

Positioners CMSX



# Positioners CMSX

Key features

## Function and application

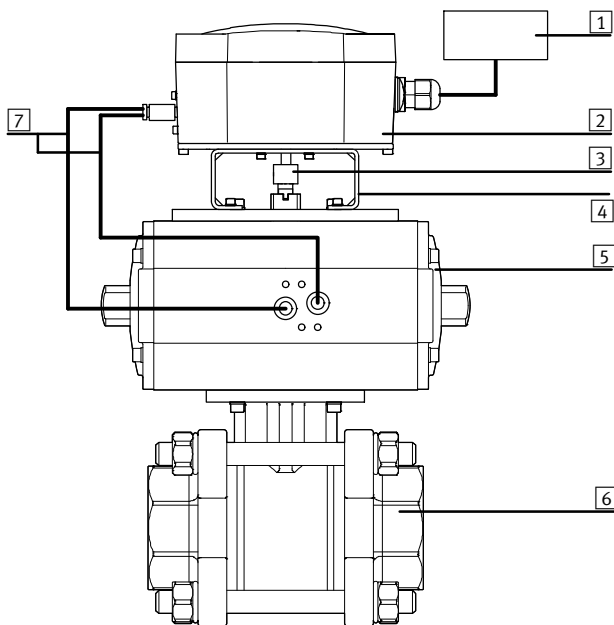
The positioner CMSX-P-S described here is intended for controlling the position of double-acting pneumatic quarter turn actuators in process automation systems. It is suitable for operation with quarter turn actuators

with a swivel angle of approx. 90° and a mechanical interface in accordance with VDI/VDE Directive 3845. The CMSX enables simple and efficient position control based on the PID control algorithm. Positions are

specified via a setpoint signal. The integrated potentiometer senses the current position of the quarter turn actuator via the shaft and forwards the measured value to the internal regulator. The regulator compares the

setpoint value specified by analogue means to the measured value and actuates the two internal fast-switching valves correspondingly by means of pulse-width modulation (PWM).

## System structure



- 1 Higher-level system (PLC/IPC or external setpoint generator)
- 2 Positioner CMSX
- 3 Mechanical coupling
- 4 Mounting adapter
- 5 Quarter turn actuator (example: DFPB)
- 6 Process valve (example: VZBA)
- 7 Air – ports 2 and 4

## Variants

### CMSX-...-A

On the product variant CMSX-...-A, working port 4 is exhausted and working port 2 is pressurised. The process valve is opened or closed depending on the tubing connections between the CMSX-...-A and the quarter turn actuator.

### CMSX-...-C

On the product variant CMSX-...-C, working ports 2 and 4 are pressurised to maintain the current position of the quarter turn actuator.

## Safety

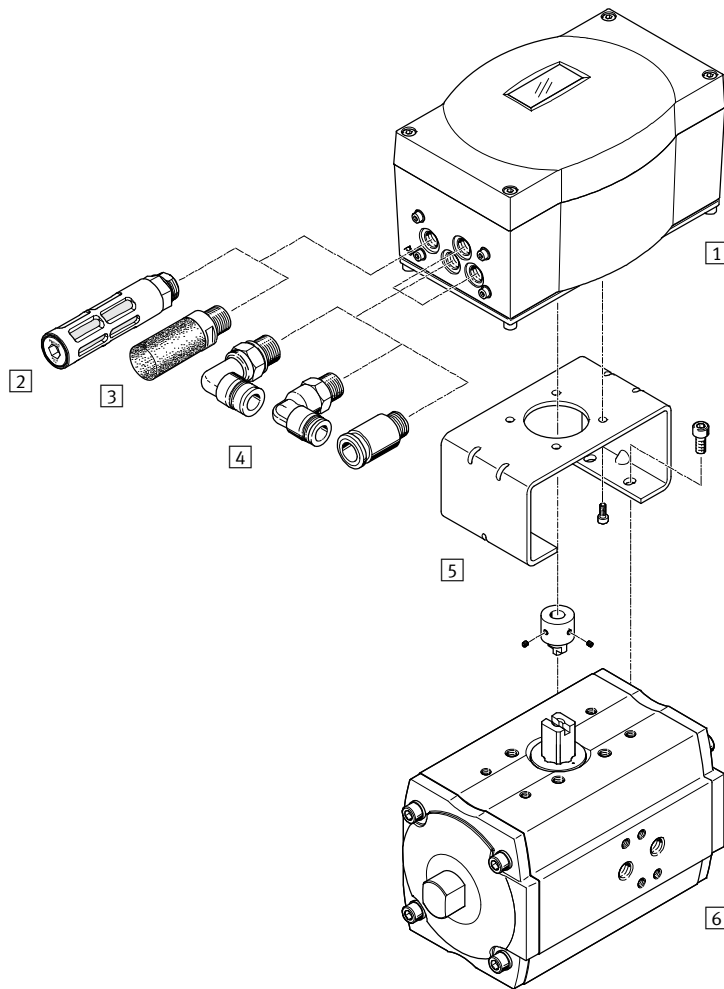
Multiple freely programmable safety positions in case of current failure, additional digital error signal for emergency shut-down.  
Multiple freely configurable, analogue input signals for each task, for reliable monitoring of the actual position via the analogue feedback signal.

## Economic efficiency

By means of integrated, analogue feedback functions and the definable safety positions.

# Positioners CMSX

Peripherals overview



Mounting components and accessories		
	Brief description	→ Page/Internet
1	CMSX Positioner For position control of double-acting pneumatic quarter turn actuators in process automation systems	5
2	U-Silencer With polymer male thread	u
3	UC-Silencer For reducing noise at exhaust ports	uc
4	QS Push-in fittings A secure solution for every connection	qs
5	DARQ Mounting adapters For connecting positioners/actuators for process automation	8
6	DFPB Quarter turn actuators Actuators for process automation	dfpb, drd, daps

# Positioners CMSX

Type codes



		CMSX	-	P	-	S	-	A1	-	C	-	U	-	F1	-	D	-	A
<b>Type</b>		CMSX		Positioner for process automation														
<b>Product version</b>		P		Primarily polymers														
<b>Design</b>		S		Positioner, path/angle measurement integrated														
<b>Mechanical interface</b>		A1		Hole pattern 30x80 mm														
<b>Display type</b>		C		LCD, backlit														
<b>Setpoint value</b>		U		Configurable (0 ... 10 V, 0 ... 20 mA, 4 ... 20 mA)														
<b>Position feedback</b>		F1		4 ... 20 mA														
<b>Function</b>		D		Double-acting														
<b>Safety function</b>		A		Open or close in case of breakdown <sup>1)</sup>														
		C		Maintain position <sup>2)</sup> in case of breakdown <sup>1)</sup>														

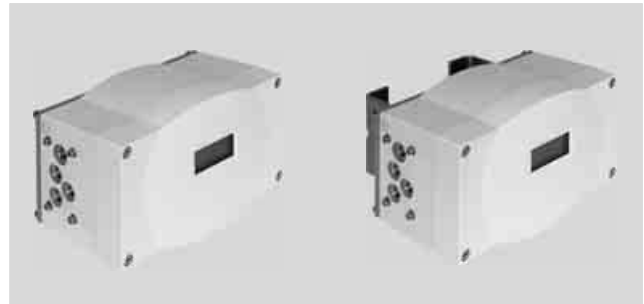
- 1) Failure of the power supply
- 2) Pressurise quarter turn actuator at both ends

# Positioners CMSX

Technical data

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-  Voltage  
21.6 ... 26.4 V DC
-  Temperature range  
-5 ... +60 °C



General technical data		
Type	CMSX-P-S-A1-C-U-F1-D-A	CMSX-P-S-A1-C-U-F1-D-C
Pneumatic connection	G1/8	
Conforms to standard	VDI/VDE 3845 (NAMUR)	
Cable connector	M20x1.5	
Type of mounting	On flange to ISO 5211, via accessories	
Protection against short circuit	Yes	
Protection against incorrect polarity	For operating voltage connections For setpoint value	
Type of process valve characteristic curves	Freely adjustable over 21 support points Linear, equal percentage (1:25, 1:33, 1:50)	
Leakproof characteristics	Automatic	
	Adjustable	
Control range adaptation	Adjustable	
Alarm for exceeding limit value	No	
Active direction	Adjustable	
	Rising, falling	
Safety precaution	Adjustable	-
	-	Retaining
	Opening	-
	Closing	-
UV resistance	Yes	
Display type	Backlit LCD	
Setting options	Via display and keys	
Standard nominal flow rate	[l/min]	50
Sensing range in degrees	[deg]	0 ... 100
Size of the dead zone	[%]	0.1 ... 10
Product weight	[g]	970

# Positioners CMSX

Technical data

Operating and environmental conditions		CMSX-P-S-A1-C-U-F1-D-A	CMSX-P-S-A1-C-U-F1-D-C
Operating pressure	[bar]	3 ... 8	
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium		Lubricated operation not possible	
Operating voltage range DC	[V]	21.6 ... 26.4	
Setpoint value	[V]	0 ... 10	
Setpoint value	[mA]	0 ... 20	
	[mA]	4 ... 20	
Ambient temperature	[°C]	-5 ... 60	
Temperature of medium	[°C]	-5 ... 60	
Storage temperature	[°C]	-20 ... 60	
Corrosion resistance class CRC <sup>1)</sup>		2	
CE marking (see declaration of conformity)		To EU EMC Directive	
Certification		C-Tick	
Protection class		IP65	

- 1) CRC2: Corrosion resistance class to Festo standard 940 070  
 Components with medium corrosion exposure. Externally visible components with significant decorative function in direct contact with normal industrial atmosphere or media such as coolants and lubricants.

Materials		
1	Housing	PC
2	Threaded coupling	High-alloy stainless steel
3	Adapter plate	Aluminium
	Plate	Aluminium
-	Seals	NBR
-	Cable connection	PA
-	Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant

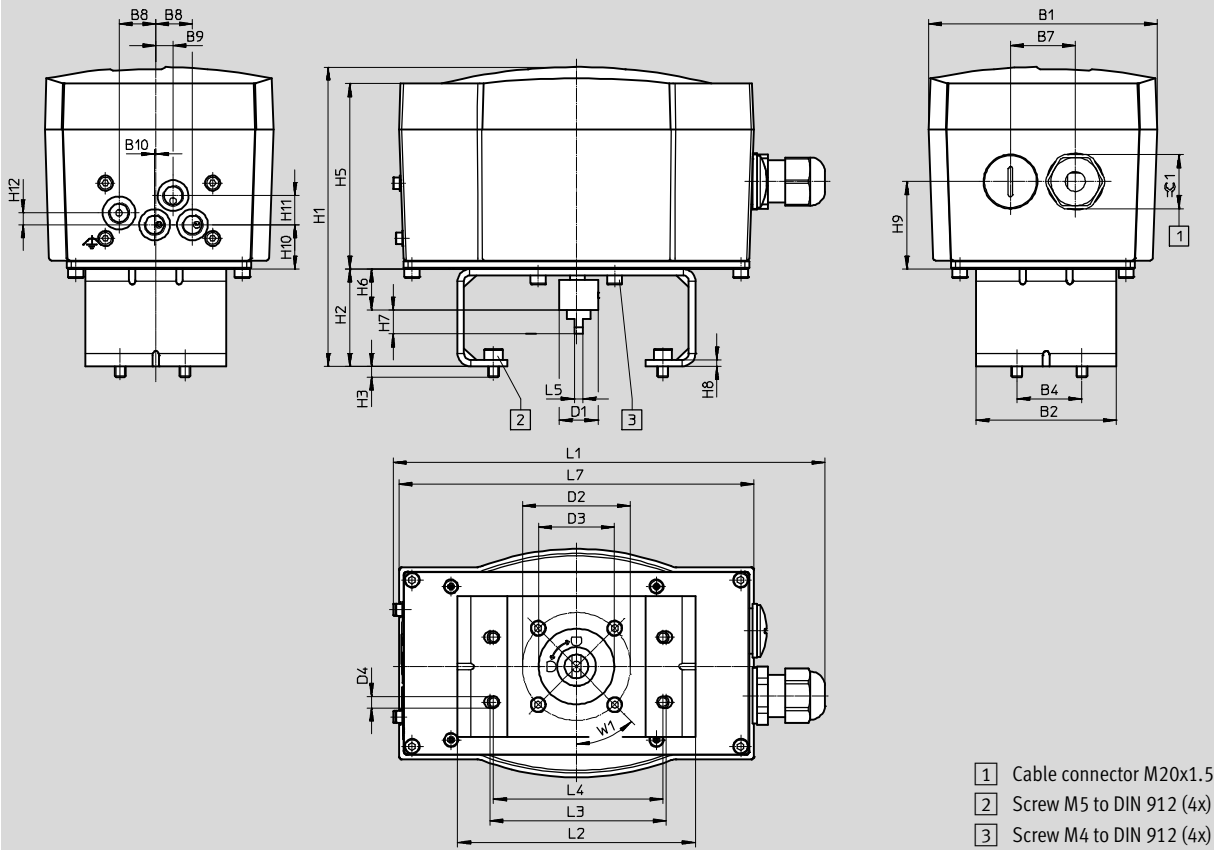
# Positioners CMSX

Technical data

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## Dimensions

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




Type	B1	B2	B4	B7	B8	B9	B10	D1	D2	D3	D4	H3	H5
CMSX-P-S-A1-C-U-F1-D-A	105.8	65	30	30	17	8	0.5	18	50	35	5.4	5	85.8
CMSX-P-S-A1-C-U-F1-D-C													

Type	H6	H7	H8	H9	H10	H11	H12	L1	L5	L7	W1	∠ 1
CMSX-P-S-A1-C-U-F1-D-A	19	11	3	40.5	20.5	13.5	5.5	200	4	164	45°	25
CMSX-P-S-A1-C-U-F1-D-C												

Positioner	Mounting adapter	H1	H2	L2	L3	L4
CMSX-P-S-A1-C-U-F1-D-A	DARQ-K-P-A1-F05-20-R1	138.5	45	110	81.6	78.4
	DARQ-K-P-A1-F05-30-R1	148.5	55	110	81.6	78.4
	DARQ-K-P-A2-F05-30-R1	148.5	55	160	131.6	128.4
CMSX-P-S-A1-C-U-F1-D-C	DARQ-K-P-A1-F05-20-R1	138.5	45	110	81.6	78.4
	DARQ-K-P-A1-F05-30-R1	148.5	55	110	81.6	78.4
	DARQ-K-P-A2-F05-30-R1	148.5	55	160	131.6	128.4

## Ordering data

Positioner	Brief description	Part No.	Type
	Open or close in case of breakdown	2092434	CMSX-P-S-A1-C-U-F1-D-A
	Maintain position in case of breakdown	2110841	CMSX-P-S-A1-C-U-F1-D-C

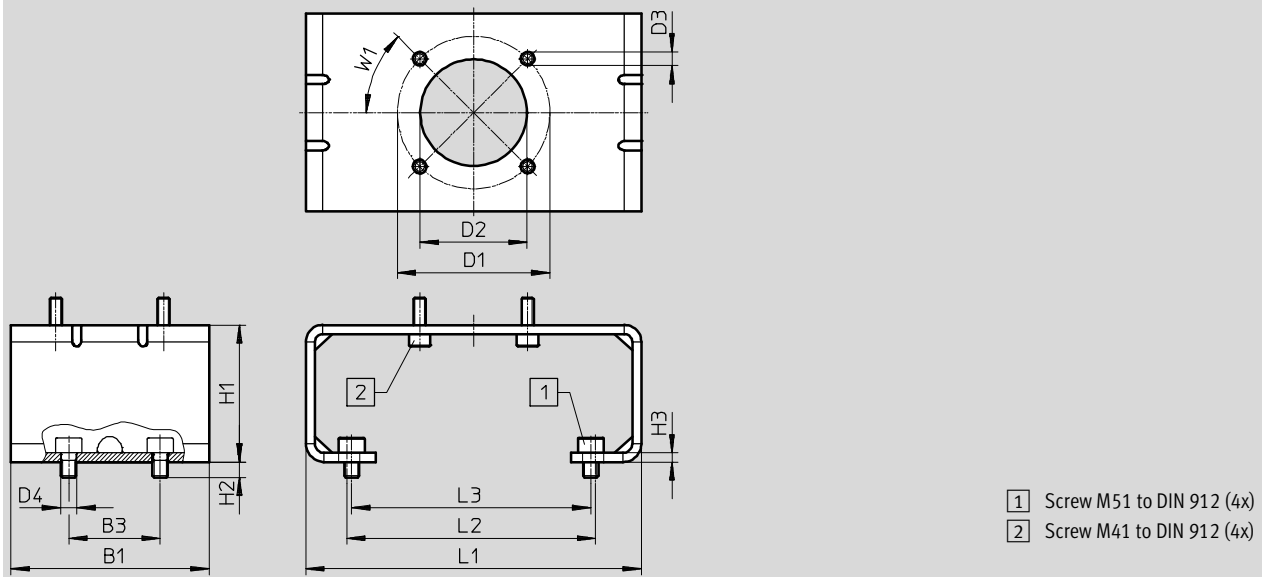
# Positioners CMSX

Accessories

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## Dimensions

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



Type	B1	B3	D1	D2	D3	D4	H1	H2	H3	L1	L2	L3	W1
DARQ-K-P-A1-F05-20-R1	65	30	50	35	4.5	5.4	45	5	3	110	81.6	78.4	45°
DARQ-K-P-A1-F05-30-R1							55						
DARQ-K-P-A2-F05-30-R1							55						




## Materials

Mounting adapter	High-alloy steel
Coupling	High-alloy stainless steel
Screws	High-alloy stainless steel
Corrosion resistance class CRC <sup>1)</sup>	2
Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

## Ordering data

	Brief description	Size	Weight [g]	Part No.	Type
	Mounting adapter	20	350	<b>2197135</b>	<b>DARQ-K-P-A1-F05-20-R1</b>
	Mounting adapter	30	380	<b>2197136</b>	<b>DARQ-K-P-A1-F05-30-R1</b>
	Mounting adapter	30	460	<b>2197137</b>	<b>DARQ-K-P-A2-F05-30-R1</b>



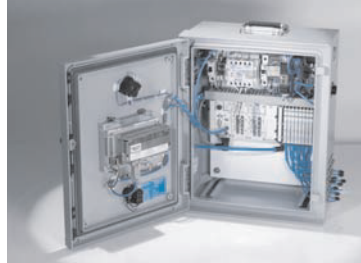
## Product Range and Company Overview

### A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



**Custom Automation Components**  
Complete custom engineered solutions



**Custom Control Cabinets**  
Comprehensive engineering support and on-site services



**Complete Systems**  
Shipment, stocking and storage services

### The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



**Electromechanical**  
Electromechanical actuators, motors, controllers & drivers



**Pneumatics**  
Pneumatic linear and rotary actuators, valves, and air supply



**PLCs and I/O Devices**  
PLC's, operator interfaces, sensors and I/O devices

### Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

### Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

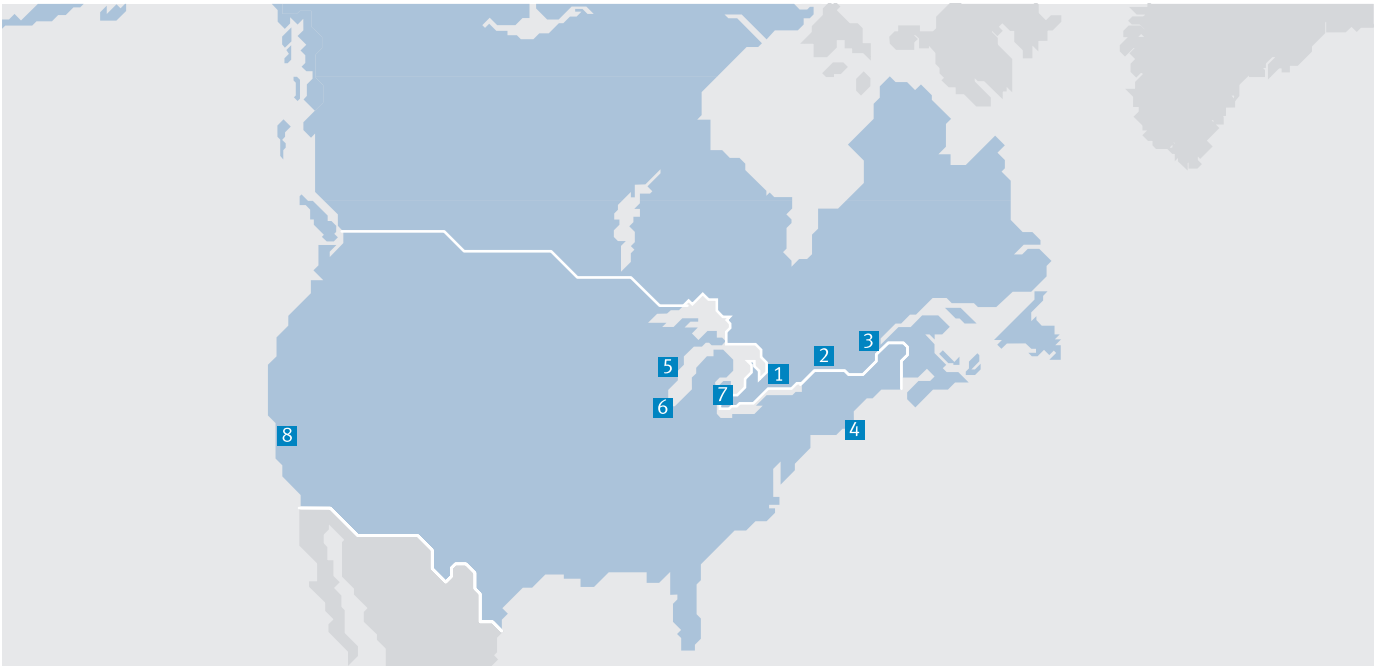


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