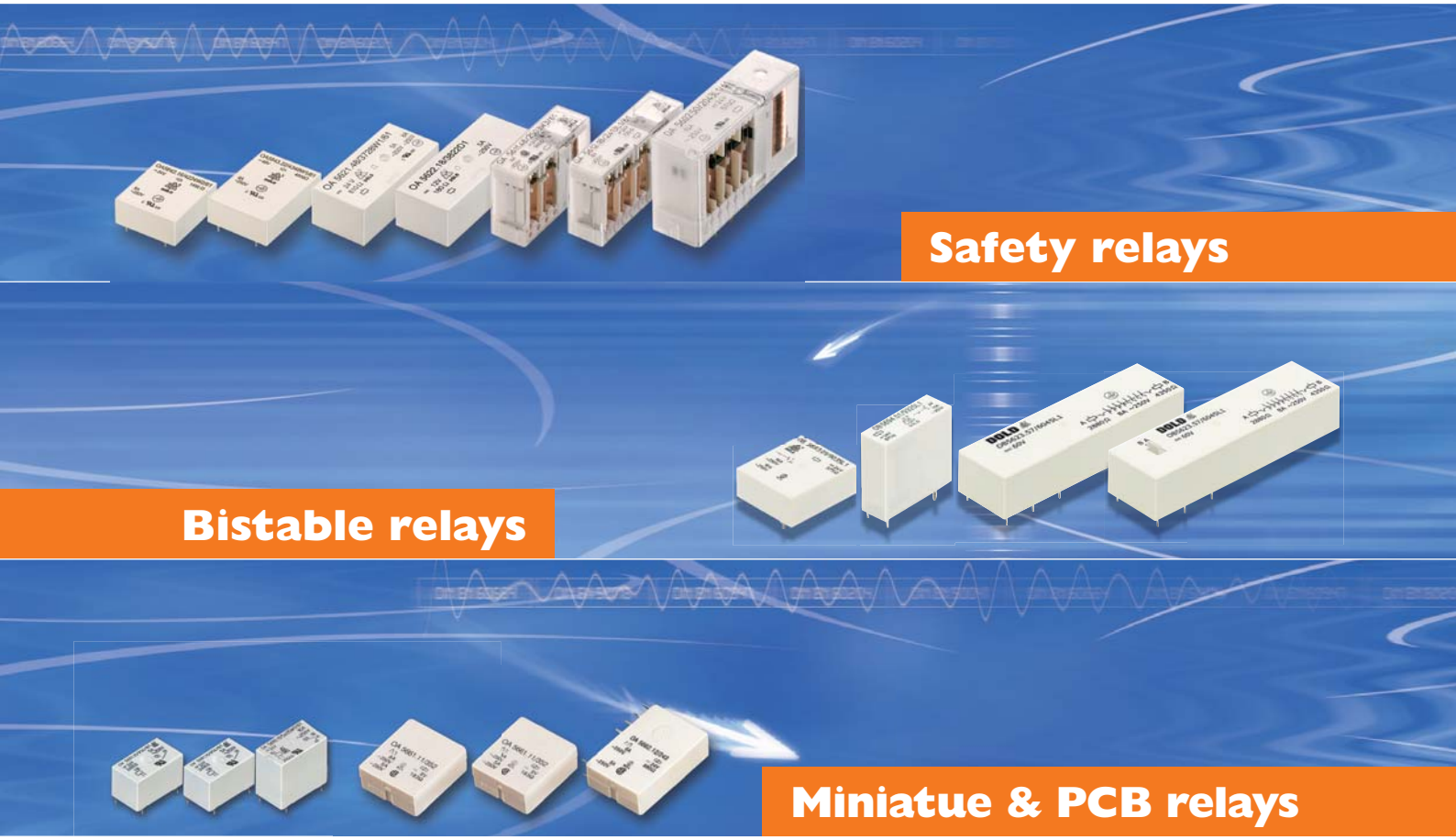


The right relay for every application

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

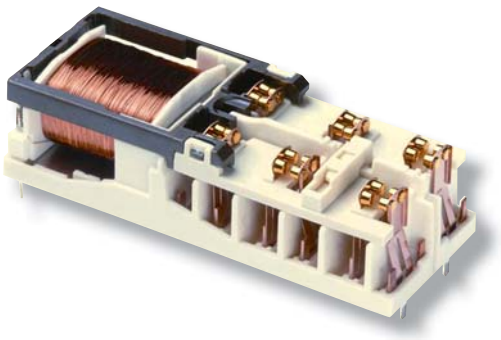

Paper/printing industry

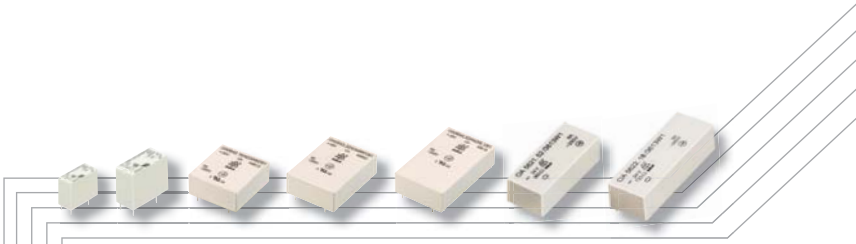

Elevator equipment


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.

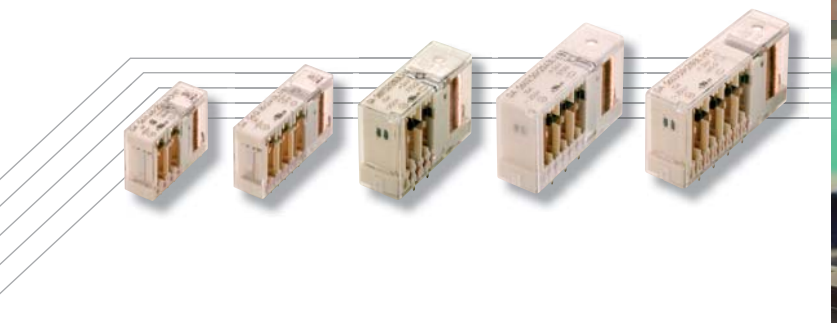
Partially equipped contact sets for increased insulation values, mixed contact equipping with single and double contacts as well as different contact materials for the loads to be switched require only a few minor adjustments for us to adapt our relays to individual, customer-specific requirements.

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.

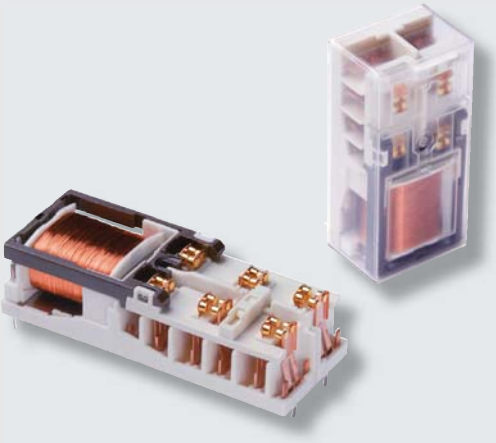
Safety relays
with forcibly guided contacts

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

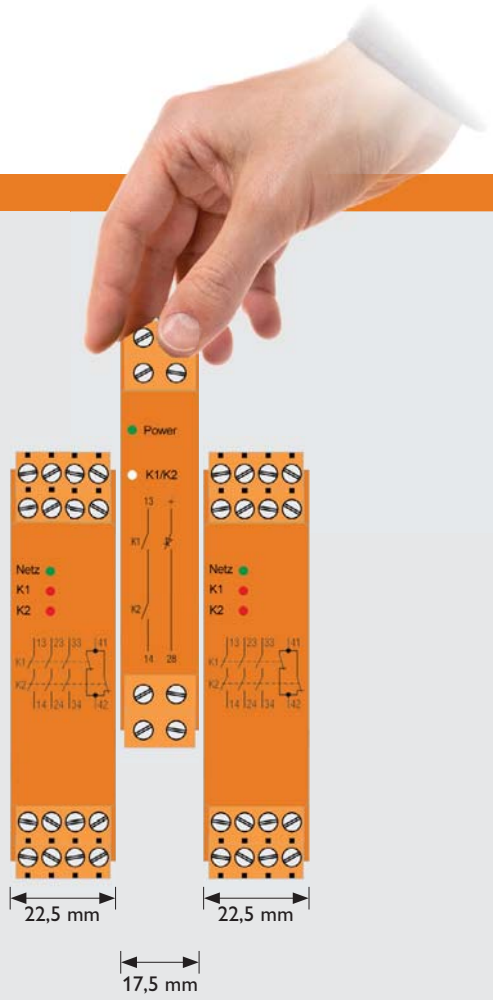
Safety relays
with forcibly guided contacts

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

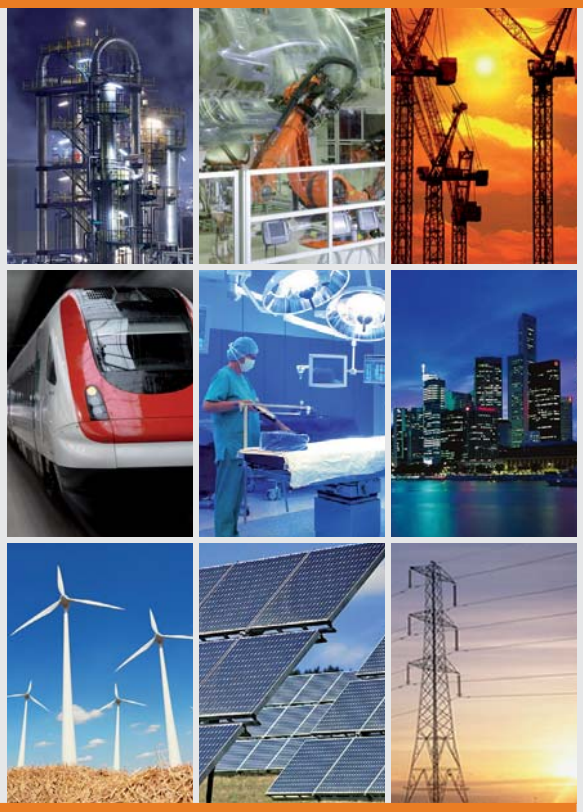
					
Relay	Relay type	OA 5642	OA 5643	OA 5644	
	Type of relay	Monostable	Monostable	Monostable	
Contacts	Contact equipping	2	3	4	
	Contact material	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	$AgSnO_2$; AgNi	
	Limit continuous current I_{th} max.	8 A	2 x 8 A	3 x 8 A	
Coils	Nominal voltage U_N	DC 6 - 110 V	DC 6 - 110 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

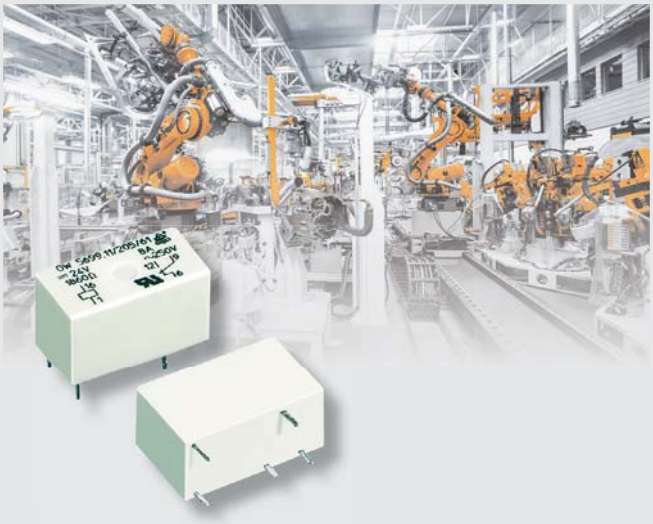
Miniature relays

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 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	
	Type of relay	Monostable	Monostable	
Contacts	Contact equipping	1	1	
	Contact material	AgNi	$AgSnO_2$	
	Limit continuous current I_{th} max.	5 A	8 A	
Coils	Nominal voltage U_N	DC 4.5 - 48 V	DC 4.5 - 48 V	
	Voltage range	0.75 - 2.2 U_N	0.75 - 1.6 U_N	
Insulation	Test voltage Contact set - coil	4 kV_{eff}	4 kV_{eff}	
	Clearance and creepage distances Contact set - coil	5.5 mm	5.5 mm	
Other data	Temperature range	- 40 ... + 80 °C	- 40 ... + 80 °C	
	Protection type	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	
	Approvals	VDE, cRUus	VDE, 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.

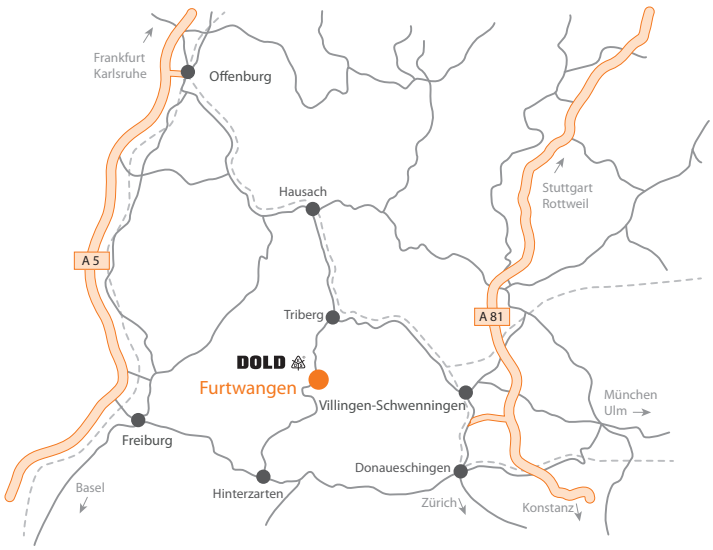
With the remanence relay **OR 5691**, the contacts remain in the working position after a current pulse by using the existing residual magnetism (remanence) until a reduced pulse is applied in the opposite current flow direction. As a result, this relay is used if the self-heating of the coil and the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

E. Dold & Söhne GmbH & Co. KG
Bregstraße 18 • D-78120 Furtwangen
T +49 7723 654-0 • F +49 7723 654-356
dold-relays@dold.com • www.dold.com

FE54 / 1223 co