

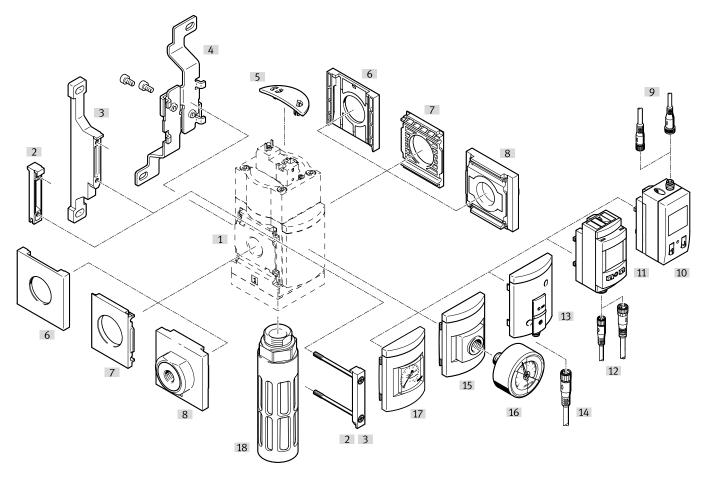


# Type codes

001	Series	ļ
MS	MS series	
002	Size	
6	Grid dimension 62 mm	
003	Thread type	
N	NPT thread	
004	Function	
SV	Soft-start/quick exhaust valve	
005	Pneumatic connection, inch	
1/2	Female thread NPT 1/2	
AQN	Sub-base NPT1/4	
AQP	Sub-base NPT3/8	
AQR	Sub-base NPT1/2	
AQS	Sub-base NPT3/4	
006	Performance Level	
C	Category 1, 1-channel to ISO 13849-1	
E	Category 4, 2-channel with self-monitoring to ISO 13849-1	
007	Supply voltage	
10V24	24 V DC, 10 bar, connection pattern to EN 175301	
10V24C	24 V DC, 10 bar (connection pattern to EN 175301) without manual override	
10V24D	24 V DC, 10 bar, M12 (connection pattern to EN 60947-5-2) without manual override	
10V24E	24 V DC, 10 bar, M12 (connection pattern to EN 60947-5-2) without manual override on the pilot actuator. With detenting internal manual override (can only be reset via 24 V).	
10V24F	24 V DC, 10 bar, M12 (connection pattern to EN 60947-5-2). Manual override on the pilot actuator non-detenting, internally detenting	
10V24P	24 V DC, 10 bar, M12 plug socket adapter (connection pattern to EN 60947-5-2)	
ASIS	22 V - 31.6 V DC, AS-i Safety at Work, SPEC3.0 Profile 7.5.5	
008	Silencer	
	None	
S	Silencer	
S0	Open silencer	

009	Pressure gauge alternatives			
	None			
AG	MS pressure gauge			
A8	Adapter for EN pressure gauge 1/8, without pressure gauge			
A4	Adapter for EN pressure gauge 1/4, without pressure gauge			
RG	Integrated pressure gauge, red/green scale			
AD1	Pressure sensor with LCD display, M8 plug, PNP, 3-pin			
AD2	Pressure sensor with LCD display, M8 plug, NPN, 3-pin			
AD3	Pressure sensor with LCD display, M0 plug, NPN, 3-pin Pressure sensor with LCD display, M12 plug, PNP, 4-pin, ana-			
	logue output 4 20 mA			
AD4	Pressure sensor with LCD display, M12 plug, NPN, 4-pin, ana-			
	logue output 4 20 mA			
AD7	Pressure sensor with switching display, M8 plug, threshold val-			
	ue comparator, PNP, N/O			
AD8	Pressure sensor with switching display, M8 plug, threshold val-			
	ue comparator, PNP, N/C			
AD9	Pressure sensor with switching display, M8 plug, window com-			
4010	parator, PNP, N/O			
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C			
AD11	Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®,			
	PNP, NPN, 010 V, 15 V, 420 mA			
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®,			
	PNP, NPN, 010 V, 15 V, 420 mA			
010	Alternative pressure gauge scale			
	MS pressure gauge			
PSI	psi			
MPA	МРа			
011	Multi-pin plug socket			
	None			
MP1	Multi-pin plug socket, Sub-D, 9-pin, screw terminal, without ca-			
	ble, static enable signals (EN1 = 24 V, EN2 = 24 V)			
MP3	Multi-pin plug socket, Sub-D, 9-pin, screw terminal, without ca- ble, static enable signals (EN1 = 0 V, EN2 = 24 V), cross-circuit			
	detection possible			
012	Type of mounting			
	Without mounting bracket			
WP	Mounting bracket basic design			
WPB	Mounting bracket for large wall gap			
WPM	Mounting bracket for hooking in service unit components			
WB	Mounting bracket for nooking in service dim components Mounting centrally at rear (wall mounting top and bottom), con-			
	,			
	necting plates not required			
013				
013	necting plates not required			
013 MK	necting plates not required Tamper protection			
	necting plates not required Tamper protection None			
	necting plates not required Tamper protection None			
MK	necting plates not required Tamper protection None Full			
MK	necting plates not required       Tamper protection       None       Full       UL certification			
<b>MK</b> 014	necting plates not required       Tamper protection       None       Full       UL certification       None			
<b>MK</b> 014	necting plates not required       Tamper protection       None       Full       UL certification       None			
MK 014 UL1	necting plates not required         Tamper protection         None         Full         UL certification         None         cULus ordinary location for Canada and USA         EU certification			
MK 014 UL1 015	necting plates not required         Tamper protection         None         Full         UL certification         None         cULus ordinary location for Canada and USA         EU certification         None			
MK 014 UL1	necting plates not required         Tamper protection         None         Full         UL certification         None         cULus ordinary location for Canada and USA         EU certification			
MK 014 UL1 015	necting plates not required         Tamper protection         None         Full         UL certification         None         cULus ordinary location for Canada and USA         EU certification         None			
MK 014 UL1 015 EX2	necting plates not required       Tamper protection       None       Full       UL certification       None       cULus ordinary location for Canada and USA       EU certification       None       II 3GD			

# Peripherals overview MS6N-SV-C

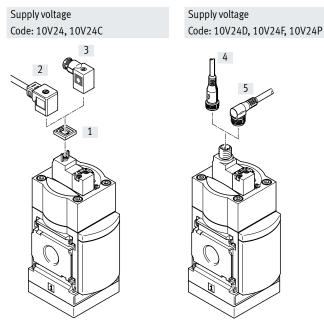


Moun	ling attachments and accessories		Single device	device Combination		Combination		ination -	
			Without connecting plate	With connecting plate	Without connecting plate	With connecting plate			
[1]	MS6-SV-C	Soft-start/quick exhaust valve	•				5		
[2]	MS6-MV	Module connector	_				ms6-mv		
[3]	MS6-WP, MS6-WPB, MS6-WPE, MS6-WPM	Mounting bracket		-	-	-	ms6-wp		
[4]	MS6-WB	Mounting bracket	-	-			ms6-wb		
[5]	MS6-SV-C-MK	Covering	-	-			25		
[6]	MS6-END	Cover cap		_		_	ms6-end		
[7]	MS6-AEND	Mounting plate	<b>■</b> 1)	_	1)	_	ms6-aend		
[8]	MS6-AG	Connecting plate SET	_	■1)	_	<b>■</b> 1)	ms6-ag		
	MS6-AQ	Connecting plate SET	_	■1)	_	■1)	ms6-aq		
[9]	NEBU-M8LE3, NEBU-M12LE4	Connecting cable			•		27		
[10]	AD1 AD4	Pressure sensor SDE1 with LCD display	•		•		10		
[11]	AD11 AD12	Pressure sensor SPAU with LCD display	•	•	•	•	10		
[12]	NEBU-M8LE4/NEBU-M12LE4	Connecting cable		•			27		
[13]	AD7 AD10	Pressure sensor SDE5 with switching status indicator	•	•	•		10		
[14]	NEBU-M8LE3	Connecting cable		•			27		
[15]	A4	Adapter for EN pressure gauge 1/4	•	•	•		10		
[16]	MA	Pressure gauge	•	•	•	•	27		
[17]	AG, RG	MS pressure gauge	•	•	•	•	10		
[18]	U-3/4-B	Silencer					26		

1) Module connector MS6-MV [2] or mounting bracket MS6-WP, MS6-WPB, MS6-WPE, MS6-WPM [3] is required for mounting.

# Peripherals overview MS6N-SV-C

### Soft-start/quick exhaust valve MS6N-SV-C



- 📲 Note
- Additional accessories:
- Module connector for combination with size MS4/MS6 or size MS9
   → Internet: amv rmv
- Adapter for mounting on profiles
   → Internet: ipm

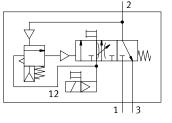
### Mounting attachments and accessories

			Single device Combination		→ Page/		
			Without connecting	With connecting	Without connecting	With connecting	Internet
			plate	plate	plate	plate	
[1]	MEB-LD	Illuminating seal					26
[2]	КМЕВ	Plug socket with cable					26
[3]	MSSD-EB	Plug socket					26
[4]	NEBU-M12G5	Connecting cable					27
[5]	NEBU-M12W5	Connecting cable					27

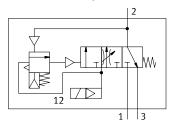
1) Module connector MS6-MV [5] or mounting bracket MS6-WP, MS6-WPB, MS6-WPE, MS6-WPM [6] is required for mounting.

# Datasheet MS6N-SV-C

## MS6N-SV-...-10V24, -10V24F, -10V24P



MS6N-SV-...-10V24C, -10V24D



Flow rate 5700 l/min

0 ... +60°C - Operating pressure

Temperature range

3 ... 10 bar www.festo.com

Electropneumatic soft-start/quick exhaust valve for gradual pressurisation and quick exhausting of system components (single channel).

The main restrictor in the end cap permits a slower build-up of output pressure p2. Once the output pressure p2 has reached the set pressure switchover point (switching pressure), the valve opens and the full operating pressure p1 is available at the output.

- Suitable for applications with a high flow rate in restricted space with medium safety requirements up to controller category 1, Performance Level c
- High volumetric flow rate for pressurisation and exhausting
- The filling flow rate can be set for gradual pressure build-up with a restrictor
- Adjustable pressure switchover point
- Optional pressure sensor
- Optional covering for the control sections as tamper protection

I

### Safety characteristics

Salety characteristics	
Conforms to standard	EN ISO 13849-1
Safety function	Exhaust
	Avoidance of unexpected start-up (pressurisation)
Performance Level (PL)	Exhausting: up to category 1, PL c
	Prevention of unexpected start-up (pressurisation): up to category 1, PL c
Note on forced checking procedure	Switching frequency min. once a month
CE mark (see declaration of conformity) <sup>1)</sup>	To EU Machinery Directive
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

1) Additional information: www.festo.com/catalogue/... → Support/Downloads.

## - 🕴 - Note

The mechanical system is not tested in the controlled (i.e. pressurised) state. Forced switch on/off: switching frequency should be at least once a month. If the process-related switching frequency (safe exhausting) is less than once a month, the machine's operator must carry out a forced switch off.

## General technical data

Pneumatic connection 1, 2	
Female thread	1/2 NPT
Connecting plate AQ	1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT
Pneumatic connection 3	3/4 NPT
Actuation type	Electrical
Design	Piston spool
Type of mounting	With accessories
	In-line installation
Mounting position	Any
Pressure indicator	Via pressure sensor for displaying the output pressure on LCD display and electrical output
	Via pressure sensor for displaying the output pressure by switching status indicator and electrical output
	Via pressure gauge for displaying the output pressure
	Via pressure gauge with red/green scale for displaying the output pressure
	Prepared for G1/4
Valve function	3/2-way valve, closed, monostable
	Soft-start function, adjustable
Non-overlapping	Yes
Exhaust function	Cannot be throttled
Manual override 10V2 4, 10V24F	At the pilot solenoid valve: non-detenting
	At the soft-start/quick exhaust valve: detenting, self-resetting
10V24P	At the pilot solenoid valve: non-detenting/detenting
	At the soft-start/quick exhaust valve: detenting, self-resetting
10V24C, 10V24D	None
Reset method	Mechanical spring
Type of control	Piloted
Pilot air supply	Internal
Sealing principle	Soft

### Characteristic flow rate values

Characteristic flow rate values				
Pneumatic connection	Female thread 1/2 NPT			
Standard nominal flow rate qnN <sup>1)</sup> [l/min]				
in main flow direction 1 > 2	5700			
Standard flow rate qN [l/min], p2 = 6 bar	Standard flow rate qN [l/min], p2 = 6 bar			
in exhaust direction 2 > 3	7600 <sup>2)</sup>			
C value [l/s*min]				
in main flow direction 1 > 2	23.2			
b value				
in main flow direction 1 > 2	0.4			

Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar
 Measured with reference to atmosphere with silencer S.

### Electrical data

Electrical data		
Characteristic coil	10V24,10V24P	24 V DC: 1.8 W; permissible voltage fluctuations –10%/+10%
data	10V24C, 10V24D, 10V24F	24 V DC: 1.8 W; permissible voltage fluctuations -15%/+10%
Electrical connection	10V24, 10V24C	Plug, 2-pin, to EN 175301-803, type C
	10V24D, 10V24F,	M12x1 to ISO 20401 in line with EN 61076-2-101
	10V24P	
Degree of protection		IP65 with plug socket
Duty cycle	[%]	100
Switching time off	[ms]	65
Switching time on	[ms]	370

### Operating and environmental conditions

Operating pressure	[bar]	310		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on the operating/		Lubricated operation possible (in which case lubricated operation will always be required)		
pilot medium				
Ambient temperature	[°C]	0 +60 (0 +50) <sup>1</sup> )		
Temperature of medium	[°C]	0+60(0+50) <sup>1</sup> )		
Storage temperature	[°C]	-10 +60 (0 +50) <sup>1)</sup>		
Corrosion resistance class CRC <sup>2)</sup>		2		
CE mark (see declaration of conformity) <sup>3)</sup>		To EU Machinery Directive		
Suitability for the food industry <sup>3)</sup>		See supplementary material information (except for solenoid valve)		

1) With pressure sensor AD...

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

3) Additional information: www.festo.com/sp  $\rightarrow$  Certificates.

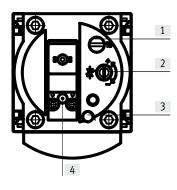
### Weights [g]

Soft-start/quick exhaust valve	886		
Soft-start/quick exhaust valve with silencer S	1006		

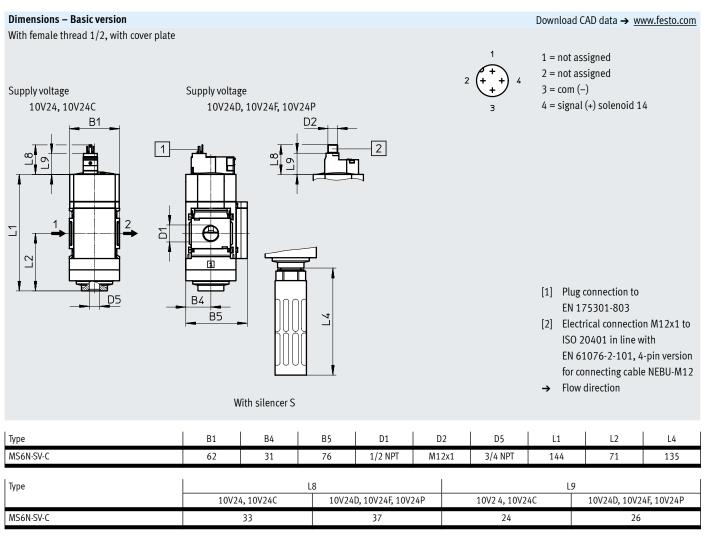
#### Materials

materials	
Housing	Die-cast aluminium
Piston rod	High-alloy stainless steel
Seals	NBR
Note on materials	RoHS-compliant

#### Adjusting elements

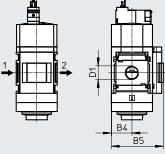


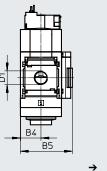
- [1] Screw for adjusting the pressure switchover point
- [2] Flow control screw for adjusting the filling time
- [3] Manual override at the soft-start/ quick exhaust valve:
  - detenting, self-resetting as soon as the solenoid coil or manual override on the pilot solenoid valve is actuated (with 10V24, 10V24E, 10V24F, 10V24P)
  - none (with 10V24C, 10V24D)
- [4] Manual override at the pilot solenoid valve:
  - non-detenting, actuation from above (with 10V24/10V24F)
  - non-detenting/detenting, actuation from above (with 10V24P)
  - none (with 10V24C, 10V24D, 10V24E)



#### Dimensions - Pressure gauge/pressure gauge alternatives

Integrated MS pressure gauge with standard scale AG or red/green scale RG, display unit [bar]





Flow direction

B4 BS

Adapter A4 for EN pressure gauge 1/4, without pressure gauge

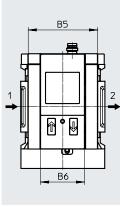
→ Flow direction

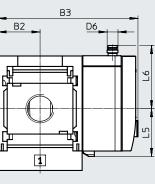
Download CAD data → www.festo.com

Туре	B4	B5	D4
MS6N-SVAG	31	77	-
MS6N-SVRG	31	78.5	-
MS6N-SVA4	31	78.5	G1/4

#### Dimensions – Pressure sensor

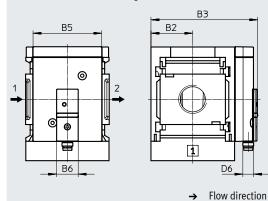
Pressure sensor with LCD display AD1 ... AD4



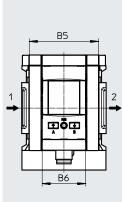


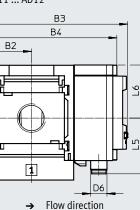
→ Flow direction

Pressure sensor with switching status indicator AD7 ... AD10



Pressure sensor with LCD display AD11 ... AD12





### [AD1]:

SDE1-D10-G2-MS...-L-P1-M8 with 3-pin plug M8x1, 1 switching output PNP

## [AD2]:

SDE1-D10-G2-MS...-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN

### Download CAD data → <u>www.festo.com</u> Datasheets → Internet: sde1

#### [AD3]:

SDE1-D10-G2-MS...-L-PI-M12 with 4-pin plug M12x1, 1 switching output PNP and 4 ... 20 mA analogue

#### [AD4]:

SDE1-D10-G2-MS...-L-NI-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue

### [AD7]:

SDE5-D10-O-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

#### [AD8]:

SDE5-D10-C-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/C contact Datasheets → Internet: sde5

### [AD9]:

SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

### [AD10]:

SDE5-D10-C3-...-P-M8 with 3-pin M8x1 plug, window comparator, 1 switching output PNP, N/C contact

#### [AD11]:

SPAU-P10R-MS...-L-PNLK-M12D with 4-pin plug M12x1 A-coded, switching output 2x PNP or 2x NPN switchable and 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA analogue

### Datasheets $\rightarrow$ Internet: spau

### [AD12]:

SPAU-P10R-MS...-L-PNLK-M8D with 4-pin plug M8x1 A-coded, switching output 2x PNP or 2x NPN switchable and 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA analogue

Туре	B2	B3	B4	B5	B6	D6	L5	L6
MS6-SVAD1, AD2	31	103	-	51	32.3	M8x1	35.1	46.7
MS6-SVAD3, AD4						M12x1		55.8
MS6-SVAD7, AD8, AD9, AD10	31	79.1	-	51	16	M8x1	-	-
MS6-SVAD11	31	101.8	93.7	51	32	M12x1	41.2	39
MS6-SVAD12						M8x1	37.9	

# Ordering data – Modular product system MS6N-SV-C

Ordering table			I	1	
Grid dimension	[mm]	62	Conditions	Code	Enter code
Module no.		548714			
Series		Standard		MS	MS
Size		6		6	6
Thread type		NPT thread		N	Ν
Function		Soft-start/quick exhaust valve		-SV	-SV
Pneumatic connection		Female thread 1/2 NPT		-1/2	
		Connecting plate 1/4 NPT		-AQN	
		Connecting plate 3/8 NPT		-AQP	
		Connecting plate 1/2 NPT		-AQR	
		Connecting plate 3/4 NPT		-AQS	
Performance Level		Category 1, single-channel, to EN ISO 13849-1		-C	-C
Supply voltage		24 V DC (connection pattern to EN 175301), 3 10 bar,		-10V24	
		Manual override			
		At the soft-start/quick exhaust valve: detenting, self-resetting			
		At the pilot solenoid valve: non-detenting			
		24 V DC (connection pattern to EN 175301), 3 10 bar,		-10V24C	
		No manual override			
		24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 10 bar,		-10V24D	
		No manual override			
		24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 10 bar,		-10V24F	
		Manual override			
		At the soft-start/quick exhaust valve: detenting, self-resetting			
		At the pilot solenoid valve: non-detenting			
		24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 10 bar,		-10V24P	
		Manual override			
		At the soft-start/quick exhaust valve: detenting, self-resetting			
		At the pilot solenoid valve: non-detenting/detenting			

# Ordering data – Modular product system MS6N-SV-C

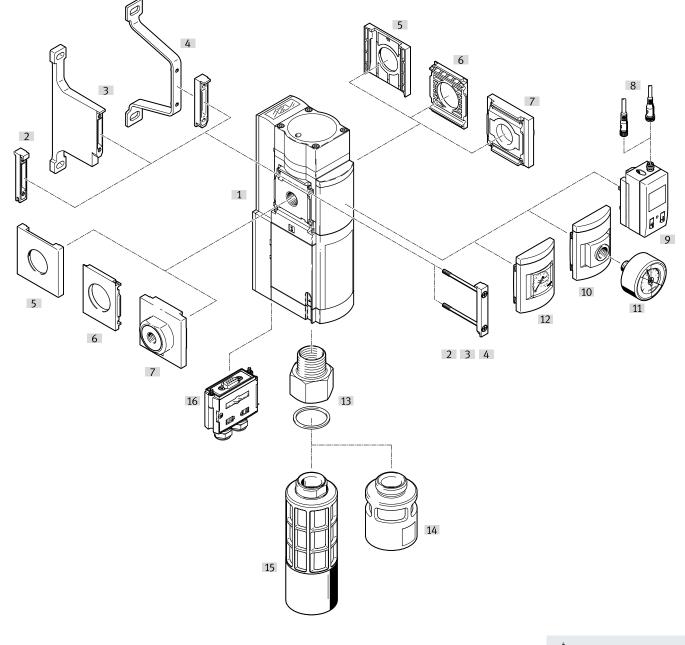
Grid dimension	[mm] 62	Conditions	Code	Enter code
Silencers	Silencers		-S	
Pressure gauge/pressure gauge alternat		[1]	-AG	
······································	Adapter for EN pressure gauge 1/4, without pressure gauge	1-1	-A4	
	Integrated pressure gauge, red/green scale	[1]	-RG	
	Pressure sensor SDE1 with LCD display, plug M8, 1 switching output PNP, 3-pin	[2]	-AD1	
	Pressure sensor SDE1 with LCD display, plug M8, 1 switching output NPN, 3-pin	[2]	-AD2	
	Pressure sensor SDE1 with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 20 mA	[2]	-AD3	
	Pressure sensor SDE1 with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 20 mA	[2]	-AD4	
	Pressure sensor SDE5 with switching status indicator, plug M8, threshold value comparator, PNP, N/O	[2]	-AD7	
	Pressure sensor SDE5 with switching status indicator, plug M8, threshold value comparator, PNP, N/C	[2]	-AD8	
	Pressure sensor SDE5 with switching status indicator, plug M8, window comparator, PNP, N/O	[2]	-AD9	
	Pressure sensor SDE5 with switching status indicator, plug M8, window comparator, PNP, N/C	[2]	-AD10	
	Pressure sensor SPAU with LCD display, M12 plug 4-pin, IO-Link <sup>®</sup> , PNP, NPN, 0 10 V, 1 5 V, 4 20 mA	[2]	-AD11	
	Pressure sensor SPAU with LCD display, M8 plug 4-pin, IO-Link <sup>®</sup> , PNP, NPN, 0 10 V, 1 5 V, 4 20 mA	[2]	-AD12	
Alternative pressure gauge scale	bar	[3]	-BAR	
	МРа	[3]	-MPA	
ype of mounting	Mounting bracket standard design		-WP	
	Mounting bracket for attaching service unit components	[4]	-WPM	
	Mounting bracket for large wall gap		-WPB	
	Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required		-WB	
Tamper protection	Complete (manual override at soft-start/quick exhaust valve blocked, setting screws blocked, manual override at pilot solenoid valve blocked)		-MK	
low direction	Flow direction from right to left		-Z	

 [1]
 AG, RG
 Pressure gauge scale in psi. With pressure gauge RG: PSI scale only as auxiliary scale (inner scale), outer scale in bar

 [2]
 AD1... AD4, AD7... AD12
 Measuring range max. 10 bar

[4] WPM Only with connecting plate AQN, AQP, AQR or AQS

# Peripherals overview MS6N-SV-E



# 🗍 - Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9
   → Internet: amv rmv
- Adapter for mounting on profiles
   → Internet: ipm

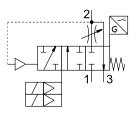
# Peripherals overview MS6N-SV-E

### Mounting attachments and accessories

	-		Single device		Combination		→ Page/ Internet
			Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
[1]	MS6-SV-E	Soft-start/quick exhaust valve		•	•	•	14
[2]	MS6-MV	Module connector	-	-		•	ms6-mv
[3]	MS6-WPB	Mounting bracket		•			ms6-wpb
[4]	MS6-WPE	Mounting bracket	•	•			ms6-wpe
[5]	MS6-END	Cover cap	-	-		-	ms6-end
[6]	MS6-AEND	Mounting plate	■ <sup>1)</sup>	-	■ <sup>1)</sup>	-	ms6-aend
[7]	MS6-AG	Connecting plate SET	-	■ <sup>1)</sup>	-	■ <sup>1)</sup>	ms6-ag
	MS6-AQ	Connecting plate SET	-	■ <sup>1)</sup>	-	■ <sup>1)</sup>	ms6-aq
[8]	NEBU-M8LE3/NEBU-M12LE4	Connecting cable	•				27
[9]	AD1 AD4	Pressure sensor SDE1 with LCD display					21
[10]	MA	Pressure gauge		•			27
[11]	A4	Adapter for EN pressure gauge 1/4		•	•		21
[12]	AG/RG	MS pressure gauge	•	•		•	21
[13]	AD	Adapter	•	•		•	26
[14]	UOS-1-LF	Silencer	•	•	•	•	24
[15]	UOS-1	Silencer	•	•	•	•	24
[16]	NECA	Multi-pin plug socket					22

1) Module connector MS6-MV [2] or mounting bracket MS6-WPB [3] or MS6-WPE [4] is required for assembly.

#### Function



- Flow rate
   4300 l/min
- Temperature range
   -10 ... +50°C
- Operating pressure
   3.5 ... 10 bar
- www.festo.com

The electropneumatic soft-start/quick exhaust valve is used to reduce pressure quickly and safely and to build up pressure gradually in industrial pneumatic piping systems and terminal equipment.

The device is a self-testing, redundant mechatronic system conforming to the requirements of EN ISO 13849-1. The safety-related pneumatic protection

- Performance Level "e"/Category 4 to EN ISO 13849-1
- Conforms to standard IEC 61508
- Switching time delay adjustable via a restrictor for gradual pressure build-up
- Optional pressure sensor

Safety characteristics

objective of safe exhausting is also guaranteed in the event of faults inside the valve (e.g. due to wear, contamination, electronic faults). The 2-channel design and its monitoring enables the device to meet controller category 3 and 4 requirements. This enables a Performance Level of max. "e". The device receives the secure enable signals (EN1/EN2) via the electrical

## - Note

The MS6N-SV-...-E-10V24 should only be used in combination with the multi-pin plug socket NECA approved for it. The multi-pin plug socket can be ordered via the modular product system (MP...  $\rightarrow$  21) or as an accessory (NECA  $\rightarrow$  22). connection (multi-pin plug socket NECA Sub-D, 9-pin or AS-i connecting cable). These signals are generated commercially available electronic or electromechanical safety switching devices which monitor the protective equipment of the machine (e.g. emergency stop, light curtain, electrical door switch of a protective enclosure, etc.).

## · 📲 - Note

To avoid back pressures, it is recommended that the device be operated together with the silencer UOS-1. The silencer can be ordered via the modular product system (SO  $\rightarrow$  21) or as an accessory (UOS-1  $\rightarrow$  24).

# 🗍 - Note

Only devices that do not impair the pneumatic protective measure – safe exhausting – may be placed downstream of the MS6-SV-...-E. The MS6-SV-...-D is not approved for use as a press safety valve.

Туре	MS6N-SVE-10V24
Conforms to standard	EN ISO 13849-1
Safety function	Exhaust
	Avoidance of unexpected start-up (pressurisation)
Performance Level (PL)	Exhaust: up to category 4, PL e
	Prevention of unexpected start-up (pressurisation): up to category 4, PL e
Safety integrity level (SIL)	Exhaust: SIL 3
	Avoidance of unexpected start-up (pressurisation): SIL 3
Note on forced checking procedure	Switching frequency min. once a month
Certificate issuing authority <sup>1)</sup>	IFA 1001180
CE mark (see declaration of conformity) <sup>1)</sup>	To EU Machinery Directive
	To EU EMC Directive
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

1) Additional information: www.festo.com/catalogue/... → Support/Downloads.

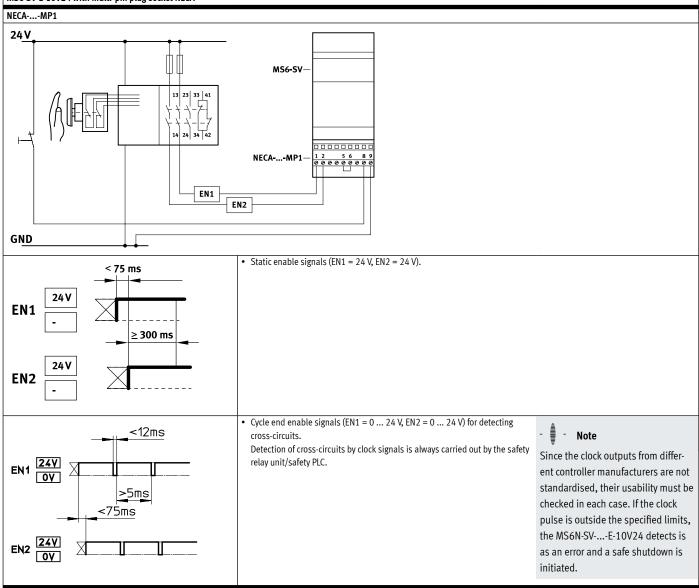
# - 🕴 - Note

The mechanical system is not tested in the controlled (i.e. pressurised) state. Forced switch on/off: switching frequency should be at least once a month. If the process-related switching frequency (safe exhausting) is less than once a month, the machine's operator must carry out a forced switch off.

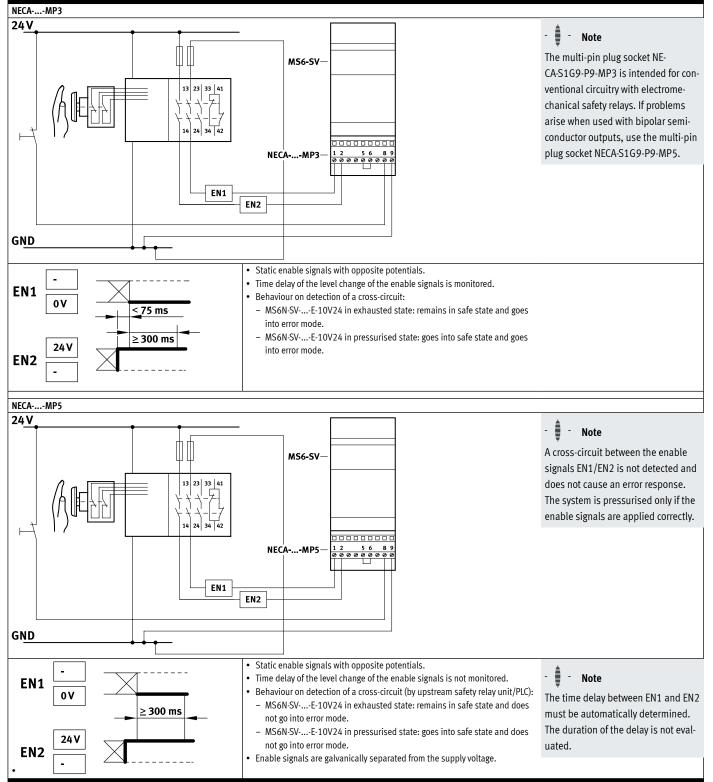
### Operational principle of the multi-pin plug socket NECA

Enable signal s	status	Status MS6N-SVE-10V24 with multi-p	in plug socket	
EN1	EN2	NECAMP1	NECAMP1 NECAMP3	
0 V	0 V	Unpressurised	MS6N-SVE-10V24 switches to fault mode.	MS6N-SVE-10V24 does not switch to fault mode, but remains in the safe, unpressurised state. Note: Detection of cross-circuits and error detection/ evaluation necessary via external controller.
0 V	24 V	MS6N-SVE-10V24 switches to fault mode.	Pressurised	Pressurised
24 V	24 V	Pressurised	MS6N-SVE-10V24 switches to fault mode.	MS6N-SVE-10V24 does not switch to fault mode, but remains in the safe, unpressurised state. Note: Detection of cross-circuits and error detection/ evaluation necessary via external controller.
24 V	0 V	MS6N-SVE-10V24 switches to fault mode.	Unpressurised	Unpressurised

### MS6-SV-E-10V24 with multi-pin plug socket NECA



### MS6-SV-E-10V24 with multi-pin plug socket NECA



## General technical data

General technical data			
Pneumatic connection 1, 2			
Female thread	1/2 NPT		
Connecting plate A	Q 1/4 NPT, 3/8 NPT, 1/2 NPT or 3/4 NPT		
Pneumatic connection 3	1 NPT		
Actuation type	Electrical		
Design	Piston seat		
Type of mounting	With accessories		
	In-line installation		
Mounting position	Any		
Pressure indicator	Via pressure sensor for displaying the output pressure on LCD display and electrical output		
	Via pressure gauge for displaying the output pressure		
	Via pressure gauge with red/green scale for displaying the output pressure		
	Prepared for G1/4		
Position sensing principle	Magnetic piston principle		
Valve function	3/2-way valve, closed, monostable		
	Soft-start function, adjustable		
Non-overlapping	No		
Exhaust function	Cannot be throttled		
Manual override	None		
Reset method	Mechanical spring		
Type of control	Piloted		
Pilot air supply	Internal		
Sealing principle	Soft		

Characteristic flow rate values					
Pneumatic connection	Female thread 1/2 NPT				
Standard nominal flow rate qnN <sup>1)</sup> [l/min]	Standard nominal flow rate qnN <sup>1</sup> [l/min]				
in main flow direction $1 \rightarrow 2$	4300				
Standard flow rate qN [l/min], p2 = 6 bar	Standard flow rate qN [l/min], p2 = 6 bar				
in exhaust direction $2 \rightarrow 3$	9000 <sup>2)</sup>				
C value [l/s*min]					
in main flow direction $1 \rightarrow 2$	19.3				
b value					
in main flow direction $1 \rightarrow 2$	0.21				

1) Measured at p1 = 6 bar and p2 = 5 bar,  $\Delta p = 1$  bar

2) Measured with reference to atmosphere with silencer UOS-1.

## Electrical data

Electrical data		
Electrical connection	-	Sub-D 9-pin
Nominal operating voltage	[V DC]	24
Permissible voltage fluctuations	[%]	±10
Operating voltage range for	[V DC]	-
AS-interface		
Duty cycle	[%]	100
Max. switching frequency	[Hz]	0.5
Switching time off	[ms]	40
Switching time on	[ms]	130
Signal status indication		LED and floating contact
Degree of protection		IP65 with plug socket

## Operating and environmental conditions

Operating and environmental con	ditions	
Operating pressure	[bar]	3.5 10
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/		Lubricated operation possible (in which case lubricated operation will always be required)
pilot medium		
Ambient temperature	[°C]	$-10 \dots +50 (0 \dots +50)^{1)}$
Temperature of medium	[°C]	$-10 \dots +50 (0 \dots +50)^{1)}$
Storage temperature	[°C]	$-10 \dots +50 (0 \dots +50)^{1)}$
Corrosion resistance class CRC <sup>2)</sup>		2
Noise level	[dB(A)]	75 (with silencer UOS-1)
CE mark (see declaration of conform	nity) <sup>4)</sup>	To EU EMC Directive <sup>3)</sup>
		To EU Machinery Directive
UL certification <sup>4)</sup>		c UL us - Recognized (OL)
Certification		RCM
KC mark		KCEMC

1) With pressure sensor AD...

2) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

4) Additional information: www.festo.com/catalogue/ms  $\rightarrow$  Support/Downloads.

### Weights [g]

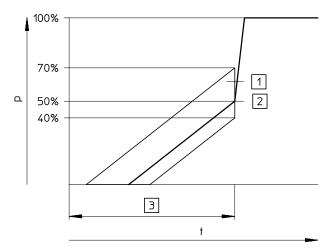
Weights [g]	
Soft-start/quick exhaust valve	2000
Soft-start/quick exhaust valve with silencer	2200
UOS-1	

#### Materials

Housing	Die-cast aluminium		
Piston rod	High-alloy stainless steel		
Seals	NBR		
Note on materials	RoHS-compliant		

## Switch-through point

Pressure p as a function of time t



- [1] Tolerance range
- [2] Switch-through point
- [3] Filling time is adjustable by a restrictor

## - Note

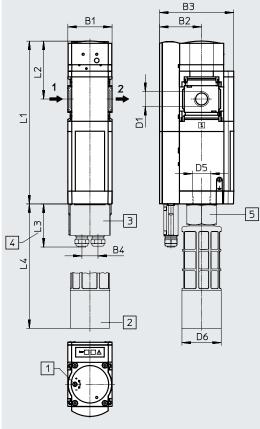
The +20%/-10% switching point tolerance refers to the operating pressure p1. Example: A switching point from

1.6 bar to 2.8 bar is permissible at an operating pressure of 4 bar.

Download CAD data → <u>www.festo.com</u>

Dimensions – Basic version with supply voltage 10V24,

with female thread 1/2 NPT, with cover plate



- [1] Regulating screw for throttle valve
- [2] Silencer UOS-1
- [3] Multi-pin plug socket NECA
- [4] Dimension without cable
- [5] Adapter AD
- [6] M12 socket, 5-pin
- [7] M12 pin, 5-pin
- $\rightarrow$  Flow direction

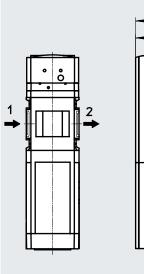
	D6										
Туре	B1	B2	B3	B4	D1	D5	D6	L1	L2	L3	L4
MS6N-SV-1/2-E-10V24	62	59	104	23	1/2 NPT	1 NPT	55	228	81	61	174

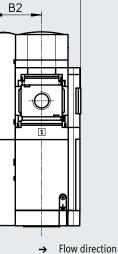
### Dimensions – Pressure gauge/pressure gauge alternatives

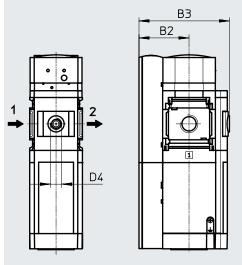
integrated MS pressure gauge AG with standard scale AG or red/green scale RG

BЗ

Download CAD data → <u>www.festo.com</u> Adapter A4 for EN pressure gauge 1/4, without pressure gauge





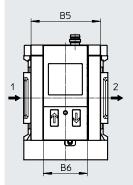


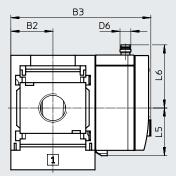
→ Flow direction

Туре	B2	B3	D4
MS6N-SVEAG	59	105	-
MS6N-SVERG	59	106.5	-
MS6N-SVEA4	59	106.5	G1/4

#### **Dimensions – Pressure sensor**

Pressure sensor with LCD display AD1 ... AD4





→ Flow direction

### [AD1]: SDE1-D10-G2-MS...-L-P1-M8 with

3-pin plug M8x1, 1 switching output PNP

## [AD2]:

SDE1-D10-G2-MS...-L-N1-M8 with 3-pin plug M8x1, 1 switching output NPN Download CAD data → <u>www.festo.com</u> Datasheets → Internet: sde1

#### [AD3]:

SDE1-D10-G2-MS...-L-PI-M12 with 4-pin plug M12x1, 1 switching output PNP and 4 ... 20 mA analogue

#### [AD4]:

SDE1-D10-G2-MS...-L-NI-M12 with 4-pin plug M12x1, 1 switching output NPN and 4 ... 20 mA analogue

Туре	B2	B3	B4	B5	B6	D6	L5	L6
MS6-SVAD1, AD2	31	103	-	51	32.3	M8x1	35.1	46.7
MS6-SVAD3, AD4						M12x1		55.8

# Ordering data – Modular product system MS6N-SV-E

Ordering table				
Grid dimension [mm]	62	Conditions	Code	Enter code
Module no.	548714			
Series	Standard		MS	MS
Size	6		6	6
Thread type	NPT thread		N	N
Function	Soft-start/quick exhaust valve		-SV	-SV
Pneumatic connection	Female thread 1/2 NPT		-1/2	
	Connecting plate 1/4 NPT		-AQN	
	Connecting plate 3/8 NPT		-AQP	
	Connecting plate 1/2 NPT		-AQR	
	Connecting plate 3/4 NPT		-AQS	
Performance Level	Category 4, 2-channel with self-monitoring to ISO 13849-1		-E	-E
Supply voltage	24 V DC		-10V24	
Silencers	Open silencer		-S0	
Pressure gauge/pressure gauge alternatives	MS pressure gauge	[1]	-AG	
	Adapter for EN pressure gauge 1/4, without pressure gauge		-A4	
	Integrated pressure gauge, red/green scale	[1]	-RG	
	Pressure sensor SDE1 with LCD display, plug M8, 1 switching output PNP, 3-pin	[2]	-AD1	
	Pressure sensor SDE1 with LCD display, plug M8, 1 switching output NPN, 3-pin	[2]	-AD2	
	Pressure sensor SDE1 with LCD display, plug M12, 1 switching output PNP, 4-pin,	[2]	-AD3	
	analogue output 4 20 mA			
	Pressure sensor SDE1 with LCD display, plug M12, 1 switching output NPN, 4-pin,	[2]	-AD4	
	analogue output 4 20 mA			
Alternative pressure gauge scale	bar	[3]	-BAR	
	МРа	[3]	-MPA	
Multi-pin plug socket	Sub-D, 9-pin, screw terminal, without cable,		-MP1	
	static enable signals (EN1 = 24 V, EN2 = 24 V)			
	Sub-D, 9-pin, screw terminal, without cable,		-MP3	
	static enable signals (EN1 = 0 V, EN2 = 24 V),			
	Detection of cross-circuit contacts possible			
	Sub-D, 9-pin, screw terminal, without cable,		-MP5	
	static enable signals (EN1 = 0 V, EN2 = 24 V),			
	galvanic isolation of enable signal from the supply voltage			
Type of mounting	Mounting bracket for large mounting spacing		-WPB	
UL certification	cULus, ordinary location for Canada and USA		-UL1	
Flow direction	Flow direction from right to left		-Z	

AG, RG Pressure gauge scale in psi. With pressure gauge RG: PSI scale only as auxiliary scale (inner scale), outer scale in bar.
 AD1...AD4 Measuring range max. 10 bar
 BAR, MPA Only in combination with pressure gauge AG or RG

# Accessories

### Multi-pin plug socket NECA

(order code in the modular product system: MP1/MP3/MP5) • for soft-start/quick exhaust valve

MS6N-SV-E-10V24



### Technical data

Type of mounting		Via through-hole
Electrical connection 1		Socket, sub-D, 9-pin
Electrical connection 2		Screw terminal, 9-pin
Operating voltage range	[V DC]	21.6 26.4
Nominal operating voltage	[V DC]	24
Acceptable current load at 40°C	[A]	1.0
Connection cross section	[mm <sup>2</sup> ]	0.34 1.0 without wire end sleeves
	[mm <sup>2</sup> ]	0.34 0.5 with wire end sleeves
Permissible cable diameter	[mm]	5.0 10.0
Degree of protection to IEC 60529		IP65

### Operating and environmental conditions

Relative humidity		95%, non-condensing
Ambient temperature	[°C]	0+50
Storage temperature	[°C]	-20 +70
Corrosion resistance class CRC <sup>1)</sup>		2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

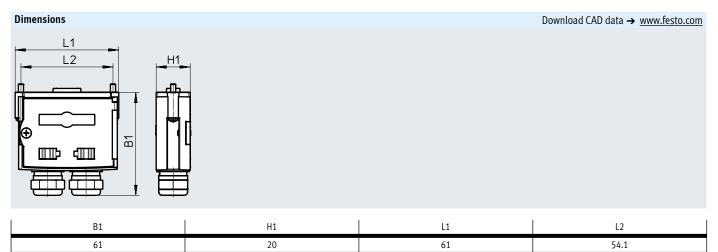
### Materials

Materials	
Housing	PA-reinforced
Screws	Steel
Union nut	Brass
Seals	NBR

54.1

# Accessories

61



Ordering data		1	1	
Description	Connection	Weight [g]	Part no.	Туре
for MS6N-SV-E-10V24	Without cable, static enable signals (EN1 = 24 V, EN2 = 24 V)	60	548719	NECA-S1G9-P9-MP1
	Without cable, static enable signals (EN1 = 0 V, EN2 = 24 V), detection of cross-circuits possible	60	552703	NECA-S1G9-P9-MP3
	Without cable, static enable signals (EN1 = 0 V, EN2 = 24 V), galvanic isolation of enable signals from the supply voltage	60	573695	NECA-S1G9-P9-MP5

20

## Accessories

### Silencer UOS-1

(order code in the modular product system: SO)

 for soft-start/quick exhaust valve MS6N-SV-D/E

#### Silencer UOS-1-LF

 for soft-start/quick exhaust valve MS6N-SV-D/E

#### 📲 - Note

The space-saving silencer UOS-1-LF may only be used for applications with low exhaust rates. Pneumatic connection 2 at the soft-start/quick exhaust valve MS6N-SV-D/E must be reduced to 1/4 NPT by a connecting plate MS6-AQN.





Download CAD data → <u>www.festo.com</u>

T

I

UOS-1-LF

## Technical data

Technical uata	
Pneumatic connection	G1
Design	Open silencer
Type of mounting	With male thread
Mounting position	Any
Type of seal on screwed trunnion	No seal

### Operating and environmental conditions

- F				
Operating pressure	[bar]	010		
Operating medium		Compressed air to ISO 8573-1:2010 [-:-:-]		
Ambient temperature	[°C]	-10+50		
Corrosion resistance class CRC <sup>1)</sup>		2		

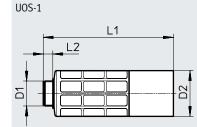
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

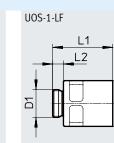
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Materials

Туре	UOS-1	UOS-1-LF			
Housing	РОМ	Wrought aluminium alloy			
Sleeve	Wrought aluminium alloy	-			
Cushioning insert	PE				
Note on materials	RoHS-compliant				
Free of copper and PTFE					

#### Dimensions





D2

Туре	D1	D2 Ø	L1	L2
UOS-1	C1		156.5	11.5
UOS-1-LF		22	72.2	13

### Ordering data

Description		Weight	Part no.	Туре			
		[g]					
for MS6N-SV-D/E	For high exhaust rate	200	552252	U0S-1			
	For low exhaust rate	157.9	1901207	UOS-1-LF			

# Accessories

## Covering MS-SV-MK

(Order code in the modular product system: MK)

 for soft-start/quick exhaust valve MS6N-SV-C

Note on materials: RoHS-compliant



MS6-SV-C-MK

Ordering data				
Description		CRC <sup>1)</sup>	Part no.	Туре
for MS6N-SV-C	Tamper protection for manual override at the soft-start/quick exhaust valve, flow control screw, adjusting screw for pressure switchover point and manual override at the pilot solenoid valve	2	8001479	MS6-SV-C-MK

1) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

# Accessories

Ordering data – Adapter AD									
	Description	neumatic connection Par		Part no.	Туре				
		1	2						
	for MS6N-SV-E	1 NPT	61	546547	AD-1NPT-G1-I				

### Ordering data – Silencer U-...-B

Ordering data – Silence	Ordering data – Silencer UB							
	Description	Pneumatic connection	Order code in the modular product system	Part no.	Туре			
M.	for MS6N-SV-C	3/4 NPT	S	566823	U-3/4-B-NPT			

### Ordering data – Proximity switch SMT

Ordering data – Proxir	Ordering data – Proximity switch SMT									
	Description	Switching output	Switching element function	Electrical connection	Cable length [m]	Order code in the modular product system	Part no.	Туре		
ST MARTIN	for MS6N-SV-D	PNP	N/O	Cable with plug M8x1, 3-pin Cable with plug M12x1, 3-pin	0.3	2M8/S3 2M12/S3	574334 574337	SMT-8M-A-PS-24V-E-0.3-M8 SMT-8M-A-PS-24V-E-0.3-M12		
	for MS6N-SV-D	PNP	N/O	Cable, 3-wire	5	20E/S3	574336	SMT-8M-A-PS-24V-E-5.0-OE		

### Ordering data – Plug socket MSSD

Ordering data – Plug so	Ordering data – Plug socket MSSD Datasheets → Internet:								
	Description	Electrical connection	Type of mounting for cable connection	Part no.	Туре				
	for MS6N-SV-C/D	3-pin	Clamping screws	151687	MSSD-EB				
		4-pin	Insulation displacement technology	192745	MSSD-EB-S-M14				
		3-pin	Clamping screws	539712	MSSD-EB-M12				

### Ordering data – Plug socket with cable KMEB

	Ordering data – Plug so	ocket with cable KMEB						Datasheets → Internet: kmeb
		Description	Operating voltage	Electrical connection	Switching status indication	Cable length [m]	Part no.	Туре
ſ		for MS6N-SV-C/D	24 V DC	2-pin	LED	2.5	547268	KMEB-3-24-2.5-LED
						5	547269	KMEB-3-24-5-LED
					-	2.5	547270	KMEB-3-24-2.5
	$\diamond$					5	547271	KMEB-3-24-5
	~			3-pin	LED	2.5	151688	KMEB-1-24-2.5-LED
						5	151689	KMEB-1-24-5-LED
						10	193457	KMEB-1-24-10-LED
			230 V AC	3-pin	-	2.5	151690	KMEB-1-230AC-2.5
						5	151691	KMEB-1-230AC-5

### Ordering data – Illuminating seal MEB-LD

Description	Operating voltage range	Part no.	Туре
For plug socket with cable KMEB and plug socket	12 24 V DC	151717	MEB-LD-12-24DC
MSSD-EB	230 V DC/AC ±10%	151718	MEB-LD-230AC

Datasheets → Internet: meb

# Accessories

Ordering data – Conne	Ordering data – Connecting cable NEBU-M8							
	Electrical connection	Number of wires	Cable length	Part no.	Туре			
			[m]					
	M8x1, straight socket	3	2.5	541333	NEBU-M8G3-K-2.5-LE3			
			5	541334	NEBU-M8G3-K-5-LE3			
	M8x1, angled plug socket	3	2.5	541338	NEBU-M8W3-K-2.5-LE3			
Con the second			5	541341	NEBU-M8W3-K-5-LE3			

#### Ordering data – Connecting cable NEBU-M12

Ordering data – Conne	Ordering data – Connecting cable NEBU-M12								
	Electrical connection	Number of wires	Cable length [m]	Part no.	Туре				
D. M.	M12x1, straight socket	4	2.5 5	550326 541328	NEBU-M12G5-K-2.5-LE4 NEBU-M12G5-K-5-LE4				
Contraction of the second seco	M12x1, angled plug socket	4	2.5 5	550325 541329	NEBU-M12W5-K-2.5-LE4 NEBU-M12W5-K-5-LE4				

#### Ordering data – Pressure gauge MA

Nominal size	Pneumatic connection	Display range	Display range Pa		Туре	
		[bar]	[psi]			
Pressure gauge M		Datasheets → Internet: ma				
40	R1/4	0 16	0 232	187080	MA-40-16-R1/4-EN	
	G1/4	0 16	0 232	183901	MA-40-16-G1/4-EN	
Pressure gauge MA, EN 837-1, with red/green range Datasheets → Inter						
50	R1/4	0 16	-	525729	MA-50-16-R1/4-E-RG	