

Sensor boxes SRBE



# Sensor boxes SRBE

Key features and product range overview

FESTO

## Function

Sensor boxes SRBE are used for electrical feedback and control of the position of process valves actuated using pneumatic quarter turn actuators. They are suitable for use in potentially explosive environments. They can be mounted quickly

and easily on quarter turn actuators with a connection pattern to VDI/VDE 3845 using mounting adapters.

## Innovative

- Pre-assembled mounting adapter for ease of installation
- The trip cams can be set easily without additional tools
- Sturdy, corrosion-resistant design, ideal for use in harsh operating conditions
- Clearly visible 3D position indicator allows rapid detection of the current position of the quarter turn actuator

## Flexible

- Worldwide certifications (ATEX, IECEx, cCSAus, INMETRO) for use in potentially explosive environments
- The type of protection of the flameproof enclosure enables installation without safety barriers or NAMUR amplifier in potentially explosive environments
- Weather-tight housing for outdoor applications too
- Mechanical, inductive or magnetic switch variants for virtually all ranges of application
- Two cable inputs for common power supply for the sensor box and solenoid valve as standard

## Design

- Sturdy aluminium housing with two cable inputs
- Captive stainless steel screws on the housing cover
- Pre-assembled stainless steel mounting adapter 80x30 H20 for ease of mounting on standard actuators to VDI/VDE 3845
- 3D OPEN/CLOSED position indicator
- Mechanical, inductive or magnetic switch variants
- Number of switches: 2
- IP67, NEMA 4/4x
- ATEX, IECEx, cCSAus, INMETRO
- SIL 2 to IEC 61508



# Sensor boxes SRBE

Key features and product range overview

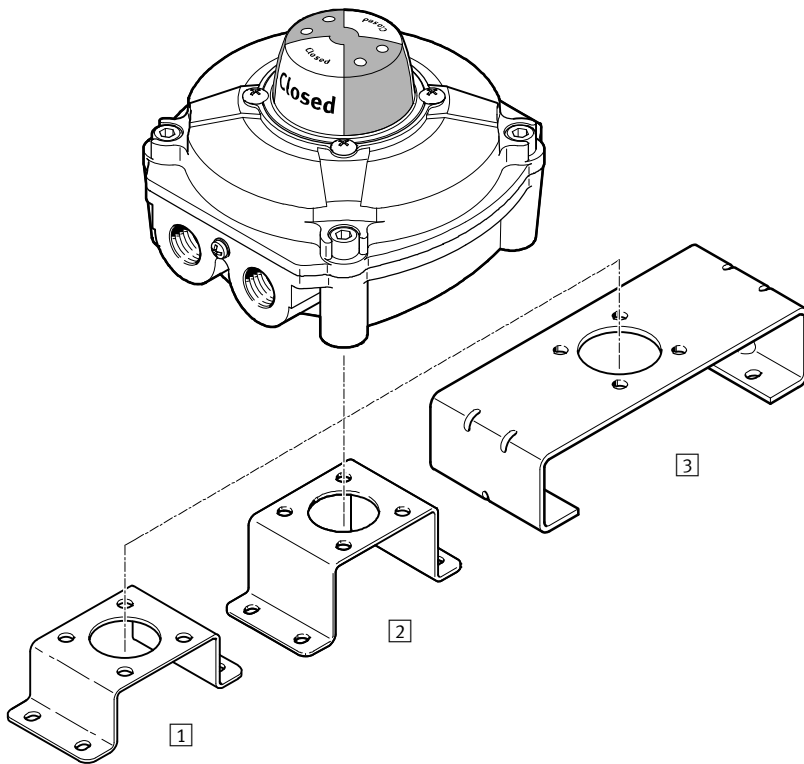
## Product range overview



Measuring principle	Type	EX certifications	Operating voltage range	Switching output	Switching element function
Electromechanical	SRBE-...-MW-22A-1W-...-EX	ATEX, IECEX, INMETRO	0 ... 250 V AC	Contacting	Toggle switch, single-pole (SPDT)
	SRBE-...-MW-22A-1W-...-C1	cCSAus	0 ... 30 V DC		
Electromechanical	SRBE-...-MW-22A-2W-...-EX	ATEX, IECEX, INMETRO	0 ... 250 V AC	Contacting	Toggle switch, double-pole (DPDT)
	SRBE-...-MW-22A-2W-...-C1	cCSAus	0 ... 30 V DC		
Magnetic reed	SRBE-...-R-2A-1W-...-EX	ATEX, IECEX, INMETRO	0 ... 240 V AC	Contacting	Toggle switch, single-pole (SPDT)
	SRBE-...-R-2A-1W-...-C1	cCSAus	0 ... 30 V DC		
Inductive	SRBE-...-N-20N-ZC-...-EX	ATEX, IECEX, INMETRO	8.2 V DC	NAMUR	N/C contact
	SRBE-...-N-20N-ZC-...-C1	cCSAus			
Inductive	SRBE-...-N-1-P-...-EX	ATEX, IECEX, INMETRO	10 ... 30 V DC	PNP	N/O contact
	SRBE-...-N-1-P-...-C1	cCSAus			
Inductive	SRBE-...-N-1-N-...-EX	ATEX, IECEX, INMETRO	10 ... 30 V DC	NPN	N/O contact
	SRBE-...-N-1-N-...-C1	cCSAus			
Inductive	SRBE-...-N-1-ZU-...-EX	ATEX, IECEX, INMETRO	5 ... 60 V DC	Contactless, 2-wire	N/O contact
	SRBE-...-N-1-ZU-...-C1	cCSAus			

# Sensor boxes SRBE

Peripherals overview



Accessories	Brief description	→ Page/Internet
<b>1</b> Mounting adapter DARQ-K-X1-A1-F05-20-R1	<ul style="list-style-type: none"> <li>• Mounting adapter for mounting sensor boxes on quarter turn actuators with hole pattern 30 x 80 mm, shaft height 20 mm</li> <li>• Included in the scope of delivery of the sensor box and pre-assembled</li> </ul>	17
<b>2</b> Mounting adapter DARQ-K-X1-A1-F05-30-R1	<ul style="list-style-type: none"> <li>• Mounting adapter for mounting sensor boxes on quarter turn actuators with hole pattern 30 x 80 mm, shaft height 30 mm</li> <li>• Can be ordered separately as an accessory</li> </ul>	17
<b>3</b> Mounting adapter DARQ-K-X1-A2-F05-30-R1	<ul style="list-style-type: none"> <li>• Mounting adapter for mounting sensor boxes on quarter turn actuators with hole pattern 30 x 130 mm, shaft height 30 mm</li> <li>• Can be ordered separately as an accessory</li> </ul>	17

# Sensor boxes SRBE

Type codes SRBE

SRBE – C – A3 – YR – 90 – N – 1 – N – C2 – N12 – EX

### Type

SRBE	Limit switch attachment
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### Design

C	Sensor box
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### Mechanical interface

A3	Mounting adapter, hole pattern 30 x 80 mm, shaft height 20 mm
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### Display type

YR	Position indicator yellow/red
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### Measuring range

90	0 ... 90°
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### Sensor principle

N	Proximity sensors, inductive
R	Reed with contact
MW	Floating contact, changeover switch

### Nominal operating voltage

2A	110 V AC, 50-60 Hz
20N	8.2 V DC, NAMUR
22A	250 V AC
1	24 V DC

### Electrical output

N	NPN
P	PNP
1W	1-pin toggle switch
2W	2-pin toggle switch
ZC	2-wire N/C contact
ZU	2-wire N/O contact

### Electrical connection

C2	Screw terminal
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### Connecting thread

M20	M20
N12	1/2 NPT

### EU certification

C1	CSA mark (Canada)
EX	EX certification (ATEX)

# Mounting kits DARQ

Type codes DARQ

DARQ – K – X1 – A1 – F05 – 20 – R1

**Type**

DARQ	Mounting adapter
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**Function**

K	Mounting kit
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**Designation**

X1	Sensor box version with short shaft
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**Actuator outlet**

A1	Hole pattern 30 x 80 mm
A2	Hole pattern 30 x 130 mm

**Adapter or reducing outlet**

F05	Hole pattern F05
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**Length**

20	20 mm
30	30 mm

**Corrosion protection**

R1	Stainless steel
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# Sensor boxes SRBE, electromechanical and magnetic reed

Technical data

- Measuring principle:  
electromagnetic or magnetic reed
- Switching element function: toggle switch, single-pole (SPDT) and double-pole (DPDT)
- For DC and AC voltage
- Pre-assembled mounting adapter  
80 x 30 H20



General technical data			
Type SRBE...	-MW-...-1W	-MW-...-2W	-R
Setting range for angle acquisition [°]	0 ... 90		
Based on standard	ISO 5211		
	VDI/VDE 3845		
	-		EN 60947-5-2
Type of mounting	On flange to ISO 5211		
	With mounting bracket		

Electrical data			
Type SRBE...	-MW-...-1W	-MW-...-2W	-R
Measuring principle	Mechanical/electrical		Magnetic reed
Switching output	Contacting		
Switching element function	Toggle switch, single-pole	Toggle switch, double-pole	Toggle switch, single-pole
Operating voltage range [V]	0 ... 250		0 ... 240
Alternating current AC			
Max. output current AC [mA]	3000 (at 250 V)		416 (at 240 V)
Operating voltage range [V]	0 ... 30		
Direct current DC			
Max. output current DC [mA]	6000 (at 30 V)		3000 (at 30 V)

Electromechanical components			
Type SRBE...	-MW-...-1W	-MW-...-2W	-R
Electrical connection	10-pin	14-pin	10-pin
	Screw terminal		
Nominal conductor cross section that can be connected [mm <sup>2</sup> ]	0.25 ... 2.5		
Cable connector	M20x1.5 for ...-C2M20-...		
	1/2 NPT for ...-C2N12-...		

Materials	
Housing	Epoxy-coated die-cast aluminium
Shaft	High-alloy stainless steel
Screws	High-alloy stainless steel
Mounting bracket	High-alloy stainless steel
Seals	NBR
Pointer	PC
Note on materials	RoHS compliant
	Contains paint-wetting impairment substances

# Sensor boxes SRBE, electromechanical and magnetic reed

Technical data

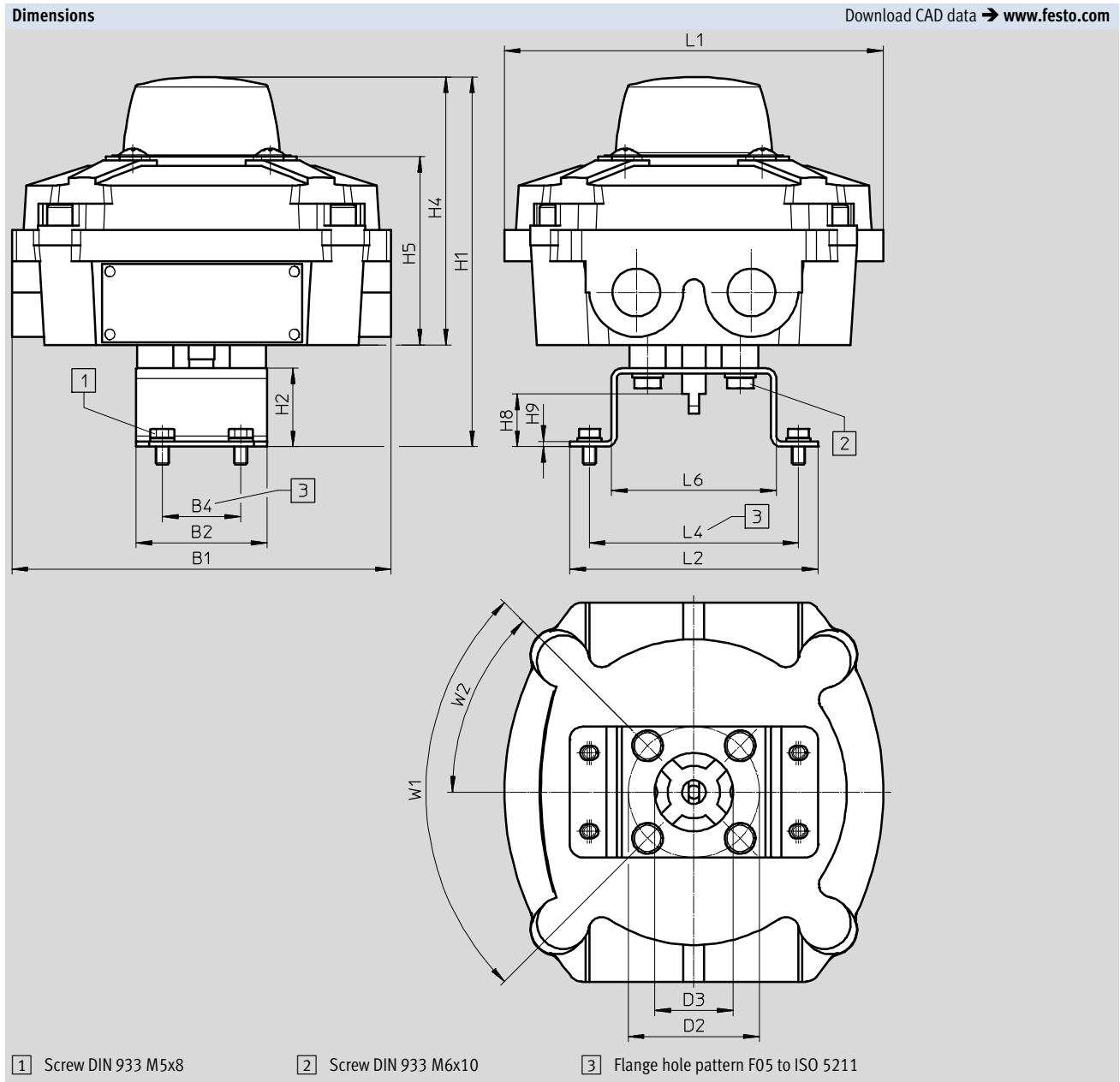
Operating and environmental conditions			
Type SRBE-...	-MW-...-1W	-MW-...-2W	-R
Ambient temperature [°C]	-20 ... +60		
Storage temperature [°C]	-20 ... +60		
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6		
CE marking	To EU Low Voltage Directive <sup>1)</sup>		
Safety integrity level (SIL)	SIL 2		
Certifications for ...-EX variants	-MW-...-1W	-MW-...-2W	-R
Degree of protection	IP67		
CE marking	To EU Explosion Protection Directive (ATEX)		
ATEX category for gas	II 2G		
ATEX category for dust	II 2D		
Explosion ambient temperature	-20 ... +60		
Type of ignition protection for gas	Ex d IIC T6 Gb		
Type of ignition protection for dust	Ex tb IIIC T75°C Db		Ex tb IIIC T61°C Db
Explosion protection certification outside the EU	EPL Db (IEC-EX)		
	EPL Db (BR)		
	EPL Db (CN)		
	EPL Gb (IEC-EX)		
	EPL Gb (BR)		
	EPL Gb (CN)		
Certificate issuing authority	DNV 16.0067X (INMETRO)		
	FTZU 15 ATEX 0095X (PESO)		
	GYJ 16.1497X (NEPSI)		
	IECEX FTZU 15.0014X		
Certifications for ...-C1 variants	-MW-...-1W	-MW-...-2W	-R
Degree of protection	IP67		
	NEMA 4/4X		
Type of ignition protection for gas	AEx d IIB T5 Gb		
	Ex d IIB T5 Gb		
	-		AEx nA IIC T5 Gc
	-		Ex nA IIC T5 Gc
Type of ignition protection for dust	AEx tb IIIC T108°C Db		
	Ex tb IIIC T108°C Db		
Explosion protection certification outside the EU	Class I, Div. 1 (CA)		
	Class I, Div. 1 (US)		
	-		Class I, Div. 2 (CA)
	-		Class I, Div. 2 (US)
	Class II, Div. 1 (CA)		
	Class II, Div. 1 (US)		
	Class III (CA)		
	Class III (US)		
	EPL Db (CA)		
	EPL Db (US)		
	EPL Gb (CA)		
	EPL Gb (US)		
	-		EPL Gc (CA)
	-		EPL Gc (US)
Certificate issuing authority	CSA 263311		

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → User documentation.  
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.



# Sensor boxes SRBE, electromechanical and magnetic reed

Technical data



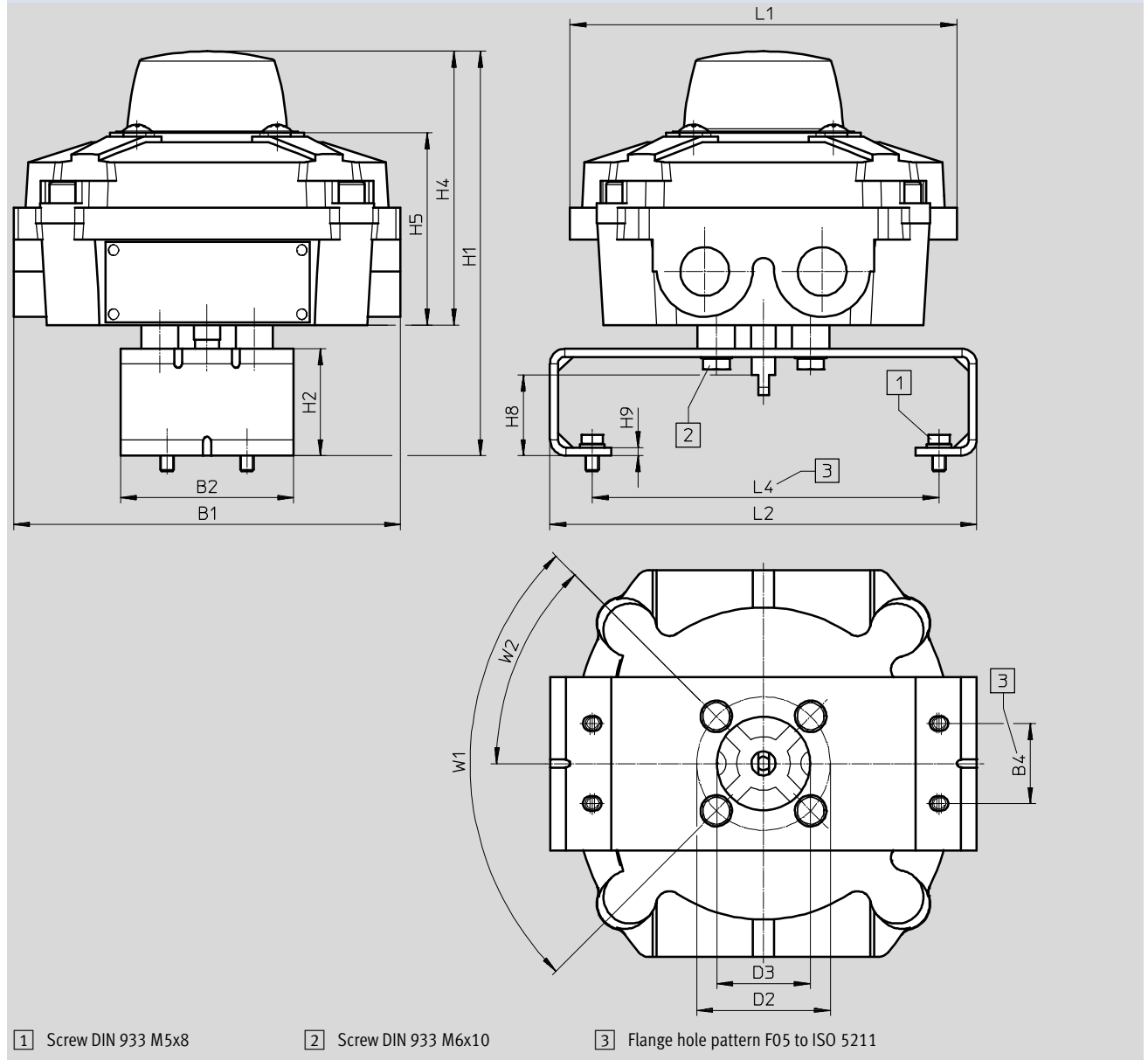
SRBE	B1	B2	B4	D2 Ø	D3 Ø	H1	H2 +0.5	H4
With DARQ-K-X1-A1-F05-20-R1	145	50	30	50	30	141.5	30	102.5
With DARQ-K-X1-A1-F05-30-R1						151.5	40	

SRBE	H5	H8	H9	L1	L2	L4	L6	W1	W2
With DARQ-K-X1-A1-F05-20-R1	72	20	2	145	95	80	63	90°	45°
With DARQ-K-X1-A1-F05-30-R1		30							

# Sensor boxes SRBE, electromechanical and magnetic reed

Technical data

Dimensions Download CAD data → [www.festo.com](http://www.festo.com)



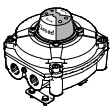
SRBE	B1	B2	B4	D2 Ø	D3 Ø	H1	H2 +0.5	H4
With DARQ-K-X1-A2-F05-30-R1	145	65	30	50	35	151.5	40	102.5

SRBE	H5	H8	H9	L1	L2	L4	W1	W2
With DARQ-K-X1-A2-F05-30-R1	72	30	3	145	160	130	90°	45°

## Sensor boxes SRBE, electromechanical and magnetic reed

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Technical data

Ordering data					
	Brief description	Dimensions Mounting adapter [mm]	Weight [g]	Part No.	Type
	Sensor box including pre-assembled mounting adapter	30 x 80, H: 20	1700	3471008	SRBE-CA3-YR90-MW-22A-1W-C2N12-EX
				3471009	SRBE-CA3-YR90-MW-22A-1W-C2M20-EX
				3471010	SRBE-CA3-YR90-MW-22A-2W-C2N12-EX
				3471011	SRBE-CA3-YR90-MW-22A-2W-C2M20-EX
				3471020	SRBE-CA3-YR90-R-2A-1W-C2N12-EX
				3471021	SRBE-CA3-YR90-R-2A-1W-C2M20-EX
				3998917	SRBE-CA3-YR90-MW-22A-1W-C2N12-C1
				3998918	SRBE-CA3-YR90-MW-22A-2W-C2N12-C1
				3998923	SRBE-CA3-YR90-R-2A-1W-C2N12-C1

# Sensor boxes SRBE, inductive

## Technical data

- Inductive measuring principle
- Switching outputs PNP, NPN, 2-wire DC, NAMUR
- Pre-assembled mounting adapter 80 x 30 H20



General technical data					
Type SRBE...		-1-P	-1-N	-1-ZU	-20N
Setting range for angle detection	[°]	0 ... 90			
Based on standard		ISO 5211			
		VDI/VDE 3845			
		EN 60947-5-2			EN 60947-5-6
Type of mounting		On flange to ISO 5211			
		With mounting bracket			

Electrical data					
Type SRBE...		-1-P	-1-N	-1-ZU	-20N
Measuring principle		Inductive			
Switching output		PNP	NPN	Non-contacting, 2-wire	NAMUR
Switching element function		N/O contact			N/C contact
Operating voltage range	[V DC]	10 ... 30		5 ... 60	8.2
Voltage drop	[V]	≤ 3		≤ 5	-
Max. output current	[mA]	100			3
Idle current	[mA]	≤ 15		-	-
Residual current	[mA]	0 ... 0.5		0 ... 1	-
Minimum load current	[mA]	-		4	-
Reverse polarity protection		For all electrical connections			-
Protection against short circuit		Pulsed		-	-

Electromechanical components	
Electrical connection	10-pin
	Screw terminal
Nominal conductor cross section that can be connected	[mm <sup>2</sup> ] 0.25 ... 2.5
Cable connector	M20x1.5 for ...-C2M20-...
	1/2 NPT for ...-C2N12-...

Materials	
Housing	Epoxy-coated die-cast aluminium
Shaft	High-alloy stainless steel
Screws	High-alloy stainless steel
Mounting bracket	High-alloy stainless steel
Seals	NBR
Pointer	PC
Note on materials	RoHS compliant
	Contains paint-wetting impairment substances

# Sensor boxes SRBE, inductive

Technical data

Operating and environmental conditions		
Type SRBE-...		
Ambient temperature	[°C]	-20 ... +60
Storage temperature	[°C]	-20 ... +60
CE marking		To EU EMC Directive <sup>1)</sup>
Approval certificate		RCM mark
Shock resistance		Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6
Safety integrity level (SIL)		SIL 2
Certifications for ...-EX variants		
		-1-ZU
Degree of protection		IP67
CE marking		As per EU Explosion Protection Directive (ATEX)
ATEX category for gas		II 2G
ATEX category for dust		II 2D
Explosion ambient temperature		-20 ... +60
Type of ignition protection for gas		Ex d IIC T6 Gb
Type of ignition protection for dust		Ex tb IIIC T61°C Db
		Ex tb IIIC T75°C Db
Explosion protection certification outside the EU		EPL Db (IEC-EX)
		EPL Db (BR)
		EPL Db (CN)
		EPL Gb (IEC-EX)
		EPL Gb (BR)
		EPL Gb (CN)
Certificate issuing authority		DNV 16.0067X (INMETRO)
		FTZU 15 ATEX 0095X (PESO)
		GYJ 16.1497X (NEPSI)
		IECEX FTZU 15.0014X
Certifications for ...-C1 variants		
Degree of protection		IP67
		NEMA 4/4X
Type of ignition protection for gas		AEx d IIB T5 Gb
		Ex d IIB T5 Gb
		AEx nA IIC T5 Gc
		Ex nA IIC T5 Gc
Type of ignition protection for dust		AEx tb IIIC T108°C Db
		Ex tb IIIC T108°C Db
Explosion protection certification outside the EU		Class I, Div. 1 (CA)
		Class I, Div. 1 (US)
		Class I, Div. 2 (CA)
		Class I, Div. 2 (US)
		Class II, Div. 1 (CA)
		Class II, Div. 1 (US)
		Class III (CA)
		Class III (US)
		EPL Db (CA)
		EPL Db (US)
		EPL Gb (CA)
		EPL Gb (US)
		EPL Gc (CA)
	EPL Gc (US)	
Certificate issuing authority		CSA 263311

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: [www.festo.com/sp](http://www.festo.com/sp) → User documentation.  
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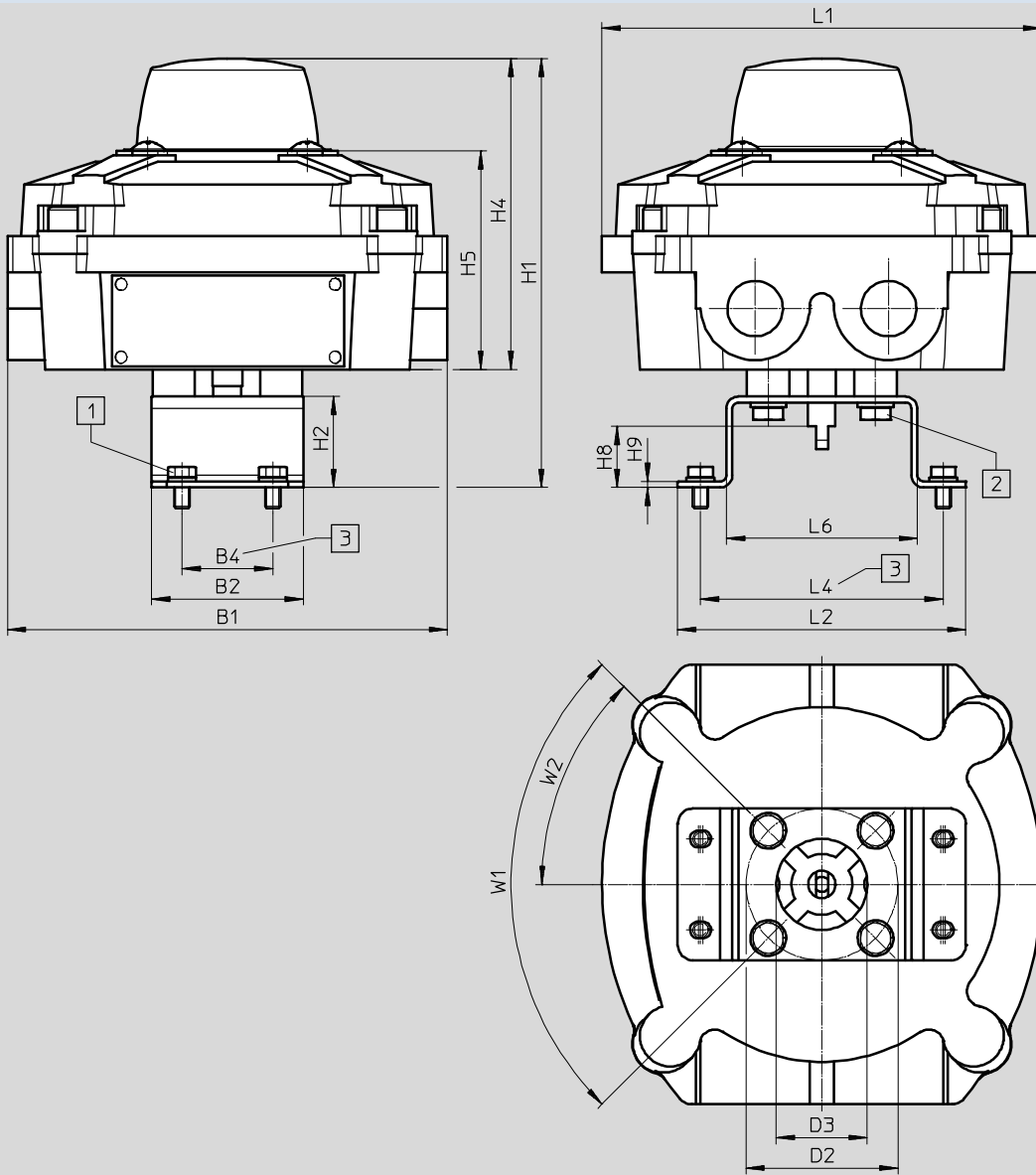
# Sensor boxes SRBE, inductive

Technical data



## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)



1 Screw DIN 933 M5x8

2 Screw DIN 933 M6x10

3 Flange hole pattern F05 to ISO 5211

SRBE	B1	B2	B4	D2 Ø	D3 Ø	H1	H2 +0.5	H4
With DARQ-K-X1-A1-F05-20-R1	145	50	30	50	30	141.5	30	102.5
With DARQ-K-X1-A1-F05-30-R1						151.5	40	

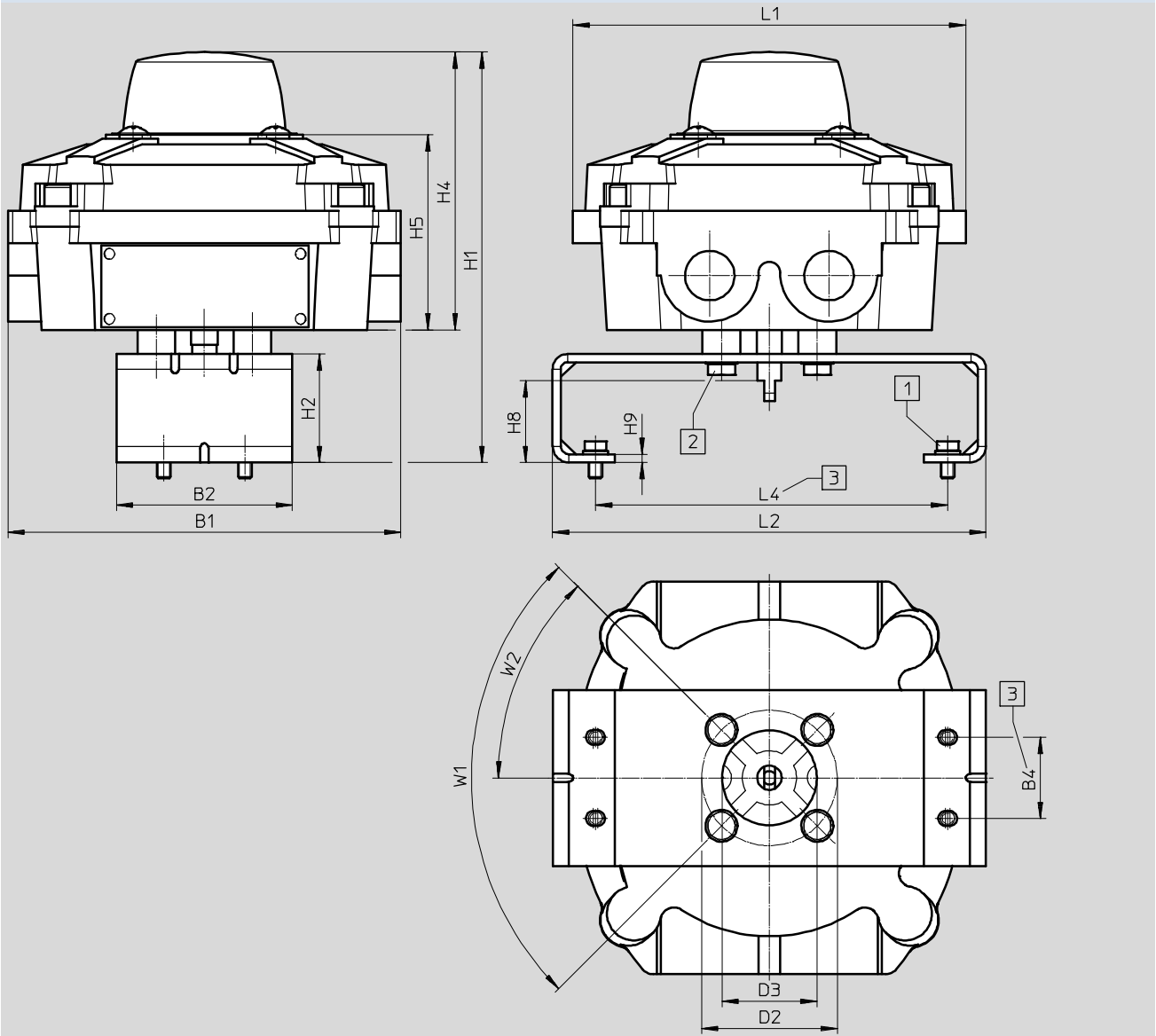
SRBE	H5	H8	H9	L1	L2	L4	L6	W1	W2
With DARQ-K-X1-A1-F05-20-R1	72	20	2	145	95	80	63	90°	45°
With DARQ-K-X1-A1-F05-30-R1		30							

# Sensor boxes SRBE, inductive

Technical data

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)



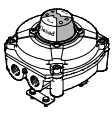
- 1 Screw DIN 933 M5x8
- 2 Screw DIN 933 M6x10
- 3 Flange hole pattern F05 to ISO 5211

SRBE	B1	B2	B4	D2 Ø	D3 Ø	H1	H2 +0.5	H4
With DARQ-K-X1-A2-F05-30-R1	145	65	30	50	35	151.5	40	102.5

SRBE	H5	H8	H9	L1	L2	L4	W1	W2
With DARQ-K-X1-A2-F05-30-R1	72	30	3	145	160	130	90°	45°

# Sensor boxes SRBE, inductive

Technical data

Ordering data					
	Brief description	Dimensions Mounting adapter [mm]	Weight [g]	Part No.	Type
	Sensor box including pre-assembled mounting adapter	30 x 80, H: 20	1700	<b>3471012</b>	<b>SRBE-CA3-YR90-N-20N-ZC-C2N12-EX</b>
				<b>3471013</b>	<b>SRBE-CA3-YR90-N-20N-ZC-C2M20-EX</b>
				<b>3471014</b>	<b>SRBE-CA3-YR90-N-1-P-C2N12-EX</b>
				<b>3471015</b>	<b>SRBE-CA3-YR90-N-1-P-C2M20-EX</b>
				<b>3471016</b>	<b>SRBE-CA3-YR90-N-1-N-C2N12-EX</b>
				<b>3471017</b>	<b>SRBE-CA3-YR90-N-1-N-C2M20-EX</b>
				<b>3471018</b>	<b>SRBE-CA3-YR90-N-1-ZU-C2N12-EX</b>
				<b>3471019</b>	<b>SRBE-CA3-YR90-N-1-ZU-C2M20-EX</b>
				<b>3998919</b>	<b>SRBE-CA3-YR90-N-20N-ZC-C2N12-C1</b>
				<b>3998920</b>	<b>SRBE-CA3-YR90-N-1-P-C2N12-C1</b>
				<b>3998921</b>	<b>SRBE-CA3-YR90-N-1-N-C2N12-C1</b>
				<b>3998922</b>	<b>SRBE-CA3-YR90-N-1-ZU-C2N12-C1</b>

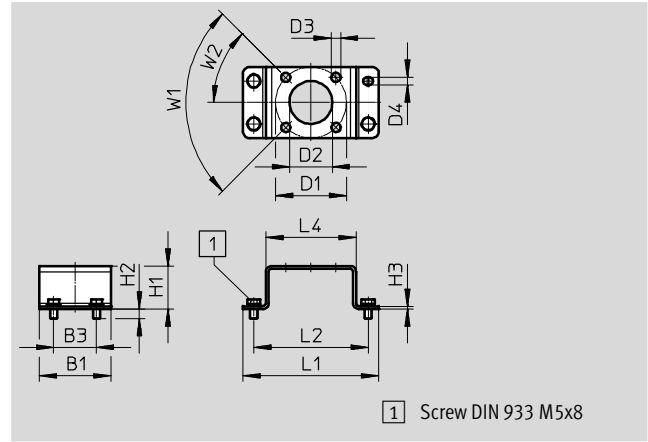
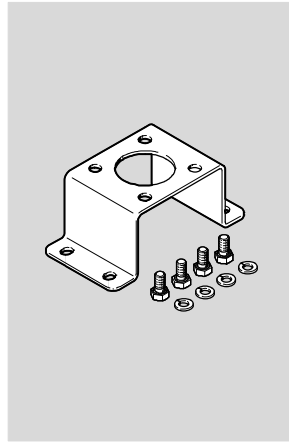


# Sensor boxes SRBE

Accessories

## Mounting adapter DARQ-K-X1-A1-...

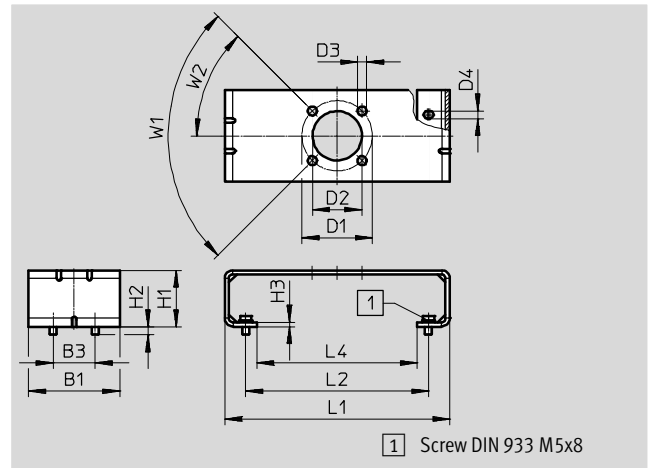
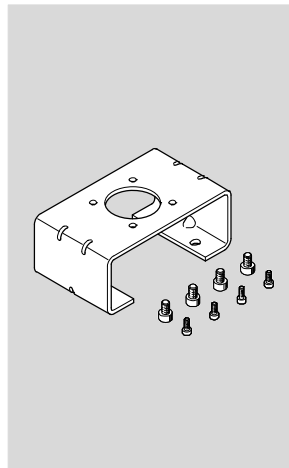
- Mounting adapter for mounting on standard actuators to VDI/VDE 3845
- Mounting screws included in the scope of delivery
- Size 30 x 80
- Material: High-alloy stainless steel
- Contains paint-wetting impairment substances, RoHS compliant



Dimensions and ordering data																
B1	B3	D1	D2	D3	D4	H1	H2	H3	L1	L2	L4	W1	W2	Weight [g]	Part No.	Type
50	30	50	30	6.5	5.5	30	6.8	2	95	80	63	90°	45°	350	3636269	DARQ-K-X1-A1-F05-20-R1
						40								380	3636270	DARQ-K-X1-A1-F05-30-R1

## Mounting adapter DARQ-K-X1-A2-...

- Mounting adapter for mounting on standard actuators to VDI/VDE 3845
- Mounting screws included in the scope of delivery
- Size 30 x 130
- Material: High-alloy stainless steel
- Contains paint-wetting impairment substances, RoHS compliant



Dimensions and ordering data																
B1	B3	D1	D2	D3	D4	H1	H2	H3	L1	L2	L4	W1	W2	Weight [g]	Part No.	Type
65	30	50	35	6.5	5.4	40	5.8	3	160	130	114	90°	45°	460	3886114	DARQ-K-X1-A2-F05-30-R1

# Festo - Your Partner in Automation



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