



Magnetic Switches

Made in Germany

ASA Schalttechnik – we drive the industry

Are you looking for reasonably priced technology that works smoothly, that fully meets your requirements and that offers a long service life with constant high performance as you would expect? And, on top of this, a range of products that is convincing in terms of both breadth and depth? Then we have the good news that you have been waiting for: At ASA Schalttechnik we do everything imaginable so that your wishes become reality.

Our team consists of doers, creative minds and service experts: Experienced professionals who live and breathe quality, who draw on unlimited resources on 2.000 m² production space, are dedicated to detail and who get to the heart of things when it comes to control and switching technology. Alltogether, refreshingly pragmatic, truly German, straightforward and good.

We love challenges

Our all-round competence is reflected in our tried and tested standard products that can be delivered at short notice ex-factory. But also in our individual custom-made solutions manufactured in small volumes. Consequently, we are a competent partner and, when the need arises, a flexible manufacturer of niche products, developed and designed in cooperation with our customers.

ASA Schalttechnik proudly stands for this philosophy and delivers every time. As a family-owned enterprise, our products offer quality “Made in Germany”.

Our product range

Mechanical, magnetic and electronic switchgear for machinery and plant engineering – control and automation technology, fire protection technology, medical technology and much more:

- Limit Switches
- Switchgear
- Foot Switches
- Safety Switches
- Medical switching devices
- Magnetic Switches
- Level Switches
- Special switching devices



Quality is a continuous process

Or to put it another way, it's a never-ending process – an infinite cycle of testing, analysing, understanding, learning, optimising and documenting. That's life. Our suppliers also support us with this process, as it's the only way to make quality management work. And we make sure to adhere to it: With staying power since 1975.

Environmental protection is a point of honour

Save electricity, water and heating energy. Avoid waste and plan responsible use of raw materials in production. For our team, ecology is not just hype – it plays an important part in our day-to-day operations, also with regard to RoHS, REACH and recycling. Beneficial to nature, beneficial to us all.

It's the team that makes the difference

ASA Schalttechnik: People who achieve – hands-on people who think for themselves and who inspire us with their energy, ideas and experience. Whether they work in our production department, in customer relations or in management, our committed staff does everything to achieve best prices, top-of-class products, best delivery times and excellent services. And that's a promise!



 **made**
 **in**
 **Germany**

ASA magnetic switches

ASA magnetic switches

Ranging from standard switchgear to special designs: ASA magnetic switches are used in all areas of machinery and plant engineering – in particular for monitoring, positioning and controlling purposes of lifting and rotary movements. Highly successful application for control and metering tasks.

Designed for maximum operating safety

ASA magnetic switches have been designed to comply with the IEC/EN 60947-5-1 standard. Their high protection class according to IEC/EN 60529 offers sufficient safety and protection against dirt, gases and humidity. Even shocks have little impact on the devices. In addition, the devices feature a low transition resistance, various contact functions and switching capacities and a high switching frequency – for almost unlimited application possibilities.

Please also note the technical details on the following pages.



Magnetic switch line – overview: Round designs – Angular designs

Round designs

Our round designs are provided in metal or plastic housings.

Angular designs

Our angular designs are provided in plastic housings.

The various product lines offered by ASA include a wide selection of sophisticated switch configurations. Can't find a standard solution to match your individual requirements? We look forward to discussing your needs and providing customised special configurations.



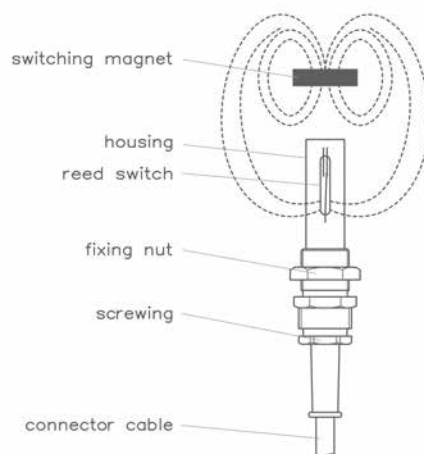
ASA magnetic switches

How to find the correct switch and ensure its professional deployment:

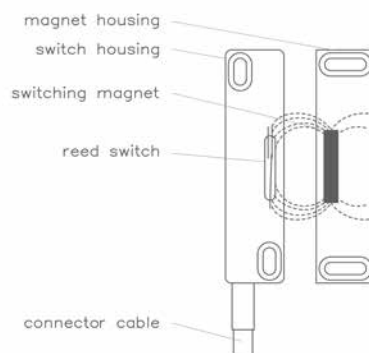
Our standard portfolio includes approximately 40 different housing forms to accommodate the various performance requirements. In addition we can also provide special designs. The housings can be equipped with reed contacts offering different capacities and functions. Please refer to page 11 onwards for proven, popular switch configurations. Please note the frontal or lateral start-up direction.

The combination matrix of magnetic switches and magnets on pages 30-31, in particular, has been designed to assist you in selecting the appropriate product variant.

Frontal start-up direction design



Lateral start-up direction design



Application example

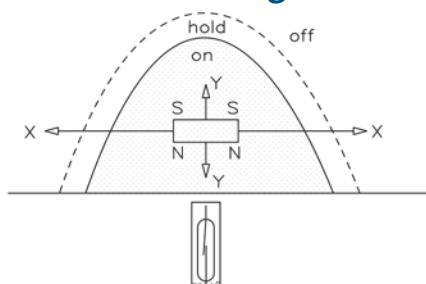
ASA magnetic switches proved successful in machinery and plant engineering for monitoring, positioning and controlling of all lifting and rotary movements.

- Machine construction: Machining and processing of metals, plastics, textiles, stones, timbers, beverages, foods, chemicals, packaging, control and counting tasks, dosage...
- Plant engineering: storage and transport facilities, lifts, door interlocks, hydraulics, pneumatics, alarm devices, intrusion detection...

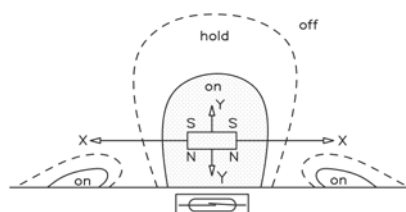
Drive and switching characteristics

The switching characteristics are mostly determined by the drive direction and pole orientation of the magnet. Typical characteristics are shown in the drawings below.

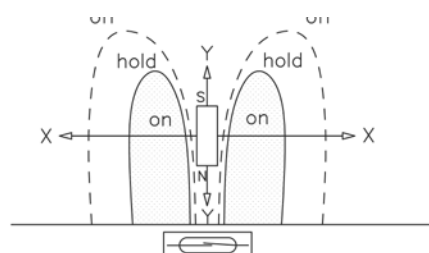
Frontal design



Lateral design



Lateral design



ASA magnetic switches

Assembly instructions

The switch operating force of magnetic switches is transferred from the magnet to the switch by means of a magnetic field. The magnetic field can be reduced or increased by iron parts installed in close vicinity to it. Caution: Installation conditions are very customer- and project-specific! We are happy to advise you, find the appropriate configurations and provide customized data that you can rely on.

Type key for magnetic switches

Example: **MA 5 W 80**

TYPE MA Magnetic switch	Connection ST plug-in type
Housing designs Designs 04 to 52	Switching capacity 60 60 VA 80 80 VA 100 100 VA
	Contact functions S normally open contact O normally closed contact W change-over contact SO NO bistable SOW NC bistable

Technical specifications for magnetic switch

Vibration and shock resistance:	Vibration resistance 50-100Hz, depending on the switch design Average shock resistance 50 g, 11 ms. The values above can be increased by elastic intermediate shims. The lowest sensitivity can be observed in axial direction.
Ambient temperatures:	All standard designs can be used from -20 °C to +80 °C. Special designs for wider temperature ranges can be provided on request.
Protection class:	All standard designs are cast in cast resin, and comply with protection class IP67 according to IEC/EN 60529.
Durability:	The durability mainly depends on the specific case of application and the load values. If limits are adhered to, up to 10 ⁸ switching operations can be achieved. Please observe our notes on measures for protecting contacts.
Load values:	Important electrical specifications are switched voltages (V), switched current (A) and switched capacity (VA).
Maintenance:	ASA magnetic switches are maintenance-free.

Contacts

Switch type:

Reed

Contact functions:	NO contact	NC contact	NC contact	Changeover contact	Changeover contact
Max. voltage:	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz
Max. switched capacity:	60 VA	60 VA	120 VA	60 VA	80 VA
Max. switched current:	1.0 A	1.0 A	3.0 A	1.0 A	1.5 A
Max. transport current:	2.0 A	2.0 A	5.0 A	2.0 A	2.0 A

Bistable contacts

Switch type:

Reed

Contact functions:	NO contact	NC contact	NC contact	Changeover contact	Changeover contact
Max. voltage:	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz	250 VAC/DC 40-60 Hz
Max. switched capacity:	60 VA	60 VA	120 VA	60 VA	80 VA
Max. switched current:	1.0 A	1.0 A	3.0 A	1.0 A	1.5 A
Max. transport current:	2.0 A	2.0 A	5.0 A	2.0 A	2.0 A

ASA magnetic switches

Contact protection measures

Reed contacts react sensitive to overload. When the maximum permitted current value is exceeded or high voltage peaks occur – which is the case when switching capacitive or inductive loads – there is the risk of extensive damage to the reed contact. There is no comprehensive protection in these cases. Depending on the load to be switched, it is, however, possible to prevent a premature failure of the reed contact. The examples below show protective circuits for the various load types:

1. Current limiting device (capacitive loads)

High surges occur as soon as bulbs, capacitors or other consumers attached to long supply lines (cable capacities) are switched on. Such surges can cause extensive damage and even bonding of the contacts. **A surge can largely be reduced by connecting a load resistor in series with the reed contact.** This ensures a reliable protection and increases the life cycle of the reed contact many times over.

2. Spark suppression (inductive loads)

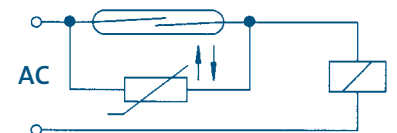
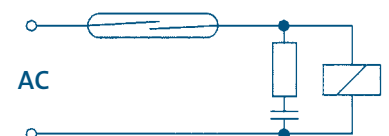
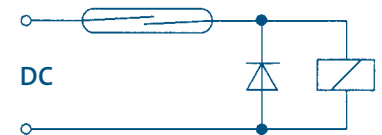
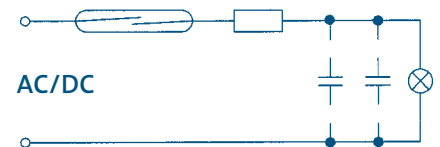
2.1 Direct voltage

Self induction causes voltage peaks which are a multiple of the voltage applied. **Protection from self induction with direct voltage can be achieved by connecting a recovery diode in parallel to the load.**

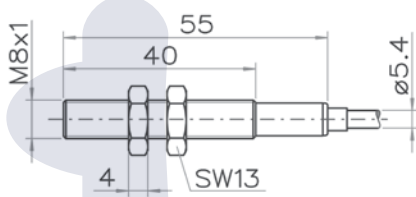
2.2 Alternating voltage

A combination of resistors and capacitors offers an efficient solution for alternating voltages. Due to the structural conditions this RC module is arranged in parallel to the load; however, an arrangement in parallel to the contact and in series to the load is also possible.

High voltage peaks which occur when inductive loads are switched, can effectively be suppressed by installing a varistor in parallel to the contact.

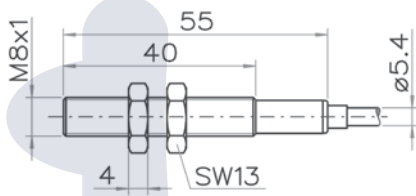


Type table for switch designs



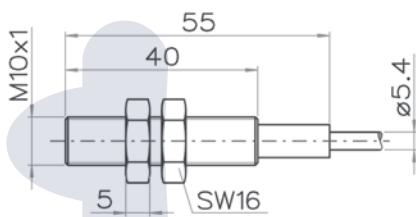
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 05 S 60	8120 0030	BN BU	2 x 0.25	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 06 S 60	8120 0040	BN BU	2 x 0.25	250	1.0	60

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

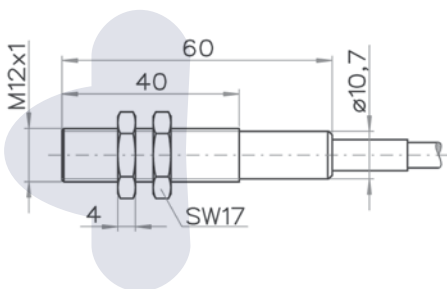
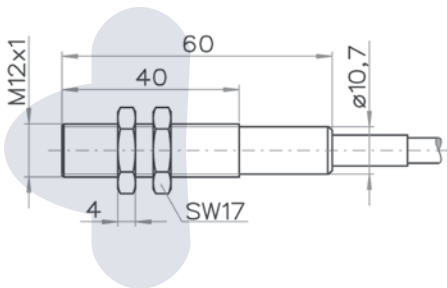


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 09 O 5	8120 0485	BN BU	2 x 0.5	100	0.5	5

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

Magnetic switches

Type table for switch designs

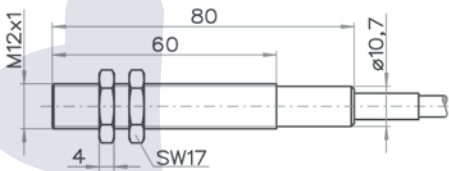


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 2 S 60	8120 0061	BN BU	2 x 0.5	250	1.0	60
MA 2 O 60	8120 0063	BN BU	2 x 0.5	250	1.0	60
MA 2 W 60	8120 0065	BK GY BN	2 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

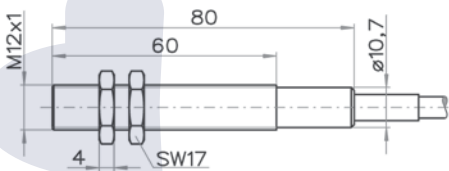
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 3 S 60	8120 0071	BN BU	2 x 0.5	250	1.0	60
MA 3 O 60	8120 0073	BN BU	2 x 0.5	250	1.0	60
MA 3 W 60	8120 0075	BK GY BN	3 x 0.5	250	1.0	60

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 4 S 120	8120 0081	BN \rightarrow BU	2 x 0.5	250	3.0	120
MA 4 O 60	8120 0083	BN \rightarrow BU	2 x 0.5	250	1.0	60
MA 4 W 60	8120 0085	BK \rightarrow GY \rightarrow BN	3 x 0.5	250	1.0	60
MA 4 W 80	8120 0086	BK \rightarrow GY \rightarrow BN	3 x 0.5	250	1.5	80

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
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 Switching intervals: see page 30

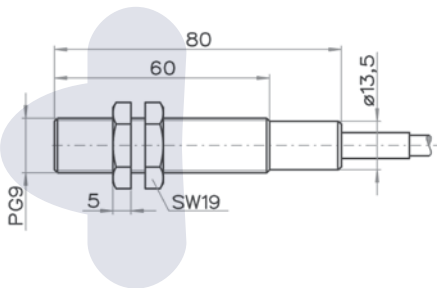
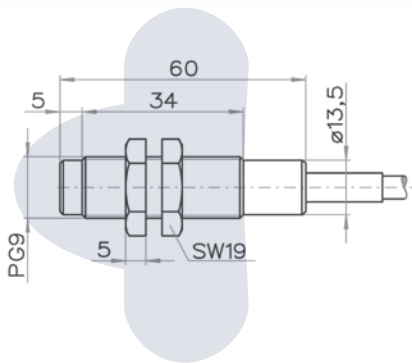


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 5 S 120	8120 0091	BN \rightarrow BU	2 x 0.5	250	3.0	120
MA 5 O 60	8120 0093	BN \rightarrow BU	2 x 0.5	250	1.0	60
MA 5 W 60	8120 0095	BK \rightarrow GY \rightarrow BN	3 x 0.5	250	1.0	60
MA 5 W 80	8120 0096	BK \rightarrow GY \rightarrow BN	3 x 0.5	250	1.5	80

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

Magnetic switches

Type table for switch designs

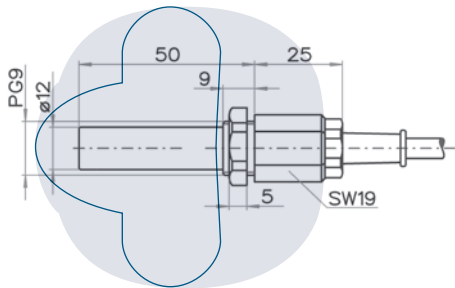


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 7 S 60	8120 0101	BN BU	2 x 0.5	250	1.0	60
MA 7 O 60	8120 0103	BN BU	2 x 0.5	250	1.0	60
MA 7 W 60	8120 0105	BK GY BN	3 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

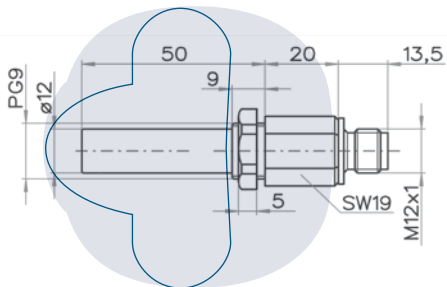
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 8 S 120	8120 0111	BN BU	2 x 0.5	250	3.0	120
MA 8 O 60	8120 0113	BN BU	2 x 0.5	250	1.0	60
MA 8 W 60	8120 0115	BK GY BN	3 x 0.5	250	1.0	60
MA 8 W 80	8120 0116	BK GY BN	3 x 0.5	250	1.5	80

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



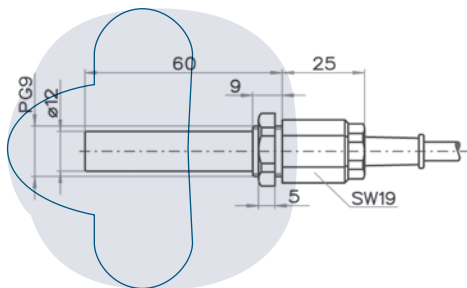
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 10 S 60	8120 0121	BN BU	2 x 0.5	250	1.0	60
MA 10 O 60	8120 0123	BN BU	2 x 0.5	250	1.0	60
MA 10 W 60	8120 0125	BK GY BN	3 x 0.5	250	1.0	60
MA 10 S 60 ST	8120 0457	1 2	M12 / 4-pin A-encoded	250	1.0	60
MA 10 O 60 ST	8120 0458	1 2	M12 / 4-pin A-encoded	250	1.0	60
MA 10 W 60 ST	8120 0459	1 2 3	M12 / 4-pin A-encoded	250	1.0	60
MA 10 SO 60	8120 0161	BN BU	2 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



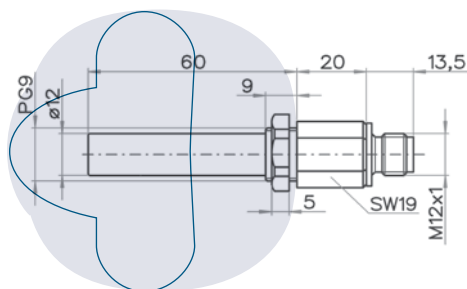
Magnetic switches

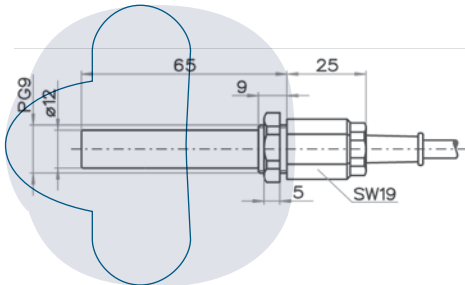
Type table for switch designs



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 11 S 60	8120 0131	BN — BU	2 x 0.5	250	1.0	60
MA 11 O 60	8120 0133	BN — BU	2 x 0.5	250	1.0	60
MA 11 W 60	8120 0135	BK — GY — BN	3 x 0.5	250	1.0	60
MA 11 S 60 ST	8120 0460	1 — 2	M12 / 4-pin A-encoded	250	1.0	60
MA 11 O 60 ST	8120 0461	1 — 2	M12 / 4-pin A-encoded	250	1.0	60
MA 11 W 60 ST	8120 0462	1 — 2 — 3	M12 / 4-pin A-encoded	250	1.0	60
MA 11 SO 60	8120 0171	BN — BU	2 x 0.5	250	1.0	60

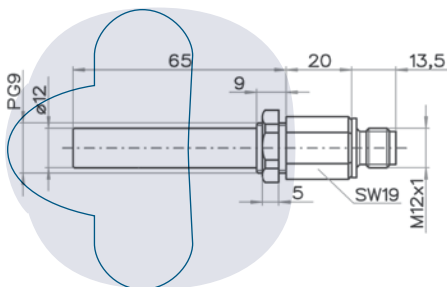
Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30





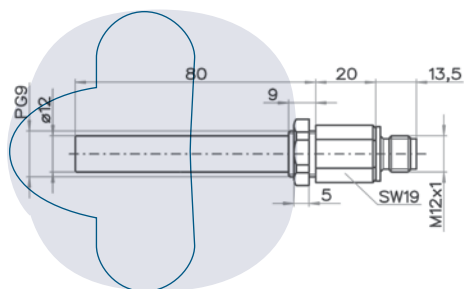
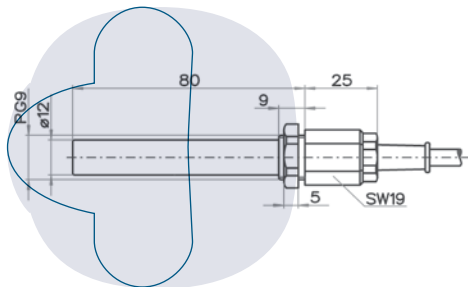
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 12 S 120	8120 0141	BN \rightarrow BU	2 x 0.5	250	3.0	120
MA 12 O 60	8120 0143	BN \rightarrow BU	2 x 0.5	250	1.0	60
MA 12 W 60	8120 0145	BK \rightarrow GY BN	3 x 0.5	250	1.0	60
MA 12 W 80	8120 0146	BK \rightarrow GY BN	3 x 0.5	250	1.5	80
MA 12 S 120 ST	8120 0463	1 \rightarrow 2	M12 / 4-pin A-encoded	250	3.0	120
MA 12 O 60 ST	8120 0464	1 \rightarrow 2	M12 / 4-pin A-encoded	250	1.0	60
MA 12 W 60 ST	8120 0465	1 \rightarrow 2 3	M12 / 4-pin A-encoded	250	1.0	60
MA 12 W 80 ST	8120 0466	1 \rightarrow 2 3	M12 / 4-pin A-encoded	250	1.5	80
MA 12 SO 60	8120 0181	BN \rightarrow BU	2 x 0.5	250	1.0	60
MA 12 SO 120	8120 0182	BN \rightarrow BU	2 x 0.5	250	3.0	120
MA 12 SOW 60	8120 0183	1 \rightarrow 2 3	3 x 0.5	250	1.0	60
MA 12 SOW 80	8120 0184	1 \rightarrow 2 3	3 x 0.5	250	1.5	80

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



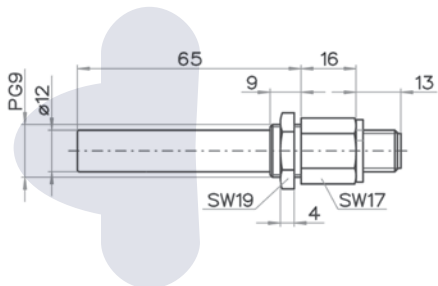
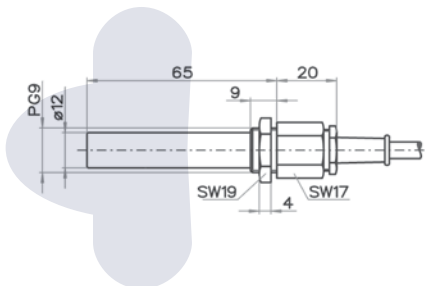
Magnetic switches

Type table for switch designs



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 13 S 120	8120 0151	BN — BU	2 x 0.5	250	3.0	120
MA 13 O 60	8120 0153	BN — BU	2 x 0.5	250	1.0	60
MA 13 W 60	8120 0155	BK — GY — BN	3 x 0.5	250	1.0	60
MA 13 W 80	8120 0156	BK — GY — BN	3 x 0.5	250	1.5	80
MA 13 S 120 ST	8120 0467	1 — 2	M12 / 4-pin A-encoded	250	3.0	120
MA 13 O 60 ST	8120 0468	1 — 2	M12 / 4-pin A-encoded	250	1.0	60
MA 13 W 60 ST	8120 0469	1 — 2 — 3	M12 / 4-pin A-encoded	250	1.0	60
MA 13 W 80 ST	8120 0470	1 — 2 — 3	M12 / 4-pin A-encoded	250	1.5	80
MA 13 SO 60	8120 0191	BN — BU	2 x 0.5	250	1.0	60
MA 13 SO 120	8120 0192	BN — BU	2 x 0.5	250	3.0	120
MA 13 SOW 60	8120 0193	1 — 2 — 3	3 x 0.5	250	1.0	60
MA 13 SOW 80	8120 0194	1 — 2 — 3	3 x 0.5	250	1.5	80

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

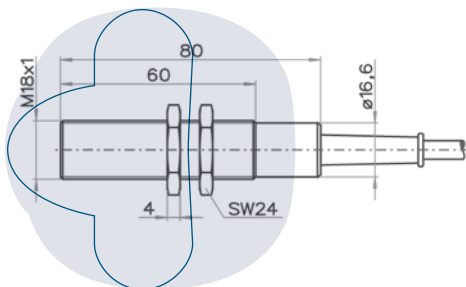
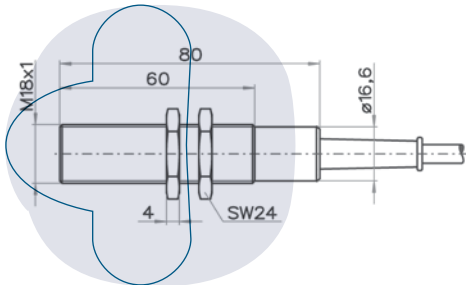


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 18 S 120	8120 0471	BN — BU	2 x 0.5	250	3.0	120
MA 18 O 60	8120 0472	BN — BU	2 x 0.5	250	1.0	60
MA 18 W 60	8120 0473	BK — GY — BN	3 x 0.5	250	1.0	60
MA 18 W 80	8120 0474	BK — GY — BN	3 x 0.5	250	1.5	80
MA 18 S 120 ST	8120 0475	1 — 2	M12 / 4-pin A-encoded	250	3.0	120
MA 18 O 60 ST	8120 0476	1 — 2	M12 / 4-pin A-encoded	250	1.0	60
MA 18 W 60 ST	8120 0477	1 — 2 — 3	M12 / 4-pin A-encoded	250	1.0	60
MA 18 W 80 ST	8120 0478	1 — 2 — 3	M12 / 4-pin A-encoded	250	1.5	80

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

Magnetic switches

Type table for switch designs

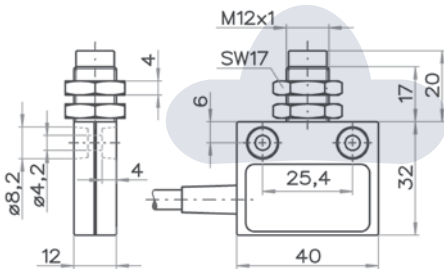


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 28 S 120	8120 0281	BN — BU	2 x 0.5	250	3.0	120
MA 28 O 60	8120 0283	BN — BU	2 x 0.5	250	1.0	60
MA 28 W 60	8120 0285	BK — GY — BN	3 x 0.5	250	1.0	60
MA 28 W 80	8120 0286	BK — GY — BN	3 x 0.5	250	1.5	80
MA 28 SO 60	8120 0288	BN — BU	2 x 0.5	250	1.0	60
MA 28 SO 120	8120 0289	BN — BU	2 x 0.5	250	3.0	120
MA 28 SOW60	8120 0290	BK — GY — BN	3 x 0.5	250	1.0	60
MA 28 SOW80	8120 0291	BK — GY — BN	3 x 0.5	250	1.5	80

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

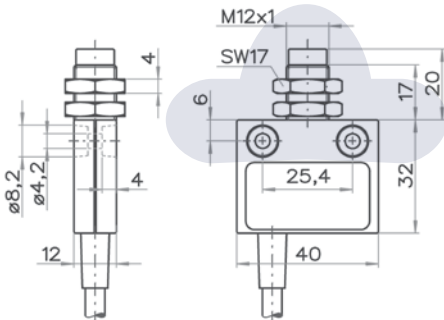
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 29 S 120	8120 0301	BN — BU	2 x 0.5	250	3.0	120
MA 29 O 60	8120 0303	BN — BU	2 x 0.5	250	1.0	60
MA 29 W 60	8120 0305	BK — GY — BN	3 x 0.5	250	1.0	60
MA 29 W 80	8120 0306	BK — GY — BN	3 x 0.5	250	1.5	80
MA 29 SO 60	8120 0308	BN — BU	2 x 0.5	250	1.0	60
MA 29 SO 120	8120 0309	BN — BU	2 x 0.5	250	3.0	120
MA 29 SOW60	8120 0310	BK — GY — BN	3 x 0.5	250	1.0	60
MA 29 SOW80	8120 0311	BK — GY — BN	3 x 0.5	250	1.5	80

Housing: brass, nickel-plated
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 30 S 60	8120 0321	BN — BU	2 x 0.5	250	1.0	60
MA 30 O 60	8120 0323	BN — BU	2 x 0.5	250	1.0	60
MA 30 W 60	8120 0325	BK — GY — BN	3 x 0.5	250	1.0	60

Housing: brass nickel-plated/thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

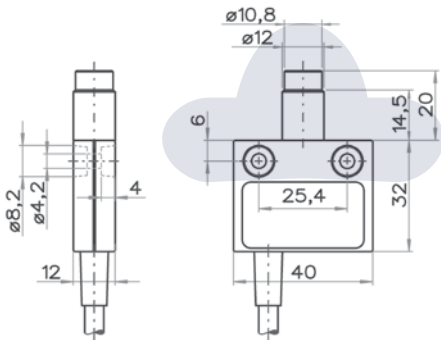
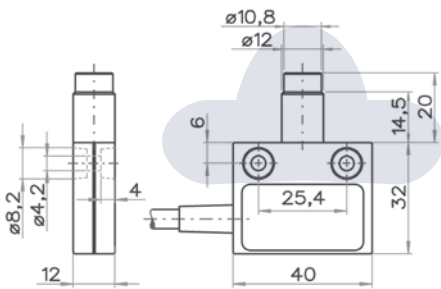


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 31 S 60	8120 0341	BN — BU	2 x 0.5	250	1.0	60
MA 31 O 60	8120 0343	BN — BU	2 x 0.5	250	1.0	60
MA 31 W 60	8120 0345	BK — GY — BN	3 x 0.5	250	1.0	60

Housing: brass nickel-plated/thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

Magnetic switches

Type table for switch designs

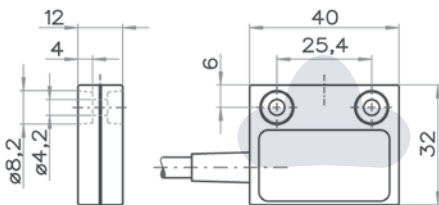


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 32 S 60	8120 0479	BN BU	2 x 0.5	250	1.0	60
MA 32 O 60	8120 0480	BN BU	2 x 0.5	250	1.0	60
MA 32 W 60	8120 0481	BK GY BN	3 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

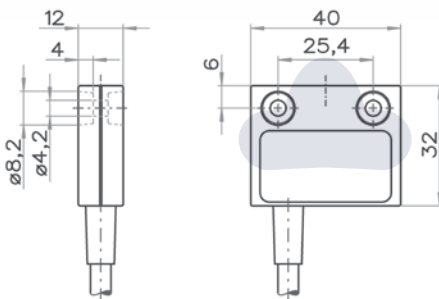
Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 33 S 60	8120 0482	BN BU	2 x 0.5	250	1.0	60
MA 33 O 60	8120 0483	BN BU	2 x 0.5	250	1.0	60
MA 33 W 60	8120 0484	BK GY BN	3 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 40 S 60	8120 0370	BN BU	2 x 0.5	250	1.0	60
MA 40 O 60	8120 0371	BN BU	2 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

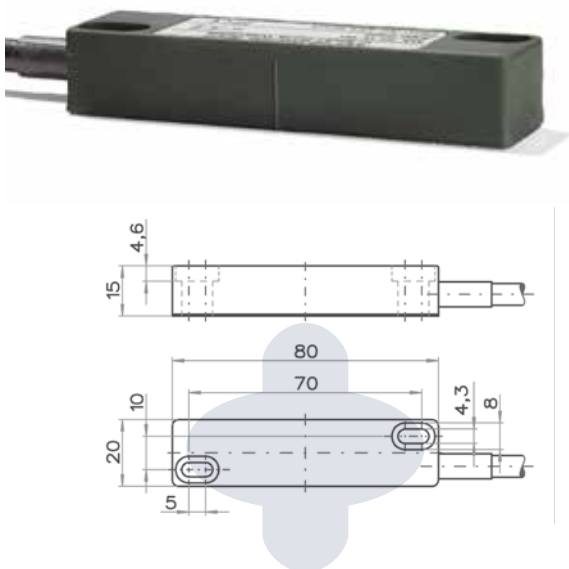
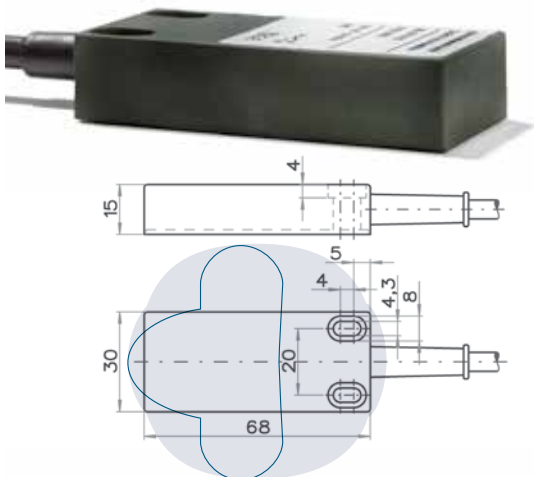
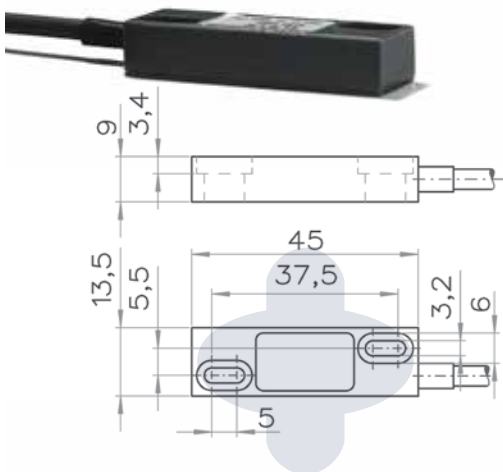


Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 41 S 60	8120 0380	BN BU	2 x 0.5	250	1.0	60
MA 41 O 60	8120 0381	BN BU	2 x 0.5	250	1.0	60

Housing: thermoplastic PA 6.6 glass fibre-reinforced, black grey
 Protection class: IP 67
 Start-up direction: frontal & lateral, switching zone highlighted in blue
 Switching intervals: see page 30

Magnetic switches

Type table for switch designs



Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 36 S 60	8120 0360	BN BU	2 x 0.25	250	1.0	60
MA 36 O 60	8120 0361	BN BU	2 x 0.25	250	1.0	60
Housing:		thermoplastic PA 6.6 glass fibre-reinforced, black grey				
Protection class:		IP 67				
Start-up direction:		frontal & lateral, switching zone highlighted in blue				
Switching intervals:		see page 31				

Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 46 S 60	8120 0401	BN BU	2 x 0.5	250	1.0	60
MA 46 O 60	8120 0403	BN BU	2 x 0.5	250	1.0	60
MA 46 W 60	8120 0405	BK GY BN	3 x 0.5	250	1.0	60
MA 46 SO 60	8120 0406	BN BU	3 x 0.5	250	1.0	60
Housing:		thermoplastic PA 6.6 glass fibre-reinforced, black grey				
Protection class:		IP 67				
Start-up direction:		frontal & lateral, switching zone highlighted in blue				
Switching intervals:		see page 31				

Type	No.	Function	PVC connection Line 1m	Volts max.	Amp. max.	VA max.
MA 50 S 120	8120 0421	BN BU	2 x 0.5	250	3.0	120
MA 50 O 60	8120 0423	BN BU	2 x 0.5	250	1.0	60
MA 50 W 60	8120 0425	BK GY BN	3 x 0.5	250	1.0	60
MA 50 W 80	8120 0426	BK GY BN	3 x 0.5	250	1.5	80
MA 50 SO 60	8120 0428	BN BU	2 x 0.5	250	1.0	60
MA 50 SO120	8120 0429	BN BU	2 x 0.5	250	3.0	120
MA 50 SOW60	8120 0430	BK GY BN	3 x 0.5	250	1.0	60
MA 50 SOW80	8120 0431	BK GY BN	3 x 0.5	250	1.5	80
Housing:		thermoplastic PA 6.6 glass fibre-reinforced, black grey				
Protection class:		IP 67				
Start-up direction:		frontal & lateral, switching zone highlighted in blue				
Switching intervals:		see page 31				

Magnets – overview:

Two variants are mainly used: round magnets and bar magnets.

Round magnets made of barium ferrite are used for frontal switching:

These designs are non-ageing and highly resistant to interfering fields. Ambient temperatures of -20 °C to +220 °C are permitted. Please note the following regarding the accuracy of switching point: The magnetic force decreases by 0.2 %/°C as the temperature values rise above room temperature.

Bar magnets made from AlNiCo are used for lateral switching:

These variants can be used for a very wide temperature range from -220 °C to +400 °C. With values above room temperature the magnetic force only decreases by 0.02 %/°C.

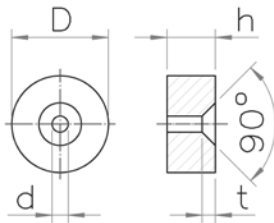
Type key for magnets

Example: **MA 20 5 10**

<p>TYPE</p> <p>MA Magnetic switches and magnets</p>	<p>Design</p> <p>K designs, encapsulated</p>
<p>Outside diameter/length</p> <p>5-80 O/D for round magnets, or length for bar magnets Diameter of bore/width</p>	<p>Polarization/arrangement of magnets</p> <p>N north S south NS north/south SN south/north M centre</p>
<p>Diameter of bore/width</p> <p>0-20 diameter of bore for round magnets, or width for bar magnets</p>	<p>Height</p> <p>6-50 height with round magnets or bar magnets</p>

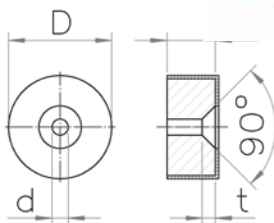
Magnetic switches

Type table for switch designs



Type	No.	Material	Design	D	d	h	t	Polarization
MA 20 3 6 N	8120 1002	Barium ferrite, anisotropic (w. preferred direction)	Round magnets, unencapsulated	20	3.2	6	2	N
MA 20 3 6 S	8120 1003			20	3.2	6	2	S
MA 20 5 10 N	8120 1004			20	5.2	10	2	N
MA 20 5 10 S	8120 1005			20	5.2	10	2	S
MA 23 4 10 N	8120 1006			23	4.4	10	2	N
MA 23 4 10 S	8120 1007			23	4.4	10	2	S
MA 31 5 15 N	8120 1008			31	5.3	15		N
MA 31 5 15 S	8120 1009			31	5.3	15		S

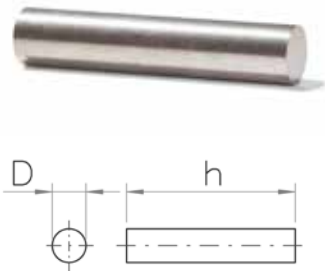
Axial magnetisation. In the table the pole is specified for the magnet side with flush mounting.



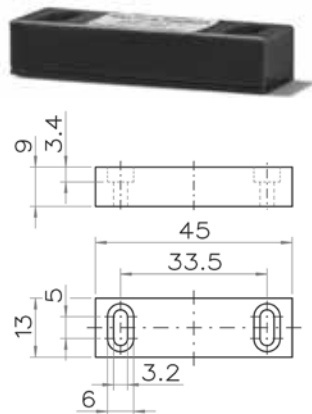
Type	No.	Material	Design	D	d	h	t	Polarization
MA 20 3 6 NK	8120 1102	Barium ferrite, anisotropic (w. preferred direction)	Round magnets, encapsulated	22	3.2	7	3	NK
MA 20 3 6 SK	8120 1103			22	3.2	7	3	SK
MA 20 5 10 NK	8120 1104			22	5.2	11	3	NK
MA 20 5 10 SK	8120 1105			22	5.2	11	3	SK
MA 23 4 10 NK	8120 1106			25	4.4	11	3	NK
MA 23 4 10 SK	8120 1107			25	4.4	11	3	SK
MA 31 5 15 NK	8120 1108			33	5.3	16	3,5	NK
MA 31 5 15 SK	8120 1109			33	5.3	16	3,5	SK

Axial magnetisation. In the table the pole is specified for the magnet side with flush mounting.
Protective cap made from insulating mould material, 1mm thick. **N** at the flush mounting with red cap
S at the flush mounting with blue cap

Type table for switch designs

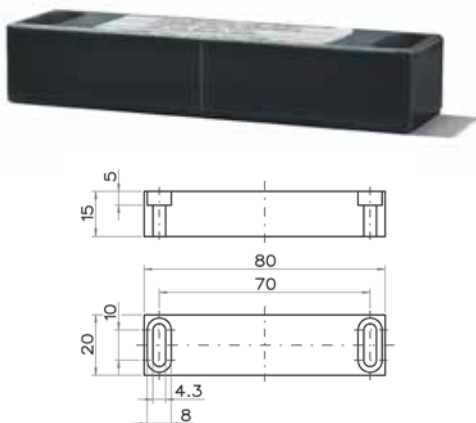


Type	No.	Material	Design	D	d	h	t	Polarization
MA 5 0 25	8120 1200	AlNiCo	Bar magnets Unencapsulated	5	–	25	–	Axial magnetized
MA 6 0 25	8120 1201			6	–	25	–	
MA 10 0 50	8120 1202			10	–	50	–	



Type	No.	Material	Design	D	d	h	t	Polarization
MA 45 13 9 NS	8120 1300	AlNiCo	Bar magnets Encapsulated	See dimensioned drawing				Axial magnetized
MA 45 13 9 SN	8120 1301							
MA 45 13 9 M	8120 1302							

Housing made from thermoplastic PA 6.6 glass fibre-reinforced, black grey.



Type	No.	Material	Design	D	d	h	t	Polarization
MA 80 20 15 NS	8120 1400	AlNiCo	Bar magnets Encapsulated	See dimensioned drawing				Axial magnetized
MA 80 20 15 SN	8120 1401							
MA 80 20 15 M	8120 1402							

Housing made from thermoplastic PA 6.6 glass fibre-reinforced, black grey.

Magnetic switches

Magnets for frontal start-up direction

Start-up direction	Contact function	Switching capacity		Magnets for frontal start-up direction					
		Amp.	VA	MA 20 3 6 N	MA 20 5 10 N	MA 23 4 10 N	MA 31 5 15 N	MA 20 3 6 NK	MA 20 5 10 NK
				MA 20 3 6 S	MA 20 5 10 S	MA 23 4 10 S	MA 31 5 15 S	MA 20 3 6 SK	MA 20 5 10 SK
Start-up direction: frontal	NC contact 	1.0	30	7	10	13	25	6	9
		2.0	60	8	11	14	26	7	10
		3.0	100	•	5	8	24	•	4
	NO contact 	0.5	30	10	12	15	30	9	11
		1.5	60	10	12	15	30	9	11
		1.5	80	5	8	11	27	4	7
	CO contact 	0.5	30	10	12	15	30	9	11
		1.5	60	10	12	15	30	9	11
		1.5	80	5	8	11	27	4	7
	NC contact bistable 	1.0	30	16	10	13	25	6	9
		2.0	60	32	11	14	26	7	10
		3.0	100	28	5	8	24	•	4
CO contact bistable 	1.0	60	28	12	15	30	9	11	
	1.5	80	22	12	15	30	9	11	
Start-up direction: lateral	NC contact 	1.0	30	•	•	•	•	•	•
		2.0	60	•	•	•	•	•	•
		3.0	100	•	•	•	•	•	•
	NO contact 	0.5	30	•	•	•	•	•	•
		1.5	60	•	•	•	•	•	•
		2.0	80	•	•	•	•	•	•
	CO contact 	0.5	30	•	•	•	•	•	•
		1.5	60	•	•	•	•	•	•
		1.5	80	•	•	•	•	•	•
	NC contact bistable 	1.0	30	15	20	25	40	14	19
		2.0	60	25	29	32	42	24	28
		3.0	100	20	25	30	44	19	24
CO contact bistable 	1.0	60	20	23	26	41	19	22	
	1.5	80	20	23	26	41	19	22	










Switching interval

The switching interval depends on the type and design of the magnet, function and switching capacity of the contact and on the start-up direction. The switching intervals specified are maximum values and were determined at room temperatures. The intervals refer to the contact functions and switching capacities specified on catalogue page 9.

Selection

The fields with preferred combinations are surrounded by red lines. Additional designs and/or combinations can be provided on request.

Magnets for lateral start-up direction

MA 23 4 10 NK	MA 31 5 15 NK	MA 5 O 25	MA 6 O 25	MA 10 O 50	MA 45 13 9 NS	MA 45 13 9 M	MA 80 20 15 NS	MA 80 20 15 M
MA 23 4 10 SK	MA 31 5 15 SK				MA 45 13 9 SM		MA 80 20 15 SM	
								
12	24	•	•	•	•	•	•	•
13	25	•	•	•	•	•	•	•
7	23	•	•	•	•	•	•	•
14	29	•	•	•	•	•	•	•
14	29	•	•	•	•	•	•	•
14	29	•	•	•	•	•	•	•
14	29	•	•	•	•	•	•	•
32	26	•	•	•	•	•	•	•
12	24	6	8	25	•	•	•	•
13	25	19	23	48	•	•	•	•
7	23	12	16	35	•	•	•	•
14	29	12	16	35	•	•	•	•
14	29	10	14	33	•	•	•	•
•	•	6	8	22	4	4	20	17
•	•	10	12	24	8	8	22	19
•	•	9	11	29	7	7	27	24
•	•	8	10	26	6	6	24	21
•	•	8	10	26	6	6	24	21
•	•	9	10	21	7	6	19	16
•	•	8	10	26	6	6	24	21
•	•	8	10	26	6	6	24	21
•	•	9	11	30	7	7	28	25
24	39	7	9	25	•	•	•	•
31	41	13	15	35	•	•	•	•
29	43	10	12	30	•	•	•	•
25	40	12	16	35	•	•	•	•
25	40	14	16	36	•	•	•	•

Accuracy of switching point

With constant ambient conditions a reproducibility of at least 0.01 mm can be achieved. However, if the ambient temperature varies by +/-20 °C, a displacement of +/-0.05 mm can occur.

Assembly notes

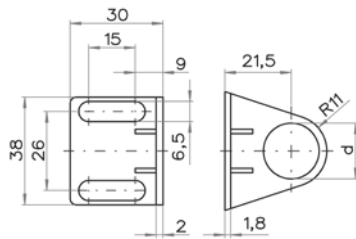
Iron parts within close vicinity can influence the switching interval. We are happy to provide samples for testing purposes.

Magnetic switches

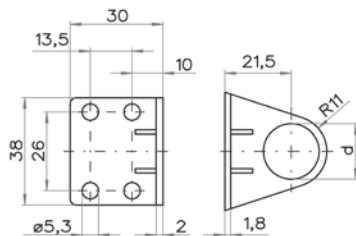
Accessories



Type	No.	d	Description
MW 8 2	3550 0002	8	Mounting bracket with slot mounting, thermoplastic PA 6.6 glass fibre-reinforced, black grey
MW 12 2	3550 0003	12	
MW 15 2	3550 0004	15	
MW 18 2	3550 0005	18	



Type	No.	d	Description
MW 8 4	3550 0006	8	Mounting bracket with slot mounting, thermoplastic PA 6.6 glass fibre-reinforced, black grey
MW 12 4	3550 0007	12	
MW 15 4	3550 0008	15	
MW 18 4	3550 0009	18	



Special designs

We also offer special designs for specific applications – and are happy to advise you if required!

Housing

In addition to standard designs we also provide special forms and special materials.

Contact material

In addition to the standard contact materials rhodium and tungsten we also provide specific designs such as ruthenium, gold coating or mercury film contacts.

Switching capacity

For higher capacities in direct circuits up to 5 A, 250 VA.

Contact protection

See page 10.

Accuracy of switching point

For high requirements regarding the reproducibility, the switching contacts can be subject to a special pretreatment and to artificial aging.

Temperature range

Special contacts for extreme ambient temperatures from -55 °C to +320 °C and special lines made from silicone or Teflon.

Magnets

In addition to standard designs we also provide special forms and special materials.



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