

Safety sensors / Magnetic safety sensors / Magnetic sensors



SAFE SWITCHGEAR FOR DEMANDING AND CRITICAL APPLICATIONS

// Control Technology / Catalogue



4 The company

PRODUCTS



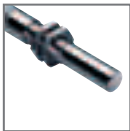
8 Safety sensors

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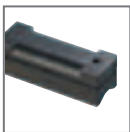
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STEUTE SCHALTGERÄTE IN LÖHNE
SAFE SWITCHGEAR FOR DEMANDING AND CRITICAL APPLICATIONS





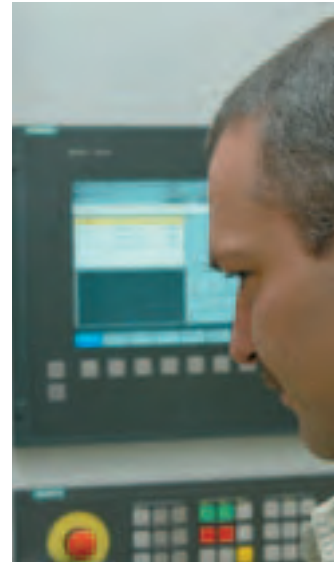
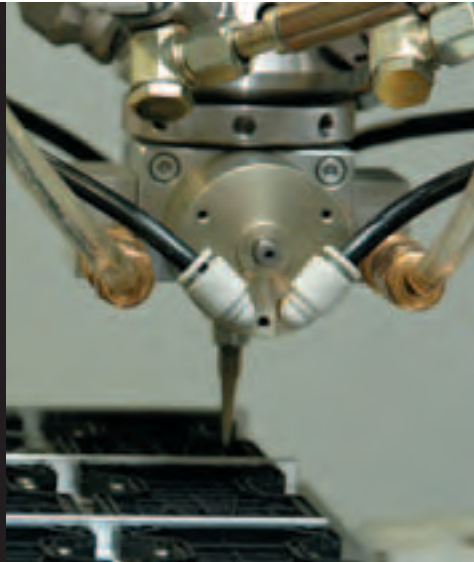
Our location: A good place to live and to work. Löhne, Westphalia, Germany. Embedded between the »Wiehengebirge« and the »Teutoburger Wald«. This is the location of steute Schaltgeräte GmbH & Co. KG. Here, switchgear is designed and produced for explosion protection, medical equipment and control technology.

Historians know our region as the area where the Battle of Varus took place in the year 9 AD. About 1700 years later, the Treaty of Westphalia marked the end of the Thirty Years' War. Gourmets love Westphalian sausage, walkers the beautiful landscape. Briefly: it's a good place to live. It's also a good place to work. The industrial culture of Westphalia is mostly characterised by SME companies; the region is also the home of many hidden champions and world-market leaders, specialist machine and system manufacturers, as well as electronic and connecting technology.

This means we have many important suppliers, customers and partners practically »on our doorstep«. And even so, our employees travel a great deal all over the world. This is because renowned companies in all industrial markets use switchgear by steute when the focus is on high quality and availability. And when they appreciate co-operating with suppliers who can adapt flexibly to their requests.



STEUTE SWITCHGEAR MEETS THE HIGHEST QUALITY REQUIREMENTS



Today, the company offers a homogenous product range, drawing on its wide know-how and characterised by a high degree of technological synergy.

180 employees attentively develop and manufacture electrical and electronic components for high-standard and explosive safety applications. These applications comply with established international directives, laws, standards and regulations. In this context, key significance is attributed to a close cooperation with technical certification institutions.

With its high standards and specific orientation, steute lives and breathes the following three QM systems:

- DIN EN ISO 9001: 2000
- DIN EN ISO 13485: 2003
- Certificate of Quality Assurance acknowledgement in accordance with the 94/9/EC Directive (ATEX)

On the following pages you will find an overview of our comprehensive range of safety, magnetic safety and magnetic sensors and their corresponding actuating magnets, each of which can be modified in accordance with customer-specific requirements.

Talk to us. Let us help you find what you are looking for.
The steute team.

steute





Safety sensors

// Series HS Si 4

from page 12

// Series BZ 16

from page 14



Safety sensors

Application

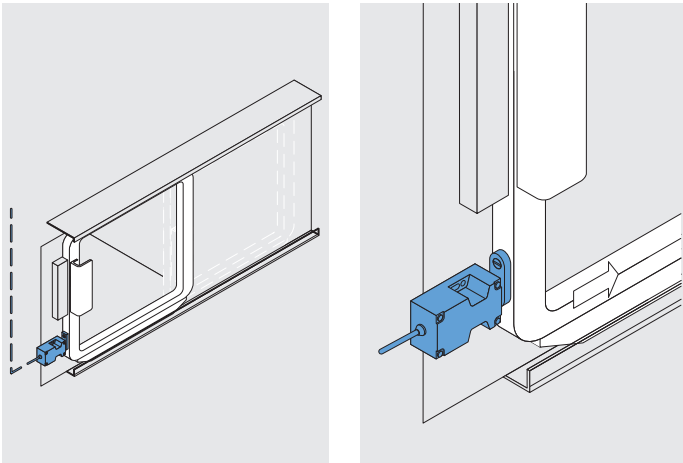
Safety sensors are suitable for the safeguarding of sliding, hinged or removable protective doors that need to be closed to secure the required operators' safety. They are also applicable on profile sections and for retrofitting on existing equipment.

All presented safety sensors achieve, in combination with an appropriate safety relay module, Control Category 3 or 4 to EN 954-1.

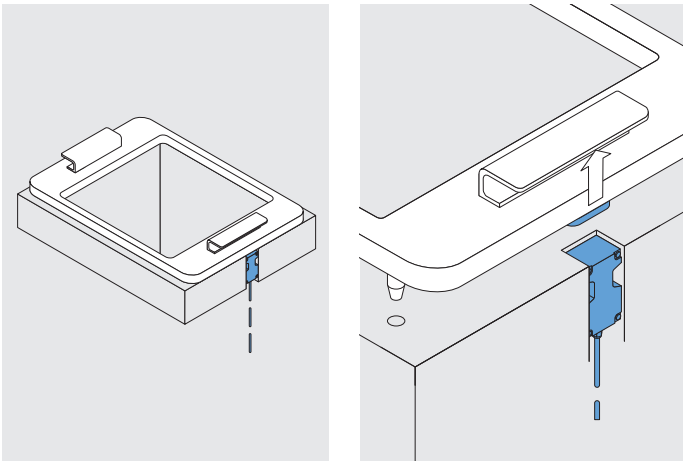
Safety sensors are preferably applied as an alternative to mechanically operated limit switches in cases where unfavourable operating conditions, such as high or low actuating speeds, large switching frequencies, extreme dirt or dust production, high humidity, chemical atmospheres, highly fluctuating actuating distances, etc. occur. Even in the presence of aggressive materials, as well as in the food processing industry, safe switching is ensured through encapsulation of the contacts.

Application

On hinged doors



On removable doors



Design and operating principle

The safety sensors are actuated by a coded actuator without any mechanical contact. The devices can be selected with one NC and one NO contact or with two NC contacts.

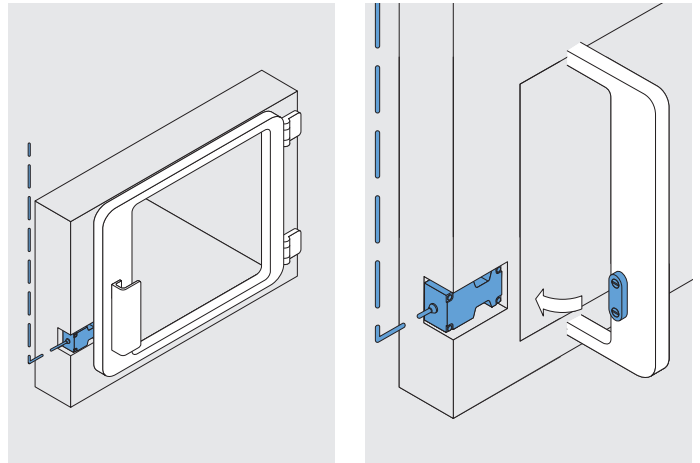
All described safety sensors have a wiring compartment.

The BZ 16 safety sensor is used in safety circuits for position monitoring of movable safety guards in accordance with EN 1088 and IEC/EN 60947-5-3. The entire system, consisting of the BZ 16 safety sensor (with integrated evaluation) and the BZ 16-B1 actuator, meets the requirements of the IEC/EN 60947-5-3 standard. The safety sensors are classified in level PDF-S to IEC/EN 60947-5-3.

The safety sensors achieve Control Category 3 or 4 to EN 954-1 only in combination with a safety relay module series SRM. Technical details regarding this safety relay module can be found in the »Magnetic safety sensors« chapter.

All safety sensors described in this chapter bear the CE mark according to the Machinery Directive 98/37/EC.

On sliding doors



Safety sensors

// Series HS Si 4

Features/Options

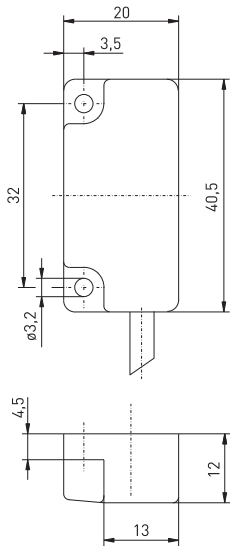
- Thermoplastic enclosure
- Long life
- high shock resistance
- Hall sensor
 - 1 NC/1 NO or 2 NC contacts
- galvanically separated channels
- Switching capacity s_{a0} 6 mm, s_{ar} 20 mm
- With wire

Technical data

Standards	IEC/EN 60947-5-2, -3/PDF-M*; EN 954-1; EN 1088; EN ISO 13849-1
Enclosure	glass-fibre reinforced thermoplastic, ultramid A3XZG5, self-extinguishing actuator MC 4 order No. 05.00.8221
Defined object	Hall sensor, 2 channels galvanically separated
Degree of protection	IP 67 to IEC/EN 60529
Switching system	Hall sensor, 2 channels galvanically separated
Contact types	1 NC/1 NO or 2 NC contacts
Connection	cable, 6 x AWG 26
Cable length	1 m
safety-related data	
EN 954-1	category 4
EN ISO 13849-1	PL e
T_M	10 years
MTTFd	> 100 years
U_{imp}	1 kV
U_i	75 VDC
Outputs	PNP semiconductor
Utilisation category	DC-13, DC-12
I_e/U_e	0,04 A/24 VDC
U_e	10 ... 30 VDC
Residual current	max. 6 mA per channel
Voltage drop	max. 2.5 VDC
Switch-on/switch-off time	< 1 ms
Risk time	< 100 ms
Max. fuse rating	< 50 mA internal reversible fuse
Ambient temperature	-20 °C ... +70 °C
Limit distances	s_{a0} = 6 mm, s_{ar} = 20 mm
Axial misalignment	max. 4 mm

*only in combination with a safety module

// HS SI 4

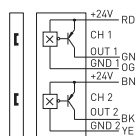


Contact variants: Switch travel/contacts

actuation from side

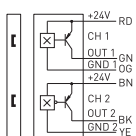
1 NC/1 NO contact

HS Si 4 1Ö/1S



2 NC contacts

HS Si 4 1Ö/1S



Ordering data

HS Si 4 1Ö/1S

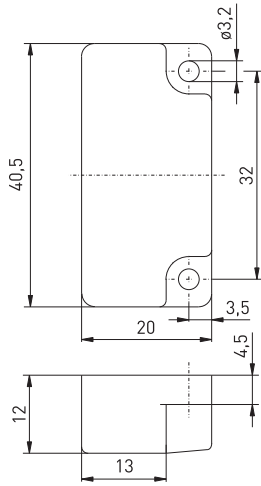
- 1 NC/1 NO (2 NC contacts)
- Series
- Safety sensor
- Hall sensor

// Series HS Si 4, actuator

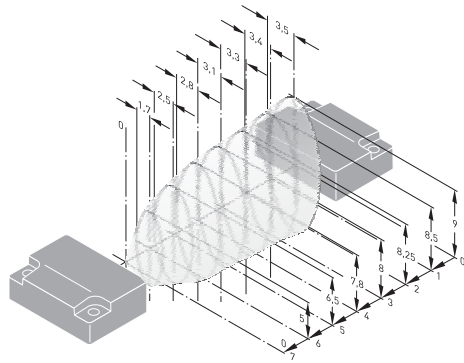
Note

The actuator is not included in the delivery of the switches.

// Actuator MC 4



// Switching capacity



Safety sensors

// Series BZ 16

Features/Options

- Thermoplastic enclosure
- Differential inputs:
induction/Hall sensor operating principle
- Internal monitoring,
high manipulation protection
- Potential-free outputs
- 1 NC/1 NO contact or 2 NC contacts
- Variable actuation
- Switching capacity s_{a0} 10 mm, s_{ar} 20 mm
- With wiring compartment

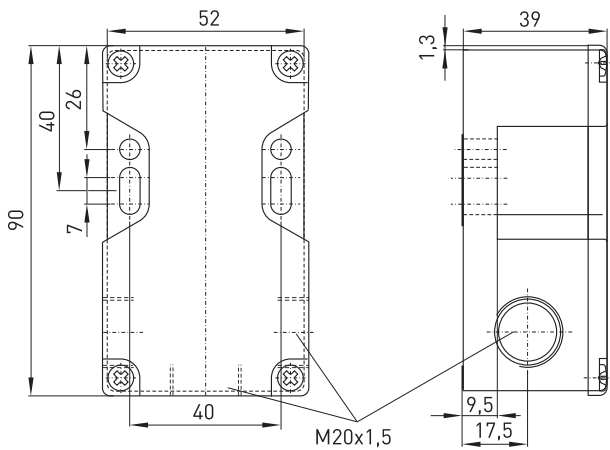
// BZ 16



Technical data

Standards	EN 61000-6-1, -2, -3, -4; IEC/EN 60947-5-2, -3/ PDF-M; EN 954-1; EN 1088; EN ISO 13849-1; DIN EN 62061; 2004/108/EC
Enclosure	glass-fibre reinforced thermoplastic, self-extinguishing
Defined object	actuator BZ 16-B1 order No. 90570007
Degree of protection	IP 67 or IP 69K to IEC/EN 60529
Contact types	1 NC/1NO contact or 2 NC contacts
Connection	terminal space with self-opening terminal for max. 2 x 1.5 mm ² (including conductor ferrules)
Cable entry	3 x M20 x 1.5
safety-related data	
EN 954-1	Category 4
EN ISO 13849-1	PL e
T_M	10 years
MTTFd	57.8 years
DIN EN 62061	SIL CL 3
PFH _D	$\geq 3 \times 10^{-8}$
U_{imp}	4 kV
Utilisation category	outputs: AC-15, DC-13
I_e/U_e	Input: 0.16 A/24 VDC \pm 15% (reverse voltage protected), outputs: 3 A/250 VAC, 4 A/24 VDC max. 250 VAC
Switching voltage	max. 250 VAC
Max. fuse rating	4 A gL/gG D-fuse incoming series-connected
Switching frequency	max. 1 Hz
Ambient temperature	0 °C ... +55 °C
Mechanical life	50 Mio. operations
Limit distances	s_{a0} = 10 mm, s_{ar} = 20 mm
Hysteresis	approx. 6 mm
Axial misalignment	\leq 3 mm
Repeatability	< 1 mm
Approvals	

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Contact variants: Switch travel/contacts

multidirectional actuation	
1 NC/1 NO contact	BZ 16 11 13 14 21 22 24VDC
2 NC contacts	BZ 16 02 11 12 21 22 24VDC

Ordering data

BZ 16 11D-IP69K

Degree of protection IP 69K
 Actuating directions (U, V)
 1 NC/1 NO [2 NC]
 Series
 Safety sensor

Safety sensors

// Series BZ 16, variants

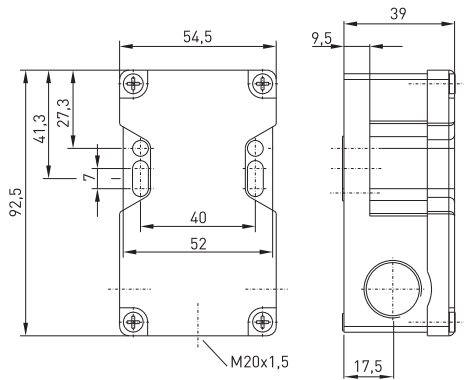
Features/Options

- Please indicate the desired actuating plane when ordering.
- Version with higher protection class IP 69K: suitable for cleaning with 80 °C hot water at 100-bar pressure at a distance of 100 mm from different directions

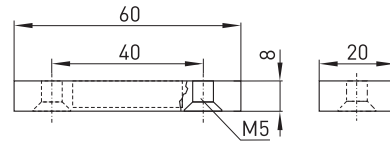
Note

The actuator is not included in the delivery of the switches.

// BZ 16 IP 69K



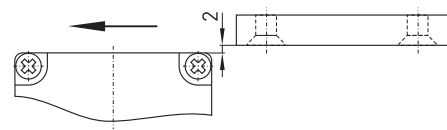
// Actuator BZ 16-B1



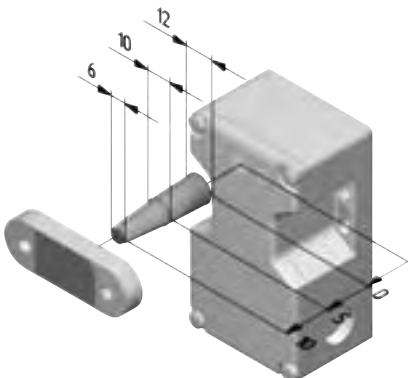
// Actuating planes



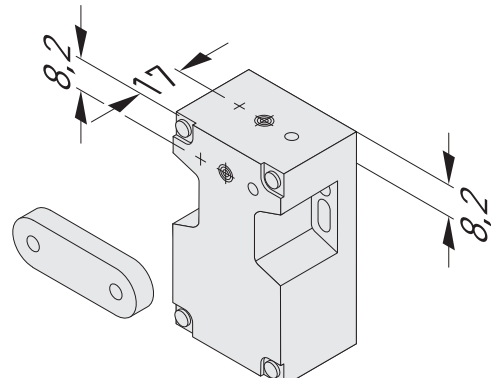
// Distance for actuation from side



// Switching capacity



// Actuator positioning







Magnetic safety sensors

Cylindrical form
// Series RC Si M30
from page 20

Rectangular form
// Series RC Si 56
from page 22

Safety relay module
// Series SRM 21 RT2
from page 24



Magnetic safety sensors

Application

The magnetic safety sensors of the RC Si series are suitable for monitoring the position of sliding, hinged and removable protective doors. They can only be used for safety duties to DIN VDE 0660-209 in combination with a safety guard monitor for protection up to Control Category 4 to EN 954-1.

The use of magnetic safety sensors is of particular advantage in cases where extremely dirty conditions can occur or high hygienic standards need to be maintained. This is provided by the simplicity of cleaning the units. A further advantage is the facility for concealed mounting behind non-magnetic materials.

Working surfaces and storage areas can be arranged without the need for dust-collecting edges or other functionally required cutouts or projections. The magnetic safety sensors of the RC Si series can also be applied in cases where a precise approach is not possible and greater tolerances are required.

Design and operating principle

These devices comprise a multi-channel magnetic safety sensor and an actuating magnet. The magnetic safety sensors are actuated by a coded magnet without any mechanical contact. The devices can be selected with one NC and one NO contact or with two NC contacts. All described magnetic safety sensors are supplied with a pre-wired cable.

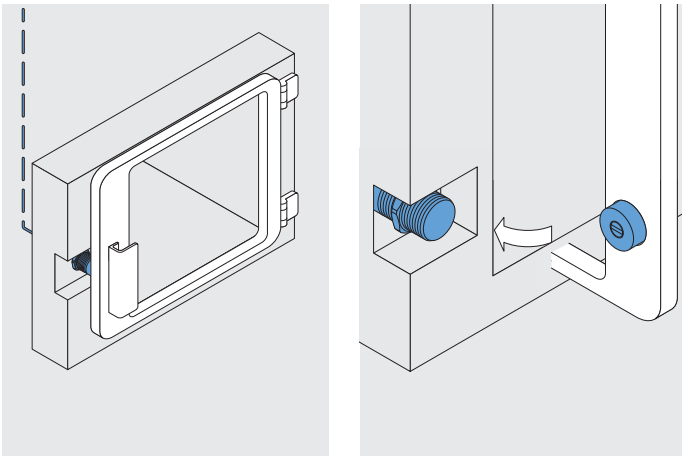
The magnetic safety sensors of the RC Si series are protected to protection class IP 67.

The mounting site of magnetic safety sensors must be free of magnetic fields.

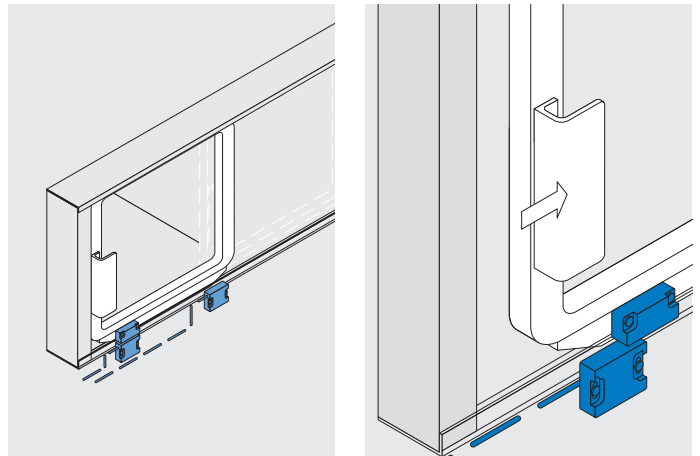
All magnetic safety sensors described in this chapter bear the CE mark according to the Machinery Directive 98/37/EC.

Application

On hinged doors



On sliding doors



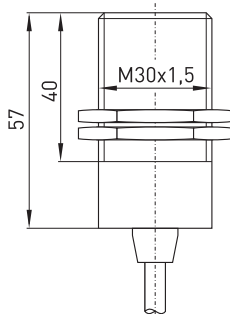
Magnetic safety sensors, cylindrical form

// Series RC Si M30

Features/Options

- Metal enclosure
- Long life
- Reed contacts, coded
- Actuation from front
- Switching distance up to 8 mm
- With pre-wired cable, cable length 1 metre
- Available as Ex-version

// RC SI M30



Technical data

Standards	IEC/EN 60947-5-2, -3/PDF-M*; EN 954-1; EN 1088; EN ISO 13849-1
Enclosure	aluminium brass, nickeled or stainless steel 1.4571
Defined object	actuator MC 30 order No. 05.00.8214, MC 30-NIRO order No. 05.00.8220
Degree of protection	IP 67 or IP 69 K to IEC/EN 60529
Switching system	Reed contacts
Contact types	1NC/1 NO contact or 2 NC contacts
Connection	Pre-wired cable H05 VV-F 5G
Cable section	4 x 0.5 mm
Cable length	1 m
B_{10d} (10 % load)	1 million
T_M	10 years
MTTFd	> 100 years
U_e	max. 30 VDC
I_e	max. 125 mA, with LED: 20 mA / 24 VDC
Voltage drop at I_{max}	3.15 V, with LED: 3 V
Short-circuit current	max. 750 mA for 50 ms, with LED: 30 mA
Switching frequency	max. 5 Hz
Ambient temperature	-20 °C ... +70 °C
Mechanical life	> 10 Mio. operations
Limit distances	s _{ao} = 8 mm, s _{ar} = 24 mm
Axial misalignment	6.5 mm
Repeatability	< 0.5 mm
Approvals	

*only in combination with a safety module

Contact variants: Switch travel/contacts

	without LED	with LED
1 NC/1 NO contact	RC Si M30 1Ö/1S 	RC Si M30 1Ö/1S-LED
2 NC contacts	RC Si M30 2Ö 	RC Si M30 2Ö-LED

Ordering data

RC Si M30 1Ö/1S-IP69K-NIRO	Stainless steel enclosure
	Degree of protection IP69K
	1 NC/1 NO contact (2Ö)
	Series, Enclosure diameter M30
	Safety
	Magnetic sensor

Magnetic safety sensors, cylindrical form

// Series RC Si M30, actuator

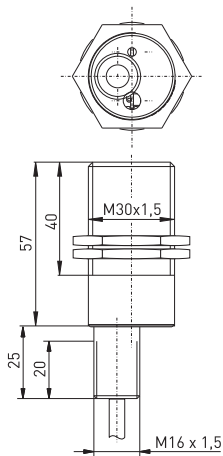
Features/Options

- Version with higher protection class IP 69K:
suitable for cleaning with 80 °C hot water at 100 bar pressure at a distance of 100 mm from different directions
- RCSI M30-NIRO: stainless steel enclosure 1.4571, actuator available with stainless steel enclosure 1.4571: MC30-NIRO
- RCSI M30-B: variant with mounting thread M16 x 1.5

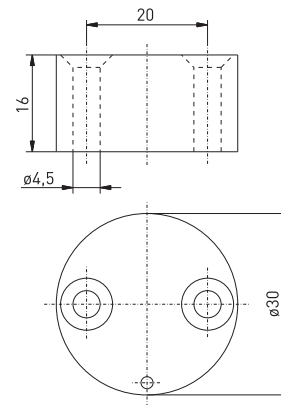
Note

The actuator is not included in the delivery of the switches.

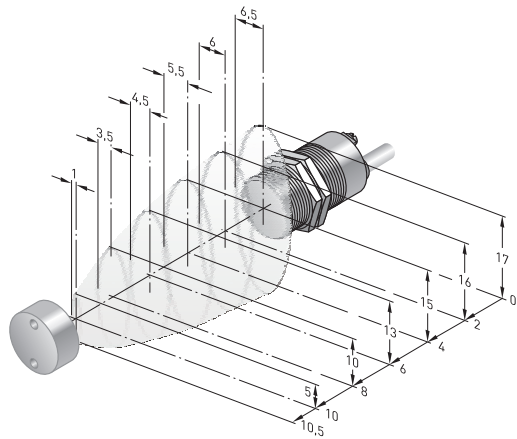
// Mounting thread B



// Actuating magnet MC 30



// Switching capacity



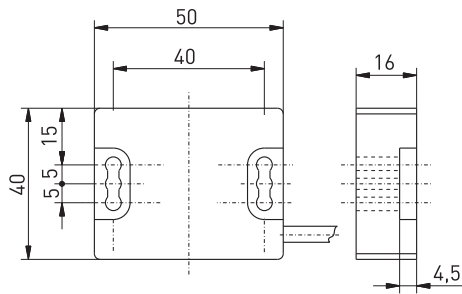
Magnetic safety sensors, rectangular form

// Series RC Si 56

Features/Options

- Thermoplastic enclosure
- Long life
- Reed contacts, coded
- Actuation from front
- Switching distance up to 7 mm
- With pre-wired cable, cable length 1 metre

// RC SI 56



Technical data

Standards	IEC/EN 60947-5-1, -2, -3/PDF-M*; EN 954-1; EN 1088; EN ISO 13849-1
Enclosure	glass-fibre reinforced thermoplastic
Defined object	actuator MC 56 order No. 05.00.8217, MC 56-3 order No. 05.00.8215
Degree of protection	IP 67 or IP 69K to IEC/EN 60529
Switching system	Reed contacts
Contact types	1NC/1 NO contact or 2 NC contacts
Connection	Pre-wired cable AWG 24
Cable section	4 x 0,22 mm ²
Cable length	1 m
B _{10d} (10 % load)	1 million
T _M	10 years
MTTFd	> 100 years
U _e	max. 30 VDC
I _e	max. 157 mA, with LED: 20 mA / 24 VDC
Voltage drop at I _{max}	3.15 V, mit LED: 3 V
Short-circuit current	max. 750 mA for 50 ms, with LED: 30 mA
Switching frequency	max. 5 Hz
Ambient temperature	-20 °C ... +70 °C
Mechanical life	> 10 Mio. operations
Limit distances	s _{ao} = 7 mm, s _{ar} = 23 mm
Axial misalignment	2 mm
Repeatability	< 0.5 mm

*only in combination with a safety module

Contact variants: Switch travel/contacts

	without LED	with LED
1 NC/1 NO contact	RC Si 56 10/1S 	RC Si 56 10/1S-LED
2 NC contacts	RC Si 56 20 	RC Si 56 20-LED

Ordering data

RC Si 56 10/1S-IP69K	Degree of protection IP 69K
	1 NC/1 NO contact (20)
	Series
	Safety
	Magnetic sensor

Magnetic safety sensors, rectangular form

// Series RC Si 56, actuator

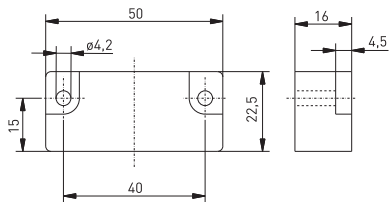
Features/Options

- Version with higher protection class IP 69K:
suitable for cleaning with 80 °C hot water at 100 bar pressure at a distance of 100 mm from different directions
- MC56: compact design,
suitable for 30, 40 and 50 mm profiles
- MC56-M: suitable for 30, 40 and 50 mm profiles

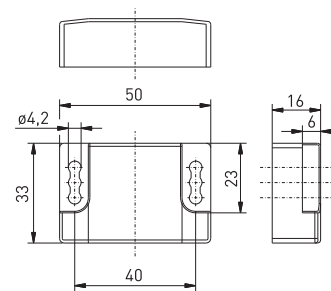
Note

The actuator is not included in the delivery of the switches.

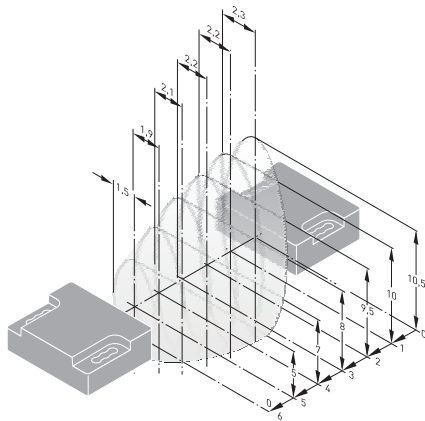
// Actuating magnet MC 56



// Actuating magnet MC 56-M



// Switching capacity



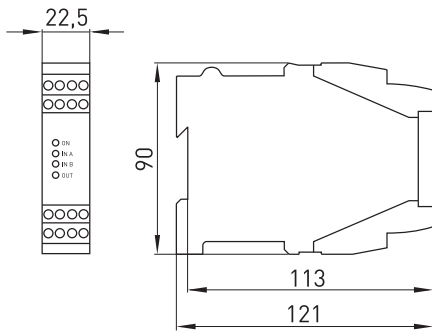
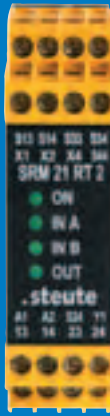
Safety relay module

// Series SRM 21 RT2

Features/Options

- Enclosure width: 22.5 mm
- 2 NC contacts or NC/NO combination can be connected
- Feedback circuit
- 2 enabling paths
- 1 transistor output
- Manual or automatic reset
- Switching position indication by LED

// SRM 21 RT2



Technical data

Standards	IEC/EN 60204 -1, IEC/EN 60947-5-3/PDF-M; EN 954-1, BG-GS-ET 20; EN ISO 13849-1
Enclosure	black polycarbonate; polyamide terminal clamps, top hat section rail mounting to EN 50022
Connection	screw terminals with + and - screws
Cable section	1x 2.5 mm ² /2x 1.5 mm ² strand including conductor ferrules, 1x 4 mm ² /2x 2.5 mm ² massiv
Degree of protection	Enclosure IP 40. Terminal block IP 20 to IEC 60529, shock protection to VBG 4
safety-related data	
EN 954-1	category 4
EN 60204-1	stop category 0
EN ISO 13849-1	PL e in preparation
T _M	10 years
DIN EN 62061	SIL CL in preparation
Inputs	1 NC/1 NO contact or 2 NC contacts 1 feedback input, 1 reset input
Outputs	2 enabling paths: positive-guided contacts, 1 transistor output as signalling contact
Utilisation category	AC-15; DC-13
I_e/U_e	enabling paths: 3 A/230 V; 2 A/24 V; input: 0.1 A/24 VDC ± 15%
Max. output current transistor output I_a	20 mA
Max. fuse rating U_e	2 A gL/gG D-fuse
Enabling paths	6 A gL/gG D-fuse
Dropout delay	< 20 ms
Risk time	< 200 ms
Mechanical life	> 50 million operations
LED indications	4: operation, authorisation, inputs A and B
Degree of pollution	3 to DIN VDE 0110
Overvoltage category	III
Ambient temperature	0 °C ... +55 °C
Approvals	

Ordering data

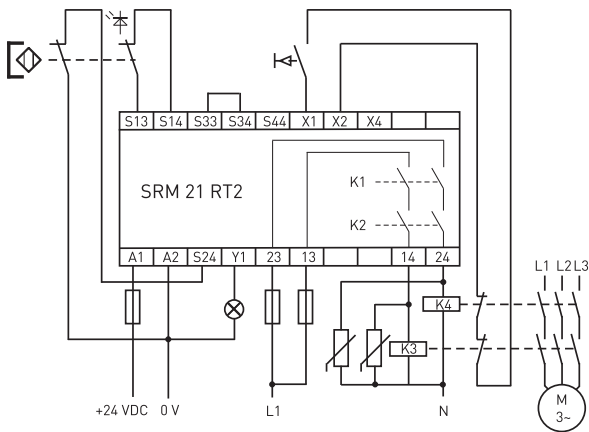
SRM 21 RT2

- 2 inputs
- automatic reset
- manual reset
- 1 transistor output
- 2 enabling paths
- Safety relay module

Safety relay module

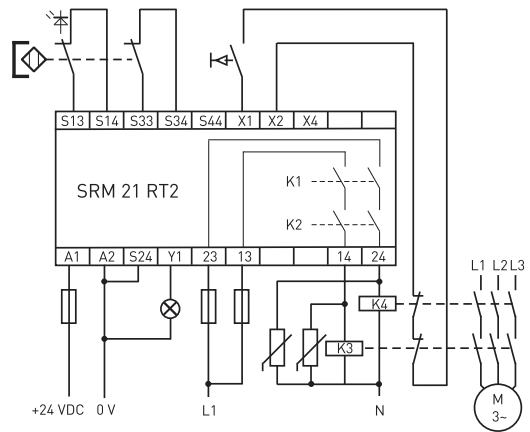
// Series SRM 21 RT2, wiring examples

// Wiring example



- 2-channel: monitoring of one magnetic safety sensor with 2 NC contacts
- Feedback circuit
- Cross-wire detection
- With manual reset/start
- Y1 high upon authorisation
- Control Category 4

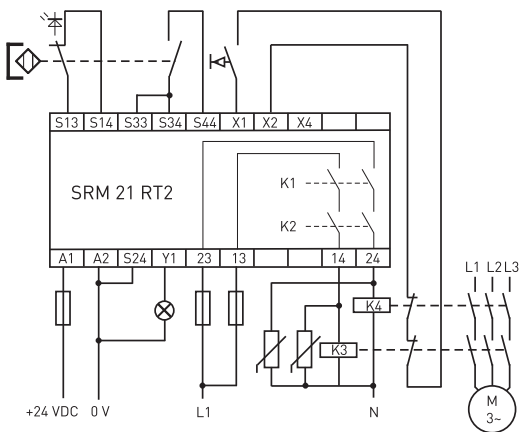
// Wiring example



- 2-channel: monitoring of one magnetic safety sensor with 2 NC contacts
- Feedback circuit
- Without cross-wire detection
- With manual reset/start
- Y1 high upon authorisation
- Control Category 4

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// Wiring example



- 2-channel: monitoring of one magnetic safety sensor with 1 NC and 1 NO contact
- Feedback circuit
- Without cross-wire detection
- With manual reset/start
- Y1 high upon authorisation
- Control Category 4



Magnetic sensors

Cylindrical form

// Series RC 3

from page 30

// Series RC 8

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// Series RC 10

from page 36

// Series RC 13,5

from page 38

// Series RC 15

from page 40

// Series RC M20

from page 42

// Series RC 20

from page 44

// Series RC 23

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// Series RC 30

from page 48

// Series RC 60

from page 50





Magnetic sensors

Application

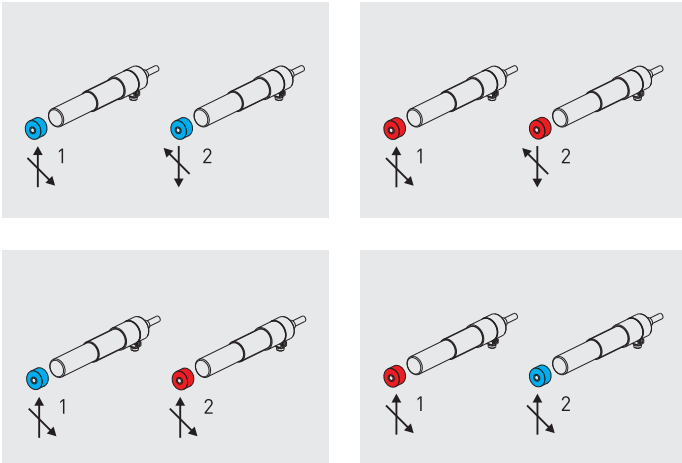
Magnetic sensors are preferably applied as an alternative to mechanically operated limit switches in cases where unfavourable operating conditions such as high or low actuating speeds, large switching frequencies, extreme dirt or dust production, high humidity, chemical atmospheres, highly fluctuating actuating distances etc. occur. Even in the presence of aggressive materials, as well as in the food processing industry, safe switching is ensured through encapsulation of the contacts. In this way, magnetic sensors are e.g. suitable for movement and standstill monitoring on machines and systems, as electronic counters, as station switches on conveyor systems and high rack warehouses, as well as for position indication of flaps, slide feeds and valves.

In the lift industry, magnetic sensors are suitable for positioning and controlling lift cabins. More information on this subject can be found in our Ex lift switchgear catalogue.

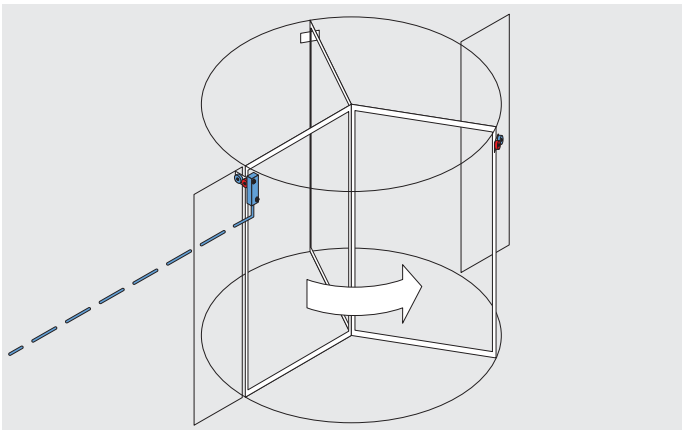
A further field of application is electronic control of the travel and position indication on pneumatic cylinders.

Operating principle

Magnetic sensors change-over contact, actuation from front



Magnetic sensors on a revolving door



Design and operating principle

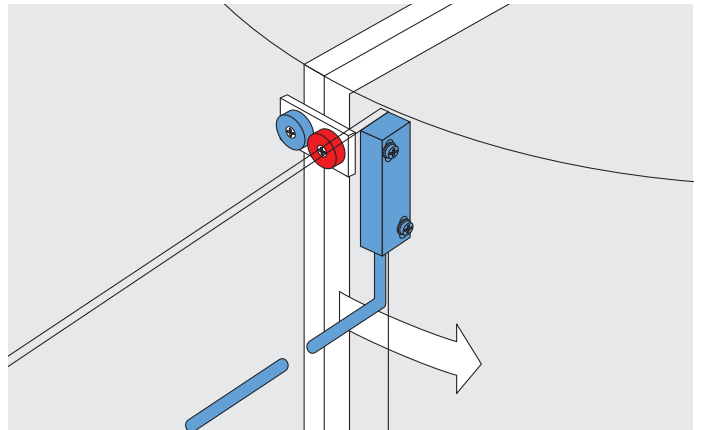
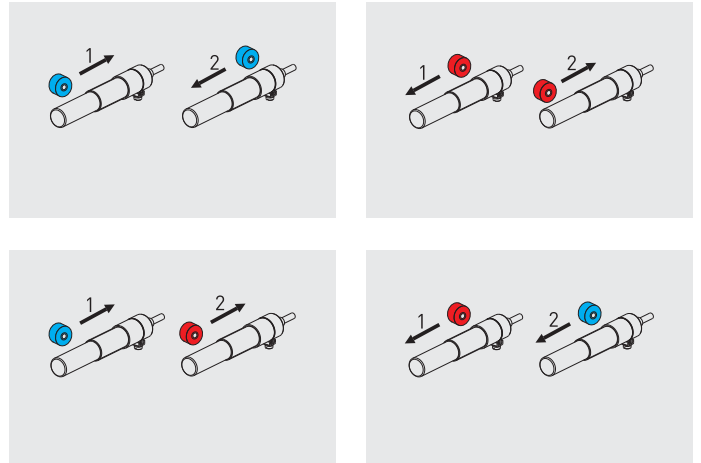
The magnetic sensors are actuated by an M series permanent magnet, described at the end of this chapter, without any mechanical contact. The devices can be selected with NO, NC, change-over or bistable contacts. All magnetic sensors described in this chapter are supplied with pre-wired cable or plug-in connectors.

The magnetic sensors for control and positioning on pneumatic cylinders are actuated by permanent magnets fitted inside on the piston of the pneumatic cylinder.

The mounting site of magnetic sensors must be free of magnetic fields.

The magnetic sensors described in this chapter bear the CE mark according to the Low Voltage Directive 73/23/EC.

Magnetic sensors change-over contact, actuation from side



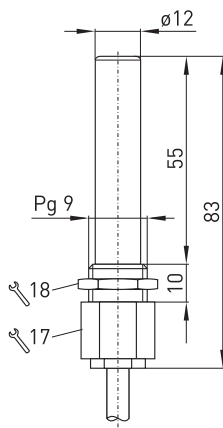
Magnetic sensors, cylindrical form

// Series RC 3

Features/Options

- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from side and from front
- Switching distance up to 29 mm, depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 3



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium brass, nicked
Actuator	series M magnet
Degree of protection	IP 67; with plug-in connectors IP 42/65 to EN 60529
Contact material	rhodium; -W: tungsten
Switching system	Reed contacts
Contact types	NO or change-over contact
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ²
Cable length	1.2 or 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S: 2 A; 1W: 0.5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0,02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g

Contact variants: Switch travel/contacts

	bi-directional actuation
1 NO contact	RC 3 1S BU BN
1 change-over contact	RC 3 1W BN BK BU

Ordering data

RC 3 1W-W-ST

ST plug-in connector
Tungsten Reed contacts
1 change-over contact (1S 1 NO contact)
Series
Magnetic sensor

Magnetic sensors, cylindrical form

// Series RC 3, variants

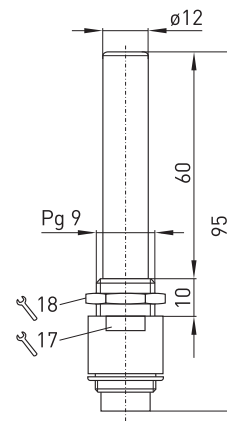
Features/Options

- Coupler for magnetic sensors with plug-in connectors M16 x 1: for 24 VDC Hirschmann type Masei 3100 , protection class IP 42 for 230 VAC Binder series 723, protection class IP 65
- Version for high temperatures up to +130 °C with silicon cable available

// Connector M 16x1, 3-pole



// Connector M 16x1, 3-pole



Actuating distances

Actuating direction	from front		from front	
Switch travel				
Contacts	1 NO contact		1 change-over contact	
Actuating direction	N or S		N or S	
Actuating magnet	Switching distance [mm]		Switching distance [mm]	
	on	off	on	off
M 50 U	-	-	-	-
M 100	-	-	-	-
M 100 U	-	-	-	-
M 200	3	16	3	5
M 200 U	4	17	4	6
M 300	22	39	22	25
M 300 U	8	11	7	9
M 300 U B	22	39	8	10
M 400 U	-	-	24	26
M 400 U B	29	43	22	24
M 500	3	17	3	5
M 600	20	38	21	23
M 700	21	29	22	25

Magnetic sensors, cylindrical form

// Series RC 3, variants

Actuating distances

Actuating direction	from side		from side	
Switch travel				
Contacts	1 NO contact		1 change-over contact	
Actuating direction	N or S		N or S	
Actuating magnet	Switching distance [mm]		Switching distance [mm]	
	on	off	on	off
M 50 U	5	12	9	12
M 100	7	14	10	11
M 100 U	8	16	11	13
M 200	11	20	14	15
M 200 U	12	21	15	17
M 300	24	37	26	28
M 300 U	15	24	18	20
M 300 U B	16	25	18	20
M 400 U	27	39	29	32
M 400 U B	26	33	28	31
M 500	24	37	26	29
M 600	23	35	26	28
M 700	24	35	26	27

ASSEMBLY DEPARTMENT
MOUNTING OF THE REED CONTACTS



Magnetic sensors, cylindrical form

// Series RC 8

Features/Options

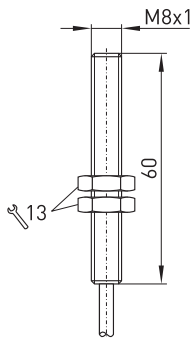
- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 39 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 8




Technical data


Standards	IEC/EN 60947-5-1
Enclosure	brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact
Connection	pre-wired cable, LiYY 2 x AWG26
Cable section	2 x 0.14 mm ²
Cable length	1 m
Switching voltage	max. 200 VAC/DC
Switching current	1 A
Switching capacity	max. 20 W/VA
Switching frequency	max. 200 Hz
Bounce duration	-
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ Operations
Electrical life	10 ⁹ Operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

1 NO contact	bi-directional actuation RC 8 1S BU  BN
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Ordering data

RC 8 1S

 1 NO contact
 Series
 Magnetic sensor



Magnetic sensors, cylindrical form

// Series RC 8

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	10 15	13 17
M 100	12 18	14 17
M 100 U	15 20	16 20
M 200	17 24	19 23
M 200 U	19 25	20 25
M 300	36 47	32 40
M 300 U	23 29	23 28
M 300 U B	23 30	23 28
M 400 U	39 49	35 42
M 400 U B	39 48	34 41
M 500	17 23	32 40
M 600	36 46	31 38
M 700	39 48	31 38

Magnetic sensors, cylindrical form

// Series RC 10

Features/Options

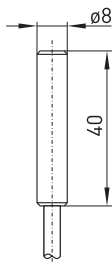
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 40 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 10



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	POM
Actuator	Series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact
Connection	pre-wired cable, PVC LiYY
Cable section	2 x 0.34 mm ²
Cable length	1 m
Switching voltage	max. 250 VAC/DC
Switching current	1 A
Switching capacity	max. 100 W/VA
Switching frequency	max. 200 Hz
Bounce duration	-
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0,02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

1 NO contact	bi-directional actuation
	RC 10 1S
	BU BN

Ordering data

RC 10 1S
 1 NO contact
 Series
 Magnetic sensor



Magnetic sensors, cylindrical form

// Series RC 10

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	12 17	12 15
M 100	13 18	14 18
M 100 U	15 20	15 18
M 200	19 26	18 23
M 200 U	21 27	20 23
M 300	39 49	31 38
M 300 U	25 32	23 27
M 300 U B	26 33	23 29
M 400 U	38 48	35 40
M 400 U B	40 48	32 39
M 500	20 26	14 18
M 600	38 48	30 37
M 700	39 47	30 36

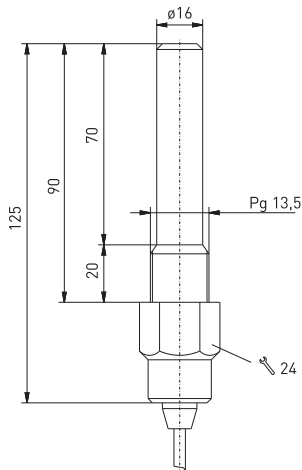
Magnetic sensors, cylindrical form

// Series RC 13,5

Features/Options

- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front
- Switching distance up to 30 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 13,5



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	silver
Switching system	reed contacts
Contact types	NC contact, NO contact or change-over contact
Connection	pre-wired cable, H05VV-F
Cable section	1S: 3 x 0.75 mm ² , 1W: 4 x 0.75 mm ²
Cable length	1, 2 or 5 m
Switching voltage	250 V
Switching current	1.5 A
Switching capacity	1Ö, 1W: max. 50 VA/W, 1S: max. 100 VA/W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 50 ... 100 g, 1Ö, 1W: 10 ... 50 g

Contact variants: Switch travel/contacts

	actuation from front
1 NC contact	RC 13,5 1Ö BU — BN
1 NO contact	RC 13,5 1S BU — BN
1 change-over contact	RC 13,5 1W BN — BK BU

Ordering data

RC 13,5 1W

1 change-over contact (1Ö 1 NC contact, 1S 1 NO contact)
Series
Magnetic sensor

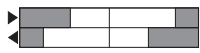


Magnetic sensors, cylindrical form

// Series RC 13,5

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from front	from front
Switch travel			
Contacts	1 NC contact	1 NO contact	1 change-over contact
Actuating direction	NC or S	N or S	N or S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	4 7	- -	4 7
M 100	10 13	3 11	10 13
M 100 U	10 13	3 11	10 13
M 200	13 16	7 17	13 16
M 200 U	13 16	7 17	13 16
M 300	17 20	10 24	17 20
M 300 U	17 20	10 24	17 20
M 400 U	33 37	28 43	33 37
M 700	30 35	25 40	30 35

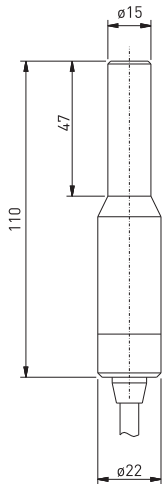
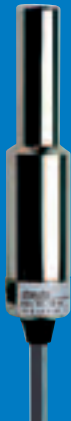
Magnetic sensors, cylindrical form

// Series RC 15

Features/Options

- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front
- Switching distance up to 25 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 15



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	silver
Switching system	reed contacts
Contact types	NC contact, NO contact or change-over contact
Connection	pre-wired cable, H05VV-F
Cable section	1S: 3 x 0.75 mm ² , 1W: 4 x 0.75 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1.5 A
Switching capacity	1Ö, 1W: max. 50 VA/W, 1S: max. 100 VA/W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 50 ... 100 g, 1Ö, 1W: 10 ... 50 g

Contact variants: Switch travel/contacts

	actuation from front
1 NC contact	RC 15 1Ö BU — BN
1 NO contact	RC 15 1S BU — BN
1 change-over contact	RC 15 1W BN — BK BU

Ordering data

RC 15 1W

1 change-over contact (1Ö 1 NC contact, 1S 1 NO contact)
Series
Magnetic sensor

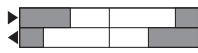

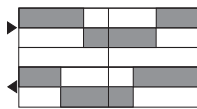
Magnetic sensors, cylindrical form

// Series RC 15

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from front	from front
Switch travel			
Contacts	1 NC contact	1 NO contact	1 change-over contact
Actuating direction	N or S	N or S	N or S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	4 7	- -	4 7
M 100	10 13	3 11	10 13
M 100 U	10 13	3 11	10 13
M 200	13 16	7 17	13 16
M 200 U	13 16	7 17	13 16
M 300	17 20	10 24	17 20
M 300 U	17 20	10 24	17 20
M 400 U	33 37	28 43	33 37
M 700	30 35	25 40	30 35

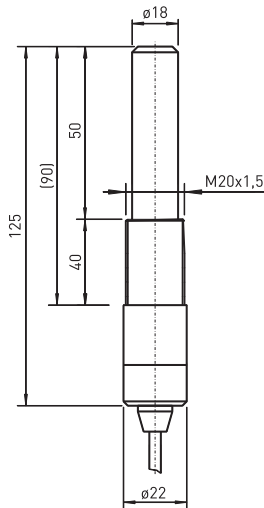
Magnetic sensors, cylindrical form

// Series RC M20

Features/Options

- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front, actuation from side only for change-over contacts
- Switching distance up to 30 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Available in high-grade steel

// RC M20



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	silver
Switching system	reed contacts
Contact types	NO contact or change-over contact, grid or change-over contact latching
Connection	Pre-wired cable, H05VV-F
Cable section	1S: 3 x 0.75 mm ² , 1W: 4 x 0.75 mm ²
Cable length	1, 2 oder 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1.5 A
Switching capacity	1Ö, 1W: max. 50 VA/W, 1S: max. 100 VA/W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 50 ... 100 g, 1Ö, 1W: 10 ... 50 g

Contact variants: Switch travel/contacts

	actuation from front	actuation from side
1 NO contact	RC M20 1S BU —→ BN	
1 grid	RC M20 1Sr BU —→ BN	RC M20 1Sr BU —→ BN
1 change-over contact	RC M20 1W BN —→ BK BU	
1 change-over contact latching	RC M20 1Wr BN —→ BK BU	RC M20 1Wr BN —→ BK BU

Ordering data

RC M20 1W

1 change-over contact (1Ö 1 NC contact, 1S 1 NO contact)
Series
Magnetic sensor

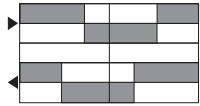

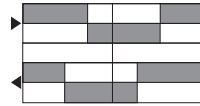

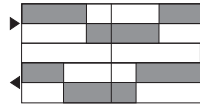
Magnetic sensors, cylindrical form

// Series RC M20

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from front	from front
Switch travel			
Contacts Actuating direction	1 change-over contact N or S	1 bistable contact N/S	1 bistable change-over contact N/S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	4 7	12 6	- -
M 100	10 13	22 12	20 40
M 100 U	10 13	22 12	20 40
M 200	13 16	30 30	25 50
M 200 U	13 16	30 30	25 50
M 300	17 20	37 23	30 60
M 300 U	17 20	37 23	30 60
M 400 U	33 37	63 43	50 90
M 700	30 35	60 40	50 75
Actuating direction	from side	from side	
Switch travel			
Contacts Actuating direction	1 bistable contact N or S	1 bistable change-over contact N or S	
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off	
M 50 U		- -	
M 100		15 20	
M 100 U		15 20	
M 200		20 25	
M 200 U		20 25	
M 300		25 30	
M 300 U		25 30	
M 400 U		30 35	
M 700		40 50	

Magnetic sensors, cylindrical form

// Series RC 20

Features/Options

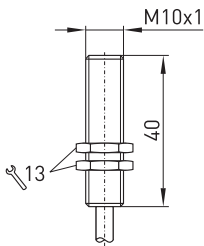
- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 41 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 20



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67; with plug-in connector IP 42/65 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact or change-over contact
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ² , 3 x 0.5 mm ²
Cable length	1, 2 or 5 m
Switching voltage	1S: max. 250 VAC/DC, 1W: max. 175 VAC/DC
Switching current	1S: max. 0,5 A, 1W: max. 0.25 A
Switching capacity	1S: max. 50 VA/W, 1W: max. 3 VA/W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 20 g, 1W: 30 g



Contact variants: Switch travel/contacts

	bi-directional actuation
1 NO contact	RC 20 1S BU —→ BN
1 change-over contact	RC 20 1W BN —→ BK —→ BU

Ordering data

RC 20 1W-ST
 with plug-in connector
 1 change-over contact (1S 1 NO contact)
 Series
 Magnetic sensor

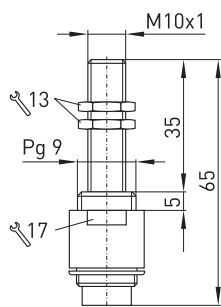
Magnetic sensors, cylindrical form

// Series RC 20, variants

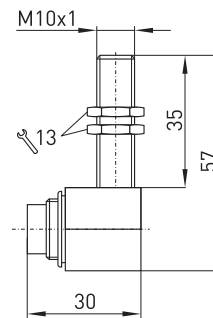
Features/Options

- Coupling for magnetic sensors with plug-in connector M16 x 1:
for 24 VDC Hirschmann Type Masei 3100 , protection class IP 42
for 230 VAC Binder Series 723, protection class IP 65
- Version for high temperatures up to +130 °C with silicon cable available

// Connector M 16x1, 3-pole



// Angled connector M 16x1, 3-pole



Actuating distances

Actuating direction	from front		from side	
	Switching distance [mm]		Switching distance [mm]	
Switch travel				
Contacts	1 NO contact		1 NO contact	
Actuating direction	N or S		N or S	
Actuating magnet	Switching distance [mm]		Switching distance [mm]	
	on	off	on	off
M 50 U	12	16	11	14
M 100	14	18	12	15
M 100 U	16	19	14	16
M 200	19	24	16	20
M 200 U	20	25	17	21
M 300	25	29	21	24
M 300 U	25	29	21	24
M 300 U B	25	30	21	24
M 400 U	41	47	32	37
M 400 U B	41	47	32	37
M 500	20	25	30	35
M 600	39	47	29	34
M 700	40	47	29	33

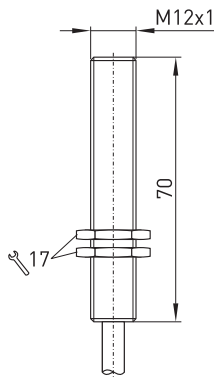
Magnetic sensors, cylindrical form

// Series RC 23

Features/Options

- Metal enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 30 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Version with doubled switching capacity with tungsten reed contacts available

// RC 23



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	aluminium brass, nicked
Actuator	series M permanent magnet
Degree of protection	IP 67; with plug-in connector IP 42/65 to EN 60529
Contact material	rhodium; -W: Tungsten
Switching system	reed contacts
Contact types	NO contact or change-over contact
Connection	lead-free pre-wired cable, PVC H05VV-F
Cable section	2 x 0.5 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S: 2 A; 1W: 0.5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g

Contact variants: Switch travel/contacts

	bi-directional actuation
1 NO contact	RC 23 1S BU — BN
1 change-over contact	RC 23 1W BN — BK BU

Ordering data

RC 23 1W-W

Tungsten reed contacts
1 change-over contact (1 S 1 NO contact)
Series
Magnetic sensor



Magnetic sensors, cylindrical form

// Series RC 23

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	1 8	8 14
M 100	2 10	9 16
M 100 U	6 14	11 18
M 200	8 18	14 21
M 200 U	10 19	16 22
M 300	29 42	29 39
M 300 U	13 23	19 26
M 300 U B	14 24	19 27
M 400 U	30 43	31 42
M 400 U B	29 41	30 43
M 500	10 20	29 39
M 600	28 41	28 29
M 700	29 41	27 38

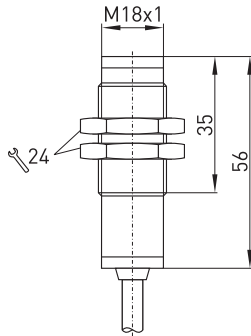
Magnetic sensors, cylindrical form

// Series RC 30

Features/Options

- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 36 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Version with doubled switching capacity with tungsten reed contacts available

// RC 30



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide
Actuator	series M permanent magnet
Degree of protection	IP 67; with plug-in connector IP 42/65 to EN 60529
Contact material	rhodium; -W: Tungsten
Switching system	reed contacts
Contact types	NO contact or change-over contact
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ²
Cable length	1, 2 oder 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S; 1W: 0,5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g

Contact variants: Switch travel/contacts

	bi-directional actuation
1 NO contact	RC 30 1S BU —→ BN
1 change-over contact	RC 30 1W BN —→ BK BU

Ordering data

RC 30 1W-W	Tungsten reed contacts
	1 change-over contact (1S 1 NO contact)
	Series
	Magnetic sensor



Magnetic sensors, cylindrical form

// Series RC 30

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	8 10	3 5
M 100	10 15	5 7
M 100 U	12 13	4 5
M 200	16 18	7 9
M 200 U	17 20	9 10
M 300	33 37	19 22
M 300 U	21 24	11 13
M 300 U B	20 23	12 14
M 400 U	36 39	21 24
M 400 U B	34 38	21 23
M 500	13 16	21 24
M 600	33 36	18 20
M 700	34 37	18 20

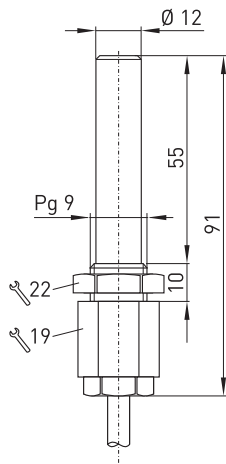
Magnetic sensors, cylindrical form

// Series RC 60

Features/Options

- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 33 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Version with doubled switching capacity with tungsten reed contacts available

// RC 60



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium; -W: tungsten
Switching system	reed contacts
Contact types	NO contact, change-over contact or grid
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ²
Cable length	1, 2 oder 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S: 2 A; 1W: 0,5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g

Contact variants: Switch travel/contacts

	bi-directional actuation
1 NO contact	RC 60 1S BU BN
1 grid	RC 60 1Sr BU BN
1 change-over contact	RC 60 1W BN BK BU

Ordering data

RC 60 1W-W-ST

ST plug-in connector
Tungsten reed contacts
1 change-over contact (1S 1 NO contact, 1Sr 1 Raster)
Series
Magnetic sensor

Magnetic sensors, cylindrical form

// Series RC 60, variants

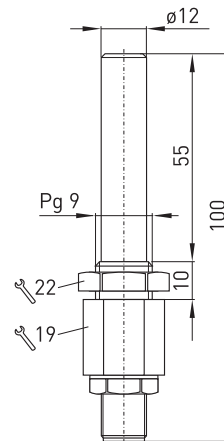
Features/Options

- Coupler for magnetic sensors with plug-in connector M12 x 1: for 250 VAC Escha
- Version for high temperatures up to +130 °C with silicon cable available

// with connector



// with connector





Actuating distances

Actuating direction	from front		from side	
	on	off	on	off
Switch travel				
Contacts	1 NO contact		1 NO contact	
Actuating direction	N or S		N or S	
Actuating magnet	Switching distance [mm]		Switching distance [mm]	
	on	off	on	off
M 50 U	3	11	9	14
M 100	4	13	10	16
M 100 U	6	15	13	18
M 200	9	19	15	23
M 200 U	10	20	17	23
M 300	30	44	29	42
M 300 U	15	25	20	28
M 300 U B	15	25	20	28
M 400 U	30	45	33	43
M 400 U B	30	43	33	43
M 500	10	20	11	18
M 600	29	43	29	40
M 700	30	44	29	40

Magnetic sensors, cylindrical form

// Series RC 60, variants

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 change-over contact	1 change-over contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	- -	9 12
M 100	- -	10 11
M 100 U	- -	11 13
M 200	3 5	14 15
M 200 U	4 6	15 17
M 300	22 25	26 28
M 300 U	7 9	18 20
M 300 U B	8 10	18 20
M 400 U	24 26	29 32
M 400 U B	22 24	28 31
M 500	3 5	26 29
M 600	21 23	26 28
M 700	22 25	26 27

PRODUCTION DEPARTMENT ASSEMBLY
ENCAPSULATION OF MAGNETIC SENSORS







Magnetic sensors

Rectangular form

// [Series RC 4](#)

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// [Series RC 5](#)

from page 58

// [Series RC 40](#)

from page 60

// [Series RC 42](#)

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// [Series RC 50](#)

from page 64

// [Series RC 80](#)

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// [Series RC 90](#)

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// [Series RC 96](#)

from page 70

Magnetic sensors, rectangular form

// Series RC 4

Features/Options

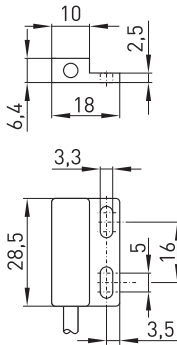
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 48 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 4



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	thermoplastic
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact
Connection	Pre-wired cable, PVC LiYY 2 x AWG26
Cable section	2 x 0.14 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 230 VDC / 125 VAC
Switching current	max. 0,5 A
Switching capacity	max. 15 VA/W
Switching frequency	max. 200 Hz
Bounce duration	-
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

1 NO contact	actuation from side
	RC 4 1S
	BU BN

Ordering data

RC 4 1S

1 NO contact
Series
Magnetic sensor



Magnetic sensors, rectangular form

// Series RC 4

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	16 21	17 22
M 100	18 24	18 23
M 100 U	21 27	20 25
M 200	24 32	22 27
M 200 U	26 33	24 30
M 300	47 58	38 46
M 300 U	30 38	27 33
M 300 U B	31 38	28 33
M 400 U	48 59	40 48
M 400 U B	46 57	39 46
M 500	18 23	38 47
M 600	46 58	37 45
M 700	47 58	36 45

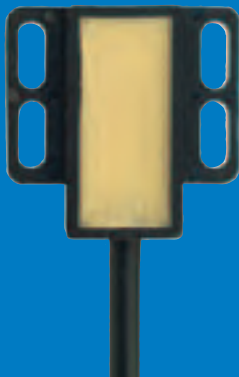
Magnetic sensors, rectangular form

// Series RC 5

Features/Options

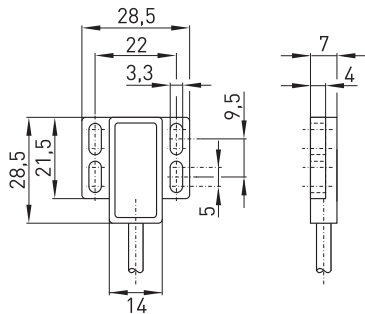
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 31 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 5



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	thermoplastic
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contacts
Connection	pre-wired cable, PVC LiYY 2 x AWG 26
Cable section	2 x 0.14 mm ²
Cable length	1, 2 oder 5 m
Switching voltage	max. 200 VAC
Switching current	max. 1 A
Switching capacity	max. 20 W
Switching frequency	max. 200 Hz
Bounce duration	-
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

	actuation from side
1 NO contact	RC 5 1S BU BN

Ordering data

RC 5 1S
1 NO contact
Series
Magnetic sensor



Magnetic sensors, rectangular form

// Series RC 5

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	- -	12 18
M 100	1 10	12 19
M 100 U	3 13	15 21
M 200	6 18	17 23
M 200 U	9 19	19 24
M 300	26 42	29 40
M 300 U	11 23	21 28
M 300 U B	10 13	21 28
M 400 U	28 44	31 42
M 400 U B	28 44	31 41
M 500	6 19	29 41
M 600	25 41	27 39
M 700	26 42	27 39

Magnetic sensors, rectangular form

// Series RC 40

Features/Options

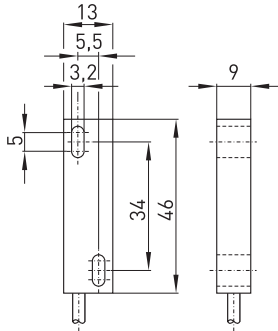
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 29 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre

// RC 40



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide
Actuator	series M permanent magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact, change-over contact, change-over or bi-stable latching contact
Connection	pre-wired cable, 1W: PVC LiYY, 1S: AWG 26
Cable section	2 x 0.14 mm ² / 3 x 0.14 mm ²
Cable length	1, 2 or 5 m
Switching voltage	1 S: max. 250 VDC / 1 W: max. 175 VDC
Switching current	1 S: max. 1 A / 1 W = max. 0,25 A
Switching capacity	1 S: max. 15 W / 1 W = max. 3 W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

	actuation from side
1 NO contact	RC 40 1S BU —→ BN
1 bi-stable contact	RC 40 1Sr BU —↔ BN
1 change-over contact	RC 40 1W BN —↔ GN —↔ WH
1 change-over contact latching	RC 40 1Wr BN —↔ BK —↔ BU

Ordering data

RC 40 1W

1 change-over contact (1S 1 NO contact, 1Sr 1 change-over contact, 1Wr 1 change-over contact latching)
Series
Magnetic sensor



Magnetic sensors, rectangular form

// Series RC 40

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off
M 50 U	15	
M 100	15	
M 100 U	15	
M 200	15	
M 200 U	15	
M 300	15	
M 300 U	15	
M 300 U B	22 39	15 24
M 400 U	- -	27 39
M 400 U B	29 43	29 43
M 500	3 17	24 37
M 600	20 38	23 35
M 700	21 29	24 35

Magnetic sensors, rectangular form

// Series RC 42

Features/Options

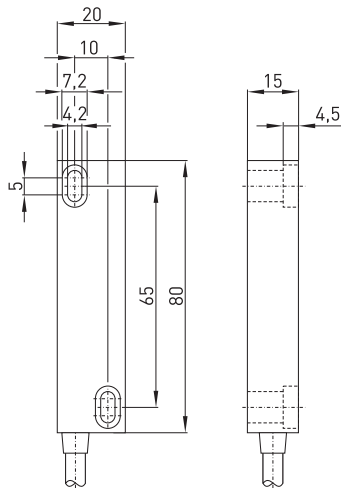
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 33 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Version with doubled switching capacity with tungsten reed contacts available

// RC 42



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide
Actuator	series M permanent magnet
Degree of protection	IP 67 to IEC/EN 60529
Contact material	rhodium; -W: Tungsten
Switching system	reed contacts
Contact types	NO contact, change-over contact, bi-stable or change-over contact latching
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S: 2 A; 1W: 0,5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g



Contact variants: Switch travel/contacts

	actuation from side	latching
1 NC contact	RC 42 1Ö BU — BN	
1 NO contact	RC 42 1S BU — BN	RC 42 1Sr BU — BN
1 change-over contact	RC 42 1W BN — BK BU	RC 42 1Wr BN — BK BU

Ordering data

RC 42 1W-W

Tungsten reed contacts
 1 change-over contact (1Ö 1 NC contact,
 1S 1 NO contact, 1Sr 1 bi-stable contact,
 1Wr 1 change-over contact latching)
 Series
 Magnetic sensor



Magnetic sensors, rectangular form

// Series RC 42

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	- -	9 15
M 100	- -	11 17
M 100 U	1 10	13 20
M 200	6 15	15 23
M 200 U	6 16	17 25
M 300	26 40	31 42
M 300 U	10 20	20 28
M 300 U B	10 21	20 29
M 400 U	26 40	33 43
M 400 U B	26 40	32 43
M 500	6 16	25 37
M 600	25 38	30 40
M 700	26 40	30 41

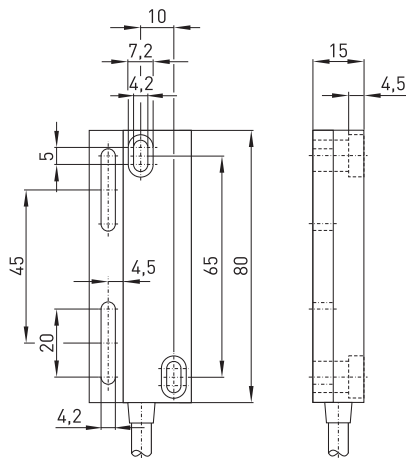
Magnetic sensors, rectangular form

// Series RC 50

Features/Options

- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- Switching distance up to 33 mm depending on the actuating magnet
- With pre-wired cable, cable length 1 metre
- Version with doubled switching capacity with tungsten reed contacts available

// RC 50



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide
Actuator	series M permanent magnet
Degree of protection	IP 67 to IEC/EN 60529
Contact material	rhodium; -W: Tungsten
Switching system	reed contacts
Contact types	NC, NO or change-over contact
Connection	lead-free pre-wired cable, PVC H05VV-F or 3-pole connector to DIN 41 524
Cable section	2 x 0.5 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 250 VAC/DC
Switching current	1S: 2 A; 1W: 0,5 A; -W: 1 A
Switching capacity	1S: max. 50 VA/ W; 1W: max. 15 VA/ W; -W: max. 25 VA/ W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0,02 mm
Resistance to vibrations	1S: 20 g, 1W: 10 g

Contact variants: Switch travel/contacts

	actuation from side
1 NC contact	RC 50 10 BU — BN
1 NO contact	RC 50 1S BU — BN
1 change-over contact	RC 50 1W BN — BK BU

Ordering data

RC 50 1W-W

Tungsten reed contacts only available for change-over contacts
1 change-over contact (10 1 NC contact, 1S 1 NO contact)
Series
Magnetic sensor



Magnetic sensors, rectangular form

// Series RC 50

Features/Options

- Version for high temperatures up to +130 °C with silicon cable available

Actuating distances

Actuating direction	from front	from side
Switch travel		
Contacts	1 NO contact	1 NO contact
Actuating direction	N or S	N or S
Actuating magnet	Switching distance [mm]	Switching distance [mm]
	on off	on off
M 50 U	- -	9 12
M 100	26 33	10 13
M 100 U	1 6	12 15
M 200	4 9	15 19
M 200 U	4 10	16 20
M 300	25 32	30 35
M 300 U	10 15	20 23
M 300 U B	10 16	20 24
M 400 U	25 32	33 37
M 400 U B	10 15	31 37
M 500	5 11	29 34
M 600	24 31	29 34
M 700	25 32	29 34

Magnetic sensors, rectangular form

// Series RC 80

Features/Options

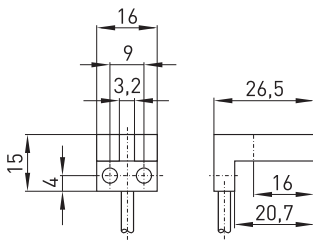
- Thermoplastic enclosure
- Long life
- 1 Reed contact
- Actuation from front and from side
- With pre-wired cable, cable length 1 metre
- Version for high temperatures up to +130 °C with silicon cable available

// RC 80



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced thermoplastic
Actuator	metal
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact or change-over contact
Connection	pre-wired cable, PVC LiYY AWG 26
Cable section	1S: 2 x 0.14 mm ² , 1W: 3 x 0.14 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 175 VAC/DC
Switching current	max. 0.25 A
Switching capacity	max. 3VA/W
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

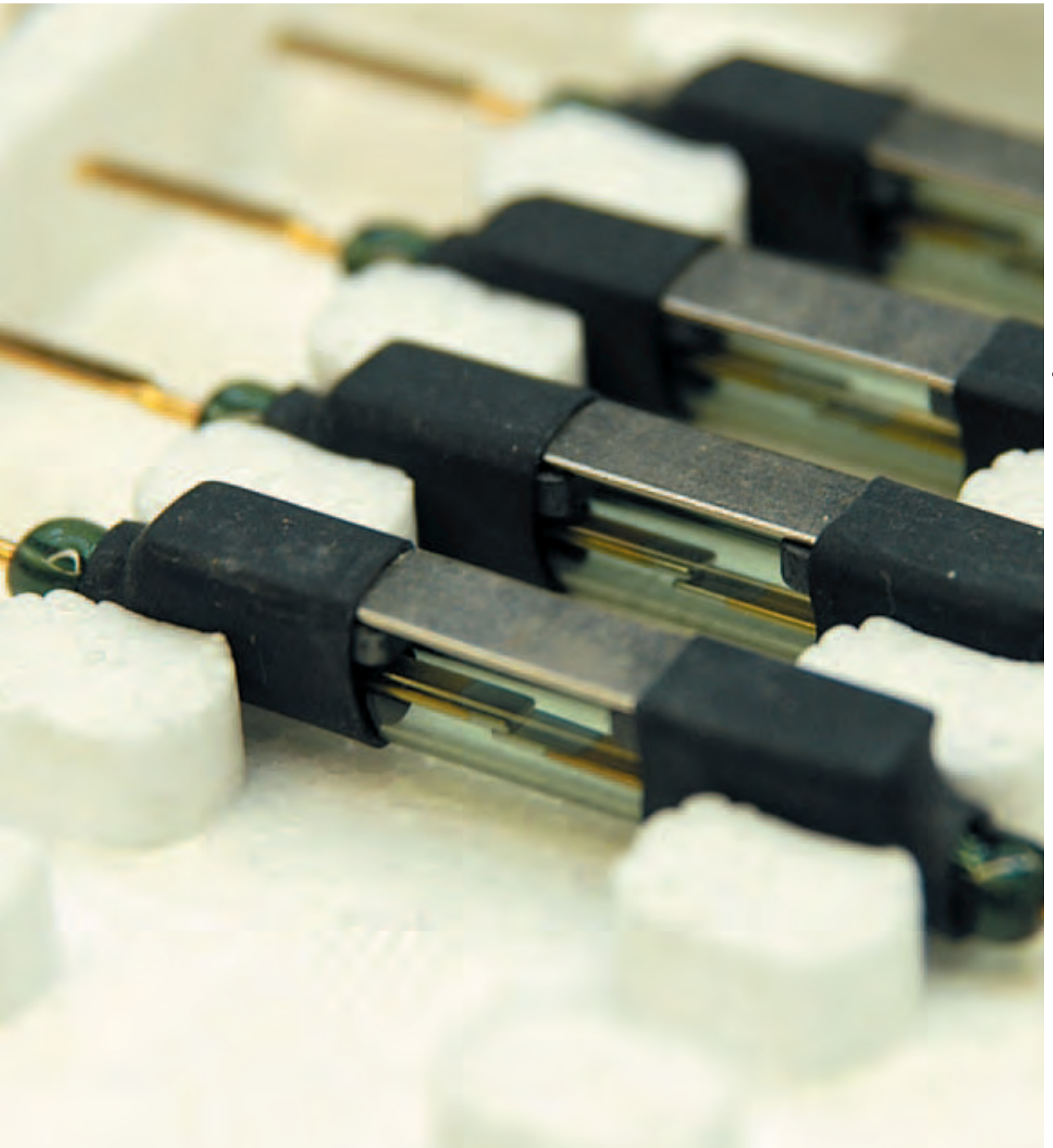
	actuation from side
1 NO contact	RC 80 1S BU — BN
1 change-over contact	RC 80 1W BN — BK BU

Ordering data

RC 80 1W

1 change-over contact (1S 1 NO contact)
Series
Magnetic sensor

ASSEMBLY DEPARTMENT
FITTING OF REED CONTACTS



Magnetic sensors, rectangular form

// Series RC 90

Features/Options

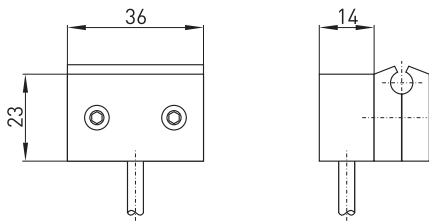
- Thermoplastic enclosure
- Application on pneumatic cylinders
- Long life
- 1 Reed contact
- Actuation from front and from side
- With pre-wired cable, cable length 1 metre

// RC 90



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	glass-fibre reinforced polyamide PA 6.6
Actuator	magnet
Degree of protection	IP 65 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact
Connection	pre-wired cable, PVC LiYY
Cable section	2 x 0.34 mm ²
Cable length	1, 2 oder 5 m
Switching voltage	max. 250 VAC/DC
Switching current	max. 1 A
Switching capacity	max. 100 W/VA
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

	actuation from side
1 NO contact	RC 90 1S BU BN

Ordering data

RC 90 1S-ST-250VA

Switching capacity 250 VA (30VA)
with plug-in connector
1 NO contact
Series
Magnetic sensor

Magnetic sensors, rectangular form

// Series RC 90, variants

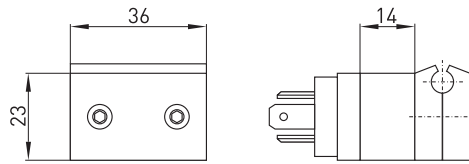
Features/Options

- Coupler for magnetic sensors with plug-in connector: Klar + Beilschmidt
- Version for high temperatures up to +130 °C with silicon cable available
- Available with LED for operating voltage indication

// Connector



// Connector



Magnetic sensors, rectangular form

// Series RC 96

Features/Options

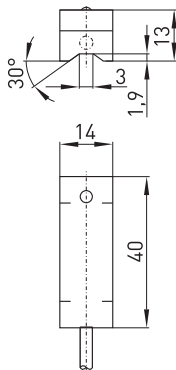
- Thermoplastic enclosure
- Application on pneumatic cylinders
- Long life
- 1 Reed contact
- Actuation from front and from side
- With pre-wired cable, cable length 1 metre
- With LED
- Version for high temperatures up to +130 °C with silicon cable available

// RC 96



Technical data

Standards	IEC/EN 60947-5-1
Enclosure	thermoplastic
Actuator	magnet
Degree of protection	IP 67 to EN 60529
Contact material	rhodium
Switching system	reed contacts
Contact types	NO contact
Connection	pre-wired cable, LiYY 2 x AWG26
Cable section	2 x 0.14 mm ²
Cable length	1, 2 or 5 m
Switching voltage	max. 200 VDC / 150 VAC
Switching current	max. 1,5 A
Switching capacity	max. 50 W/VA
Switching frequency	max. 200 Hz
Ambient temperature	-10 °C ... +80 °C
Mechanical life	10 ⁹ operations
Electrical life	10 ⁹ operations
Repeat accuracy	± 0.02 mm
Resistance to vibrations	20 g



Contact variants: Switch travel/contacts

	actuation from side
1 NO contact	RC 96 1S BU BN

Ordering data

RC 96 1S
 1 NO contact
 Series
 Magnetic sensor

ASSEMBLY DEPARTMENT
ENCAPSULATION OF MAGNETIC SENSORS



Magnetic sensors

// Actuating magnets

Features/Options

M 50 N U, M 100 N U, M 200 N U

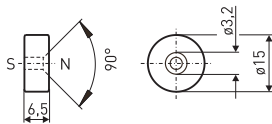
- Not encapsulated
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

Features/Options

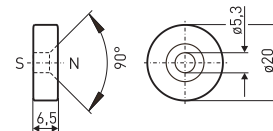
M 100 S, M 100 N, M 200 S, M 200 N

- Thermoplastic enclosure polyamide 6.6, blue S or red N
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

// Actuating magnet M 50 N U

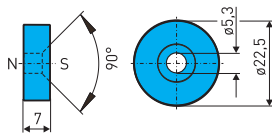


// Actuating magnet M 100 N U

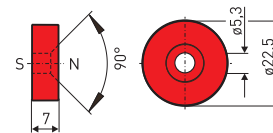


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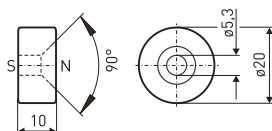
// Actuating magnet M 100 S



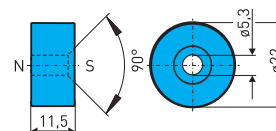
// Actuating magnet M 100 N



// Actuating magnet M 200 N U



// Actuating magnet M 200 S



Magnetic sensors

// Actuating magnets

Features/Options

M 300 N U, M 300 U B, M 400 N U

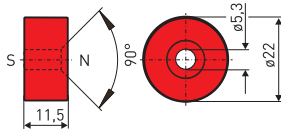
- Not encapsulated
- M 300 U: North pole with colour marking (red dot)
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

Features/Options

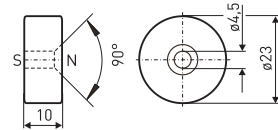
M 200 N, M 300 S, M 300 N

- Thermoplastic enclosure polyamide 6.6, blue S or red N
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

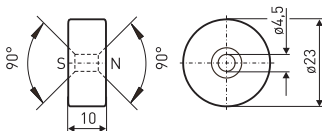
// Actuating magnet M 200 N



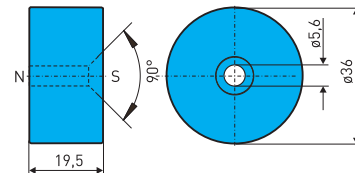
// Actuating magnet M 300 N U



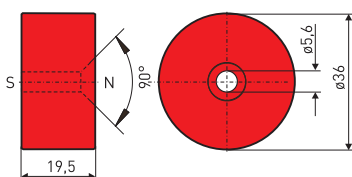
// Actuating magnet M 300 U B



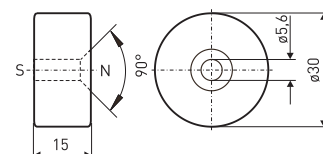
// Actuating magnet M 300 S



// Actuating magnet M 300 N



// Actuating magnet M 400 N U



Magnetic sensors

// Actuating magnets

Features/Options

M 400 U B, M 20 U

- Not encapsulated
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

M 700 N

- Thermoplastic enclosure polyamide 6.6, red N
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

Features/Options

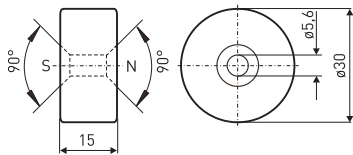
M 700 S

- Thermoplastic enclosure polyamide 6.6, blue S
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

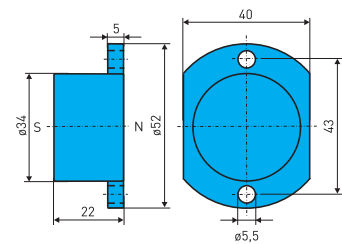
M 500

- Thermoplastic enclosure glass-fibre reinforced polyamide
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

// Actuating magnet M 400 U B

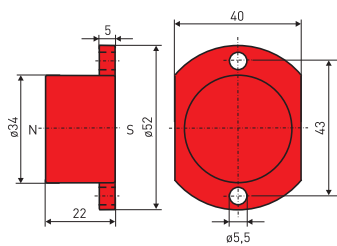


// Actuating magnet M 700 S

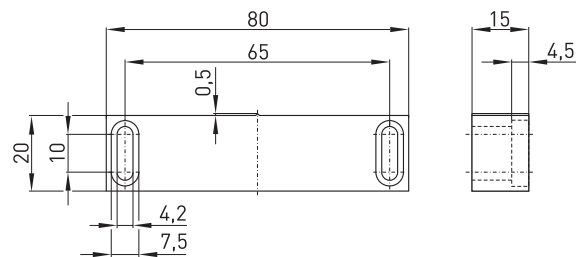


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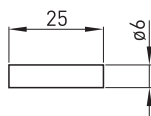
// Actuating magnet M 700 N



// Actuating magnet M 500



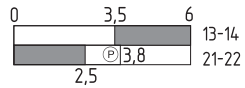
// Actuating magnet M 20 U



Explanation of symbols

Υ	A/F
CE	Directive-compliant, see Declaration of Conformity
I_e	Rated operating current
I_{the}	Thermal test current rating
s_{ao}	Assured operation distance
s_{ar}	Assured release distance
U_e	Rated operating voltage
U_i	Rated insulation voltage
U_{imp}	Rated impulse withstand voltage

Explanation of the switch travel diagrams



Contact open
 Contact closed

X1-X2 NC contact
 X3-X4 NO contact
 X5-X6 Overlapping contacts

Colour code designation to DIN IEC 757

BK	black
BN	brown
BU	blue
GN	green
GY	grey
OG	orange
PK	pink
RD	red
TQ	turquoise
VI	violet
WH	white
YE	yellow

steute develops and manufactures safe switchgear for demanding and critical fields of application. Besides a comprehensive standard range of products for applications in Explosion Protection, Control Technology and Medical Equipment, we also and increasingly develop customised switchgear for extreme conditions in all three business fields. Some

examples: emergency pull-wire switches for the mining industry, self-sufficient radio position switches for industrial automation and control panels for laser surgery. Our head office is in Löhne, Westphalia, Germany; worldwide sales are conducted by subsidiaries and trading partners.

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