

## Soft-start/quick exhaust valves MS-SV, MS series, NPT

**FESTO**



## Type codes

|               |                                                                                                                                                                                            |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>001</b>    | <b>Series</b>                                                                                                                                                                              |  |
| <b>MS</b>     | MS series                                                                                                                                                                                  |  |
| <b>002</b>    | <b>Size</b>                                                                                                                                                                                |  |
| <b>6</b>      | Grid dimension 62 mm                                                                                                                                                                       |  |
| <b>003</b>    | <b>Thread type</b>                                                                                                                                                                         |  |
| <b>N</b>      | NPT thread                                                                                                                                                                                 |  |
| <b>004</b>    | <b>Function</b>                                                                                                                                                                            |  |
| <b>SV</b>     | Soft-start/quick exhaust valve                                                                                                                                                             |  |
| <b>005</b>    | <b>Pneumatic connection, inch</b>                                                                                                                                                          |  |
| <b>1/2</b>    | Female thread NPT 1/2                                                                                                                                                                      |  |
| <b>AQN</b>    | Sub-base NPT1/4                                                                                                                                                                            |  |
| <b>AQP</b>    | Sub-base NPT3/8                                                                                                                                                                            |  |
| <b>AQR</b>    | Sub-base NPT1/2                                                                                                                                                                            |  |
| <b>AQS</b>    | Sub-base NPT3/4                                                                                                                                                                            |  |
| <b>006</b>    | <b>Performance Level</b>                                                                                                                                                                   |  |
| <b>C</b>      | Category 1, 1-channel to ISO 13849-1                                                                                                                                                       |  |
| <b>E</b>      | Category 4, 2-channel with self-monitoring to ISO 13849-1                                                                                                                                  |  |
| <b>007</b>    | <b>Supply voltage</b>                                                                                                                                                                      |  |
| <b>10V24</b>  | 24 V DC, 10 bar, connection pattern to EN 175301                                                                                                                                           |  |
| <b>10V24C</b> | 24 V DC, 10 bar (connection pattern to EN 175301) without manual override                                                                                                                  |  |
| <b>10V24D</b> | 24V DC, 10 bar, M12 (connection pattern according to IEC 61076-2-101) without manual override                                                                                              |  |
| <b>10V24E</b> | 24 V DC, 10 bar, M12 (connection pattern according to IEC 61076-2-101) without manual override on the pilot actuator. With detenting internal manual override (can only be reset via 24 V) |  |
| <b>10V24F</b> | 24 V DC, 10 bar, M12 (connection pattern to IEC 61076-2-101). Non-detenting manual override on the pilot actuator                                                                          |  |
| <b>10V24P</b> | 24 V DC, 10 bar, M12 (connection pattern to IEC 61076-2-101)                                                                                                                               |  |
| <b>ASIS</b>   | 22 V - 31.6 V DC, AS-i Safety at Work, SPEC3.0 Profile 7.5.5                                                                                                                               |  |
| <b>008</b>    | <b>Silencer</b>                                                                                                                                                                            |  |
|               | None                                                                                                                                                                                       |  |
| <b>S</b>      | Silencer                                                                                                                                                                                   |  |
| <b>SO</b>     | Open silencer                                                                                                                                                                              |  |

|             |                                                                                                     |  |
|-------------|-----------------------------------------------------------------------------------------------------|--|
| <b>009</b>  | <b>Pressure gauge alternatives</b>                                                                  |  |
|             | None                                                                                                |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge                                           |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge                                           |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |
| <b>AG</b>   | MS pressure gauge                                                                                   |  |
| <b>RG</b>   | Integrated pressure gauge, red/green scale                                                          |  |

|            |                                         |  |
|------------|-----------------------------------------|--|
| <b>010</b> | <b>Alternative pressure gauge scale</b> |  |
|            | MS pressure gauge                       |  |
| <b>PSI</b> | psi                                     |  |
| <b>MPA</b> | MPa                                     |  |

|            |                                                                                                                                                     |  |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>011</b> | <b>Multi-pin plug socket</b>                                                                                                                        |  |
|            | None                                                                                                                                                |  |
| <b>MP1</b> | Multi-pin plug socket, Sub-D, 9-pin, screw terminal, without cable, static enable signals (EN1 = 24 V, EN2 = 24 V)                                  |  |
| <b>MP3</b> | Multi-pin plug socket, Sub-D, 9-pin, screw terminal, without cable, static enable signals (EN1 = 0 V, EN2 = 24 V), cross-circuit detection possible |  |

|            |                                                                                           |  |
|------------|-------------------------------------------------------------------------------------------|--|
| <b>012</b> | <b>Type of mounting</b>                                                                   |  |
|            | Without mounting bracket                                                                  |  |
| <b>WP</b>  | Mounting bracket basic design                                                             |  |
| <b>WPB</b> | Mounting bracket for large wall gap                                                       |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |

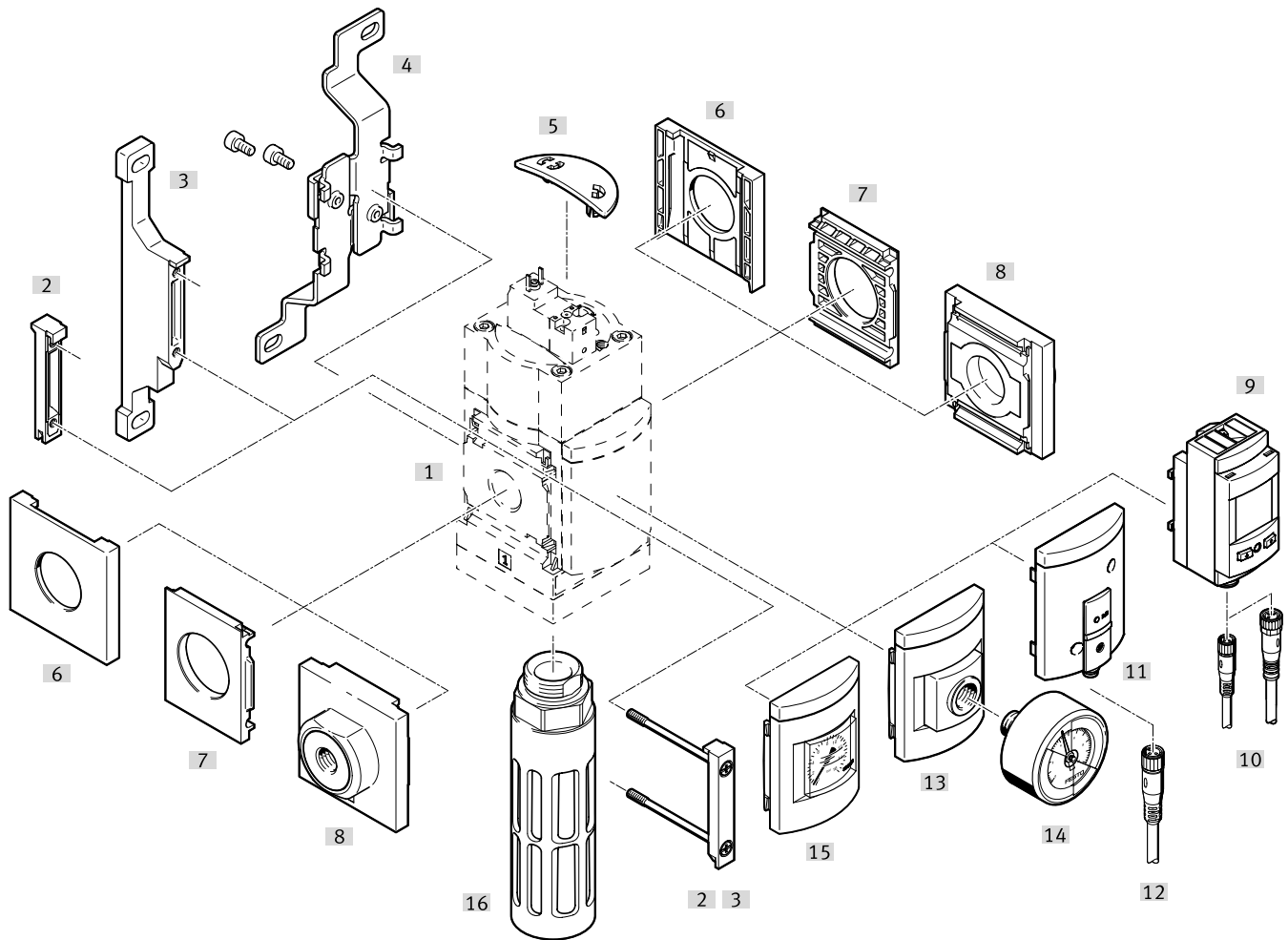
|            |                          |  |
|------------|--------------------------|--|
| <b>013</b> | <b>Tamper protection</b> |  |
|            | None                     |  |
| <b>MK</b>  | Full                     |  |

|            |                                            |  |
|------------|--------------------------------------------|--|
| <b>014</b> | <b>UL certification</b>                    |  |
|            | None                                       |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA |  |

|            |                         |  |
|------------|-------------------------|--|
| <b>015</b> | <b>EU certification</b> |  |
|            | None                    |  |
| <b>EX2</b> | II 3GD                  |  |

|            |                                   |  |
|------------|-----------------------------------|--|
| <b>016</b> | <b>Flow direction</b>             |  |
|            | Flow direction from left to right |  |
| <b>Z</b>   | Flow direction from right to left |  |

## Peripherals overview MS6N-SV-C



## Mounting attachments and accessories

|      |                                   |                                                         | Single device               |                          | Combination                 |                          | → Page/<br>Internet |
|------|-----------------------------------|---------------------------------------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|---------------------|
|      |                                   |                                                         | Without connecting<br>plate | With connecting<br>plate | Without connecting<br>plate | With connecting<br>plate |                     |
| [1]  | MS6N-SV-C                         | Soft-start/quick exhaust<br>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                                          | ■ <sup>1)</sup>             | –                        | ■ <sup>1)</sup>             | –                        | ms6-aend            |
| [8]  | 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              |
| [9]  | AD11 ... AD12                     | Pressure sensor SPAU with<br>LCD display                | ■                           | ■                        | ■                           | ■                        | 10                  |
| [10] | NEBA-M8...-LE4/NEBA-M12...-LE4    | Connecting cable                                        | ■                           | ■                        | ■                           | ■                        | 27                  |
| [11] | AD7 ... AD10                      | Pressure sensor SDE5 with<br>switching status indicator | ■                           | ■                        | ■                           | ■                        | 10                  |
| [12] | NEBA-M8...-LE3                    | Connecting cable                                        | ■                           | ■                        | ■                           | ■                        | 27                  |
| [13] | A4                                | Adapter for EN pressure<br>gauge 1/4                    | ■                           | ■                        | ■                           | ■                        | 10                  |
| [14] | MA                                | Pressure gauge                                          | ■                           | ■                        | ■                           | ■                        | 27                  |
| [15] | AG, RG                            | MS pressure gauge                                       | ■                           | ■                        | ■                           | ■                        | 10                  |
| [16] | U-3/4-B                           | Silencer                                                | ■                           | ■                        | ■                           | ■                        | 26                  |

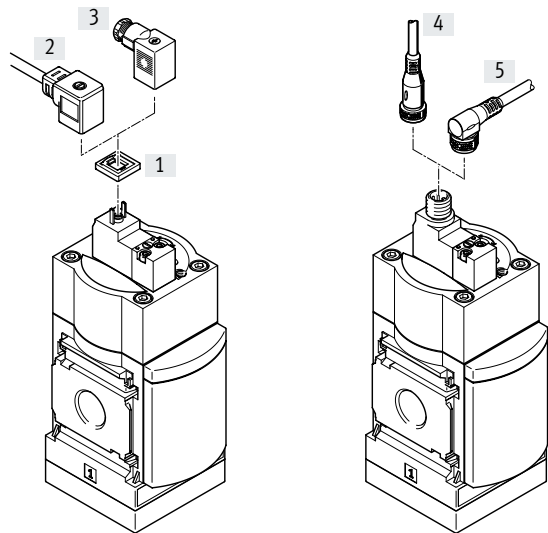
1) Module connector MS6-MV [2] or mounting bracket MS6-WP, MS6-WPB, MS6-WPE, MS6-WPM [3] is required for mounting.

Peripherals overview MS6N-SV-C

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

Supply voltage  
Code: 10V24, 10V24C

Supply voltage  
Code: 10V24D, 10V24F, 10V24P



 **Note**

Additional accessories:

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

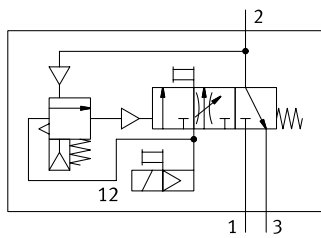
Mounting attachments and accessories

|     |            |                        | Single device            |                       | Combination              |                       | → Page/<br>Internet |
|-----|------------|------------------------|--------------------------|-----------------------|--------------------------|-----------------------|---------------------|
|     |            |                        | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                     |
| [1] | MEB-LD     | Illuminating seal      | ■                        | ■                     | ■                        | ■                     | 26                  |
| [2] | KMEB       | Plug socket with cable | ■                        | ■                     | ■                        | ■                     | 26                  |
| [3] | MSSD-EB    | Plug socket            | ■                        | ■                     | ■                        | ■                     | 26                  |
| [4] | NEBA-M12G5 | Connecting cable       | ■                        | ■                     | ■                        | ■                     | 27                  |
| [5] | NEBA-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

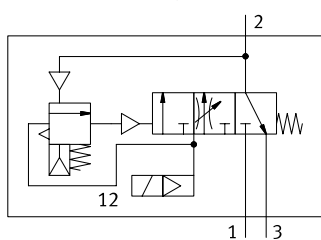
MS6N-SV-...-10V24, -10V24F, -10V24P



-  - Flow rate  
5700 l/min
-  - Temperature range  
0 ... +60°C
-  - Operating pressure  
3 ... 10 bar
-  - [www.festo.com](http://www.festo.com)



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



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

## Safety 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 |

<sup>1)</sup> Additional information: [www.festo.com/catalogue/...](http://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.

## Datasheet MS6N-SV-C

| 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<br>At the soft-start/quick exhaust valve: detenting, self-resetting           |
|                           | 10V24P                 | At the pilot solenoid valve: non-detenting/detenting<br>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                                              |  |                       |
|------------------------------------------------------------------------------|--|-----------------------|
| Pneumatic connection                                                         |  | Female thread 1/2 NPT |
| <b>Standard nominal flow rate <math>q_{nN}^{1)}</math> [l/min]</b>           |  |                       |
| in main flow direction 1 > 2                                                 |  | 5700                  |
| <b>Standard flow rate <math>q_N</math> [l/min], <math>p_2 = 6</math> bar</b> |  |                       |
| in exhaust direction 2 > 3                                                   |  | 7600 <sup>2)</sup>    |
| <b>C value [l/s*min]</b>                                                     |  |                       |
| in main flow direction 1 > 2                                                 |  | 23.2                  |
| <b>b value</b>                                                               |  |                       |
| in main flow direction 1 > 2                                                 |  | 0.4                   |

- 1) Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar  
2) Measured with reference to atmosphere with silencer S.

| Electrical data          |                        |                                                                |
|--------------------------|------------------------|----------------------------------------------------------------|
| Characteristic coil data | 10V24, 10V24P          | 24 V DC: 1.8 W; permissible voltage fluctuations $-10\%/+10\%$ |
|                          | 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, 10V24P | M12x1 to ISO 20401 in line with EN 61076-2-101                 |
|                          |                        |                                                                |
| Degree of protection     |                        | IP65 with plug socket                                          |
| Duty cycle               | [%]                    | 100                                                            |
| Switching time off       | [ms]                   | 65                                                             |
| Switching time on        | [ms]                   | 370                                                            |

## Datasheet MS6N-SV-C

| Operating and environmental conditions                     |                                                                                            |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Operating pressure [bar]                                   | 3 ... 10                                                                                   |
| Operating medium                                           | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |
| Note on the operating/pilot medium                         | Lubricated operation possible (in which case lubricated operation will always be required) |
| 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 marking (see declaration of conformity) <sup>3)</sup>   | To EU EMC Directive                                                                        |
|                                                            | To EU Machinery Directive                                                                  |
|                                                            | To EU Low Voltage Directive                                                                |
|                                                            | To EU RoHS Directive                                                                       |
| UKCA marking (see declaration of conformity) <sup>3)</sup> | To UK instructions for EMC                                                                 |
|                                                            | To UK instructions for machines                                                            |
|                                                            | To UK RoHS instructions                                                                    |
| UL certification <sup>4)</sup>                             | c UL us - Recognized (OL)                                                                  |
| Suitability for the food industry <sup>3)</sup>            | See supplementary material information (except for solenoid valve)                         |

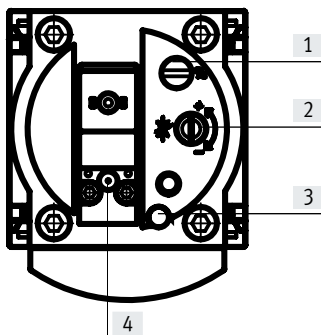
1) With pressure sensor AD...

2) Additional information: [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)3) Additional information: [www.festo.com/catalogue/ms-sv](http://www.festo.com/catalogue/ms-sv) → Support/Downloads.

| Weights [g]                                    |      |
|------------------------------------------------|------|
| Soft-start/quick exhaust valve                 | 886  |
| Soft-start/quick exhaust valve with silencer S | 1006 |

| Materials         |                            |
|-------------------|----------------------------|
| Housing           | Die-cast aluminium         |
| Piston rod        | High-alloy stainless steel |
| Seals             | NBR                        |
| Note on materials | RoHS-compliant             |
| PWIS conformity   | VDMA24364-B2-L             |

## 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)

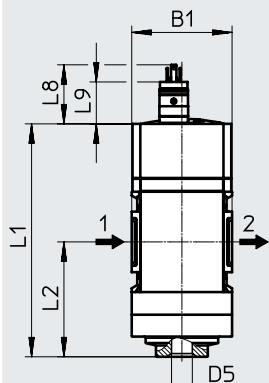
Datasheet MS6N-SV-C

**Dimensions – Basic version**

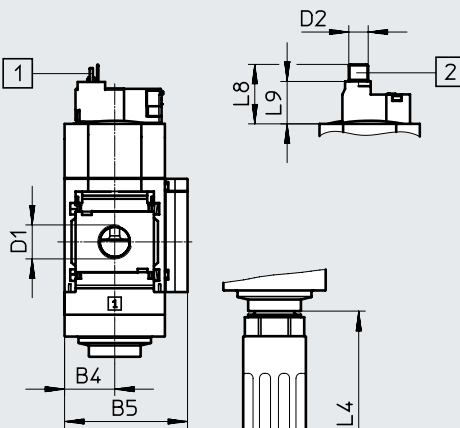
With female thread 1/2, with cover plate

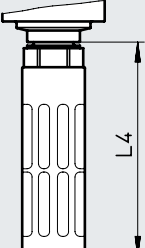
Download CAD data → [www.festo.com](http://www.festo.com)

Supply voltage  
10V24, 10V24C

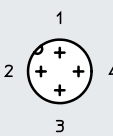


Supply voltage  
10V24D, 10V24F, 10V24P

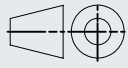




With silencer S



1 = not assigned  
2 = not assigned  
3 = com (–)  
4 = signal (+) solenoid 14



[1] Plug connection to EN 175301-803  
[2] Electrical connection M12x1 to ISO 20401 in line with EN 61076-2-101, 4-pin version for connecting cable NEBA-M12  
→ Flow direction

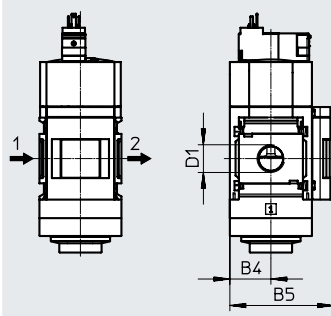
| Type      | B1 | B4 | B5 | D1      | D2    | D5      | L1  | L2 | L4  |
|-----------|----|----|----|---------|-------|---------|-----|----|-----|
| MS6N-SV-C | 62 | 31 | 76 | 1/2 NPT | M12x1 | 3/4 NPT | 144 | 71 | 135 |

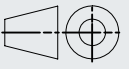
| Type      | L8            |                        | L9             |                        |
|-----------|---------------|------------------------|----------------|------------------------|
|           | 10V24, 10V24C | 10V24D, 10V24F, 10V24P | 10V2 4, 10V24C | 10V24D, 10V24F, 10V24P |
| MS6N-SV-C | 33            | 37                     | 24             | 26                     |

**Dimensions – Pressure gauge/pressure gauge alternatives**

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

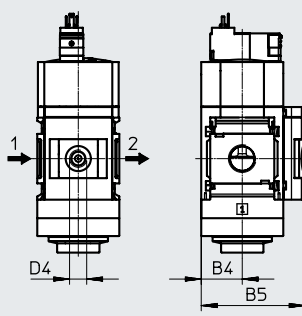
Download CAD data → [www.festo.com](http://www.festo.com)

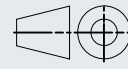




→ Flow direction

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





→ Flow direction

| Type           | B4 | B5   | D4   |
|----------------|----|------|------|
| MS6N-SV-...-AG | 31 | 77   | –    |
| MS6N-SV-...-RG | 31 | 78.5 | –    |
| MS6N-SV-...-A4 | 31 | 78.5 | G1/4 |

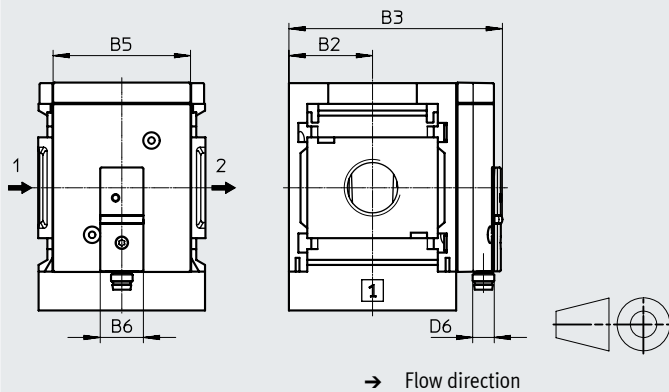
## Datasheet MS6N-SV-C

**Dimensions – Pressure sensor**

Pressure sensor with switching status indicator AD7 ... AD10

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

Datasheets → Internet: sde5



[AD7]:  
SDE5-D10-O-...-P-M8 with 3-pin plug  
M8x1, threshold value comparator,  
1 switching output PNP, N/O contact

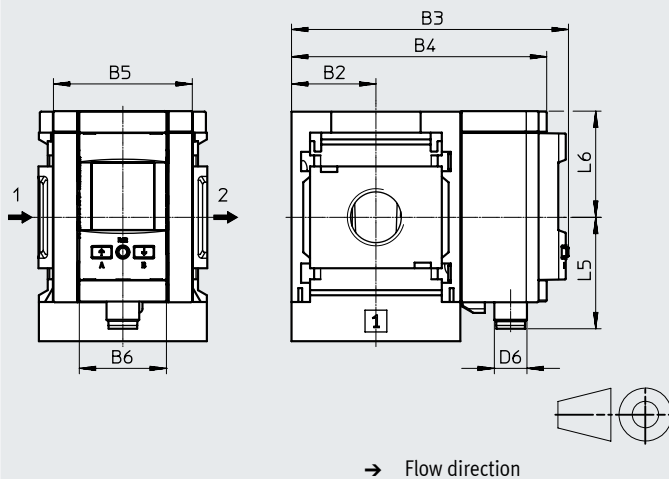
[AD9]:  
SDE5-D10-O3-...-P-M8 with 3-pin  
plug M8x1, window comparator,  
1 switching output PNP, N/O contact

[AD8]:  
SDE5-D10-C-...-P-M8 with 3-pin plug  
M8x1, threshold value comparator,  
1 switching output PNP, N/C contact

[AD10]:  
SDE5-D10-C3-...-P-M8 with 3-pin  
M8x1 plug, window comparator,  
1 switching output PNP, N/C contact

Pressure sensor with LCD display AD11 ... AD12

Datasheets → Internet: spau



[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

[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

| Type                          | B2 | B3    | B4   | B5 | B6 | D6    | L5   | L6 |
|-------------------------------|----|-------|------|----|----|-------|------|----|
| MS6-SV-...AD7, AD8, AD9, AD10 | 31 | 79.1  | –    | 51 | 16 | M8x1  | –    | –  |
| MS6-SV-...AD11                | 31 | 101.8 | 93.7 | 51 | 32 | M12x1 | 41.2 | 39 |
| MS6-SV-...AD12                |    |       |      |    |    | M8x1  | 37.9 |    |

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

| 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 1, single-channel, to EN ISO 13849-1                                                                                                                                                                                                                           |    |            | -C      | -C         |
| Supply voltage       | 24 V DC (connection pattern to EN 175301), 3 ... 10 bar,<br>Manual override <ul style="list-style-type: none"><li>At the soft-start/quick exhaust valve: detenting, self-resetting</li><li>At the pilot solenoid valve: non-detenting</li></ul>                         |    |            | -10V24  |            |
|                      | 24 V DC (connection pattern to EN 175301), 3 ... 10 bar,<br>No manual override                                                                                                                                                                                          |    |            | -10V24C |            |
|                      | 24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 ... 10 bar,<br>No manual override                                                                                                                                                                            |    |            | -10V24D |            |
|                      | 24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 ... 10 bar,<br>Manual override <ul style="list-style-type: none"><li>At the soft-start/quick exhaust valve: detenting, self-resetting</li><li>At the pilot solenoid valve: non-detenting</li></ul>           |    |            | -10V24F |            |
|                      | 24 V DC, M12x1 to ISO 20401 in line with EN 61076-2-101, 3 ... 10 bar,<br>Manual override <ul style="list-style-type: none"><li>At the soft-start/quick exhaust valve: detenting, self-resetting</li><li>At the pilot solenoid valve: non-detenting/detenting</li></ul> |    |            | -10V24P |            |

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

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

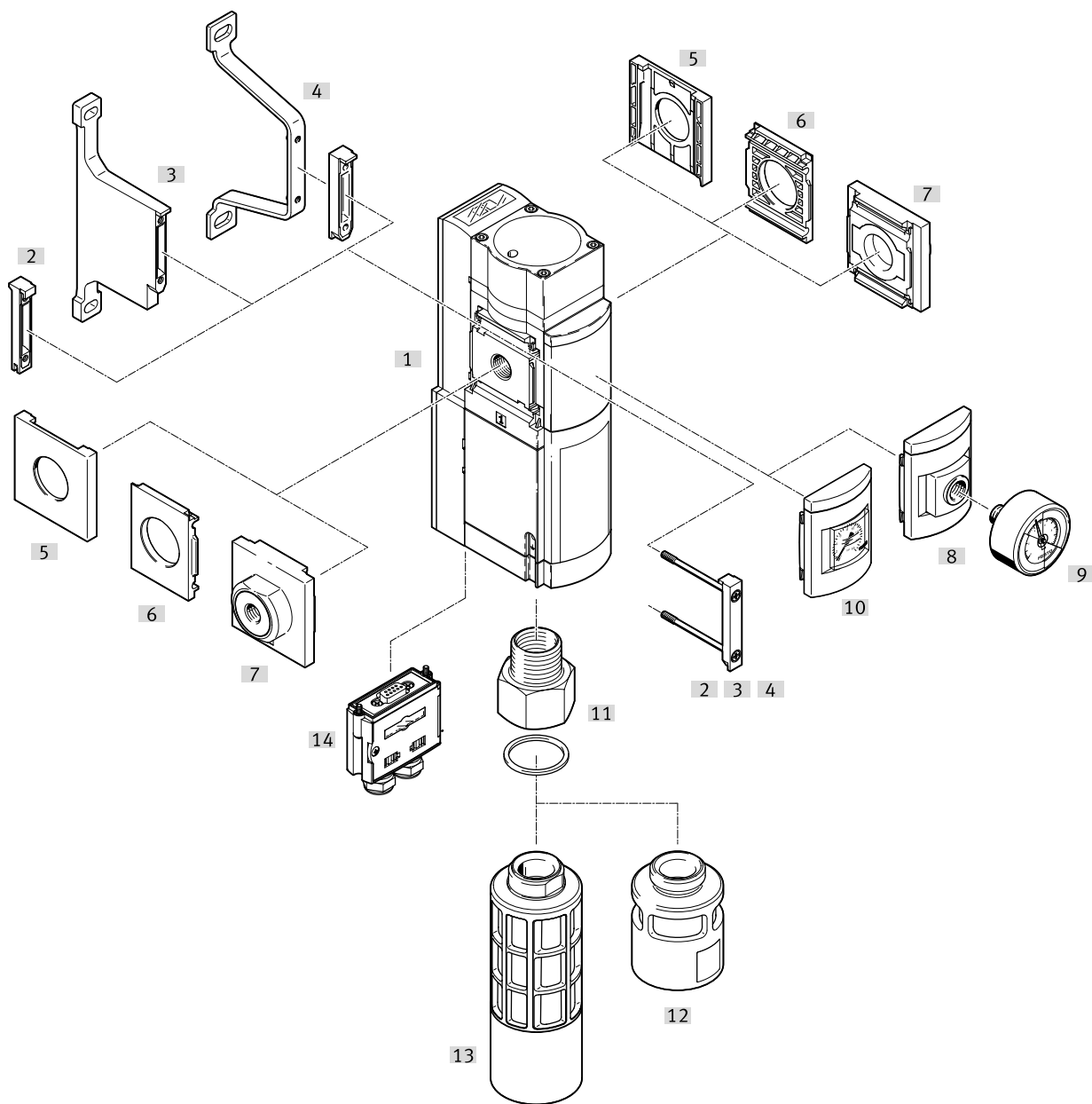
[1] **AG, RG** Pressure gauge scale in psi. With pressure gauge RG: PSI scale only as auxiliary scale (inner scale), outer scale in bar

[2] **AD7 ... AD12** Measuring range max. 10 bar

[3] **BAR, MPA** Only in combination with pressure gauge AG or RG

[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

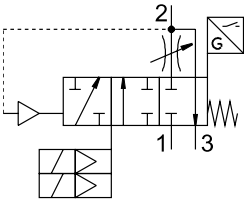
## Peripherals overview MS6N-SV-E

| Mounting attachments and accessories |           |                                   | Single device               |                          | Combination                 |                          | → Page/<br>Internet |
|--------------------------------------|-----------|-----------------------------------|-----------------------------|--------------------------|-----------------------------|--------------------------|---------------------|
|                                      |           |                                   | Without connecting<br>plate | With connecting<br>plate | Without connecting<br>plate | With connecting<br>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]                                  | MA        | Pressure gauge                    | ■                           | ■                        | ■                           | ■                        | 27                  |
| [9]                                  | A4        | Adapter for EN pressure gauge 1/4 | ■                           | ■                        | ■                           | ■                        | 21                  |
| [10]                                 | AG/RG     | MS pressure gauge                 | ■                           | ■                        | ■                           | ■                        | 21                  |
| [11]                                 | AD        | Adapter                           | ■                           | ■                        | ■                           | ■                        | 26                  |
| [12]                                 | UOS-1-LF  | Silencer                          | ■                           | ■                        | ■                           | ■                        | 24                  |
| [13]                                 | UOS-1     | Silencer                          | ■                           | ■                        | ■                           | ■                        | 24                  |
| [14]                                 | 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.

Datasheet MS6N-SV-E

Function



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

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

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.).

- 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

- **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... → 21) or as an accessory (NECA → 22).

- **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 → 21) or as an accessory (UOS-1 → 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.

| Safety characteristics                      |                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------|
| Type                                        | MS6N-SV-...-E-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                                                                      |
| 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 |

- **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.

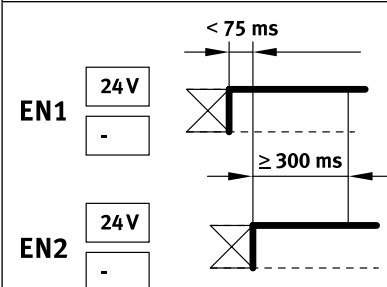
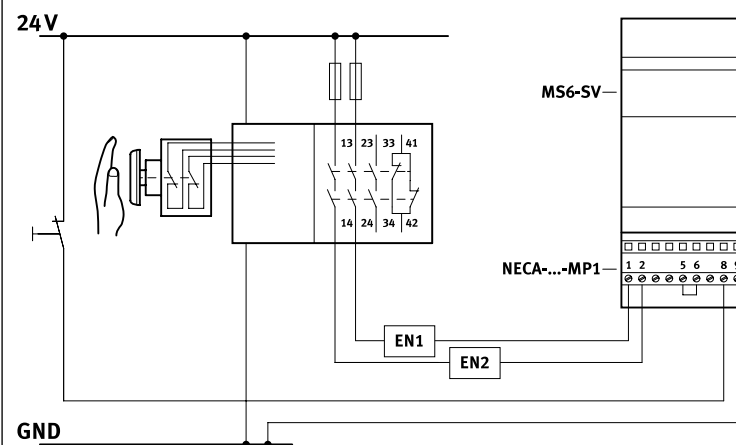
## Datasheet MS6N-SV-E

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

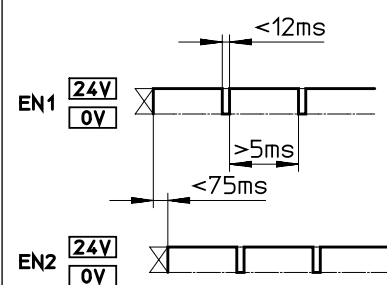
| Enable signal status |      | Status MS6N-SV-...-E-10V24 with multi-pin plug socket |                                             |                                                                                                                                                                                                                   |
|----------------------|------|-------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EN1                  | EN2  | NECA-...-MP1                                          | NECA-...-MP3                                | NECA-...-MP5                                                                                                                                                                                                      |
| 0 V                  | 0 V  | Unpressurised                                         | MS6N-SV-...-E-10V24 switches to fault mode. | MS6N-SV-...-E-10V24 does not switch to fault mode, but remains in the safe, unpressurised state.<br><b>Note:</b><br>Detection of cross-circuits and error detection/evaluation necessary via external controller. |
| 0 V                  | 24 V | MS6N-SV-...-E-10V24 switches to fault mode.           | Pressurised                                 | Pressurised                                                                                                                                                                                                       |
| 24 V                 | 24 V | Pressurised                                           | MS6N-SV-...-E-10V24 switches to fault mode. | MS6N-SV-...-E-10V24 does not switch to fault mode, but remains in the safe, unpressurised state.<br><b>Note:</b><br>Detection of cross-circuits and error detection/evaluation necessary via external controller. |
| 24 V                 | 0 V  | MS6N-SV-...-E-10V24 switches to fault mode.           | Unpressurised                               | Unpressurised                                                                                                                                                                                                     |

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

## NECA-...-MP1



- Static enable signals (EN1 = 24 V, EN2 = 24 V).



- Cycle end enable signals (EN1 = 0 ... 24 V, EN2 = 0 ... 24 V) for detecting cross-circuits.  
Detection of cross-circuits by clock signals is always carried out by the safety relay unit/safety PLC.

**Note**  
Since the clock outputs from different controller manufacturers are not standardised, their usability must be checked in each case. If the clock pulse is outside the specified limits, the MS6N-SV-...-E-10V24 detects it as an error and a safe shutdown is initiated.

Datasheet MS6N-SV-E

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| MS6-SV-E-10V24 with multi-pin plug socket NECA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
| NECA-...-MP3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
| <div><div><div>24 V</div><div></div><div>GND</div></div><div><div>Note</div><div>The multi-pin plug socket NE-CA-S1G9-P9-MP3 is intended for conventional circuitry with electromechanical safety relays. If problems arise when used with bipolar semiconductor outputs, use the multi-pin plug socket NECA-S1G9-P9-MP5.</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |
| <div><div><div>EN1</div><div><div>-</div><div>0 V</div></div><div><div>EN2</div><div><div>24 V</div><div>-</div></div></div><div><div></div></div><div><div><ul style="list-style-type: none"><li>• Static enable signals with opposite potentials.</li><li>• Time delay of the level change of the enable signals is monitored.</li><li>• Behaviour on detection of a cross-circuit:<ul style="list-style-type: none"><li>– MS6N-SV-...-E-10V24 in exhausted state: remains in safe state and goes into error mode.</li><li>– MS6N-SV-...-E-10V24 in pressurised state: goes into safe state and goes into error mode.</li></ul></li></ul></div></div></div></div>                                                                                                                                    |  |  |
| NECA-...-MP5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |
| <div><div><div>24 V</div><div></div><div>GND</div></div><div><div>Note</div><div>A cross-circuit between the enable signals EN1/EN2 is not detected and does not cause an error response. The system is pressurised only if the enable signals are applied correctly.</div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |
| <div><div><div>EN1</div><div><div>-</div><div>0 V</div></div><div><div>EN2</div><div><div>24 V</div><div>-</div></div></div><div><div></div></div><div><div><ul style="list-style-type: none"><li>• Static enable signals with opposite potentials.</li><li>• Time delay of the level change of the enable signals is not monitored.</li><li>• Behaviour on detection of a cross-circuit (by upstream safety relay unit/PLC):<ul style="list-style-type: none"><li>– MS6N-SV-...-E-10V24 in exhausted state: remains in safe state and does not go into error mode.</li><li>– MS6N-SV-...-E-10V24 in pressurised state: goes into safe state and does not go into error mode.</li></ul></li><li>• Enable signals are galvanically separated from the supply voltage.</li></ul></div></div></div></div> |  |  |

## Datasheet MS6N-SV-E

| 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                                                                      |                        |                                      |
| 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 $q_{nN}^{(1)}$ [l/min] |  |  |
| in main flow direction 1 → 2                      |  |  |
| 4300                                              |  |  |
| Standard flow rate $q_N$ [l/min], $p_2 = 6$ bar   |  |  |
| in exhaust direction 2 → 3                        |  |  |
| 9000 <sup>(2)</sup>                               |  |  |
| C value [l/s*min]                                 |  |  |
| in main flow direction 1 → 2                      |  |  |
| 19.3                                              |  |  |
| b value                                           |  |  |
| in main flow direction 1 → 2                      |  |  |
| 0.21                                              |  |  |

1) Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar

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

| Electrical data                                 |  |  |
|-------------------------------------------------|--|--|
| Electrical connection                           |  |  |
| Sub-D 9-pin                                     |  |  |
| Nominal operating voltage [V DC]                |  |  |
| 24                                              |  |  |
| Permissible voltage fluctuations [%]            |  |  |
| ±10                                             |  |  |
| Operating voltage range for AS-interface [V DC] |  |  |
| –                                               |  |  |
| 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                           |  |  |

## Datasheet MS6N-SV-E

| Operating and environmental conditions                     |         |                                                                                            |
|------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------|
| Operating pressure                                         | [bar]   | 3.5 ... 10                                                                                 |
| Operating medium                                           |         | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |
| Note on the operating/<br>pilot medium                     |         | Lubricated operation possible (in which case lubricated operation will always be required) |
| Ambient temperature                                        | [°C]    | -10 ... +50 (0 ... +50) <sup>1)</sup>                                                      |
| Temperature of medium                                      | [°C]    | -10 ... +50 (0 ... +50) <sup>1)</sup>                                                      |
| Storage temperature                                        | [°C]    | -10 ... +50 (0 ... +50) <sup>1)</sup>                                                      |
| Corrosion resistance class CRC <sup>2)</sup>               |         | 2                                                                                          |
| Noise level                                                | [dB(A)] | 75 (with silencer UOS-1)                                                                   |
| CE mark (see declaration of conformity) <sup>4)</sup>      |         | To EU EMC Directive <sup>3)</sup>                                                          |
|                                                            |         | To EU Machinery Directive                                                                  |
|                                                            |         | To EU Low Voltage Directive                                                                |
|                                                            |         | To EU RoHS Directive                                                                       |
| UKCA marking (see declaration of conformity) <sup>4)</sup> |         | To UK instructions for EMC                                                                 |
|                                                            |         | To UK instructions for machines                                                            |
|                                                            |         | To UK RoHS instructions                                                                    |
| Certificate issuing authority <sup>4)</sup>                |         | IFA 1001180                                                                                |
|                                                            |         | Intertek UK-MCR-0086                                                                       |
|                                                            |         | TÜV 44 799 12 556236 000                                                                   |
| UL certification <sup>4)</sup>                             |         | c UL us - Recognized (OL)                                                                  |
| Certification                                              |         | RCM                                                                                        |
| KC mark                                                    |         | KC EMC                                                                                     |

1) With pressure sensor AD...

2) Additional information: [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)3) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/...](http://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.

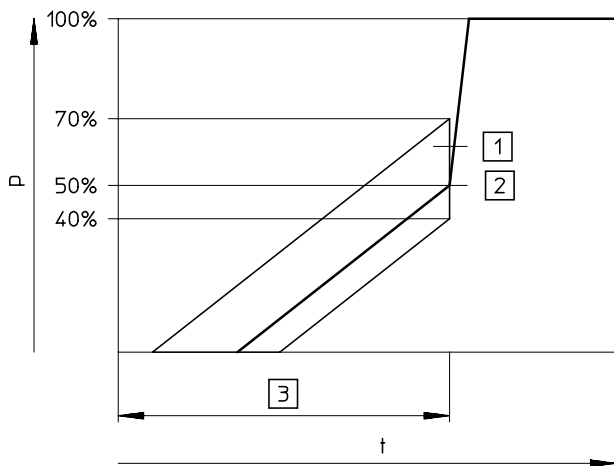
4) Additional information: [www.festo.com/catalogue/ms-sv](http://www.festo.com/catalogue/ms-sv) → Support/Downloads.

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

| Materials         |                            |
|-------------------|----------------------------|
| Housing           | Die-cast aluminium         |
| Piston rod        | High-alloy stainless steel |
| Seals             | NBR                        |
| Note on materials | RoHS-compliant             |
| PWIS conformity   | VDMA24364-B2-L             |

## Datasheet MS6N-SV-E

## 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**

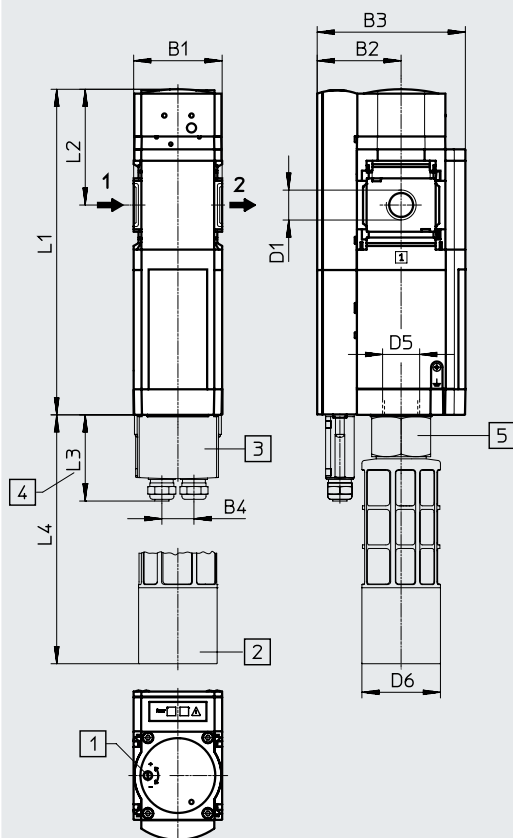
The +20%/–10% switching point tolerance refers to the operating pressure  $p_1$ .

Example: A switching point from 1.6 bar to 2.8 bar is permissible at an operating pressure of 4 bar.

## Dimensions – Basic version

with supply voltage 10V24,  
with female thread 1/2 NPT, with cover plate

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



- [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

→ Flow direction

| Type                | 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 |

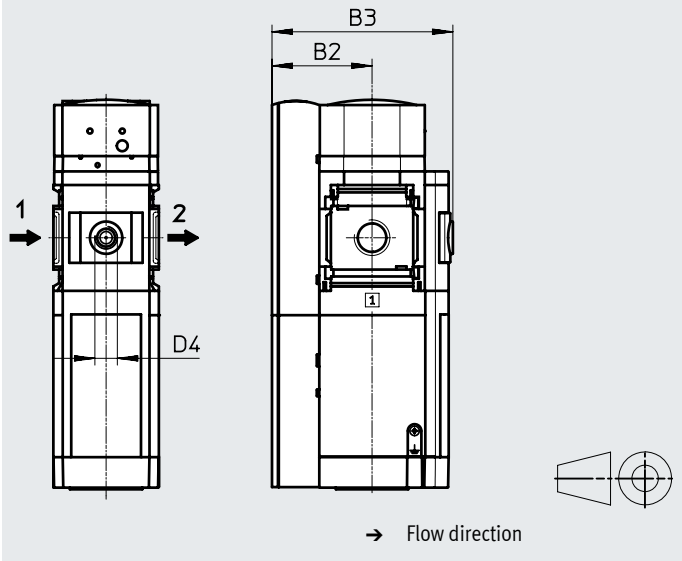
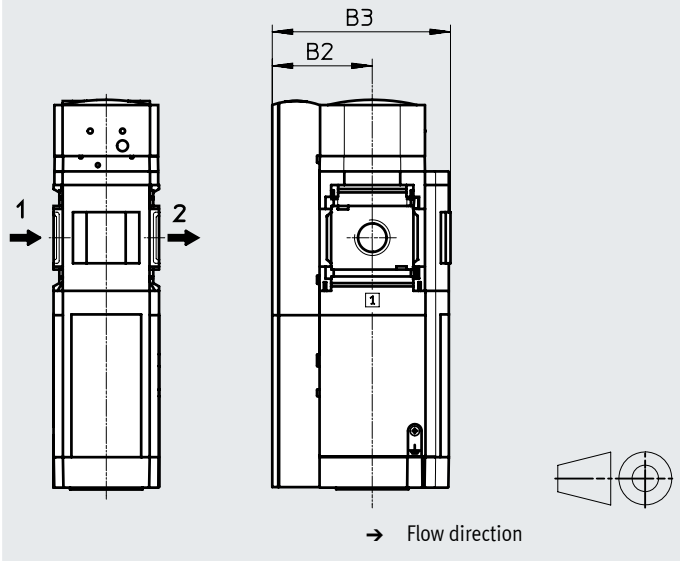
Datasheet MS6N-SV-E

Dimensions – Pressure gauge/pressure gauge alternatives

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

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

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



| Type                 | B2 | B3    | D4   |
|----------------------|----|-------|------|
| MS6N-SV-...-E-...-AG | 59 | 105   | -    |
| MS6N-SV-...-E-...-RG | 59 | 106.5 | -    |
| MS6N-SV-...-E-...-A4 | 59 | 106.5 | G1/4 |

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

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

[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] **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                   |

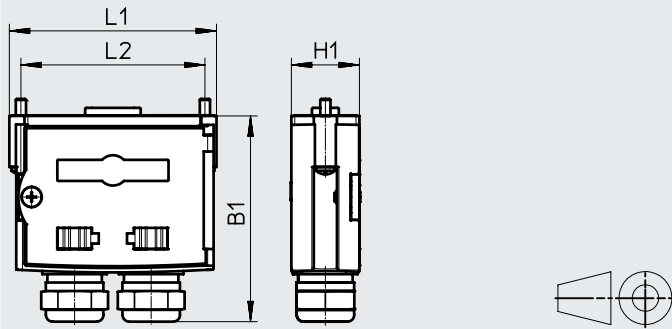
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

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

## Accessories

## Dimensions

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

| B1 | H1 | L1 | L2   |
|----|----|----|------|
| 61 | 20 | 61 | 54.1 |

## Ordering data

| Description         | Connection                                                                                                                 | Weight [g] | Part no. | Type             |
|---------------------|----------------------------------------------------------------------------------------------------------------------------|------------|----------|------------------|
| 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 |

## Accessories

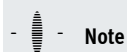
**Silencer UOS-1**

(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.



UOS-1



UOS-1-LF

**Technical data**

|                                  |                  |
|----------------------------------|------------------|
| Pneumatic connection             | G1               |
| Design                           | Open silencer    |
| Type of mounting                 | With male thread |
| Mounting position                | Any              |
| Type of seal on screwed trunnion | No seal          |
| Noise level                      | 75 dB(A)         |

**Operating and environmental conditions**

|                                              |                                           |             |
|----------------------------------------------|-------------------------------------------|-------------|
| Operating pressure                           | [MPa]                                     | 0 ... 1     |
|                                              | [bar]                                     | 0 ... 10    |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [–:–:–] |             |
| Ambient temperature                          | [°C]                                      | –10 ... +50 |
| Corrosion resistance class CRC <sup>1)</sup> | 2                                         |             |

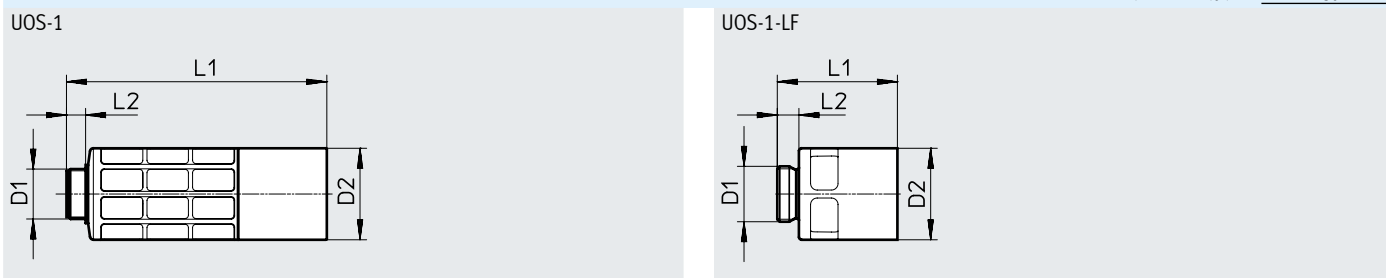
1) Additional information: [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)

**Materials**

| Type              | UOS-1                   | UOS-1-LF                |
|-------------------|-------------------------|-------------------------|
| Housing           | POM                     | Wrought aluminium alloy |
| Sleeve            | Wrought aluminium alloy | –                       |
| Cushioning insert | PE                      |                         |
| Note on materials | RoHS-compliant          |                         |
| PWIS conformity   | VDMA24364-B1/B2-L       |                         |

**Dimensions**

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



| Type     | D1 | D2 | L1    | L2   |
|----------|----|----|-------|------|
|          |    | Ø  |       |      |
| UOS-1    | G1 | 55 | 156.5 | 11.5 |
| UOS-1-LF |    |    | 72.2  | 13   |

**Ordering data**

| Description     |                       | Weight [g] | Part no. | Type     |
|-----------------|-----------------------|------------|----------|----------|
| for MS6N-SV-D/E | For high exhaust rate | 200        | 552252   | UOS-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



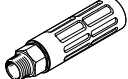
MS6-SV-C-MK

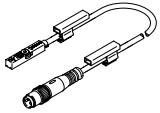
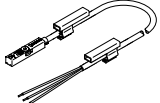
| Ordering data |                                                                                                                                                                                                | CRC <sup>1)</sup> | Part no. | Type        |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|-------------|
| Description   |                                                                                                                                                                                                |                   |          |             |
| 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.

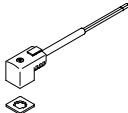
## Accessories

| Ordering data – Adapter AD                                                       |               |                      |    |               |                     |
|----------------------------------------------------------------------------------|---------------|----------------------|----|---------------|---------------------|
|                                                                                  | Description   | Pneumatic connection |    | Part no.      | Type                |
|                                                                                  |               | 1                    | 2  |               |                     |
|  | for MS6N-SV-E | 1 NPT                | G1 | <b>546547</b> | <b>AD-1NPT-G1-I</b> |

| Ordering data – Silencer U-...-B                                                 |               |                      |                                          |               |                    | Datasheets → Internet: u |
|----------------------------------------------------------------------------------|---------------|----------------------|------------------------------------------|---------------|--------------------|--------------------------|
|                                                                                  | Description   | Pneumatic connection | Order code in the modular product system | Part no.      | Type               |                          |
|  | for MS6N-SV-C | 3/4 NPT              | S                                        | <b>566823</b> | <b>U-3/4-B-NPT</b> |                          |

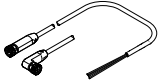
| Ordering data – Proximity switch SMT                                               |               |                  |                            |                              |                  |                                          |               | Datasheets → Internet: smt       |
|--------------------------------------------------------------------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

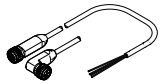
| Ordering data – Plug socket MSSD                                                   |                |                       |               |                    |               |                    | Datasheets → Internet: mssd |
|------------------------------------------------------------------------------------|----------------|-----------------------|---------------|--------------------|---------------|--------------------|-----------------------------|
|                                                                                    | Description    | Electrical connection | Cable fitting | Type of mounting   | Part no.      | Type               |                             |
|  | For MS6-SV-C/D | 3-pin                 | Pg7           | M2.5 central screw | <b>151687</b> | <b>MSSD-EB</b>     |                             |
|                                                                                    |                | 3-pin                 | M12           | M2.5 central screw | <b>539712</b> | <b>MSSD-EB-M12</b> |                             |

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

| Ordering data – Illuminating seal MEB-LD                                           |                                                         |                         |  |               | Datasheets → Internet: meb |  |
|------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------|--|---------------|----------------------------|--|
|                                                                                    | Description                                             | Operating voltage range |  | Part no.      | Type                       |  |
|  | For plug socket with cable KMEB and plug socket MSSD-EB | 12 ... 24 V DC          |  | <b>151717</b> | <b>MEB-LD-12-24DC</b>      |  |
|                                                                                    |                                                         | 230 V DC/AC ±10%        |  | <b>151718</b> | <b>MEB-LD-230AC</b>        |  |

## Accessories

| Ordering data – Connecting cable NEBA-M8                                          |                       |                 |                  |          |                       | Datasheets → Internet: neba |
|-----------------------------------------------------------------------------------|-----------------------|-----------------|------------------|----------|-----------------------|-----------------------------|
|                                                                                   | Electrical connection | Number of cores | Cable length [m] | Part no. | Type                  |                             |
|  | M8x1, straight socket | 3               | 2,5              | 8078223  | NEBA-M8G3-U-2.5-N-LE3 |                             |
|                                                                                   |                       |                 | 5                | 8078224  | NEBA-M8G3-U-5-N-LE3   |                             |
|                                                                                   | M8x1, angled socket   | 3               | 2,5              | 8078230  | NEBA-M8W3-U-2.5-N-LE3 |                             |
|                                                                                   |                       |                 | 5                | 8078231  | NEBA-M8W3-U-5-N-LE3   |                             |

| Ordering data – Connecting cable NEBA-M12                                         |                        |                 |                  |          |                        | Datasheets → Internet: neba |
|-----------------------------------------------------------------------------------|------------------------|-----------------|------------------|----------|------------------------|-----------------------------|
|                                                                                   | Electrical connection  | Number of cores | Cable length [m] | Part no. | Type                   |                             |
|  | M12x1, straight socket | 4               | 2,5              | 8078239  | NEBA-M12G5-U-2.5-N-LE4 |                             |
|                                                                                   |                        |                 | 5                | 8078240  | NEBA-M12G5-U-5-N-LE4   |                             |
|                                                                                   | M12x1, angled socket   | 4               | 2,5              | 8078248  | NEBA-M12W5-U-2.5-N-LE4 |                             |
|                                                                                   |                        |                 | 5                | 8078249  | NEBA-M12W5-U-5-N-LE4   |                             |

| Ordering data – Pressure gauge MA                                                  |                                                          |                      |               |           |          |                           |
|------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------|---------------|-----------|----------|---------------------------|
|                                                                                    | Nominal size                                             | Pneumatic connection | Display range |           | Part no. | Type                      |
|                                                                                    |                                                          |                      | [bar]         | [psi]     |          |                           |
|  | <b>Pressure gauge MA, EN 837-1</b>                       |                      |               |           |          | 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          |
|                                                                                    | <b>Pressure gauge MA, EN 837-1, with red/green range</b> |                      |               |           |          | Datasheets → Internet: ma |
|                                                                                    | 50                                                       | R1/4                 | 0 ... 16      | –         | 525729   | MA-50-16-R1/4-E-RG        |