

Application

The use of Ex magnetic 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. Due to a high protection class they are ideal for use outdoors.

Even in the presence of aggressive media, such as in electroplating areas, safe switching is ensured by encapsulation of the contacts. A further advantage is the facility for concealed mounting under non-magnetic materials. Working surfaces and storage areas can be arranged without the need for dust-collecting edges or other functionally required cut-outs or projections.

Ex magnetic sensors can also be used in cases where a precise approach is not possible and greater tolerances are required.

Design and mode of operation

The switches are actuated by a M range permanent magnet coming into their proximity, without any physical contact.

These devices are available with NO, NC, change-over, bi-stable or bi-stable change-over contacts. All magnetic sensors described in this chapter are supplied with pre-wired cables. When using Ex magnetic sensors, care must be taken that their mounting site is free of magnetic fields.

Features

EEx RC 15

EEx RC 13,5

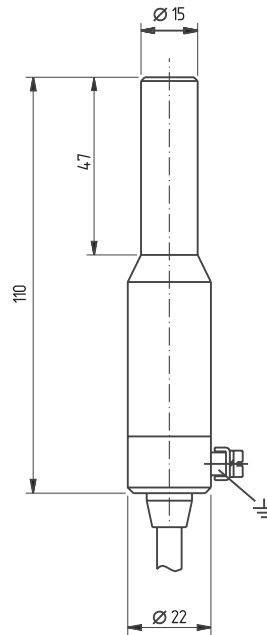
EEx RC M20

- 1 reed contact
- Nickel-plated brass enclosure
- Cylindrical shape
- Switching distance
NC, change-over contact: up to 25 mm
NO contact: up to 30 mm
- Pre-wired cable
- Highly resistant to vibration
- IP 67

Note

Technical data are shown in tabular form in chapter 6.4.

6.
6.1 **Ex switchgear**
Magnetic sensors
EEx RC 15 range

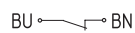


Features

- Nickel-plated brass enclosure
- II 2G EEx m II T6
II 2D IP 67 T80°C
- Long life
- Proximity switch
- 1 reed contact
- Particularly resistant to vibration
- Available for actuation from front
- Any direction of operation possible
- Actuating distance up to 25 mm depending on actuating magnet
- Pre-wired cable
- IP 67

Cable length 1 metre long ordering suffix -1m
 2 metres long ordering suffix -2m
 5 metres long ordering suffix -5m
 Please always state cable length in orders

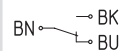
Contacts



1 NC



1 NO



1 Change-over

Actuation from front

EEx RC 15 1Ö

EEx RC 15 1S

EEx RC 15 1W

Note

The actuating magnets are not included with the sensors. For selection, see chapter 6.3.

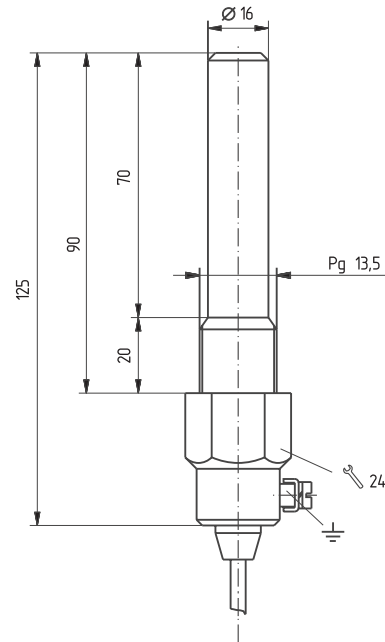
Approvals

EC Type Test Certificate:
DMT 01 ATEX E 058 X

Info

Version for equipment categories 3G and 3D (gas-Ex zone 2 and dust-Ex zone 22) available, Ordering suffix: -3G/D

6.
6.2 **Ex switchgear**
Magnetic sensors
EEx RC 13,5 range

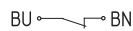


Features

- Nickel-plated brass enclosure
- II 2G EEx m II T6
II 2D IP 67 T80°C
- Long life
- Proximity switch
- 1 reed contact
- Particularly resistant to vibration
- Available for actuation from front
- Any direction of operation possible
- Actuating distance up to 30 mm depending on actuating magnet
- Pre-wired cable
- IP 67

Cable length 1 metre long ordering suffix -1m
 2 metres long ordering suffix -2m
 5 metres long ordering suffix -5m
 Please always state cable length in orders

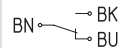
Contacts



1 NC



1 NO



1 Change-over

Actuation from front

EEx RC 13,5 1Ö

EEx RC 13,5 1S

EEx RC 13,5 1W

Note

The actuating magnets are not included with the sensors. For selection, see chapter 6.3.

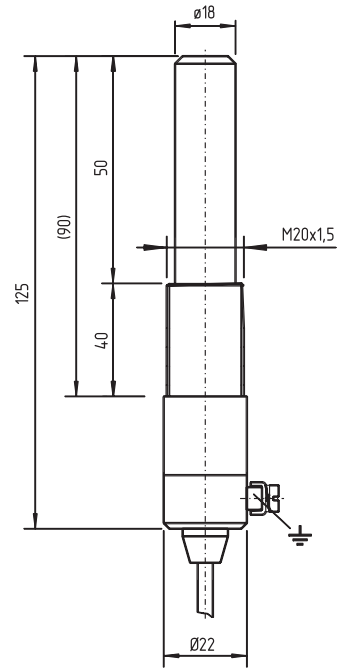
Approvals

DMT 01 ATEX E 058 X

Info

Version for equipment categories 3G and 3D (gas-Ex zone 2 and dust-Ex zone 22) available, Ordering suffix: -3G/D

6.
6.3 **Ex switchgear**
Magnetic sensors
EEx RC M20 range



Features

- Nickel-plated brass enclosure
- II 2G EEx m II T6
II 2D IP 67 T80°C
- Long life
- Proximity switch
- 1 reed contact
- Particularly resistant to vibration
- Available for actuation from front, from side only with bistable type
- Any direction of operation possible
- Actuating distance up to 30 mm depending on actuating magnet
- Pre-wired cable
- IP 67
- Stainless steel type available

Cable length 1 metre long ordering suffix -1m
 2 metres long ordering suffix -2m
 5 metres long ordering suffix -5m
 Please always state cable length in orders

Contacts	1 NO bistable	1 Change-over	1 Change-over bistable
Actuation from side	EEx RC M20 1S-R	EEx RC M20 1W	EEx RC M20 1W-R

Note The actuating magnets are not included with the sensors. For selection, see chapter 6.3.

Bistable function The opening and closing functions depend on the direction of actuation, the actuating magnets and the polarity of the actuating magnets.

Approvals DMT 01 ATEX E 058 X

Info Version for equipment categories 3G and 3D (gas-Ex zone 2 and dust-Ex zone 22) available, Ordering suffix: -3G/D

6.
6.4

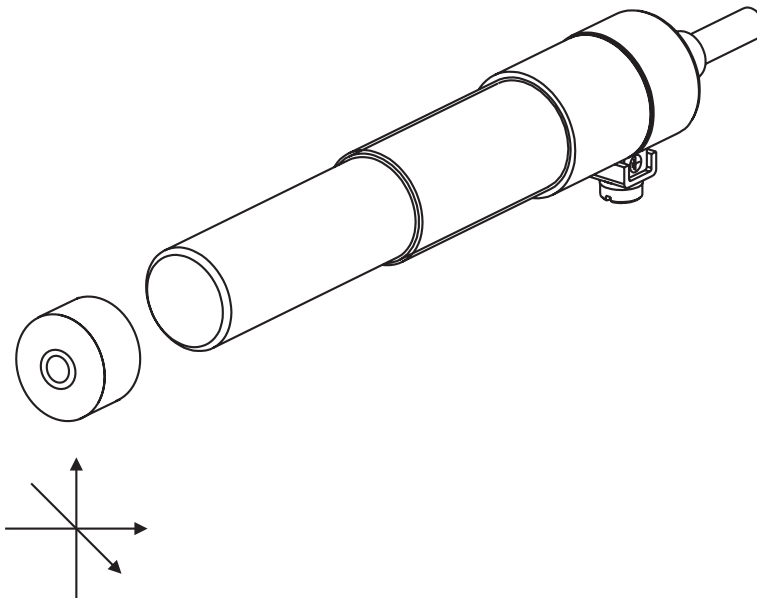
Ex switchgear
Magnetic sensors
Switching distances



Actuating magnets for actuation from front

Part number	EEx RC 15 1Ö EEx RC 13,5 1Ö		EEx RC 15 1S EEx RC 13,5 1S		EEx RC 15 1W EEx RC 13,5 1W EEx RC M20 1W	
Contact travel						
Contacts	1 NC		1 NO		1 Change-over	
Actuation type	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	12	24	17	20
M 300 U	17	20	12	24	17	20
M 400 U	33	37	28	43	33	37
M 700	30	35	25	40	30	35

Actuation from front



6.
6.4

Ex switchgear
Magnetic sensors
Switching distances

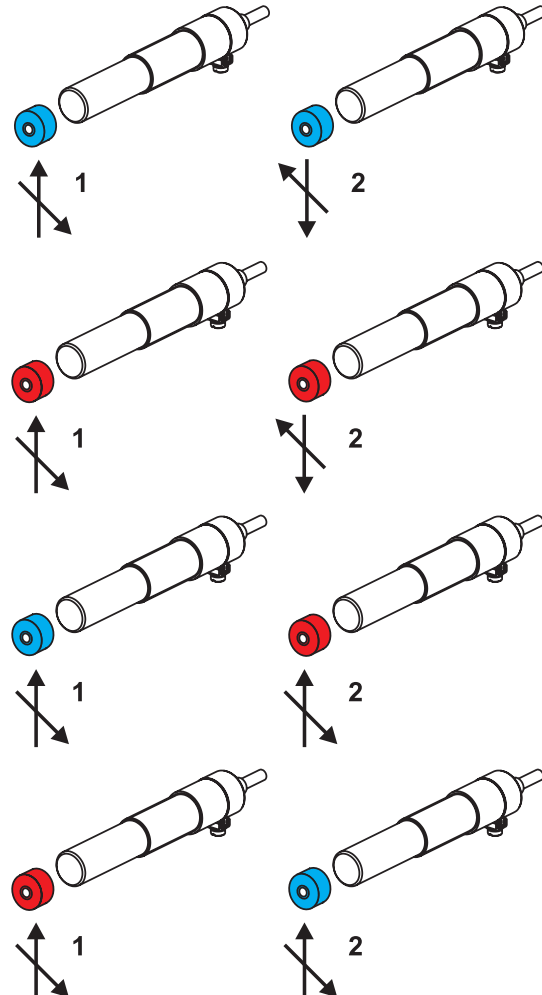


Actuating magnets for actuation from front bistable types

Part number	EEx RC M20 1S-R	EEx RC M20 1W-R
Contact travel		
Contacts	1 Bistable	1 Bistable change-over
Actuation type	N/S	N/S
Actuating magnet	Switching distance [mm] on off	Switching distance [mm] on off

M 50 U	12	6	-	-
M 100	22	12	20	40
M 100 U	22	12	20	40
M 200	30	30	25	50
M 200 U	30	30	25	50
M 300	37	23	30	60
M 300 U	37	23	30	60
M 400 U	63	43	50	90
M 700	60	40	50	75

Actuation from front



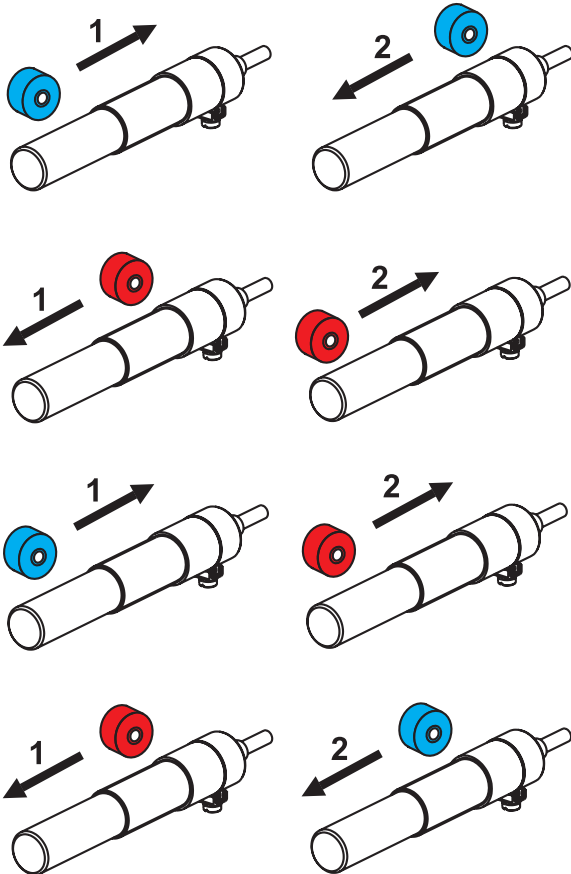
6.
6.4 Ex switchgear
Magnetic sensors
Switching distances



Actuating magnets for actuation from side bistable types

Part number	EEx RC M20 1S-R		EEx RC M20 1W-R	
Contact travel				
Contacts	1 Bistable		1 Bistable change-over	
Actuation type	N or S		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

Actuation from side

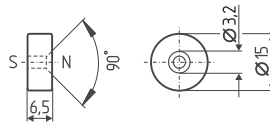


6. Ex switchgear
6.5 Magnetic sensors
Actuating magnets – Permanent magnets

M 100

M 100 U

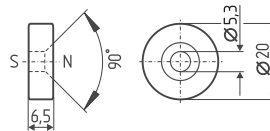
- Unenclosed
- Barium ferrite
- Ambient temperature:
-20 °C ... +80 °C



M 100

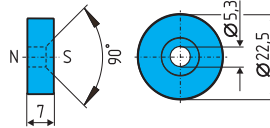
M 100 U

- Unenclosed
- Barium ferrite
- Ambient temperature:
-20 °C ... +80 °C

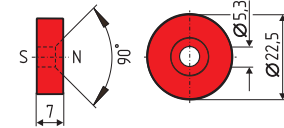


M 100

- Thermoplastic enclosure
blue or red
- Barium ferrite
- Ambient temperature:
-20 °C ... +80 °C



M 100 S

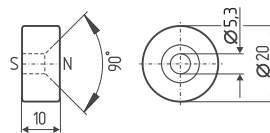


M 100 N

M 200

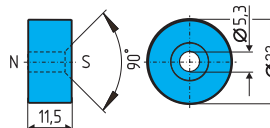
M 200 U

- Unenclosed
- Barium ferrite
- Ambient temperature:
-20 °C ... +80 °C

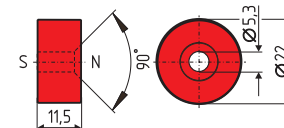


M 200

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



M 200 S



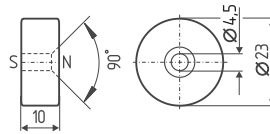
M 200 N

6. Ex switchgear
6.5 Magnetic sensors
Actuating magnets – Permanent magnets

M 300

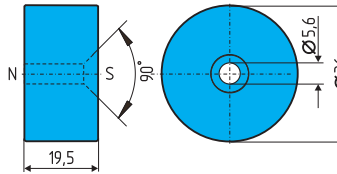
M 300 U

- Unenclosed
- Colour coding of northpole (red spot)
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C

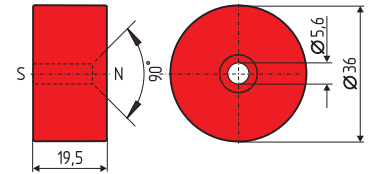


M 300

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



M 300 S

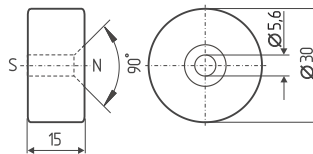


M 300 N

M 400

M 400 U

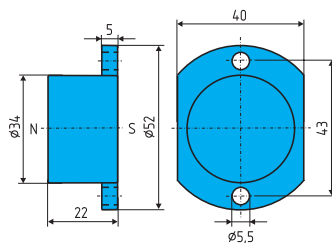
- Unenclosed
- Barium ferrite
- Ambient temperature: -20 °C ... +80 °C



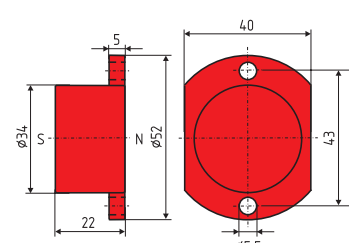
M 700

M 700

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



M 700 S



M 700 N

6.
6.6

Ex switchgear
Magnetic sensors
Technical data



	EEx RC 15	EEx RC 13,5	EEx RC M20
Standards:	EN 50014; EN 50028; EN 50281-1-1		
Ex marking:	II 2G EEx m II T6 II 2D IP 67 T80°C		
Certification:	DMT 01 ATEX E 058 X		
Enclosure material:	Nickel-plated brass		
Actuators:	M range magnets		
Protection class:	IP 67 to IEC/EN 60529		
Contact type:	NC, NO or change-over contacts		NO or change-over contacts, NO or change-over contacts bistable
Switching system:	sensors		
Termination:	Cable, 2 m long; 1S: H05VV-F 3 x 0.75 mm ² or MNZ 45 MC 3 x 0.75 mm ² ; 1Ö, 1W: H05VV-F 4 x 0.5 mm ² or MNZ 45 M 4 x 0.75 mm ²		
Utilisation category:	AC-15; DC-13		
Switching voltage:	1Ö, 1S, 1W: 250 VAC		
Switching current:	1Ö, 1S, 1W: max. 1.5 A		
Switching capacity:	1Ö, 1W: max. 50 VA/W 1S: max. 100 VA/W		
Bounce duration:	0.3 ... 0.6 ms		
Ambient temperature:	-20 °C ... +70 °C		
Mechanical life:	>1 million operations		
Electrical life:	10 ⁶ ... 10 ⁹ operations		
Switching frequency:	1S: 140/s; 1W: 85/s		
Switching speed:	-		
Switching time "Close":	3.5 ... 4.5 ms		
Switching time "Open":	0.2 ... 2.5 ms		
Repeat accuracy of switching points:	-		
Resistance to vibration:	1S: 50 ... 100g, 1W: 10 ... 50g		



6. Ex switchgear
6.6 Magnetic sensors
Technical data

