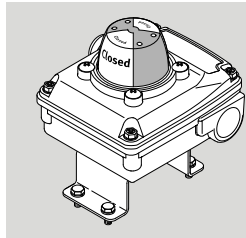


# SRBC-... Sensorbox



## FESTO

Festo SE & Co. KG  
Rüter Straße 82  
73734 Esslingen  
Germany  
+49 711 347-0

www.festo.com



Instructions | Operating

8121896  
2019-10d  
[8121898]

Translation of the original instructions

### 1 Further applicable documents

User documentation	
Name, type	Table of contents
Sensorbox, SRBC-CA3-N-20N-ZC-EX6	Operating conditions EX

Tab. 1

All available documents for the product → [www.festo.com/pk](http://www.festo.com/pk).

### 2 Safety

#### 2.1 Safety instructions

The cable connector supplied is only for cable throughfeed.  
– To ensure the specified degree of protection IP67, seal each cable entry tight (cable connector, blanking plug).

#### 2.2 Intended use

The sensorbox is intended for recording, electrical feedback and optical display of the end positions of drives. Appropriate for operation are semi-rotary drives and other products with a mechanical interface in accordance with VDI/VDE Directive 3845.

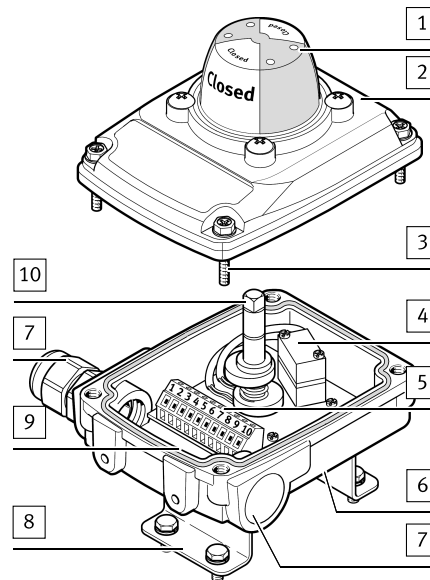
### 3 Service

If you have technical questions, contact the regional Festo contact  
→ [www.festo.com](http://www.festo.com).

### 4 Product overview

Feature	Value	Description
Type	SRBC	Sensorbox for process automation
Design	C	Sensorbox
Mechanical interface	A3	Mounting adapter, hole pattern 30 x 80 mm, height 20 mm
Display type	YR	Position indicator yellow/red
Measuring range	90	0 ... 90°
Measuring principle	N	Proximity sensors, inductive
	R	Reed with contact
	MW	Potential-free contact, changer
Nominal operating voltage	2A	110 V AC
	22A	250 V AC
	20N	8.2 V DC (NAMUR)
	1	24 V DC
Switching element function	N	NPN
	P	PNP
	ZC	2-wire N/C contact (NO)
	ZU	2-wire N/O contact (NO)
	1W	1-pin toggle switch
Electrical connection	C2	Screw terminal
Cable joint	P20	M20 x 1.5, polymer
EU certification	EX6	II 1GD

Tab. 2



- 1 Position indicator
- 2 Housing cover
- 3 Housing screws
- 4 Proximity sensor
- 5 Terminal strip
- 6 Shaft
- 7 Cable entry with cable connector or blanking plug
- 8 Mounting adapter with retaining screws
- 9 Earth connection (PE) on the inside of the housing wall
- 10 Shaft with cam and spring

Fig. 1

Presetting on delivery:

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

### 5 Function

The shaft transmits the rotation of the drive to the visual position indicator. Depending on the design, the cams actuate mechanical, inductive or magnetic proximity sensors to provide the signals at the electrical output, terminal diagram → Tab. 3 Terminal diagram of sensorbox SRBC.

### 6 Assembly and installation

For sensorboxes with type SRBC-...-2A and SRBC-...-22A:

#### ⚠ WARNING!

#### Electric voltage

Injury due to electric shock.

- Switch off the power supply before opening the device.

#### 6.1 Assembly

During assembly, observe the position indicator and ensure compliance with the process fitting.

1. Place the sensorbox with mounting adapter in position and align it.
  - Avoid axial load of the drive shaft.
2. Attach the mounting adapter.
  - Retaining screws [8], tightening torque 6 Nm ± 10 %

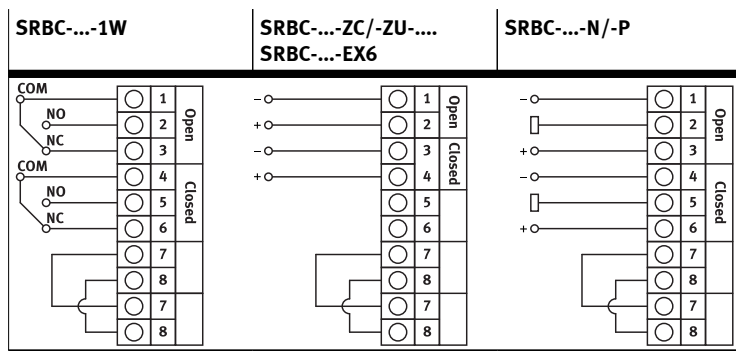
#### Mounting adapter

When replacing the sensorbox, observe tightening torque. Tightening torque between mounting adapter and sensorbox: 10 Nm ± 10 %

## 6.2 Electrical connection

### NOTICE!

The IP67 degree of protection depends on the type of electrical connection. Inappropriate cables or incorrect installation reduce the degree of protection of the sensorbox.



Tab. 3 Terminal diagram of sensorbox SRBC

- Loosen the screws [3] on the housing cover [2] and remove the housing cover.
- Screw the cable connector into the cable entry. Guide the electrical connecting cable through the cable connector to the terminal block.
  - Tightening torque of cable connector: 4.5 Nm
  - Outside diameter of electric connecting cable: 5 ... 13 mm
  - Conductor cross-section: 0.25 ... 2.5 mm<sup>2</sup>
- Seal unused openings with blanking plugs.
- Wire connections → Tab. 3 Terminal diagram of sensorbox SRBC.
- Connect the earth terminal with low impedance to the earth potential.
  - Earth terminal tightening torque: 1.3 Nm
- Tighten the union nut on the cable connector.
  - Tightening torque of union nut: 4 Nm
- Place the housing cover in position and tighten the housing screws.
  - Observe the correct position of the seals.
  - Tightening torque of housing screws: 2 Nm

## 6.3 Set switching points

The switching points are preset → 4 Product overview.

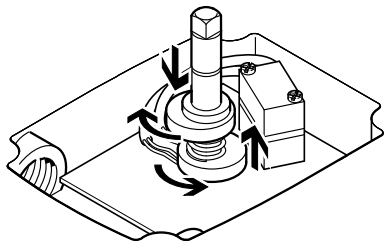


Fig. 2 Switchpoint of sensorbox SRBC

- Close the process valve.
  - ☞ Position indicator "closed"
- Loosen the housing screws on the housing cover and remove the housing cover.
- Lift the red cam against the spring and turn until the lower proximity sensor switches.
- Release the red cam.
  - ☞ The spring presses the red cam into the ring gear.
  - ☞ The switching point for "closed" is set.
- Open process valve.
  - ☞ Position indicator "open"
- Press down the green cam against the spring and turn until the upper proximity sensor switches.
- Release the green cam.
  - ☞ The spring presses the green cam into the ring gear.
  - ☞ The switching point for "open" is set.
- Place the housing cover in position and tighten the housing screws.
  - Observe the correct position of the seals.
  - Tightening torque of housing screws: 2 Nm

## 7 Service and care

If used as intended, the product is maintenance-free.

## 8 Fault clearance

Fault description	Cause	Remedy
Incorrect or unexpected signal	Wire break	Replace cable
	Position of the switching points incorrectly defined	Set switching points → 6.3 Set switching points
	Proximity sensor defective	Replace sensorbox

Tab. 4

## 9 Technical data

SRBC-...		
Setting range of sensors	[°]	0 ... 360
Sensing range of position indicator	[°]	0 ... 90
Cable connector		M20 x 1.5
Approved cable diameter	[mm]	5 ... 13
Electrical connection		10-pin, screw terminal
Nominal conductor cross section that can be connected	[mm <sup>2</sup> ]	0.25 ... 2.5
Mounting position		Any
Operating voltage range AC		
SRBC-...-2A	[V]	0 ... 120
SRBC-...-22A	[V]	0 ... 250
Max. output current AC		
SRBC-...-2A	[mA]	250 (at 120 V)
SRBC-...-22A	[mA]	3000 (at 250 V)
Operating voltage range		
SRBC-...-2A-1W	[V]	0 ... 175
SRBC-...-22A-1W	[V]	0 ... 30
SRBC-...-20N-ZC	[V]	8,2
SRBC-...-20N-ZC-EX6	[V]	8,2
SRBC-...-1-P / SRBC-...-1-N	[V]	10 ... 30
SRBC-...-1-ZU	[V]	5 ... 60
Max. output current DC		
SRBC-...-2A-1W	[mA]	250 (at 175 V)
SRBC-...-22A-1W	[mA]	3000 (at 30 V)
SRBC-...-20N-ZC	[mA]	3
SRBC-...-20N-ZC-EX6	[mA]	3
SRBC-...-1-P / SRBC-...-1-N / SRBC-...-1-ZU	[mA]	100
Voltage drop		
SRBC-...-1-P / SRBC-...-1-N	[V]	≤ 3
SRBC-...-1-ZU	[V]	≤ 5
Residual current		
SRBC-...-P / SRBC-...-N	[mA]	≤ 15
Idle current		
SRBC-...-P / SRBC-...-N	[mA]	0 ... 0.5
SRBC-...-1-ZU	[mA]	0 ... 1
Reverse polarity protection		
SRBC-...-P / SRBC-...-P / SRBC-...-ZU		For all electrical connections
Short circuit protection		
SRBC-...-P / SRBC-...-N		Pulsed
Ambient temperature		
SRBC-...-1-P / SRBC-...-1-N	[°C]	-20 ... 70
SRBC-...-2A-1W / SRBC-...-22A-1W / SRBC-...-20N-ZC / SRBC-...-20N-ZC-EX6 / SRBC-...-1-ZU	[°C]	-20 ... 80
Degree of protection		IP67, NEMA 4/4X
Continuous shock resistance to DIN/IEC 60068 Part 2-27		± 15 g with 6 ms duration; 1000 shocks per direction
Vibration resistance to DIN/IEC 60068 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, screws, mounting adapter		High-alloy stainless steel
Seal		NBR
Optical position indicator		PC
Cable connector/blanking plug		PA

Tab. 5