

# Pressure sensor SDE3

**FESTO**



Space and  
function-optimised

**Info 321**

## A double bonus

The space-optimised pressure sensor SDE3 is positioned between the high-functionality pressure sensor SDE1 and the price-optimised pressure switch SDE5.



### **Versatile**

Thanks to relative and differential pressure sensing and a high degree of integration – with the option of 2 independent pressure inputs and a 2-colour LCD in one unit!

### **Fast and convenient**

Intuitive operator prompting and fast teach-in option reduce training costs and commissioning time.

### **Easy to read and reliable**

Current pressure values displayed clearly on the large, contrast-optimised backlit LCD. Reliable thanks to alphanumeric pressure display, or bar graphs for dynamic events.

### **Cost-effective**

Festo plug and work<sup>®</sup>, thanks to super-fast hat-rail and front panel mounting without requiring any small parts.

### **Ultra-reliable**

The SDE3 is suitable for TPM (Total Productive Maintenance) concepts and can thus help guarantee maximum system availability.

### **Tamper-proof**

The coded lock prevents tampering while allowing the settings to be read.

### **Tailor-made to save money**

Thanks to its modular design, you only pay for the functions you need.



**The SDE3 is the ideal device to use for:**

- Network monitoring: pressure present?
- Regulator monitoring: pressure in desired range?
- Vacuum: parts picked up?
- Leak tests: drop in pressure over time?
- Object registering: back pressure present?
- Differential pressure measurement: valve switched or not?

**Technologically ...**

- Quicker to install: hat-rail and front panel mounting in a small space
- Quicker to commission: intuitive operator prompting via LCD and 3 keys
- Reliable: contrast-optimised 2-colour backlit LCD, alphanumeric pressure display and bar graph for dynamic events
- Process reliability: alphanumeric coded lock to prevent tampering. The settings can still be displayed without needing a code.
- Super-fast: thanks to teach-in option

**... and commercially reliable – the pressure sensor SDE3**

- More productive: fully TPM-capable (Total Productive Maintenance)
- More economical: provides relative or differential pressure measurements and 2 independent pressure inputs with 2 switch outputs in one unit. Huge cost savings can be made if more than one pressure switch is required
- Best price/performance ratio in the global market

## Pressure sensors SDE3, with display

Product range overview – Pre-assembled pressure sensors

Pressure measuring range	Measured variable			Display		Mounting	
	Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting
0 ... -1 bar	Switch output 2x PNP						
	■	-	-	■	-	■	-
	■	-	-	-	■	■	-
	■	-	-	■	-	-	■
	-	■	-	■	-	■	-
	-	■	-	-	■	■	-
	-	■	-	■	-	-	■
	-	-	■	■	-	■	-
	-	-	■	-	■	■	-
	-	-	■	■	-	-	■
Switch output 2x NPN							
-	-	■	■	-	■	-	

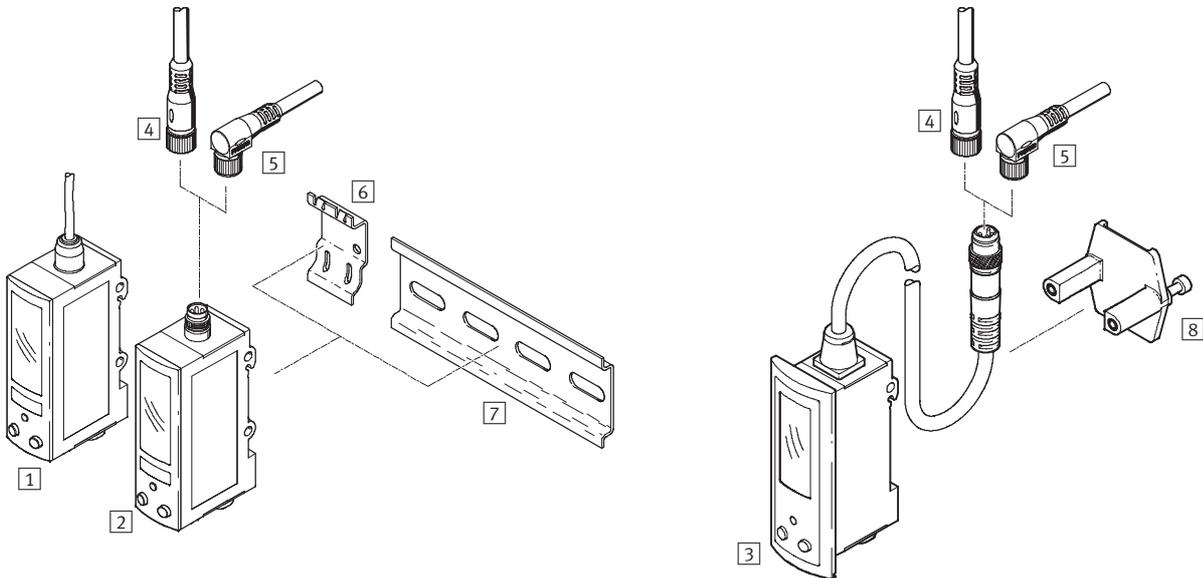
Pressure measuring range	Measured variable			Display		Mounting	
	Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting
0 ... 2 bar	Switch output 2x PNP						
	-	■	-	■	-	■	-
	-	■	-	■	-	-	■
	-	-	■	■	-	■	-
-	-	■	■	-	-	■	

Pressure measuring range	Measured variable			Display		Mounting	
	Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting
0 ... 10 bar	Switch output 2x PNP						
	■	-	-	■	-	■	-
	■	-	-	■	-	-	■
	-	■	-	■	-	■	-
	-	■	-	■	-	-	■
	-	-	■	■	-	■	-
	-	-	■	■	-	-	■
	Switch output 2x NPN						
	-	-	■	■	-	■	-

 Note  
 Additional variants and accessories can be configured and ordered through the SDE3 modular system  
 → 10.

# Pressure sensors SDE3, with display

Peripherals overview



Accessories	Brief description	→ Page
<b>Pressure sensors</b>		
1	SDE3-...-...-K	Mounting via H-rail or wall/surface bracket, with cable
2	SDE3-...-...-M8	Mounting via H-rail or wall/surface bracket, with plug M8x1
3	SDE3-...-F...-M8	For panel mounting, with cable and plug M8x1
<b>Plug sockets with cable</b>		
4	SIM-M8-4GD-...	Straight socket, M8x1, 4-pin
5	SIM-M8-4WD-...	Angled socket, M8x1, 4-pin
<b>Mounting attachments</b>		
6	Adapter plate SXE3-W	Included in the scope of delivery with SDE3-...-W...
7	Mounting rail	To DIN EN 50022
8	Clamping plate	Included in the scope of delivery with SDE3-...-F...

# Pressure sensors SDE3, with display

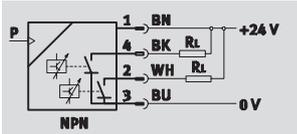
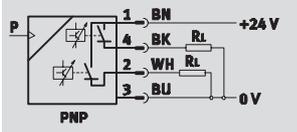
Type codes

		SDE3	-	D10	S	-	B	-	HQ4	-	2P	-	M8	-	
<b>Sensor function</b>															
SDE3	Piezoresistive pressure sensor with display														
<b>Pressure measuring range</b>															
V1	0 ... -1 bar														
B2	-1 ... +1 bar														
D2	0 ... 2 bar														
D6	0 ... 6 bar														
D10	0 ... 10 bar														
<b>Measured variable</b>															
S	1x relative pressure														
D	2x relative pressure														
Z	1x differential pressure														
<b>Display</b>															
B	Display in bar														
P	Display in psi														
K	Display in kPa														
H	Display in inches of mercury														
W	Display in inches of water														
<b>Mounting/pneumatic connection</b>															
HQ4	Via H-rail, push-in fitting 4 mm														
WQ4	Wall mounting, push-in fitting 4 mm														
FQ4	Panel mounting, push-in fitting 4 mm														
<b>Electrical output</b>															
2P	2 switch outputs PNP														
2N	2 switch outputs NPN														
<b>Electrical connection</b>															
M8	Plug M8x1														
K	Cable, 2.5 m long														
<b>Connecting cable</b>															
SIM cable with straight connection socket															
G	2.5 m long														
G5	5 m long														
SIM cable with angled connection socket															
W	2.5 m long														
W5	5 m long														

# Pressure sensors SDE3, with display

Technical data

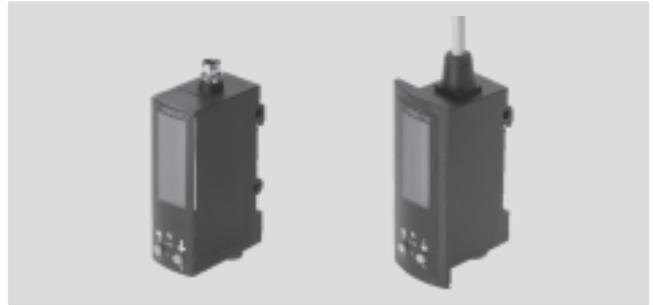
Function



 Voltage  
15 ... 30 V DC

 Pressure  
-1 ... +10 bar

 Temperature range  
0 ... 50°C



General technical data						
Pressure measuring range	[bar]	0 ... -1	-1 ... +1	0 ... 2	0 ... 6	0 ... 10
<b>Mechanical</b>						
Method of measurement	Piezoresistive pressure sensor with display					
Pneumatic connection	QS-4					
Measured variable	Relative pressure					
	2x relative pressure					
	Differential pressure					
Accuracy FS <sup>1)</sup>	±2%					
Reproducibility of switching point	0.3%					
Electrical connection	Plug M8x1, 4-pin, round design to EN 60 947-5-2					
	Cable					
	Cable with plug M8x1, 4-pin, round design to EN 60 947-5-2					
Type of display	Illuminated LCD					
Setting	Teach-In					
Protection against manipulation	PIN-Code					
Switching status display	Yellow LED					
Type of mounting	Panel mounting					
	Via H-rail					
	Via through-holes					
	Via wall/surface bracket					
Material	Housing	Polyamide, reinforced				
		Polycarbonate				
Material note	Free of copper and PTFE					
Mounting position	Any <sup>2)</sup>					
<b>Electrical</b>						
Operating voltage range	[V DC]	15 ... 30				
Max. output current	[mA]	100				
Protection against short circuit	Pulsed					
Protection against polarity reversal	For all electrical connections					
Switch output	2x PNP					
	2x NPN					
Switching element function	Switchable					
Switching function	Freely programmable					
CE marking symbol (see conformity declaration)	As per EU EMC directive					

1) % FS = % of the measuring range final value (full scale)

2) The collection of condensate in the sensor should be prevented.

# Pressure sensors SDE3, with display

Technical data

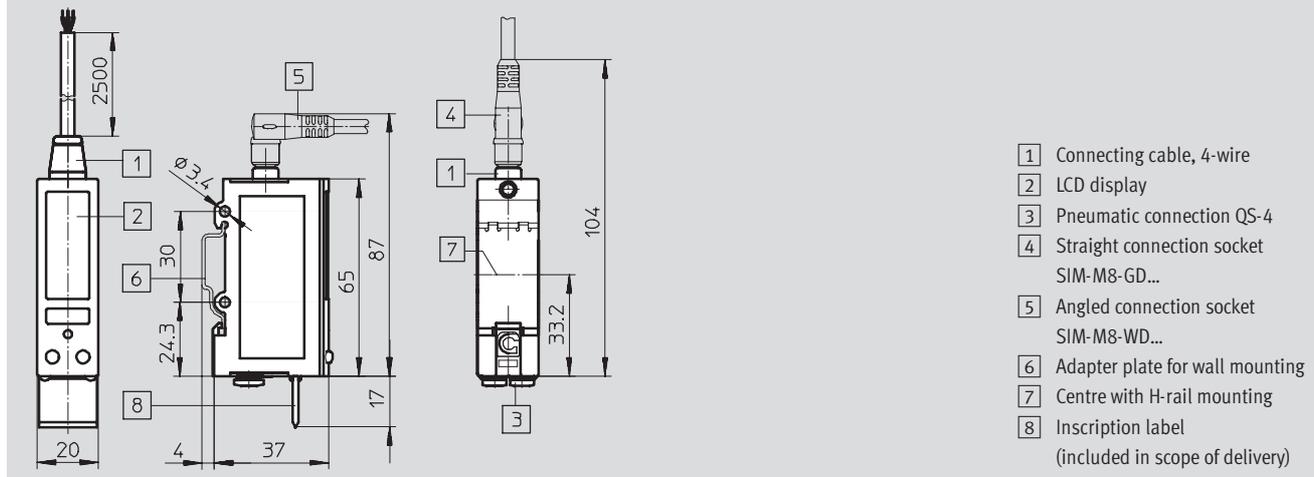
Operating and environmental conditions						
Pressure measuring range	[bar]	0 ... -1	-1 ... +1	0 ... 2	0 ... 6	0 ... 10
Operating pressure	[bar]	0 ... -1	-1 ... +1	0 ... 2	0 ... 6	0 ... 10
Threshold value setting range	[%]	0 ... 100				
Hysteresis setting range	[%]	0 ... 90				
Operating medium		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm				
Ambient temperature	[°C]	0 ... 50				
Temperature of medium	[°C]	0 ... 50				
Corrosion resistance class CRC <sup>1)</sup>		2				
Protection class to EN 60 529		IP 65				

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

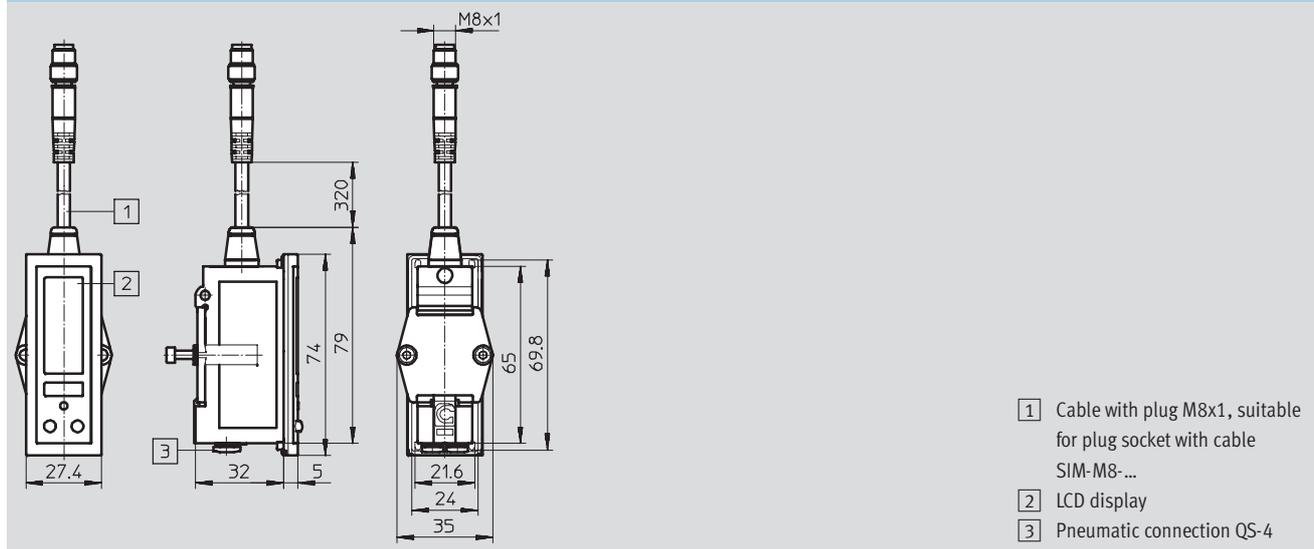
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Weights [g]	H-rail, wall or surface mounting	Panel mounting
	37	61

## Dimensions – H-rail, wall or surface mounting



## Dimensions – Panel mounting



# Pressure sensors SDE3, with display

Technical data

FESTO

Ordering data – Pressure measuring range 0 ... –1 bar							Part No.	Type <sup>1)</sup>
Measured variable			Display		Mounting			
Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting		
Switch output 2x PNP								
■	–	–	■	–	■	–	540 193	SDE3-V1S-B-HQ4-2P-M8
■	–	–	–	■	■	–	540 194	SDE3-V1S-H-HQ4-2P-M8
■	–	–	■	–	–	■	540 195	SDE3-V1S-B-FQ4-2P-M8
–	■	–	■	–	■	–	540 196	SDE3-V1D-B-HQ4-2P-M8
–	■	–	–	■	■	–	540 197	SDE3-V1D-H-HQ4-2P-M8
–	■	–	■	–	–	■	540 198	SDE3-V1D-B-FQ4-2P-M8
–	–	■	■	–	■	–	540 199	SDE3-V1Z-B-HQ4-2P-M8
–	–	■	–	■	■	–	540 200	SDE3-V1Z-H-HQ4-2P-M8
–	–	■	■	–	–	■	540 201	SDE3-V1Z-B-FQ4-2P-M8
Switch output 2x NPN								
–	–	■	■	–	■	–	540 202	SDE3-V1Z-B-HQ4-2N-M8

Ordering data – Pressure measuring range 0 ... 2 bar							Part No.	Type <sup>1)</sup>
Measured variable			Display		Mounting			
Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting		
Switch output 2x PNP								
–	■	–	■	–	■	–	540 203	SDE3-D2D-B-HQ4-2P-M8
–	■	–	■	–	–	■	540 204	SDE3-D2D-B-FQ4-2P-M8
–	–	■	■	–	■	–	540 205	SDE3-D2Z-B-HQ4-2P-M8
–	–	■	■	–	–	■	540 206	SDE3-D2Z-B-FQ4-2P-M8

Ordering data – Pressure measuring range 0 ... 10 bar							Part No.	Type <sup>1)</sup>
Measured variable			Display		Mounting			
Relative pressure	2x relative pressure	Differential pressure	bar	inches of mercury	Via H-rail	Panel mounting		
Switch output 2x PNP								
■	–	–	■	–	■	–	540 207	SDE3-D10S-B-HQ4-2P-M8
■	–	–	■	–	–	■	540 208	SDE3-D10S-B-FQ4-2P-M8
–	■	–	■	–	■	–	540 209	SDE3-D10D-B-HQ4-2P-M8
–	■	–	■	–	–	■	540 210	SDE3-D10D-B-FQ4-2P-M8
–	–	■	■	–	■	–	540 211	SDE3-D10Z-B-HQ4-2P-M8
–	–	■	■	–	–	■	540 212	SDE3-D10Z-B-FQ4-2P-M8
Switch output 2x NPN								
–	–	■	■	–	■	–	540 213	SDE3-D10Z-B-HQ4-2N-M8

1) Explanation of the order code → Type code 6

 Note  
Additional variants and accessories can be configured and ordered through the SDE3 modular system → 10.

# Pressure sensors SDE3, with display

Ordering data – Modular products

M Mandatory data							O Options	
Module No.	Function	Pressure measuring range	Pressure input	Display	Mounting/pneumatic connection	Electrical output	Electrical connection	Connecting cable (accessory)
539 679	SDE3	V1 B2 D2 D6 D10	S D Z	B P K H W	HQ4 WQ4 FQ4	2P 2N	M8 K	G W G5 W5
<b>Ordering example</b>								
539 679	SDE3	- D6	D	- B	- WQ4	- 2N	- K	- W5

Ordering table		Condi- tions	Code	Enter code
M	Module No.	539 679		
	Sensor function	Pressure sensor	SDE3	SDE3
	Pressure measuring range	[bar] 0 ... -1	-V1	
		[bar] -1 ... +1	-B2	
		[bar] 0 ... 2	-D2	
		[bar] 0 ... 6	-D6	
		[bar] 0 ... 10	-D10	
	Pressure input	1x relative pressure	S	
		2x relative pressure, independent	D	
		1x differential pressure	Z	
	Display	Values in bar	-B	
		Values in psi	-P	
		Values in kPa	-K	
		Values in inches of mercury	-H	
		Values in inches of water	-W	
	Mounting/pneumatic connection	Via H-rail, push-in fitting 4 mm	-HQ4	
		Wall mounting, push-in fitting 4 mm	-WQ4	
		Panel mounting, push-in fitting 4 mm	-FQ4	
	Electrical output	2 switch outputs PNP	-2P	
		2 switch outputs NPN	-2N	
	Electrical connection	Plug M8x1	-M8	
		Cable, 2.5 m	-K	
O	Connecting cable (accessory)	Straight socket, 2.5 m	-G	
		Angled socket, 2.5 m	-W	
		Straight socket, 5 m	-G5	
		Angled socket, 5 m	-W5	

**Transfer order code**

539 679    SDE3    -            -        -        -        -        -        -

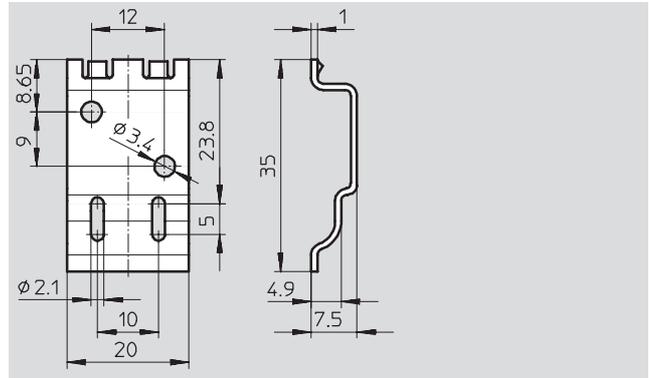
# Pressure sensors SDE3, with display

Accessories



**Adapter plate SXE3-W**  
for wall or surface mounting

Material:  
Steel



Ordering data		Part No.	Type
Adapter plate <sup>1)</sup>		540 214	SXE3-W

1) Included in the scope of delivery with SDE3-...-W...

Ordering data – Plug sockets with cable M8x1						Technical data → <a href="http://www.festo.com">www.festo.com</a>	
	Assembly	Connection	Switch output		Cable length [m]	Part No.	Type
			PNP	NPN			
<b>Straight socket</b>							
	Union nut M8x1	4-pin	■	■	2.5	158 960	SIM-M8-4GD-2,5-PU
			■	■	5	158 961	SIM-M8-4GD-5-PU
<b>Angled socket</b>							
	Union nut M8x1	4-pin	■	■	2.5	158 962	SIM-M8-4WD-2,5-PU
			■	■	5	158 963	SIM-M8-4WD-5-PU

## Products and services – everything from a single source

Products incorporating new ideas are created when enthusiasm for technology and efficiency come together. Tailor-made service goes without saying when the customer is the focus of attention.



### Pneumatic and electrical drives

- Pneumatic cylinders
- Semi-rotary drives
- Handling modules
- Servopneumatic positioning systems
- Electromechanical drives
- Positioning controllers and controllers



### Valves and valve terminals

- Standard valves
- Universal and application-optimised valves
- Manually and mechanically actuated valves
- Shut-off, pressure control and flow control valves
- Proportional valves
- Safety valves

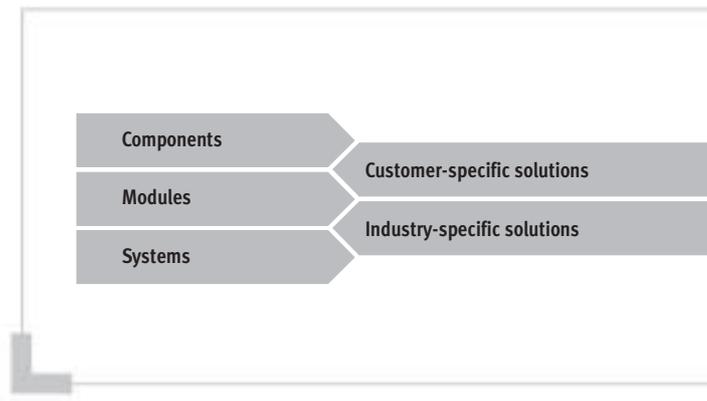
### Fieldbus systems/ electrical peripherals

- Fieldbus Direct
- Installation system CP/CPI
- Modular electrical terminal CPX



### Compressed air preparation

- Service unit combinations
- Filter regulators
- Filters
- Pressure regulators
- Lubricators
- On-off and soft-start valves
- Dryers
- Pressure amplifiers
- Accessories for compressed air preparation



## Services from Festo to increase your productivity – across the entire value creation sequence



### Engineering – for greater speed in the development process

- CAD models
- 14 engineering tools
- Digital catalogue
- FluidDRAW®
- More than 1,000 technical consultants and project engineers worldwide
- Technical hotlines



### Supply chain – for greater speed in the procurement process

- E-commerce and online shop
- Online order tracking
- Euro special manufacturing service
- Logistics optimisation



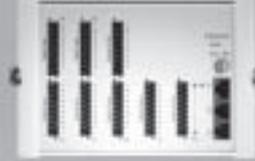
### Gripping and vacuum technology

- Vacuum generators
- Vacuum grippers
- Vacuum security valves
- Vacuum accessories
- Standard grippers
- Micro grippers
- Precision grippers
- Heavy-duty grippers



### Sensors and monitoring units

- Proximity sensors
- Pressure and flow sensors
- Display and operating units
- Inductive and optical proximity sensors
- Displacement encoders for positioning cylinders
- Optical orientation detection and quality inspection



### Controllers/bus systems

- Pneumatic and electropneumatic controllers
- Programmable logic controllers
- Fieldbus systems and accessories
- Timers/counters
- Software for visualisation and data acquisition
- Display and operating units



### Accessories

- Pipes
- Tubing
- Pipe connectors and fittings
- Electrical connection technology
- Silencers
- Reservoirs
- Air guns

### All in all, 100% product and service quality

A customer-oriented range with unlimited flexibility: Components combine to produce ready-to-install modules and systems. Included in this are special designs – since at Festo, most industry-specific products and customer-specific solutions are based on the 23,000 plus catalogue products. Combined with the services for the entire value creation sequence, the end result is unbeatable economy.



### Assembly – for greater speed in the assembly/commissioning process

- Prepack
- Preassembly
- Turnkey pneumatics
- Handling solutions



### Operation – for greater speed in the operational process

- Spare parts service
- Energy saving service
- Compressed air consumption analysis
- Compressed air quality analysis
- Customer service

## What must be observed when using Festo components?

Specified limit values for technical data and any specific instructions must be adhered to by the user in order to ensure recommended operating conditions.

When pneumatic components are used, the user shall ensure that they are operated using correctly prepared compressed air without aggressive media.

When Festo components are used in safety-oriented applications, the user shall ensure that all applicable

national and local safety laws and regulations, for example the machine directive, together with the relevant references to standards are observed. Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permissible.

Festo does not accept any liability for resulting damages.

You should contact Festo's advisors if one of the following apply to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

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