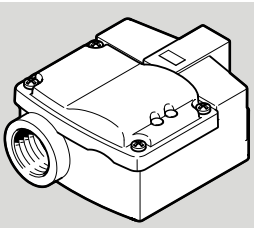
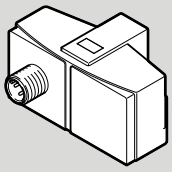
SRBG
Limit switch box





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Operating instructions

8141457
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[8141459]

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1 Applicable documents

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

Documents	Product	Table of contents
Addendum document	Limit switch box SRBG-...-EX6	Operating conditions EX

Tab. 1

2 Safety

2.1 Safety instructions

- Only use the product in original status without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- Observe labelling on the product.
- The protective caps fitted on delivery are for transport purposes only and must be replaced with cable connectors or blanking plugs that are suitable for the application.
- Take into consideration the ambient conditions at the location of use.
- This product can generate high frequency malfunctions, which may make it necessary to implement interference suppression measures in residential areas.

2.2 Intended use

The limit switch box is intended for recording, electrical feedback and optical display of the end positions of drives.

2.3 Training of qualified personnel

Work on the product should only be conducted by qualified personnel.

2.4 UL/CSA Certification

In combination with the UL inspection mark on the product, the information in this section must also be observed in order to comply with the certification conditions of Underwriters Laboratories Inc. (UL) for USA and Canada.

UL/CSA Certification	
Product category code	NRKH, NRKH7
File number	E232949
Considered standards	UL 60947-1, UL 60947-5-2 CSA-C22.2 No. 60947-1, CSA-C22.2 No. 60947-5-2
UL mark	c UL us LISTED

Tab. 2 UL/CSA Certification

Only for connection to a NEC/CEC Class 2 supply.

3 Additional information

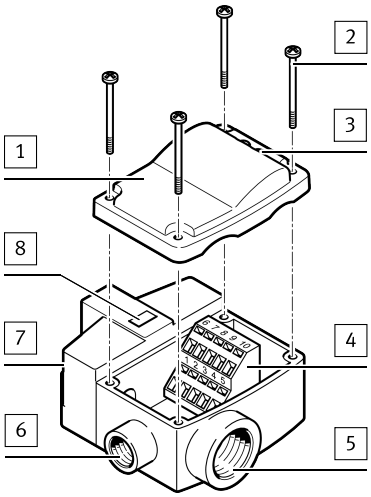
- Accessories ➔ www.festo.com/catalogue.
- Spare parts ➔www.festo.com/spareparts.

4 Service

Contact your regional Festo contact person if you have technical questions ➔ www.festo.com.

5 Product design

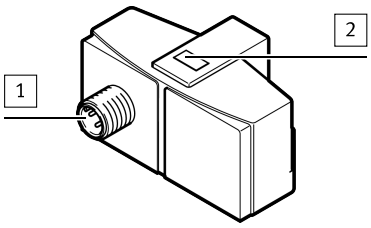
5.1 SRBG-...-C2-C2



1 Housing cover
2 Housing screws
3 LED yellow:
Switching status indication for solenoid valve
4 Caged spring terminals
5 Cable entry M20x1.5
for system connection
6 Cable entry M12x1.5
for solenoid valve connection
7 Inductive dual sensor
8 LED green:
Power supply indicator (only with SRBG-C1-N-1-P-C2-C2)
LED yellow:
Switching status indication (target position 1, target position 2)

Fig. 1

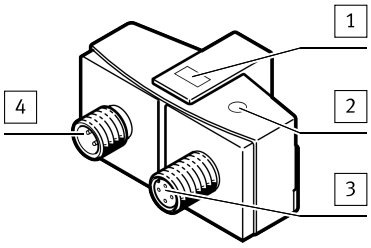
5.2 SRBG-...-M12



1 M12 plug
2 LED green:
Power supply indicator
(only with SRBG-C1-N-1-P-M12)
LED yellow:
Switching status indication (target position 1, target position 2)

Fig. 2

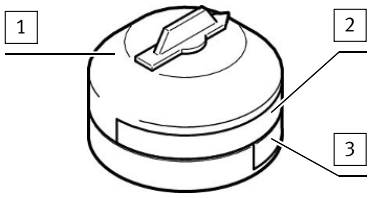
5.3 SRBG-...-M12-M12



1 LED green:
Power supply indicator
LED yellow:
Switching status indication (target position 1, target position 2)
2 LED yellow:
Valve status display
LED red: wire break/short circuit
3 Solenoid valve connection
4 AS-i connection

Fig. 3

5.4 SASF-S2-...-V-...



1 Position indicator
2 Adjustable metal strap (variable) target position 1
3 Adjustable metal strap (variable) target position 2

Fig. 4

6 Function

The SRBG product detects the end position of the drive with the help of the SASF position indicator as an activating element. Inductive sensors of the limit switch box detect the metallic actuating elements on the position indicator without contact.

6.1 SASF-S2-...-F-...

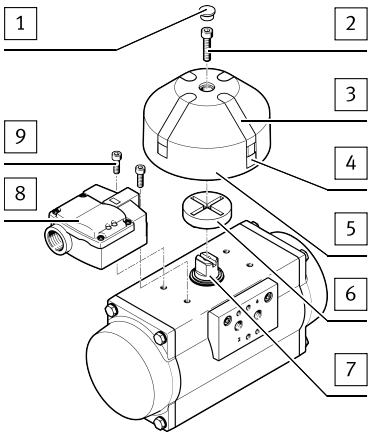
The actuating elements are are fixed at an offset of 90°. The actuating elements are suitable for anti-clockwise and clockwise drives with a 90° or 180° rotation angle.

6.2 SASF-S2-...-V-...

There are 2 actuating elements on the housing, each with a rotation of 180°. The actuators are rotationally offset and can be infinitely adjusted. The range with the actuating element generates the function normally open. The range without actuator generates the function normally closed.

7 Assembly

SASF-S2-...-F-...

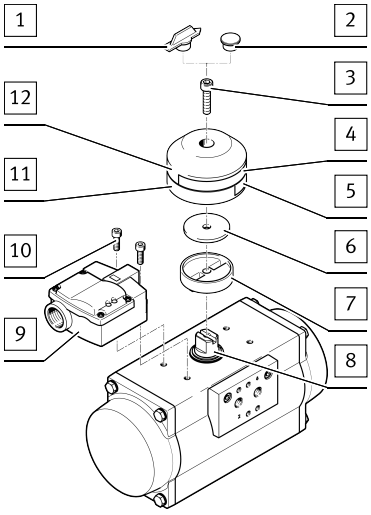


1 Sealing plug
2 Screw M6
3 Identification stopper
4 Actuating elements
5 Position indicator SASF-S2-...-F-...
6 Spacer disc
7 Drive shaft
8 Limit switch box SRBG
9 Screws M5

Fig. 5

1. Place the limit switch box 8 on the mounting interface of the semi-rotary drive and mount it with the M5 screws 9. Tightening torque: 1 Nm ± 10%. The limit switch box does not need to be adjusted after mounting.
2. Fix the position indicator SASF-S2-...-F-... 5 on the drive shaft 7 and mount with M6 screw 2: tightening torque: 1.5 Nm ± 10%. Dependent on the shaft height: use a spacer disc 6.
3. After mounting sealing plug 1 and identification stopper 3 on the position indicator SASF-S2-...-F-...

SASF-S2-...-V-...



1 Identification stopper
2 Sealing plug
3 Screw M6
4 Adjustable metal strap (variable) actuation point 1
5 Adjustable metal strap (variable) actuation point 2
6 Rubber washer
7 Spacer disc
8 Drive shaft
9 Limit switch box SRBG
10 Screws M5
11 Position indicator SASF-S2-...-V-... lower part
12 Position indicator SASF-S2-...-V-... upper part

Fig. 6

1. Place the limit switch box 9 on the mounting interface of the semi-rotary drive and mount it with the M5 screws 10. Tightening torque: 1 Nm ± 10%. The limit switch box does not need to be adjusted after mounting.
2. Insert the rubber washer 6 into the recess provided on the back of the spacer disc 7.
3. Place the spacer disc 7 with the inserted rubber washer 6 on the drive shaft 8 of the semi-rotary drive.
4. Place the lower part of the position indicator SASF-S2-...-V-... 11 on the spacer disc 7.
   – The position indicator SASF-S2-...-V-... is can be rotated as required and can be adjusted to the required position.
5. Place the upper part of the position indicator SASF-S2-...-V-... 12 on the lower part 11.
   – The position indicator SASF-S2-...-V-... is can be rotated as required and can be adjusted to the required position.
6. Fasten the position indicator SASF-S2-...-V-... with the M6 screw 3 to the drive shaft 8. Lightly tighten screw M6 by hand.
7. Adjust the upper and lower part of the position indicator SASF-S2-...-V-... to the required switching position and fasten with the M6 screw 3. Tightening torque: 1.5 Nm ± 10%
8. After mounting sealing plug 2 or identification stopper 1 on the position indicator SASF-S2-...-V-...
   – Optional: apply coloured adhesive dots to mark the most important switching functions on the position indicator SASF-S2-...-V-...

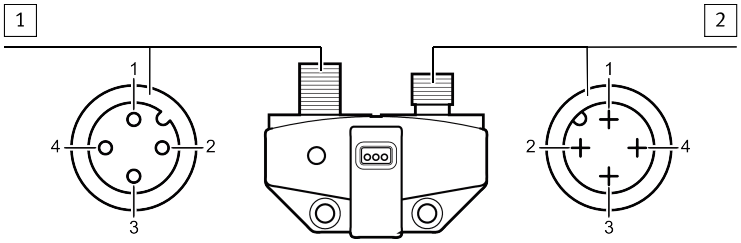
8 Installation

8.1 Electrical installation

Connection SRBG-...-C2-C2

1. Loosen the housing screws 2 on the housing cover 1. Remove the housing cover.
2. Screw the cable connector into the cable entry 5. Guide the electrical connecting cable through the cable connector to the terminal spring block 4.
   – Connectable conductor cross section:
     – flexible: 0.2 mm²... 1.5 mm²
     – rigid: 0.2 mm²... 2.5 mm²
3. Wire connections.
4. Place the housing cover in position and tighten the 4 housing screws. Tightening torque: 1 Nm

Connection SRBG-...-M12-M12/SRBG-...-M12



1 SRBG-...-M12-M12: Solenoid valve connection

2 SRBG-...-M12-M12: AS-i connection
SRBG-...-M12: Sensor connection

Fig. 7

Programming information	
Address	00 preset, can be changed via bus master or programming units
IO code	D
ID code	A
ID1 code	7
ID2 code	E

Tab. 3

Data bit	
Bit	Function
D0	Valve status (0 = valve off, 1 = valve on)
D1	Valve faults[1] (0 = wire break/short circuit, 1 = no fault)
D2	Switching output sensor 1[2] (0 = cushioned, 1 = uncushioned)
D3	Switching output sensor 2[2] (0 = cushioned, 1 = uncushioned)

1) Check only with actuated valve (D0 = 1)
2) Applicable for N/C function (P2/P3 = 1, preset), reverse behaviour with N/O function (P2/P3 = 0)

Tab. 4

Parameter bit	
Bit	Function
P0	Watchdog (0 = inactive, 1 = active)[1]
P1	Switching element function sensor 2[2] (0 = N/O contact, 1 = N/C contact)
P2	Switching element function sensor 1[2] (0 = N/O contact, 1 = N/C contact)
P3	Not used

1) Watchdog active: valve voltage drops with AS-Interface communication error
2) Default: N/C contact

Tab. 5

9 Maintenance and Care

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

10 Disposal

ENVIRONMENT!

Dispose of the product and packaging according to the applicable provisions of environmentally sound recycling.

SASF-...-S2-...		-F-A34	-F-A56	-V-A20
Ambient temperature	[°C]	–25 ... +80		–25 ... +70
Dimensions				
Ring diameter	[mm]	≤ 65	≤ 110	≤ 57
Circlip height	[mm]	≤ 6	≤ 7	≤ 6
Shaft diameter	[mm]	≤ 58	≤ 90	≤ 53
Shaft height	[mm]	20/30	30/50	20
Mounting hole pattern	[mm]	30x80	30x130	30x80
Materials				
Housing		PA		
Spacer disc				
Retaining screw, operating vane		High-alloy stainless steel		
Identification stopper - yellow		PE		
Sealing plug - black				
Screw M6		1.4305 / AISI 303 (V2A)		
Rubber washer		–		Rubber Disc/NBR 70
Yellow stickers		–		Silicone cardboard coated on one side

Tab. 6

SRBG-...-M12-M12		
Mounting position		any
Degree of protection		IP67
Sensor connection		M12x1, plug 4-pin
Temperature		
Ambient temperature	[°C]	–25 ... +70
Storage temperature	[°C]	–25 ... +70
Material		
Housing		PBT
M12 plug, screws		High-alloy stainless steel
Note on materials		Contains paint-wetting impairment substances[1)]
Electrical data		
Switching output		AS-Interface
Switching element function		normally closed/normally open, programmable
Switching frequency	[Hz]	0 ... 100
No-load supply current	[mA]	≤ 35
Operating voltage range AS-Interface	[V DC]	26.5 ... 31.6
Load voltage range	[V]	21.6 ... 26.4
Current consumption with load voltage from AS-Interface and load voltage connection	[mA]	≤ 100
Protocol		AS-Interface specification V3.0. Required master specification ≥ V2.1 slave type A/B slave
Device-specific diagnostics		Wire break/short circuit in valve
Addressing range		1A ... 31A (0)/1B ... 31B
Reverse polarity protection		for all electrical connections

1) PWIS = paint-wetting impairment substances

Tab. 7

SRBG-...-M12 SRBG-...-C2		-P	-ZU	-ZC
Mounting position		any		
Degree of protection		IP67		
Sensor connection SRBG-...-M12		M12x1, plug 4-pin		
Cable entry SRBG-...-C2		M20x1.5, sensor connection		
		M12 x 1.5, solenoid valve connection		
Electrical connection SRBG-...-C2		Spring-loaded terminal		
Temperature				
Ambient temperature	[°C]	–25 ... +70	–25 ... +70	–25 ... +100
Storage temperature	[°C]	–25 ... +70	–25 ... +70	–40 ... +100

SRBG-...-M12 SRBG-...-C2		-P	-ZU	-ZC
Material				
Housing		PBT		
M12 plug, screws		High-alloy stainless steel		
Note on materials		Contains paint-wetting impairment substances[1)]		
Electrical data				
Switching output		PNP	non-contact, 2-wire	NAMUR
Switching element function		normally closed	normally closed	normally open
Switching frequency	[Hz]	0 ... 500	0 ... 500	0 ... 3000
No-load supply current	[mA]	≤ 25	–	–
Operating voltage range	[V DC]	10 ... 30	6 ... 60	8.2
Output current DC	[mA]	≤ 100	≤ 100	≤ 3
Voltage drop	[V]	≤ 3	≤ 6	–
Residual current	[mA]	≤ 0.5	≤ 1	–
Min. load current	[mA]	–	4	–
Switching status indication		LED yellow		
Power supply indicator		LED green	–	–
Reverse polarity protection		for all electrical connections		

1) PWIS = paint-wetting impairment substances

Tab. 8