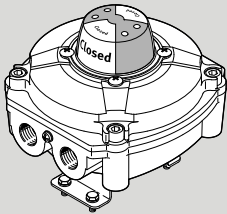


SRBE-...-EX
Limit Switch Box



FESTO

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Operating instructions

8141485
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[8141487]








Translation of the original instructions

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1 Identification EX

Identification mark		Certificate
	International	Ex db IIC T6 Gb Ex tb IIIC T(*) Db
	Europe	II 2G Ex db IIC T6 Gb II 2D Ex tb IIIC T(*) Db
	China	Ex d IIC T6 Gb Ex tD A21 IP67 T*

Tab. 1

2 Applicable documents

NOTICE!

Technical data for the product can have different values in other documents. For operation in an explosive atmosphere, the technical data in this document always have priority.

All available documents for the product → www.festo.com/sp.

3 Safety

3.1 Safety instructions

- The device can be used under the stated operating conditions in zone 1, explosive gas atmospheres, and in zone 21, explosive dust atmospheres.
- Observe the product labelling.

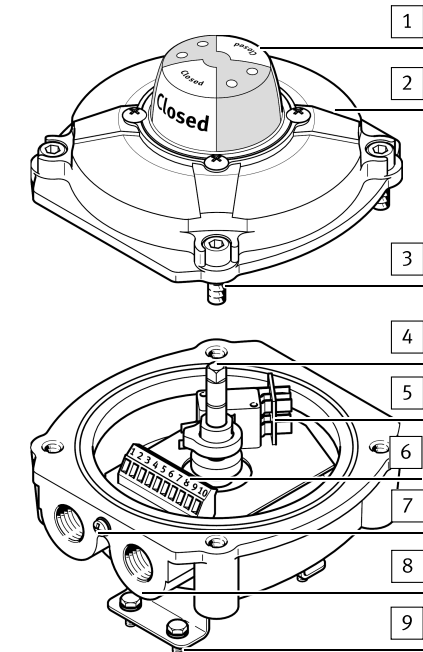
3.2 Intended use

The intended use of the product is to record and display the end positions and intermediate positions of pneumatic drives.

3.3 Identification X: special conditions

- Ambient temperature: $-20\text{ °C} \leq T_a \leq +60\text{ °C}$
- Use only cable fittings or sealing plugs that are approved for the applicable type of (ignition) protection and IP67.
- Only clean the device with a damp cloth.
- For further information on the flameproof gaps, contact the manufacturer.

4 Product overview



- 1

Position indicator
- 2

Housing cover
- 3

Housing screws
- 4

Shaft with cam
- 5

Proximity switches
- 6

Terminal strip
- 7

Earth connection (PE) on the inside and outside of the housing wall
- 8

Cable inlet M20x1.5 or NPT 1/2
- 9

Mounting adapter with retaining screws M5x10

Fig. 1

Default settings on delivery:

- Position indicator “closed”
- Switching point for “open” 90° anti-clockwise

5 Additional information

- Accessories → www.festo.com/catalogue.
- Service → www.festo.com.
Contact the regional Festo contact if you have technical questions.

6 Function

The limit switch box is used for the detection and electrical and optical feedback of the end positions of a drive. The limit switch box is suitable for operation with semi-rotary drives with a mechanical interface in accordance with VDI/VDE Guideline 3845.

7 Installation

WARNING!

Carry out the commissioning, service and inspection outside of the explosive atmosphere. Disconnect the power supply before this work and secure against reconnection.

NOTICE!

Installation and commissioning may only be performed in accordance with the operating instructions and by qualified personnel.

1. Close process valve.
2. Place the limit switch box with mounting adapter on the drive and align it.
 - Avoid axial load of the drive shaft.
3. Fasten the mounting adapter to the drive.
 - Lock the retaining screws. Tightening torque: 6 Nm ± 10%

Mounting adapter

When replacing the limit switch attachment, observe the tightening torque.

- Tightening torque between mounting adapter and limit switch box: 10 Nm ± 10%

8 Electrical connection

WARNING!

Before switching on the electrical circuit in potentially explosive atmospheres:

- Mount the cover securely on the housing.
- Connect with potential equalisation.

NOTICE!

Thread of the cable guide depends on the product variant: M20x1.5 or 1/2 NPT
Cable fittings must be appropriate for the corresponding thread type. Cable connector threads must not protrude into the interior of the housing.

NOTICE!

The supplied plastic blanking plugs are intended exclusively for protection against contamination during transport and handling. During operation, these should be replaced by cable connectors and/or blanking plugs approved for use in explosion protection areas.

WARNING!

Use cable connectors of type of (ignition) protection Ex-d and a degree of protection of at least IP67. Seal unused cable entries with blanking plugs.

1. Loosen the housing screws [3] on the housing cover [2].
2. Screw the cable fitting into the cable inlet [8]. Guide the electrical connecting cable through the cable fitting to the terminal block [6].
3. Wiring connections → 8.1 Terminal plan
4. Connect the earth terminal [7] with low impedance (short cable with large cross section) to the earth terminal.
5. Place the housing cover in position and tighten the housing screws.
 - Note the correct position of the seal.

8.1 Terminal plan

SRBE-Cxx-YR90-1W-.../SRBE-Cxx-YR90-R-2A-1W-...

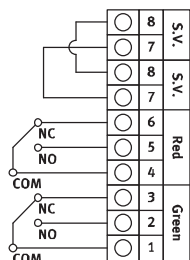


Fig. 2 Two SPDT micro-switches, mechanical or magnetic

SRBE-Cxx-YR90-N-20N-ZC-.../SRBE-Cxx-YR90-N-1-ZU-...

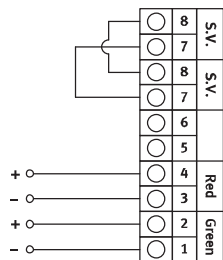


Fig. 3 Two-wire proximity switches, inductive

SRBE-Cxx-YR90-N-1-P-.../SRBE-Cxx-YR90-N-1-N-...

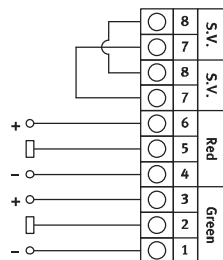


Fig. 4 Three-wire proximity switches, inductive

SRBE-Cxx-YR90-MW-22A-2W-...

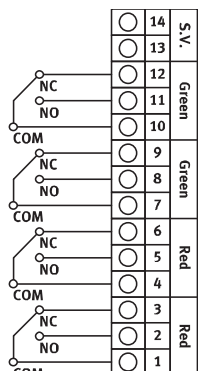


Fig. 5 Four SPDT micro-switches, mechanical

9 Switching point adjustment

The switching points are preset → 4 Product overview.

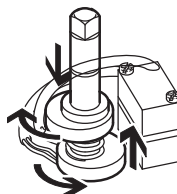


Fig. 6

1. Close process valve.
 - ↳ Position indicator: “closed”.
2. Loosen the housing screws on the housing cover and remove the housing cover.
3. Lift the red cam against the spring and turn until the lower proximity switch switches.
4. Release the red cam.
 - ↳ – The spring presses the red cam into the ring gear.
 - The switching point for “closed” is set.
5. Open process valve.
 - ↳ Position indicator: “open”.
6. Press down the green cam against the spring and turn until the upper proximity switch switches.
7. Release the green cam.
 - ↳ – The spring presses the green cam into the ring gear.
 - The switching point for “open” is set.
8. Place the housing cover in position and tighten the housing screws.

10 Maintenance and care

The device is maintenance-free. Repairs are not possible.

Avoid contact with aggressive substances.

- Only clean the device with a damp cloth. Do not use the following agents:
 - Abrasives
 - Alcohol
 - Solvents
- Protect surfaces from excessive heat.

11 Fault clearance

Fault description	Cause	Remedy
Incorrect or unexpected signal	Wire break	Replace cable
	Position of the switching points incorrect	Setting switching points
	Proximity switch defective	Replace limit switch box

Tab. 2

12 Technical data

SRBE-...		
Angular detection setting range	[°]	0 ... 90
Cable entry		
SRBE-...-M20		2 x M20x1.5
SRBE-...-N12		2 x 1/2 NPT
Electrical connection		
SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-N-20N-ZC-... SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-... SRBE-Cxx-YR90-N-1-ZU-... SRBE-Cxx-YR90-R-2A-1W-...		10-pin, screw terminal
SRBE-Cxx-YR90-MW-22A-2W-...		14-pin, screw terminal
Conductor nominal cross section that can be connected	[mm²]	0.25 ... 2.5
Mounting position		any
Operating voltage range AC		
SRBE-Cxx-YR90-R-2A-1W-...	[V]	0 ... 220
SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-MW-22A-2W-...	[V]	0 ... 250
Max. output current AC		
SRBE-Cxx-YR90-R-2A-1W-...	[A]	0.416 (220 V)
SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-MW-22A-2W-...	[A] [V]	3 (250 V)
Operating voltage range DC		
SRBE-Cxx-YR90-R-2A-1W-... SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-MW-22A-2W-...	[V] [V] [V]	0 ... 30
SRBE-Cxx-YR90-N-20N-ZC-...	[V]	8.2
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-...	[V] [V]	10 ... 30
SRBE-Cxx-YR90-N-1-ZU-...	[V]	5 ... 60
Max. output current DC		
SRBE-Cxx-YR90-R-2A-1W-...	[A]	3 (300 V)

SRBE-...		
SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-MW-22A-2W-...	[A]	6 (30 V); 0.6 (125 V); 0.3 (250 V)
SRBE-Cxx-YR90-N-20N-ZC-...	[mA]	3
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-... SRBE-Cxx-YR90-N-1-ZU-...	[mA]	100
Voltage drop		
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-...	[V]	≤ 3
SRBE-Cxx-YR90-N-1-ZU-...	[V]	≤ 5
Residual current		
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-...	[mA]	≤ 15
No-load supply current		
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-...	[mA]	0 ... 0.5
SRBE-Cxx-YR90-N-1-ZU-...	[mA]	0 ... 1
Reverse polarity protection		
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-... SRBE-Cxx-YR90-N-1-ZU-...		For all electrical connections
Short circuit current rating		
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-...		Pulsed
Ambient temperature EX	[°C]	−20 ... +60
Max. surface temperature T(*) limit switch box		
SRBE-Cxx-YR90-MW-22A-1W-... SRBE-Cxx-YR90-MW-22A-2W-... SRBE-Cxx-YR90-N-1-ZU-...	[°C]	T75
SRBE-Cxx-YR90-N-1-P-... SRBE-Cxx-YR90-N-1-N-... SRBE-Cxx-YR90-N-20N-ZC-... SRBE-Cxx-YR90-R-2A-1W-...	[°C]	T61
Degree of protection		IP67, NEMA 4/4X
Continuous shock resistance to DIN/IEC 68 Part 2-82		± 15g at 6 ms duration; 1000 shocks per direction
Vibration resistance to DIN/IEC 68 Part 2-6		0.35 mm path at 0 ... 60 Hz; 5 g acceleration at 0 ... 150 Hz
Materials		
Housing		Painted die-cast aluminium
Shaft		high-alloy stainless steel
Seal		NBR
Screws		high-alloy stainless steel
Optical position indicator		PC
Mounting adapter		high-alloy stainless steel

Tab. 3