 5 A (see operating voltage limit curve) 10 mA[3] / 8 A (2 mA / 0.3 A)[1]
2.5	Switching power min./max. Switching power min./max.	0.1 VA / 2000 VA (10 mVA / 12 VA)[1] 0.1 W [3] / 200 W (10 mW / 12 W)[1] (see limit curve for arc-free operation)
2.6	Switching capacity to IEC/EN 60947-5-1 AC 15 [4] AC 15 [5] DC 13 [4] DC 13 [4] at 0.1 Hz to UL 508	 NO: AC 250 V / 2 A NC: AC 250 V / 1 A NO: AC 250 V / 3 A NC: AC 250 V / 2 A NO: DC 24 V / 2 A NC: DC 24 V / 1 A NO: DC 24 V / 4 A NC: DC 24 V / 4 A R300
2.7	Electrical life [2] AC 230 V 6 A cos φ = 1	At 1 s On, 1 s Off (see contacts service life) > 2 x 10^5 switching cycles $AgSnO_2$ > 2 x 10^5 switching cycles AgNi
2.8	Switching frequency max.	10 switching cycles/s
2.9	Response time / Release time	Typically 15 ms / Typically 5 ms
2.10	Contact force	≥ 10 cN / ≥ 8 cN
2.14	Contact gap	> 0.5 mm [7]
3.0	**Other**	
3.1	Mechanical life	≥ 50 x 10^6 Switching cycles
3.2	Temperature range	- 40 ... + 70 °C [6] mounted without distance (I_{th} = 2 x 5 A)
3.3	Degree of protection	Solder line proof RT II as option wash proof RT III
3.4	Test procedure	A (group mounting)
3.5	Vibration resistance	10 ... < 60 Hz; 1.2 mm Amplitude; (NO contact) IEC/EN 60068-2-6 10 ... < 60 Hz; 0.35 mm Amplitude; (NC contact) IEC/EN 60068-2-6 60 ... 200 Hz, ≤ 10g (NO contact) IEC/EN 60068-2-6 60 ... 200 Hz, ≤ 3g (NC contact) IEC/EN 60068-2-6
3.6	Climate resistance	40 / 070 / 04; A / B / D IEC/EN 60068-1
3.7	Short circuit strength 1 kA / AC 250 V	$AgSnO_2$ 10 A gG / gL IEC/EN 60947-5-1 AgNi 6 A gG / gL IEC/EN 60947-5-1

[1] Values for AgNi-contacts + 5 µm Au
[2] 10 A total current at t = 20°C and coil voltage U_N
[3] Typical values for $AgSnO_2$ and AgNi
[4] Values for AgNi-contacts
[5] Values for $AgSnO_2$-contacts
[6] UL: + 60 °C
[7] Over entire service life acc. to DIN EN 61810-3

Technical Data

3.8	Insulation acc. to IEC 60664-1, EN 50178	**Double and reinforced insulation**
	Rated insulation voltage	AC 250 V
	Pollution degree	2
	Overvoltage category	III
	Test voltage	
	Contact-coil (1 min)	≥ AC 4 kV eff.
	Contact-contact (1 min)	≥ AC 4 kV eff.
	Contact open (1 min)	≥ AC 1.5 kV eff.
	Transient voltage	
	Contact-coil (1.2 - 50 µs)	≥ 6 kV
	Clearance and creepage distances	
	Contact-coil	≥ 8 mm
	Contact-contact	≥ 5.5 mm
3.9	Weight	Approx. 19 g
4.0	**Packing**	
4.1	On cardboard in slipcase	56 pieces
4.2	In case package	280 pieces
5.0	**Solder method**	
5.1	Solder method /-temperature /-duration	Wave soldering / 260 °C / 5 s

Design versions

U_N (DC V)	Voltage range (DC V)	R_{Coil} Ω±10%	AgNi - contacts + 0.2 µm Au			AgNi - contacts + 5 µm Au		$AgSnO_2$ - contacts + 0.2 µm Au	
			OA5669.12	OA5669.16		OA5669.12	OA5669.16	OA5669.12	OA5669.16
6	4.8 ... 9.6	50	981	992	462	691	771	581	
12	9.6 ... 19.2	210	982	993	463	692	772	582	553
20	16.0 ... 32.0	580	987	998	468	697	777	587	558
24	19.2 ... 38.4	820	983	994	464	693	773	583	554
48	38.4 ... 76.8	3200	984	995	465	694	774	584	555
60	48.0 ... 96.0	5200	985	996	466	695	775	585	556
110	88.0 ... 176.0	16000	986	997	467	696	776	586	557
				1)	2)		1)		1)

1) = Pin configuration standard
2) = Pin configuration reverse

Ordering Example

O_ 5669._ _ / _ _ _ / 61*)

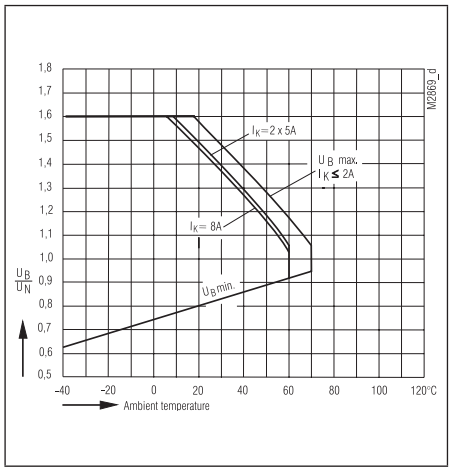
- / 61*) — Design version
- ._ _ — Pin configuration
  - .16 1 NC / 1 NO (type A)
  - .12 2 changeover contacts (type B)
  - .20 1 NO / 1 changeover contact (type B)
- O_ — Degree of protection
  - A = Solder line proof RT II
  - W = Wash proof RT III

*) /61 cURus approval

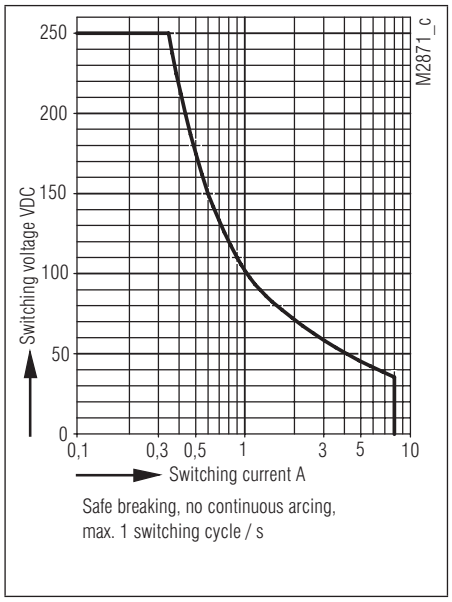
Notes

For the use and processing of our PCB relays, please refer to the **application and processing instructions** at www.dold.com

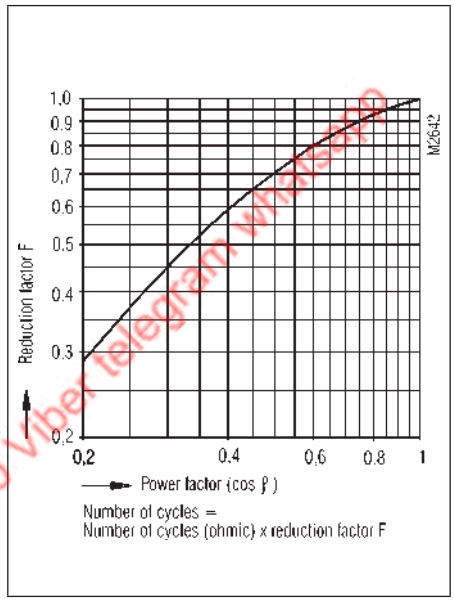
Characteristics



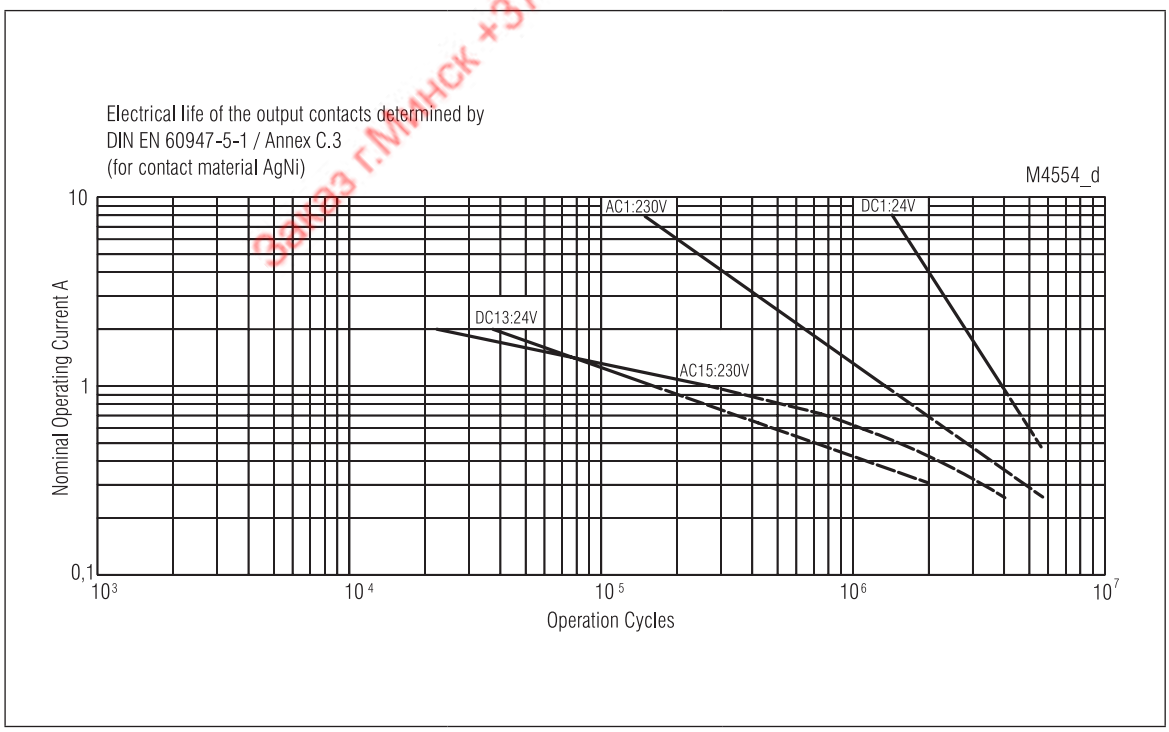
Operating voltage limit curve



Arc limit curve (at t_u = 20°C)
Contact material AgNi



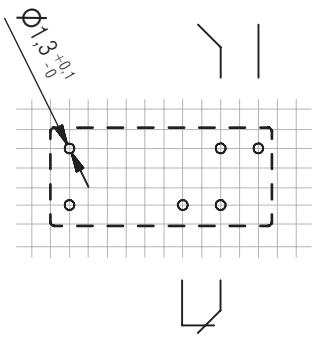
Reduction factor for reactive loads

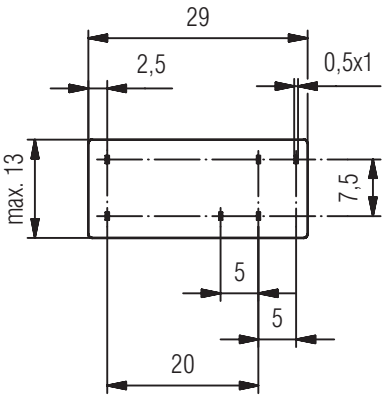


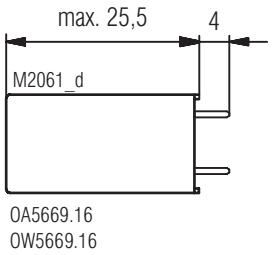
Electrical life for contact material AgNi

Dimensions, Pin Configuration, Connection Diagrams

Drilling plan (solder side)

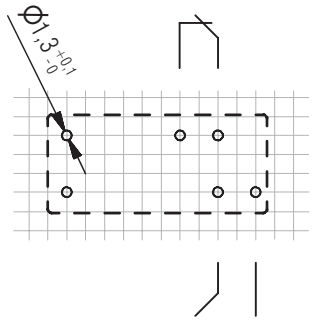


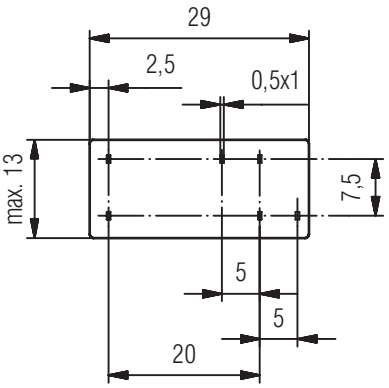


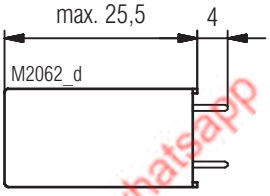


OA5669.16
OW5669.16

Pin configuration standard

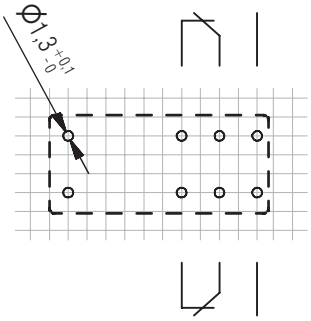


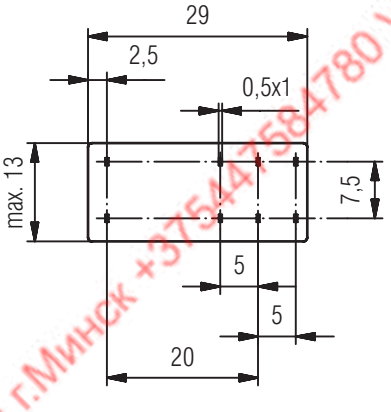


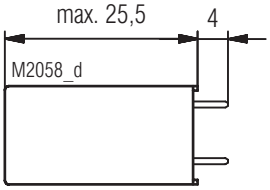


OA5669.16
OW5669.16

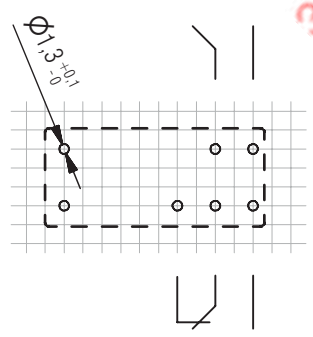
Pin configuration reverse

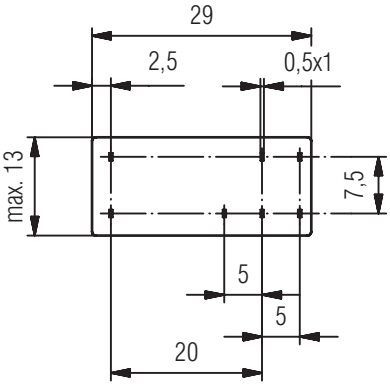


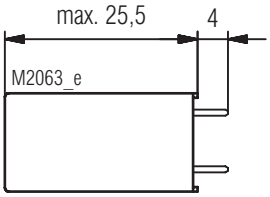




OA5669.12
OW5669.12





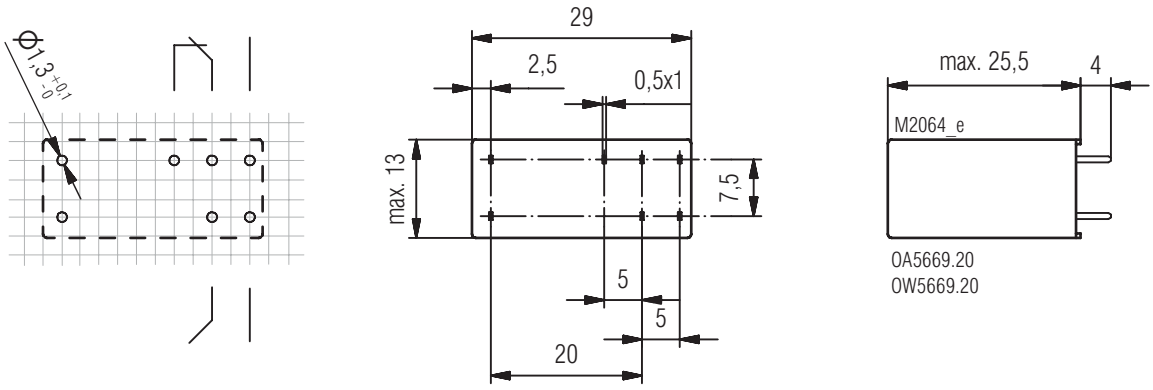


OA5669.20
OW5669.20

Connection for basic grid divensions 2.5 mm as well as 2.54 mm according to IEC/EN 60097 and IEC 60326 average

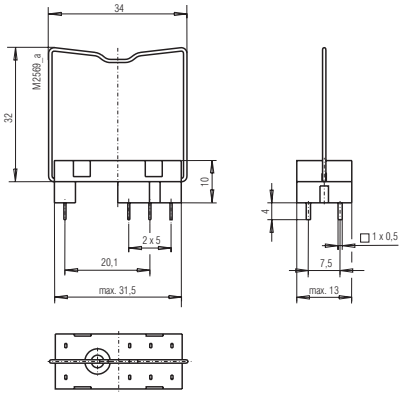
Dimensions, Pin Configuration, Connection Diagrams

Drilling plan (solder side)

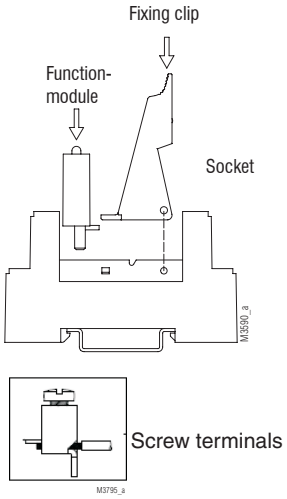


Connection for basic grid divensions 2.5 mm as well as 2.54 mm according to IEC/EN 60097 and IEC 60326 average

Relay Socket incl. Fixing Clip



Socet ET 1415.041 incl. Fixing Clip - Screw Terminals -



Screw terminals

Relay socket ET 1415.021
Article number: 0034769

Fixing clip (wire) ET 1415.025
Article number: 0034770

Fixing clip (plastic) ET 1415.026
Article number: 0047726

Temperature range:	- 40 ... + 85 °C	
Clearance and creepage distance		
Rated impulse voltage / degree of protection		IEC 60664-1
Input / output:	5 kV / 3	
Output / output:	4 kV / 3	
Overvoltage category:	III	
Weight:	Ca. 3,5 g	
Packing:	100 pieces	

Dimensions

Width x height x depth:	See drawing

Function Modules

ET1415.913:	DC 24 V, with free-wheel diode and green LED
Article number:	0056828
ET1415.911:	DC 24 V, with free-wheel diode and red LED
Article number:	0055909
ET1415.912:	AC/DC 24 V, with varistor and green LED
Article number:	0055910
ET1415.924:	DC 60 V, with free-wheel diode and red LED
Article number:	0062552
Packing:	20 pieces

Optional

Info

Mounting is possible on request.
For example:
HC 3098.12/983.44.13 DC 24 V
Article number: 0065544
Consisting of:
ET 1415.044
ET 1415.913
OA 5669.12/983/61 DC 24 V

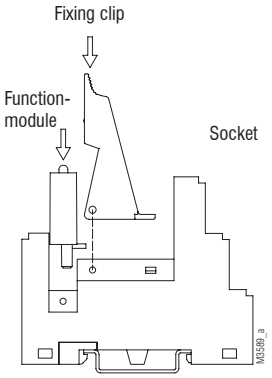
Article number: 0055571

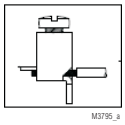
Temperature range:	- 25 ... + 85 °C	
Clearance and creepage distance		
Rated impulse voltage / degree of protection		
Input / output:	6 kV / 2	IEC 60664-1
Output / output:	4 kV / 2	IEC 60664-1
Overvoltage category:	III	
Degree of protection:	IP 20	IEC/EN 60529
Wire connection		
Solid / stranded:	0.5 - 2.5 mm² (20-14 AWG)	
Sleeved end:	0.14 - 2.5 mm² (26-14 AWG)	
Stripping length	7 mm	
Wire fixing:	Screw terminals	
Fixing torque:	Max. 0.8 Nm	
Mounting:	DIN-rail	IEC/EN 60715
Weight:	Approx. 38.5 g	
Packing:	10 pieces	

Dimensions

Width x height x depth:	15.8 x 75 x 69.0 mm

Socet ET 1415.044 incl. Fixing Clip - Screw Terminals -





Screw terminals

- Incl. safe separation between coil and contacts according to DIN EN 60947-1, DIN EN 61140

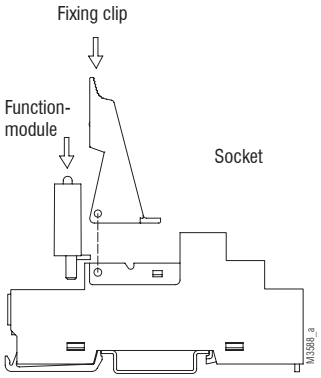
Article number: 0059274

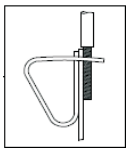
Temperature range:	- 25 ... + 85 °C	
Clearance and creepage distance		
Rated impulse voltage / degree of protection		
Input / output:	6 kV / 2	IEC 60664-1
Output / output:	4 kV / 2	IEC 60664-1
Overvoltage category:	III	
Degree of protection:	IP 20	IEC/EN 60529
Wire connection		
Solid / stranded:	0.5 - 2.5 mm² (20-14 AWG)	
Sleeved end:	0.14 - 2.5 mm² (26-14 AWG)	
Stripping length	7 mm	
Wire fixing:	Screw terminals	
Fixing torque:	Max. 0.8 Nm	
Mounting:	DIN-rail	IEC/EN 60715
Weight:	Approx. 43.5 g	
Packing:	10 pieces	

Dimensions

Width x height x depth:	15.8 x 75 x 75.0 mm

Socet ET 1415.047 incl. Fixing Clip - Cage Clamp Terminals -





Cage clamp terminals

Article number: 0059270

Temperature range:	- 25 ... + 85 °C	
Clearance and creepage distance		
Rated impulse voltage / degree of protection		
Input / output:	6 kV / 2	IEC 60664-1
Output / output:	4 kV / 2	IEC 60664-1
Overvoltage category:	III	
Degree of protection:	IP 20	IEC/EN 60529
Wire connection		
2 x Solid / stranded:	0,5 - 1,5 mm² (20-16 AWG)	
2 x Sleeved end:	0,14 - 1,5 mm² (26-16 AWG)	
Stripping length	11 mm	
Wire fixing:	Cage clamp terminals	
Mounting:	DIN-rail	IEC/EN 60715
Weight:	Approx. 42.0 g	
Packing:	10 pieces	

Dimensions

Width x height x depth:	15.8 x 97 x 75.5 mm