

## Branching modules/Distributor blocks MS-FRM, MS series

**FESTO**



Festo core product range  
Covers 80% of your automation tasks

Worldwide:

Always in stock

Superb:

Festo quality at an attractive price

Easy:

Reduces procurement and storing complexity



Ready for dispatch from the Festo factory in 24 hours  
Held in stock in 13 service centres worldwide  
More than 2200 products



Ready for dispatch in 5 days maximum from stock  
Assembled for you in 4 service centres worldwide  
Up to  $6 \times 10^{12}$  variants per product series

Look for the star!

# MS series service unit components

Key features

FESTO

| MS series service unit components                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                       | Freely combinable function modules                                                                                                                                                                                                                                |                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Solutions for every application                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                              |
| With its large product range, highly functional components and a wide choice of services, the MS series from Festo offers a complete concept for compressed air preparation. Suitable for simple standard applications as well as application-specific solutions to the highest quality standards. | Available as individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions. The five sizes in the MS series achieve maximum flow rates with minimum space requirements. | Pressure regulators, on/off and soft-start valves with safety function, filter, pressure and flow sensors, dryers, sensors and lubricators. All these allow a suitable solution to be assembled for every task. Their modular structure means that the components | are freely combinable. A simple connection system saves time when replacing individual modules without dismantling the entire combination. What's more, many of the components are certified to UL and ATEX. |
| CAD models and configurator                                                                                                                                                                                                                                                                        | Engineering tools                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                              |

Convenient aids for planning and selecting application-specific individual devices and combinations. The product configurator lets you configure customised solutions quickly and transfer the order data with no hassle.

Selection tool for choosing the right service unit without oversizing, and with the right air quality class:  
[www.festo.com/engineering/wartungseinheit](http://www.festo.com/engineering/wartungseinheit)

## Air quality

This program supports configuring an appropriate service unit. Please insert the required air cleanliness either by your application or an ISO-code or by direct selection of air filters.

| Selection criteria: Application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Selection criteria: ISO-class                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Direct filter selection |       |     |   |     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|-----|---|-----|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Filter combination is proposed based upon your selected application</p> <p><input type="radio"/> standard pneumatics<br/>operation of valves and cylinders, e.g. in automotive industry, secondary packaging</p> <p><input type="radio"/> mining and building industry<br/>applications without special air cleanliness requirements</p> <p><input type="radio"/> application of pressure operated tools and machines:<br/>pneumatic hammer, air engine, positioning with proportional valve</p> <p><input type="radio"/> electronic, flatpanel and solar industry,<br/>textile and paper production<br/>application with residual oil content &lt;0.3 mg/m<sup>3</sup></p> <p><input type="radio"/> painting, powder coating, air bearing<br/>application with residual oil content &lt;0.01 mg/m<sup>3</sup></p> <p><input type="radio"/> food and beverage industry, optics<br/>application with residual oil content &lt;0.003 mg/m<sup>3</sup><br/>reduction of oil vapours and aerosols</p> | <p>Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010</p> <table border="1"> <thead> <tr> <th>particle</th> <th>water</th> <th>oil</th> </tr> </thead> <tbody> <tr> <td>✓</td> <td>4 *</td> <td>✓</td> </tr> </tbody> </table> <p><b>ISO</b></p> <p><small>* Downstream from the compressor the water content is assumed to be ISO class 4, better classes can be achieved by applying an adsorption dryer PSD40 or a membrane dryer LDM1</small></p> | particle                | water | oil | ✓ | 4 * | ✓ | <p>Independent selection of filter combination</p> <p><input type="checkbox"/> 40 µm Filter</p> <p><input type="checkbox"/> 5 µm Filter</p> <p><input type="checkbox"/> 1 µm Fine Filter</p> <p><input type="checkbox"/> 0.01 µm Micro Filter *</p> <p><input type="checkbox"/> Active Carbon Filter</p> <p><small>* To enhance the filter lifetime and in consequence the maintenance interval arrange a 1 µm Fine Filter in front of the 0.01 µm Micro Filter as a preliminary filter.</small></p>  |
| particle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | oil                     |       |     |   |     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ✓                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 4 *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ✓                       |       |     |   |     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Integrated sensors        | Safety functions                                 | Energy savings     |                          |
|---------------------------|--------------------------------------------------|--------------------|--------------------------|
| Pressure and flow sensors | Soft-start/quick exhaust valves<br>MS6-SV/MS9-SV | Service units MSE6 | Intelligent mix of sizes |



- Maximum machine availability through controlled processes
- Reliable compressed air preparation and supply for systems
- Integrable or stand-alone
- Easy to connect with M8/M12 plug



- Fast and reliable exhausting of systems up to Performance Level e, certified to EN ISO 13849-1
- Integrated soft-start function



- Fully automatic monitoring and regulation of compressed air supply
- Automatic shut-off of the compressed air in stand-by mode
- Detection and notification of leakages
- Condition monitoring of relevant process data



- Optimum flow rate with up to 18% smaller size
- Excellent energy efficiency
- Cost-optimised combinations – save up to 30%!

| Size differences                                                |          |                  |                        |                                |                        |
|-----------------------------------------------------------------|----------|------------------|------------------------|--------------------------------|------------------------|
| Size                                                            | MS2      | MS4              | MS6                    | MS9                            | MS12                   |
| Grid dimension [mm]                                             | 25       | 40               | 62                     | 90                             | 124                    |
| Port sizes                                                      | M5, QS-6 | G1/8, G1/4, G3/8 | G1/4, G3/8, G1/2, G3/4 | G1/2, G3/4, G1, G1 1/4, G1 1/2 | G1, G1 1/4, G1 1/2, G2 |
| Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min] | 350      | 1800             | 6500                   | 20000                          | 22000                  |

1) Using pressure regulator MS-LR as an example

# MS series service unit components

Key features

## Note

### Information

The next few pages provide a brief overview of the complete product range for the MS series service unit components.

You can find detailed information and all of the technical data in the documentation for the corresponding service unit component.

Accessories such as connection plates or mounting brackets can be ordered either via the configurator or separately.

## Structure of a service unit

The order of the individual components within a service unit is relevant for safety and functionality. It is not possible to assemble the service unit components in any order in the flow direction. There are restrictions and rules.

The configurator for service unit MSB is a reliable and convenient way of arranging individual service unit components. This ensures that the applicable rules are complied with. As a result, you get a completely assembled combination with UL or ATEX certification if you need it. When arranging a combination of individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.

- Regulators MS-LFR/LR/LRP/LRE are only permissible in the flow direction with the same or decreasing pressure regulation range
- Filters MS-LFR/LF/LFM/LFX are only permissible in the flow direction with an increasing grade of filtration
- Lubricators MS-LOE are not permitted in the flow direction upstream of a filter MS-LFR/LFM/LF/LFX, water separator MS-LWS or membrane air dryer MS-LDM1
- A micro filter MS-LFM must be installed upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1 in the flow direction
- A flow sensor SFAM cannot be installed directly downstream of a regulator MS-LFR/LR; a branching module MS-FRM must be positioned between them
- A soft-start/quick exhaust valve MS-SV must be the last service unit component in the flow direction

## Total product range for MS series service unit components

| Type                                                                                | Description                                                                             | Size | Pneumatic connection |               |               |        |                              |                           |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
|                                                                                     |                                                                                         |      | Push-in connector    | Female thread |               |        | Connection plate with thread |                           |
|                                                                                     |                                                                                         |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Combinations                                                                        |                                                                                         |      |                      |               |               |        |                              |                           |
| Service units MSB-FRC <span>Technical data → Internet: msb</span>                   |                                                                                         |      |                      |               |               |        |                              |                           |
|  | Combinations of filter regulator and lubricator                                         | 4    | –                    | –             | 1/8, 1/4      | –      | –                            | –                         |
|                                                                                     |                                                                                         | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | –                            | –                         |
|                                                                                     |                                                                                         |      |                      |               |               |        |                              |                           |
| Service units MSB <span>Technical data → Internet: msb</span>                       |                                                                                         |      |                      |               |               |        |                              |                           |
|  | 7 combinations, predefined                                                              | 4    | –                    | –             | 1/4           | –      | –                            | –                         |
|                                                                                     |                                                                                         | 6    | –                    | –             | 1/2           | –      | –                            | –                         |
|                                                                                     |                                                                                         |      |                      |               |               |        |                              |                           |
|  | Combinations freely configurable                                                        | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                         | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                         | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                         |      |                      |               |               |        |                              |                           |
| Service units MSE6 <span>Technical data → Internet: mse6</span>                     |                                                                                         |      |                      |               |               |        |                              |                           |
|  | Combinations with fieldbus connection for measuring pressure, flow rate and consumption | 6    | –                    | –             | –             | –      | 1/2                          | –                         |
|                                                                                     |                                                                                         |      |                      |               |               |        |                              |                           |

# MS series service unit components

Key features

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| Total product range for MS series service unit components                           |                                                                                  |      |                      |               |               |        |                              |                           |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type                                                                                | Description                                                                      | Size | Pneumatic connection |               |               |        |                              |                           |
|                                                                                     |                                                                                  |      | Push-in connector    | Female thread |               |        | Connection plate with thread |                           |
|                                                                                     |                                                                                  |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Individual devices                                                                  |                                                                                  |      |                      |               |               |        |                              |                           |
| Filter regulators MS-LFR <span>Technical data → Internet: ms-lfr</span>             |                                                                                  |      |                      |               |               |        |                              |                           |
|    | Filter and pressure regulator in a single device, grade of filtration 5 or 40 µm | 2    | QS-6                 | M5            | –             | –      | –                            | –                         |
|                                                                                     |                                                                                  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Filters MS-LF <span>Technical data → Internet: ms-lf</span>                         |                                                                                  |      |                      |               |               |        |                              |                           |
|    | Grade of filtration 5 or 40 µm                                                   | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Fine and micro filters MS-LFM <span>Technical data → Internet: ms-lfm</span>        |                                                                                  |      |                      |               |               |        |                              |                           |
|   | Grade of filtration Q01 or 1 µm                                                  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Activated carbon filters MS-LFX <span>Technical data → Internet: ms-lfx</span>      |                                                                                  |      |                      |               |               |        |                              |                           |
|  | For removing liquid and gaseous oil particles                                    | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                  | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Water separators MS-LWS <span>Technical data → Internet: ms-lws</span>              |                                                                                  |      |                      |               |               |        |                              |                           |
|  | Remove condensed water from compressed air, maintenance-free                     | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                  | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                  | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |

# MS series service unit components

Key features

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| Total product range for MS series service unit components                                                 |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type                                                                                                      | Description                                                                                                                             | Size | Pneumatic connection |               |               |        |                              |                           |
|                                                                                                           |                                                                                                                                         |      | Push-in connector    | Female thread |               |        | Connection plate with thread |                           |
|                                                                                                           |                                                                                                                                         |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Individual devices                                                                                        |                                                                                                                                         |      |                      |               |               |        |                              |                           |
| Pressure regulators MS-LR <span style="float:right">Technical data ➔ Internet: ms-lr</span>               |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                          | For setting the required operating pressure,<br>4 pressure regulation ranges                                                            | 2    | QS-6                 | M5            | –             | –      | –                            | –                         |
|                                                                                                           |                                                                                                                                         | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                                           |                                                                                                                                         | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                                           |                                                                                                                                         | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                                           |                                                                                                                                         | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Pressure regulators MS-LRB <span style="float:right">Technical data ➔ Internet: ms-lrb</span>             |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                          | For creating a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.                 | 4    | –                    | –             | 1/4           | –      | 1/8, 1/4, 3/8                | –                         |
|                                                                                                           |                                                                                                                                         | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
| Precision pressure regulators MS-LRP <span style="float:right">Technical data ➔ Internet: ms-lrp</span>   |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                         | For precise setting of the required operating pressure,<br>4 pressure regulation ranges,<br>pressure hysteresis 0.02 bar                | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                                           |                                                                                                                                         |      |                      |               |               |        |                              |                           |
| Precision pressure regulators MS-LRPB <span style="float:right">Technical data ➔ Internet: ms-lrpb</span> |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                        | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is to the front or rear.              | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
|                                                                                                           |                                                                                                                                         |      |                      |               |               |        |                              |                           |
| Electrical pressure regulators MS-LRE <span style="float:right">Technical data ➔ Internet: ms-lre</span>  |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                        | Electrically adjustable pressure regulator,<br>4 pressure regulation ranges                                                             | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                                           |                                                                                                                                         |      |                      |               |               |        |                              |                           |
| Lubricators MS-LOE <span style="float:right">Technical data ➔ Internet: ms-loe</span>                     |                                                                                                                                         |      |                      |               |               |        |                              |                           |
|                        | Add a precisely adjustable amount of oil to the compressed air. The oil mist component is proportional to the compressed air flow rate. | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                                           |                                                                                                                                         | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                                           |                                                                                                                                         | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                                           |                                                                                                                                         | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |

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| Total product range for MS series service unit components                           |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type                                                                                | Description                                                                                                                         | Size | Pneumatic connection |               |               |        |                              |                           |
|                                                                                     |                                                                                                                                     |      | Push-in connector    | Female thread |               |        | Connection plate with thread |                           |
|                                                                                     |                                                                                                                                     |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Individual devices                                                                  |                                                                                                                                     |      |                      |               |               |        |                              |                           |
| On/off valves MS-EM <span>Technical data → Internet: ms-em</span>                   |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|    | Manually operated on/off valve for pressurising and exhausting pneumatic installations.                                             | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                                                                     | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                                                                     | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
| On/off valves MS-EE <span>Technical data → Internet: ms-ee</span>                   |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|    | Solenoid actuated on/off valve for pressurising and exhausting pneumatic installations.                                             | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                                                                     | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                                                                     | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
| Soft-start valves MS-DL <span>Technical data → Internet: ms-dl</span>               |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|   | Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.                             | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                                                                     | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
| Soft-start valves MS-DE <span>Technical data → Internet: ms-de</span>               |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|  | Solenoid actuated soft-start valve for slowly pressurising and exhausting pneumatic installations.                                  | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                                                                     | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
| Soft-start/quick exhaust valves MS-SV <span>Technical data → Internet: ms-sv</span> |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|  | For building up pressure gradually and reducing pressure quickly and safely in pneumatic piping systems.<br>Up to category 1, PL c. | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|  | Up to category 3, PL d.<br>Up to category 4, PL e in the case of optional extension.                                                | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|  | Up to category 4, PL e.                                                                                                             | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |
|                                                                                     |                                                                                                                                     |      |                      |               |               |        |                              |                           |

# MS series service unit components

FESTO

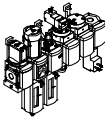
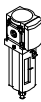
Key features

| Total product range for MS series service unit components                           |                                                                                 |      |                      |               |               |        |                              |                           |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type                                                                                | Description                                                                     | Size | Pneumatic connection |               |               |        |                              |                           |
|                                                                                     |                                                                                 |      | Push-in connector    | Female thread |               |        | Connection plate with thread |                           |
|                                                                                     |                                                                                 |      |                      | M             | G             | NPT    | G                            | NPT                       |
| Individual devices                                                                  |                                                                                 |      |                      |               |               |        |                              |                           |
| Membrane air dryers MS-LDM1 <span>Technical data → Internet: ms-ldm</span>          |                                                                                 |      |                      |               |               |        |                              |                           |
|    | Wear-free membrane dryer with internal air consumption                          | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | 1/8, 1/4, 3/8             |
|                                                                                     |                                                                                 | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | 1/4, 3/8, 1/2, 3/4        |
|                                                                                     |                                                                                 |      |                      |               |               |        |                              |                           |
| Branching modules MS-FRM <span>Technical data → Internet: ms-frm</span>             |                                                                                 |      |                      |               |               |        |                              |                           |
|    | Compressed air distributor with 4 connections                                   | 4    | –                    | –             | 1/8, 1/4      | –      | 1/8, 1/4, 3/8                | –                         |
|                                                                                     |                                                                                 | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
|                                                                                     |                                                                                 | 9    | –                    | –             | 3/4, 1        | 3/4, 1 | 1/2, 3/4, 1, 1 1/4, 1 1/2    | 1/2, 3/4, 1, 1 1/4, 1 1/2 |
|                                                                                     |                                                                                 | 12   | –                    | –             | –             | –      | 1, 1 1/4, 1 1/2, 2           | –                         |
| Distributor blocks MS-FRM-FRZ <span>Technical data → Internet: ms-frm-frz</span>    |                                                                                 |      |                      |               |               |        |                              |                           |
|   | Compressed air distributor with 4 connections and half the grid dimension width | 4    | –                    | –             | –             | –      | –                            | –                         |
|                                                                                     |                                                                                 | 6    | –                    | –             | –             | –      | –                            | –                         |
| Flow sensors SFAM <span>Technical data → Internet: sfam</span>                      |                                                                                 |      |                      |               |               |        |                              |                           |
|  | For absolute flow rate information and accumulated air consumption measurement  | 6    | –                    | –             | –             | –      | 1/2                          | 1/2                       |
|                                                                                     |                                                                                 | 9    | –                    | –             | –             | –      | 1, 1 1/2                     | 1, 1 1/2                  |

# Branching modules/Distributor blocks MS-FRM, MS series

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Product range overview – MS series service units

| Type                                                                                                              | Size                                                                                |                                       |                  |                                | Pressure regulation range<br>[bar] |             |            |            |            |            | Grade of filtration<br>[µm] |        |        |         |
|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|------------------|--------------------------------|------------------------------------|-------------|------------|------------|------------|------------|-----------------------------|--------|--------|---------|
|                                                                                                                   |                                                                                     |                                       |                  |                                |                                    |             |            |            |            |            |                             |        |        |         |
|                                                                                                                   |                                                                                     | Pneumatic<br>connection in<br>housing | Connecting plate |                                | 0.05<br>...                        | 0.05<br>... | 0.1<br>... | 0.3<br>... | 0.1<br>... | 0.5<br>... |                             |        |        |         |
| Code                                                                                                              |                                                                                     |                                       | AG.../AQ...      |                                | 0.7<br>D2                          | 2.5<br>D4   | 4<br>D5    | 7<br>D6    | 12<br>D7   | 16<br>D8   | 0.01<br>A                   | 1<br>B | 5<br>C | 40<br>E |
| Service unit combinations                                                                                         |                                                                                     |                                       |                  |                                |                                    |             |            |            |            |            |                             |        |        |         |
| MSB-FRC                                                                                                           |    | 4                                     | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                                  | –           | –          | ■          | ■          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | ■          | ■          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 9                                     | –                |                                |                                    |             |            |            |            |            |                             |        |        |         |
|                                                                                                                   |                                                                                     | 12                                    | –                |                                |                                    |             |            |            |            |            |                             |        |        |         |
| Service unit combinations (further variants can be ordered using the configurator → Internet: msb4, msb6 or msb9) |                                                                                     |                                       |                  |                                |                                    |             |            |            |            |            |                             |        |        |         |
| MSB                                                                                                               |   | 4                                     | G1/4             | G1/8, G1/4, G3/8               | –                                  | –           | –          | ■          | ■          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 6                                     | G1/2             | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | ■          | ■          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 9                                     | –                |                                |                                    |             |            |            |            |            |                             |        |        |         |
|                                                                                                                   |                                                                                     | 12                                    | –                |                                |                                    |             |            |            |            |            |                             |        |        |         |
| Individual devices                                                                                                |                                                                                     |                                       |                  |                                |                                    |             |            |            |            |            |                             |        |        |         |
| Filter regulators<br>MS-LFR                                                                                       |  | 4                                     | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                                  | –           | ■          | ■          | ■          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | ■          | ■          | ■          | ■          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 9                                     | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                                  | –           | ■          | ■          | ■          | ■          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 12                                    | –                | G1, G1 1/4, G1 1/2, G2         | –                                  | –           | –          | ■          | ■          | ■          | –                           | –      | ■      | ■       |
| Filters<br>MS-LF                                                                                                  |  | 4                                     | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                                  | –           | –          | –          | –          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | –          | –          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 9                                     | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                                  | –           | –          | –          | –          | –          | –                           | –      | ■      | ■       |
|                                                                                                                   |                                                                                     | 12                                    | –                | G1, G1 1/4, G1 1/2, G2         | –                                  | –           | –          | –          | –          | –          | –                           | –      | ■      | ■       |
| Fine and micro<br>filters<br>MS-LFM                                                                               |  | 4                                     | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                                  | –           | –          | –          | –          | –          | ■                           | ■      | –      | –       |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | –          | –          | –          | ■                           | ■      | –      | –       |
|                                                                                                                   |                                                                                     | 9                                     | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                                  | –           | –          | –          | –          | –          | ■                           | ■      | –      | –       |
|                                                                                                                   |                                                                                     | 12                                    | –                | G1, G1 1/4, G1 1/2, G2         | –                                  | –           | –          | –          | –          | –          | ■                           | ■      | –      | –       |
| Activated carbon<br>filters<br>MS-LFX                                                                             |  | 4                                     | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
|                                                                                                                   |                                                                                     | 9                                     | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
|                                                                                                                   |                                                                                     | 12                                    | –                | G1, G1 1/4, G1 1/2, G2         | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
| Water separators<br>MS-LWS                                                                                        |  | 4                                     | –                |                                |                                    |             |            |            |            |            |                             |        |        |         |
|                                                                                                                   |                                                                                     | 6                                     | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
|                                                                                                                   |                                                                                     | 9                                     | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |
|                                                                                                                   |                                                                                     | 12                                    | –                | G1, G1 1/4, G1 1/2, G2         | –                                  | –           | –          | –          | –          | –          | –                           | –      | –      | –       |

# Branching modules/Distributor blocks MS-FRM, MS series

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Product range overview – MS series service units

| Type                               | Size | Bowl guard                           |            | Condensate drains |                |                 |                                       | Pressure indicator                   |                              |                                          |                                          |                 | Security                                          |                                  | Options  |                                   | → Page/<br>Internet |
|------------------------------------|------|--------------------------------------|------------|-------------------|----------------|-----------------|---------------------------------------|--------------------------------------|------------------------------|------------------------------------------|------------------------------------------|-----------------|---------------------------------------------------|----------------------------------|----------|-----------------------------------|---------------------|
| Code                               |      | Plastic bowl with plastic bowl guard | Metal bowl | Manual rotary     | Semi-automatic | Fully automatic | External, fully automatic, electrical | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G1/8 | Adapter plate for EN pressure gauge G1/4 | Pressure sensor | Rotary knob with detent, lockable via accessories | Rotary knob with integrated lock | Silencer | Flow direction from right to left |                     |
|                                    |      | R                                    | U          | M                 | H              | V               | E...                                  | VS                                   | AG                           | A8                                       | A4                                       | AD...           | AS                                                | E11                              | S        | Z                                 |                     |
| Service unit combinations          |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| MSB-FRC                            | 4    | ■                                    | –          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb4                |
|                                    | 6    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb6                |
|                                    | 9    | –                                    |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   | –                   |
|                                    | 12   | –                                    |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   | –                   |
| Service unit combinations          |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| MSB                                | 4    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb4                |
|                                    | 6    | ■                                    | ■          | ■                 | –              | ■               | –                                     | –                                    | ■                            | –                                        | –                                        | –               | ■                                                 | –                                | –        | ■                                 | msb6                |
|                                    | 9    | –                                    |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   | –                   |
|                                    | 12   | –                                    |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   | –                   |
| Individual devices                 |      |                                      |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| Filter regulators<br>MS-LFR        | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lfr             |
|                                    | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lfr             |
|                                    | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms9-lfr             |
|                                    | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | ms12-lfr            |
| Filters<br>MS-LF                   | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lf              |
|                                    | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lf              |
|                                    | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lf              |
|                                    | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lf             |
| Fine and micro filters<br>MS-LFM   | 4    | ■                                    | ■          | ■                 | ■              | ■               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfm             |
|                                    | 6    | ■                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfm             |
|                                    | 9    | –                                    | ■          | ■                 | ■              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfm             |
|                                    | 12   | –                                    | ■          | ■                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfm            |
| Activated carbon filters<br>MS-LFX | 4    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-lfx             |
|                                    | 6    | ■                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lfx             |
|                                    | 9    | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lfx             |
|                                    | 12   | –                                    | ■          | –                 | –              | –               | –                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lfx            |
| Water separators<br>MS-LWS         | 4    | –                                    |            |                   |                |                 |                                       |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   | –                   |
|                                    | 6    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lws             |
|                                    | 9    | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-lws             |
|                                    | 12   | –                                    | ■          | –                 | –              | ■               | ■                                     | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-lws            |

# Branching modules/Distributor blocks MS-FRM, MS series

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Product range overview – MS series service units

| Type                                                      | Size                                                                                | Pneumatic connection in housing | Connecting plate | Pressure regulation range [bar] |                    |                 |                 |                  |                  | Supply voltage                           |                                            |                                           |                                           |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|------------------|---------------------------------|--------------------|-----------------|-----------------|------------------|------------------|------------------------------------------|--------------------------------------------|-------------------------------------------|-------------------------------------------|
|                                                           |                                                                                     |                                 |                  | 0.05<br>...<br>0.7              | 0.05<br>...<br>2.5 | 0.1<br>...<br>4 | 0.3<br>...<br>7 | 0.1<br>...<br>12 | 0.5<br>...<br>16 | 24 V DC, connection pattern to EN 175301 | 24 V DC, connection M12 to IEC 61076-2-101 | 110 V AC, connection pattern to EN 175301 | 230 V AC, connection pattern to EN 175301 |
| Code                                                      |                                                                                     |                                 | AG.../AQ...      | D2                              | D4                 | D5              | D6              | D7               | D8               | V24                                      | V24P                                       | V110                                      | V230                                      |
| <b>Individual devices</b>                                 |                                                                                     |                                 |                  |                                 |                    |                 |                 |                  |                  |                                          |                                            |                                           |                                           |
| Pressure regulators<br><b>MS-LR</b>                       |    | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2  | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | ■                | ■                | ■                                        | –                                          | –                                         | –                                         |
| Pressure regulators<br><b>MS-LRB</b>                      |    | 4                               | G1/4             | G1/8, G1/4, G3/8                | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Precision pressure regulators<br><b>MS-LRP</b>            |   | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | ■                  | ■               | ■               | –                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Precision pressure regulators<br><b>MS-LRPB</b>           |  | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4          | ■                  | ■               | ■               | –                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Electrical pressure regulators<br><b>MS-LRE</b>           |  | 4                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | ■               | ■                | ■                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Lubricators<br><b>MS-LOE</b>                              |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| On-off valves, manually actuated<br><b>MS-EM(1)</b>       |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| On-off valves, electrically actuated<br><b>MS-EE</b>      |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2  | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |
| Soft-start valves, pneumatically actuated<br><b>MS-DL</b> |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
| Soft-start valves, electrically actuated<br><b>MS-DE</b>  |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8                | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4          | –                  | –               | –               | –                | –                | ■                                        | –                                          | ■                                         | ■                                         |
|                                                           |                                                                                     | 9                               | –                | –                               | –                  | –               | –               | –                | –                | –                                        | –                                          | –                                         | –                                         |
|                                                           |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2          | –                  | –               | –               | –                | –                | ■                                        | ■                                          | ■                                         | ■                                         |

# Branching modules/Distributor blocks MS-FRM, MS series

FESTO

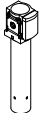
Product range overview – MS series service units

| Type                                                      | Size | Bowl guard                           |            | Pressure indicator                   |                              |                                          |                                          |                 | Security                                          |                                  | Options  |                                   | → Page/<br>Internet |
|-----------------------------------------------------------|------|--------------------------------------|------------|--------------------------------------|------------------------------|------------------------------------------|------------------------------------------|-----------------|---------------------------------------------------|----------------------------------|----------|-----------------------------------|---------------------|
|                                                           |      | Plastic bowl with plastic bowl guard | Metal bowl | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G1/8 | Adapter plate for EN pressure gauge G1/4 | Pressure sensor | Rotary knob with detent, lockable via accessories | Rotary knob with integrated lock | Silencer | Flow direction from right to left |                     |
| Code                                                      |      | R                                    | U          | VS                                   | AG                           | A8                                       | A4                                       | AD...           | AS                                                | E11                              | S        | Z                                 |                     |
| <b>Individual devices</b>                                 |      |                                      |            |                                      |                              |                                          |                                          |                 |                                                   |                                  |          |                                   |                     |
| Pressure regulators<br><b>MS-LR</b>                       | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lr              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lr              |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms9-lr              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | ■                                                 | ■                                | –        | ■                                 | ms12-lr             |
| Pressure regulators<br><b>MS-LRB</b>                      | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms4-lrb             |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrb             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRP</b>            | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrp             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Precision pressure regulators<br><b>MS-LRPB</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | –                            | ■                                        | ■                                        | ■               | ■                                                 | ■                                | –        | ■                                 | ms6-lrpb            |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Electrical pressure regulators<br><b>MS-LRE</b>           | 4    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-lre             |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
| Lubricators<br><b>MS-LOE</b>                              | 4    | ■                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms4-loe             |
|                                                           | 6    | ■                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms6-loe             |
|                                                           | 9    | –                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms9-loe             |
|                                                           | 12   | –                                    | ■          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-loe            |
| On-off valves, manually actuated<br><b>MS-EM(1)</b>       | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms4-em1             |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms6-em1             |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms9-em              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms12-em             |
| On-off valves, electrically actuated<br><b>MS-EE</b>      | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms4-ee              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms6-ee              |
|                                                           | 9    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | ■        | ■                                 | ms9-ee              |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | ■        | ■                                 | ms12-ee             |
| Soft-start valves, pneumatically actuated<br><b>MS-DL</b> | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms4-dl              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms6-dl              |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-dl             |
| Soft-start valves, electrically actuated<br><b>MS-DE</b>  | 4    | –                                    | –          | ■                                    | ■                            | ■                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms4-de              |
|                                                           | 6    | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | ■               | –                                                 | –                                | –        | ■                                 | ms6-de              |
|                                                           | 9    | –                                    | –          | –                                    | –                            | –                                        | –                                        | –               | –                                                 | –                                | –        | –                                 | –                   |
|                                                           | 12   | –                                    | –          | ■                                    | ■                            | –                                        | ■                                        | –               | –                                                 | –                                | –        | ■                                 | ms12-de             |

# Branching modules/Distributor blocks MS-FRM, MS series

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Product range overview – MS series service units

| Type                                            | Size                                                                                |                                 |                  | Performance Level              |                       |                                            | Supply voltage        |                                          |                                            |                                               |                                                       |
|-------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------|------------------|--------------------------------|-----------------------|--------------------------------------------|-----------------------|------------------------------------------|--------------------------------------------|-----------------------------------------------|-------------------------------------------------------|
|                                                 |                                                                                     |                                 |                  | Category 1, 1-channel          | Category 3, 2-channel | Category 4, 2-channel with self-monitoring | 24 V DC, Sub-D, 9-pin | 24 V DC, connection pattern to EN 175301 | 24 V DC, connection M12 to IEC 61076-2-101 | 110/230 V AC, connection pattern to EN 175301 | 22 ... 31.6 V DC, connection M12, AS-i Safety at Work |
| Code                                            |                                                                                     | Pneumatic connection in housing | Connecting plate | C                              | D                     | E                                          | 10V24                 | 10V24/V24                                | 10V24P                                     | V110/V230                                     | ASIS                                                  |
| <b>Individual devices</b>                       |                                                                                     |                                 |                  |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-C</b> |    | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     |
|                                                 |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | ■                     | –                                          | –                     | –                                        | ■                                          | ■                                             | ■                                                     |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-D</b> |   | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | –                     | ■                                          | –                     | –                                        | ■                                          | ■                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Soft start and exhaust valves<br><b>MS-SV-E</b> |  | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/4, G3/8, G1/2, G3/4         | –                     | –                                          | ■                     | ■                                        | –                                          | –                                             | ■                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Membrane air dryers<br><b>MS-LDM1</b>           |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Branching modules<br><b>MS-FRM</b>              |  | 4                               | G1/8, G1/4       | G1/8, G1/4, G3/8               | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 6                               | G1/4, G3/8, G1/2 | G1/4, G3/8, G1/2, G3/4         | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | G3/4, G1         | G1/2, G3/4, G1, G1 1/4, G1 1/2 | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 12                              | –                | G1, G1 1/4, G1 1/2, G2         | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
| Distributor blocks<br><b>MS-FRM-FRZ</b>         |  | 4                               | G1/4             | –                              | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 6                               | G1/2             | –                              | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
| Flow sensors<br><b>SFAM</b>                     |  | 4                               | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |
|                                                 |                                                                                     | 6                               | G1/2             | G1/2                           | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 9                               | –                | G1, G1 1/2                     | –                     | –                                          | –                     | –                                        | –                                          | –                                             | –                                                     |
|                                                 |                                                                                     | 12                              | –                |                                |                       |                                            |                       |                                          |                                            |                                               |                                                       |

## Branching modules/Distributor blocks MS-FRM, MS series

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Product range overview – MS series service units

| Type                                            | Size | Bowl guard                           |            | Pressure indicator                   |                              |                                                     |                                                     |                 | Switch output                                |                                             | Options  |                                   | → Page/<br>Internet |
|-------------------------------------------------|------|--------------------------------------|------------|--------------------------------------|------------------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------|----------------------------------------------|---------------------------------------------|----------|-----------------------------------|---------------------|
| Code                                            |      | Plastic bowl with plastic bowl guard | Metal bowl | Cover plate (without pressure gauge) | Integrated MS pressure gauge | Adapter plate for EN pressure gauge G $\frac{3}{8}$ | Adapter plate for EN pressure gauge G $\frac{1}{4}$ | Pressure sensor | 2x PNP or NPN, 1 analogue output 4 ... 20 mA | 2x PNP or NPN, 1 analogue output 0 ... 10 V | Silencer | Flow direction from right to left |                     |
|                                                 |      | R                                    | U          | VS                                   | AG                           | A8                                                  | A4                                                  | AD...           | 2SA                                          | 2SV                                         | S        | Z/R                               |                     |
| <b>Individual devices</b>                       |      |                                      |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   |                     |
| Soft start and exhaust valves<br><b>MS-SV-C</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms9-sv              |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Soft start and exhaust valves<br><b>MS-SV-D</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Soft start and exhaust valves<br><b>MS-SV-E</b> | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | ■        | ■                                 | ms6-sv              |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Membrane air dryers<br><b>MS-LDM1</b>           | 4    | –                                    | ■          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms4-ldm1            |
|                                                 | 6    | –                                    | ■          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | ms6-ldm1            |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Branching modules<br><b>MS-FRM</b>              | 4    | –                                    | –          | ■                                    | ■                            | ■                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | 14                  |
|                                                 | 6    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | 14                  |
|                                                 | 9    | –                                    | –          | ■                                    | ■                            | –                                                   | ■                                                   | ■               | –                                            | –                                           | –        | ■                                 | 26                  |
|                                                 | 12   | –                                    | –          | ■                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | –                                 | 36                  |
| Distributor blocks<br><b>MS-FRM-FRZ</b>         | 4    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | 24                  |
|                                                 | 6    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | –                                            | –                                           | –        | ■                                 | 24                  |
|                                                 | 9    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
| Flow sensors<br><b>SFAM</b>                     | 4    | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |
|                                                 | 6    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | ■                                            | ■                                           | –        | ■                                 | sfam-62             |
|                                                 | 9    | –                                    | –          | –                                    | –                            | –                                                   | –                                                   | –               | ■                                            | ■                                           | –        | ■                                 | sfam-90             |
|                                                 | 12   | –                                    |            |                                      |                              |                                                     |                                                     |                 |                                              |                                             |          |                                   | –                   |

# Branching modules MS4/MS6-FRM, MS series

Peripherals overview

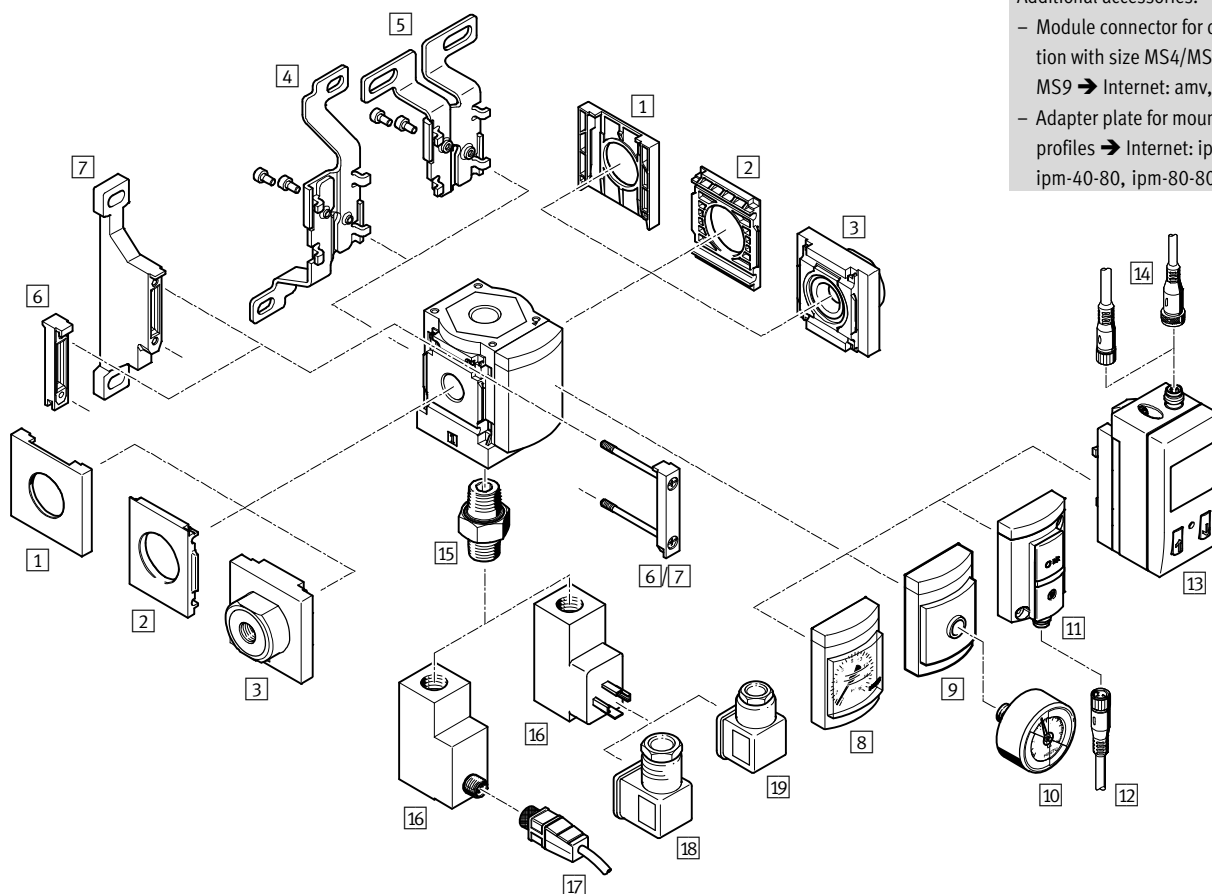
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## Branching module MS4/MS6-FRM

 Note

Additional accessories:

- Module connector for combination with size MS4/MS6 or size MS9 → Internet: amv, rmv, armv
- Adapter plate for mounting on profiles → Internet: ipm-80, ipm-40-80, ipm-80-80



## Branching modules MS4/MS6-FRM, MS series

Peripherals overview

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| Mounting attachments and accessories |                                                         | Individual device        |                       | Combination              |                       | ➔ Page/Internet       |
|--------------------------------------|---------------------------------------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------------|
|                                      |                                                         | Without connecting plate | With connecting plate | Without connecting plate | With connecting plate |                       |
| 1                                    | Cover cap<br>MS4/6-END                                  | ■                        | –                     | ■                        | –                     | ms4-end,<br>ms6-end   |
| 2                                    | Mounting plate<br>MS4/6-AEND                            | ■ <sup>1)</sup>          | –                     | ■ <sup>1)</sup>          | –                     | ms4-aend,<br>ms6-aend |
| 3                                    | Connecting plate-SET<br>MS4/6-AG...                     | –                        | ■ <sup>1)</sup>       | –                        | ■ <sup>1)</sup>       | ms4-ag,<br>ms6-ag     |
| 4                                    | Mounting bracket<br>MS4/6-WB                            | ■                        | ■                     | –                        | –                     | ms4-wb,<br>ms6-wb     |
| 5                                    | Mounting bracket<br>MS4-WBM                             | ■                        | ■                     | –                        | –                     | ms4-wbm               |
| 6                                    | Module connector<br>MS4/6-MV                            | –                        | ■                     | ■                        | ■                     | ms4-mv,<br>ms6-mv     |
| 7                                    | Mounting bracket<br>MS4/6-WP                            | ■                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp     |
|                                      | Mounting bracket (not illustrated)<br>MS4/6-WPB/WPE/WPM | ■                        | ■                     | ■                        | ■                     | ms4-wp,<br>ms6-wp     |
| 8                                    | MS pressure gauge<br>AG                                 | ■                        | ■                     | ■                        | ■                     | 22                    |
| 9                                    | Adapter plate for EN pressure gauge 1/8/1/4<br>A8/A4    | ■                        | ■                     | ■                        | ■                     | 22                    |
| 10                                   | Pressure gauge<br>MA                                    | ■                        | ■                     | ■                        | ■                     | 41                    |
| 11                                   | Pressure sensor without display<br>AD7 ... AD10         | ■                        | ■                     | ■                        | ■                     | 22                    |
| 12                                   | Connecting cable<br>NEBU-M8...-LE3                      | ■                        | ■                     | ■                        | ■                     | 41                    |
| 13                                   | Pressure sensor with display<br>AD1 ... AD4             | ■                        | ■                     | ■                        | ■                     | 22                    |
| 14                                   | Connecting cable<br>NEBU-M8...-LE3/NEBU-M12...-LE4      | ■                        | ■                     | ■                        | ■                     | 41                    |
| 15                                   | Double nipple<br>ESK                                    | ■                        | ■                     | ■                        | ■                     | 42                    |
| 16                                   | Pressure switch PEV<br>X/Y/M12                          | ■                        | ■                     | ■                        | ■                     | 22                    |
| 17                                   | Connecting cable<br>NEBU-M12....-LE4                    | ■                        | ■                     | ■                        | ■                     | 41                    |
| 18                                   | Angled socket<br>PEV-1/4-WD-LED-....                    | ■                        | ■                     | ■                        | ■                     | 42                    |
| 19                                   | Plug socket<br>MSSD-C-4P                                | ■                        | ■                     | ■                        | ■                     | 42                    |

1) Module connector MS4/6-MV [6] or mounting bracket MS4/6-WP/WPB/WPE/WPM [7] is required for mounting.

## Branching modules MS4/MS6-FRM, MS series

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Type codes

|                                            |                                     |    |   |   |     |   |     |   |   |
|--------------------------------------------|-------------------------------------|----|---|---|-----|---|-----|---|---|
|                                            |                                     | MS | 4 | - | FRM | - | 1/4 | - | Y |
| <b>Series</b>                              |                                     |    |   |   |     |   |     |   |   |
| MS                                         | Standard service unit               |    |   |   |     |   |     |   |   |
| <b>Size</b>                                |                                     |    |   |   |     |   |     |   |   |
| 4                                          | Grid dimension 40 mm                |    |   |   |     |   |     |   |   |
| 6                                          | Grid dimension 62 mm                |    |   |   |     |   |     |   |   |
| <b>Service function</b>                    |                                     |    |   |   |     |   |     |   |   |
| FRM                                        | Branching module                    |    |   |   |     |   |     |   |   |
| <b>Pneumatic connection</b>                |                                     |    |   |   |     |   |     |   |   |
| MS4                                        |                                     |    |   |   |     |   |     |   |   |
| 1/8                                        | Female thread G1/8                  |    |   |   |     |   |     |   |   |
| 1/4                                        | Female thread G1/4                  |    |   |   |     |   |     |   |   |
| MS6                                        |                                     |    |   |   |     |   |     |   |   |
| 1/4                                        | Female thread G1/4                  |    |   |   |     |   |     |   |   |
| 3/8                                        | Female thread G3/8                  |    |   |   |     |   |     |   |   |
| 1/2                                        | Female thread G1/2                  |    |   |   |     |   |     |   |   |
| <b>Non-return function/pressure switch</b> |                                     |    |   |   |     |   |     |   |   |
|                                            | Standard                            |    |   |   |     |   |     |   |   |
| I                                          | With integrated non-return function |    |   |   |     |   |     |   |   |
| Y                                          | With pressure switch                |    |   |   |     |   |     |   |   |

Further variants can be ordered using the modular system → 22

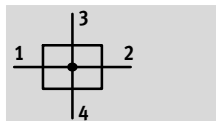
- Connecting plates
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Pressure switch
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Branching modules MS4/MS6-FRM, MS series

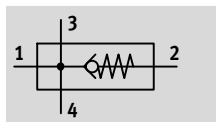
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Technical data

Function  
Standard



With integrated non-return function



-  Flow rate  
1,200 ... 14,700 l/min

-  Temperature range  
-10 ... +60 °C

-  Operating pressure  
0 ... 20 bar



- Pneumatic manifold with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Attachment facility for auxiliary modules
- Outlet top and bottom
- An integrated non-return valve prevents the return flow e.g. of lubricated compressed air
- Optional pressure sensor
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

| General technical data    |                                                                                                           |                                                                        |
|---------------------------|-----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Size                      | MS4                                                                                                       | MS6                                                                    |
| Pneumatic connection 1, 2 |                                                                                                           |                                                                        |
| Female thread             | G $\frac{1}{8}$ or G $\frac{1}{4}$                                                                        | G $\frac{1}{4}$ , G $\frac{3}{8}$ or G $\frac{1}{2}$                   |
| Connecting plate AG...    | G $\frac{1}{8}$ , G $\frac{1}{4}$ or G $\frac{3}{8}$                                                      | G $\frac{1}{4}$ , G $\frac{3}{8}$ , G $\frac{1}{2}$ or G $\frac{3}{4}$ |
| Pneumatic connection 3, 4 | G $\frac{1}{4}$                                                                                           | G $\frac{1}{2}$                                                        |
| Design                    | Branching module                                                                                          |                                                                        |
|                           | Branching module with non-return function                                                                 |                                                                        |
| Type of mounting          | Via accessories                                                                                           |                                                                        |
|                           | In-line installation                                                                                      |                                                                        |
| Assembly position         | Any <sup>1)</sup>                                                                                         |                                                                        |
| Pressure display          | Via pressure sensor for displaying output pressure via LCD display and electrical output                  |                                                                        |
|                           | Via pressure sensor for displaying output pressure via operational status indicator and electrical output |                                                                        |
|                           | Via pressure gauge for displaying output pressure                                                         |                                                                        |
|                           | Via pressure gauge with red/green scale for displaying output pressure                                    |                                                                        |
|                           | G $\frac{1}{4}$ prepared                                                                                  |                                                                        |
|                           | G $\frac{1}{8}$ prepared                                                                                  | –                                                                      |

1) The branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

-  Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Standard nominal flow rate q <sub>N</sub> <sup>1)</sup> [l/min] |                 |                 |                 |                 |                 |
|-----------------------------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Size                                                            | MS4             |                 | MS6             |                 |                 |
| Pneumatic connection                                            | G $\frac{1}{8}$ | G $\frac{1}{4}$ | G $\frac{1}{4}$ | G $\frac{3}{8}$ | G $\frac{1}{2}$ |
| Standard                                                        |                 |                 |                 |                 |                 |
| In main flow direction 1 → 2                                    | 1,800           | 4,600           | 4,200           | 9,200           | 14,700          |
| Outlet at top                                                   | 1,600           | 1,500           | 6,000           | 4,700           | 4,400           |
| Outlet at bottom                                                | 1,700           | 1,500           | 6,400           | 4,800           | 4,600           |
| With non-return function                                        |                 |                 |                 |                 |                 |
| In main flow direction 1 → 2                                    | 1,200           | 1,750           | 3,200           | 5,500           | 6,000           |
| Outlet at top                                                   | 500             | 500             | 2,700           | 2,900           | 3,100           |
| Outlet at bottom                                                | 500             | 500             | 2,800           | 3,200           | 3,300           |

1) Measured at p<sub>1</sub> = 6 bar and p<sub>2</sub> = 5 bar, Δp = 1 bar

# Branching modules MS4/MS6-FRM, MS series

FESTO

Technical data

| Operating and environmental conditions       |                                                                                                        |                       |                                   |                                   |                                   |                                   |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Size                                         | MS4                                                                                                    |                       |                                   | MS6                               |                                   |                                   |
| Variant                                      | Standard                                                                                               | Non-return function I | Pressure switch X/Y/M12           | Standard                          | Non-return function I             | Pressure switch X/Y/M12           |
| Operating pressure [bar]                     | 0 ... 14 (0 ... 10) <sup>1)</sup>                                                                      | 0 ... 10              | 0 ... 12 (0 ... 10) <sup>1)</sup> | 0 ... 20 (0 ... 10) <sup>1)</sup> | 0 ... 20 (0 ... 10) <sup>1)</sup> | 0 ... 12 (0 ... 10) <sup>1)</sup> |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]<br>Inert gases                               |                       |                                   |                                   |                                   |                                   |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                       |                                   |                                   |                                   |                                   |
| Ambient temperature [°C]                     | -10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                       |                                   |                                   |                                   |                                   |
| Temperature of medium [°C]                   | -10 ... +60 (0 ... +50) <sup>2)</sup>                                                                  |                       |                                   |                                   |                                   |                                   |
| Storage temperature [°C]                     | -10 ... +60                                                                                            |                       |                                   |                                   |                                   |                                   |
| Corrosion resistance class CRC <sup>3)</sup> | 2                                                                                                      |                       |                                   |                                   |                                   |                                   |
| Food-safe <sup>4)</sup>                      | See supplementary material information                                                                 |                       |                                   |                                   |                                   |                                   |
| UL certification <sup>4)</sup>               | cULus recognized (OL)                                                                                  |                       |                                   |                                   |                                   |                                   |

1) Value in brackets applies to MS4/MS6-FRM with pressure sensor AD... or with UL certification.

2) Value in brackets applies to MS4/MS6-FRM with pressure sensor AD...

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

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

4) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

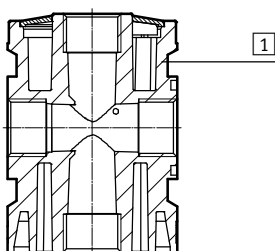
| ATEX                                                  |                                             |
|-------------------------------------------------------|---------------------------------------------|
| EU certification                                      | EX4                                         |
| ATEX category gas                                     | II 2G                                       |
| Ex-ignition protection type gas                       | Ex h IIC T6 Gb X                            |
| ATEX category dust                                    | II 2D                                       |
| Ex-ignition protection type dust                      | Ex h IIIC T60°C Db X                        |
| ATEX ambient temperature                              | -10 °C ≤ Ta ≤ +60 °C                        |
| CE mark (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]                                    |     |     |
|-----------------------------------------------|-----|-----|
| Size                                          | MS4 | MS6 |
| Branching module                              | 165 | 458 |
| Branching module with non-return function I   | 160 | 400 |
| Branching module with pressure sensor AD...   | 255 | 528 |
| Branching module with pressure switch X/Y/M12 | 405 | 736 |

## Materials

Sectional view



| Branching module  |                                                         |
|-------------------|---------------------------------------------------------|
| 1 Housing         | Die-cast aluminium                                      |
| Note on materials | RoHS-compliant                                          |
|                   | Free of copper and PTFE (not with variants AG or AD...) |

# Branching modules MS4/MS6-FRM, MS series

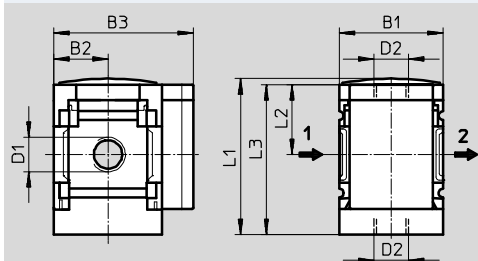
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Technical data

## Dimensions – Basic version

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

With female thread, with cover plate



→ Flow direction

| Type        | B1 | B2 | B3 | D1   | D2   | L1   | L2 | L3   |
|-------------|----|----|----|------|------|------|----|------|
| MS4-FRM-1/8 | 40 | 21 | 54 | G1/8 | G1/4 | 60.4 | 27 | 58   |
| MS4-FRM-1/4 |    |    |    | G1/4 |      |      |    |      |
| MS6-FRM-1/4 | 62 | 31 | 76 | G1/4 | G1/2 | 87.2 | 39 | 84.5 |
| MS6-FRM-3/8 |    |    |    | G3/8 |      |      |    |      |
| MS6-FRM-1/2 |    |    |    | G1/2 |      |      |    |      |

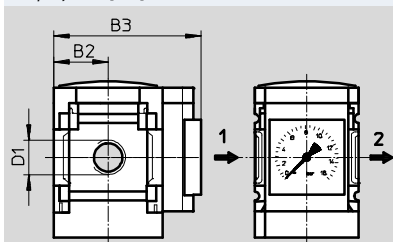
• Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Dimensions – Pressure gauge/pressure gauge alternatives

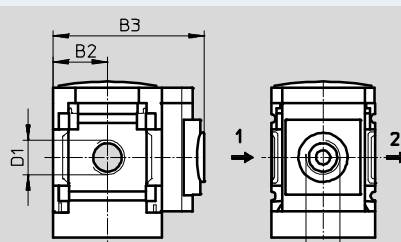
Download CAD data → [www.festo.com](http://www.festo.com)

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

Adapter plate A8/A4 for EN pressure gauge 1/8/1/4, without pressure gauge



→ Flow direction



→ Flow direction

| Type               | B2 | B3       |                                       | D1   | D4   |
|--------------------|----|----------|---------------------------------------|------|------|
|                    |    | Standard | With integrated non-return function I |      |      |
| MS4-FRM-1/8-...-AG | 21 | 65       |                                       | G1/8 | –    |
| MS4-FRM-1/4-...-AG |    |          |                                       | G1/4 |      |
| MS4-FRM-1/8-...-RG | 21 | 66.5     |                                       | G1/8 | –    |
| MS4-FRM-1/4-...-RG |    |          |                                       | G1/4 |      |
| MS4-FRM-1/8-...-A8 | 21 | 58.5     |                                       | G1/8 | G1/8 |
| MS4-FRM-1/4-...-A8 |    |          |                                       | G1/4 |      |
| MS4-FRM-1/8-...-A4 | 21 | 58.5     |                                       | G1/8 | G1/4 |
| MS4-FRM-1/4-...-A4 |    |          |                                       | G1/4 |      |
|                    |    |          |                                       |      |      |
| MS6-FRM-1/4-...-AG | 31 | 77       | 85                                    | G1/4 | –    |
| MS6-FRM-3/8-...-AG |    |          |                                       | G3/8 |      |
| MS6-FRM-1/2-...-AG |    |          |                                       | G1/2 |      |
| MS6-FRM-1/4-...-RG | 31 | 78.5     | 86.5                                  | G1/4 | –    |
| MS6-FRM-3/8-...-RG |    |          |                                       | G3/8 |      |
| MS6-FRM-1/2-...-RG |    |          |                                       | G1/2 |      |
| MS6-FRM-1/4-...-A4 | 31 | 78.5     |                                       | G1/4 | G1/4 |
| MS6-FRM-3/8-...-A4 |    |          |                                       | G3/8 |      |
| MS6-FRM-1/2-...-A4 |    |          |                                       | G1/2 |      |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Branching modules MS4/MS6-FRM, MS series

Technical data

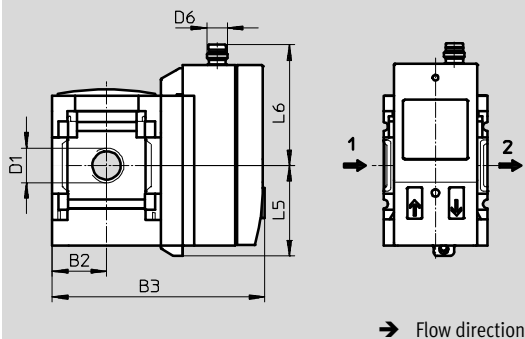
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## Dimensions – Pressure gauge/pressure gauge alternatives

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

Pressure sensor with LCD display AD1 ... AD4

Technical data → Internet: sde1



Variant AD1:  
SDE1-D10-G2-MS-L-P1-M8 with  
3-pin plug M8x1, 1 switch output  
PNP

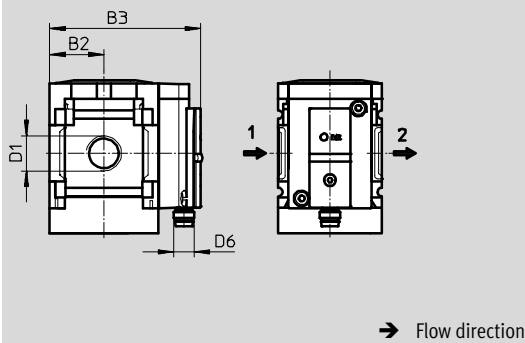
Variant AD3:  
SDE1-D10-G2-MS-L-PI-M12 with  
4-pin plug M12x1, 1 switch output  
PNP and 4 ... 20 mA analogue

Variant AD2:  
SDE1-D10-G2-MS-L-N1-M8 with  
3-pin plug M8x1, 1 switch output  
NPN

Variant AD4:  
SDE1-D10-G2-MS-L-NI-M12 with  
4-pin plug M12x1, 1 switch output  
NPN and 4 ... 20 mA analogue

## Pressure sensor with operational status indicator AD7 ... AD10

Technical data → Internet: sde5



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

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

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

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

| Type                             | B2 | B3   | D1   | D6    | L5   | L6   |
|----------------------------------|----|------|------|-------|------|------|
| MS4-FRM-1/8-...-AD1/AD2          | 21 | 82.6 | G1/8 | M8x1  | 35.1 | 46.7 |
| MS4-FRM-1/4-...-AD1/AD2          |    |      | G1/4 |       |      |      |
| MS4-FRM-1/8-...-AD3/AD4          | 21 | 82.6 | G1/8 | M12x1 | 35.1 | 55.8 |
| MS4-FRM-1/4-...-AD3/AD4          |    |      | G1/4 |       |      |      |
| MS4-FRM-1/8-...-AD7/AD8/AD9/AD10 | 21 | 59   | G1/8 | M8x1  | –    | –    |
| MS4-FRM-1/4-...-AD7/AD8/AD9/AD10 |    |      | G1/4 |       |      |      |
| MS6-FRM-1/4-...-AD1/AD2          | 31 | 103  | G1/4 | M8x1  | 35.1 | 46.7 |
| MS6-FRM-3/8-...-AD1/AD2          |    |      | G3/8 |       |      |      |
| MS6-FRM-1/2-...-AD1/AD2          |    |      | G1/2 |       |      |      |
| MS6-FRM-1/4-...-AD3/AD4          | 31 | 103  | G1/4 | M12x1 | 35.1 | 55.8 |
| MS6-FRM-3/8-...-AD3/AD4          |    |      | G3/8 |       |      |      |
| MS6-FRM-1/2-...-AD3/AD4          |    |      | G1/2 |       |      |      |
| MS6-FRM-1/4-...-AD7/AD8/AD9/AD10 | 31 | 79   | G1/4 | M8x1  | –    | –    |
| MS6-FRM-3/8-...-AD7/AD8/AD9/AD10 |    |      | G3/8 |       |      |      |
| MS6-FRM-1/2-...-AD7/AD8/AD9/AD10 |    |      | G1/2 |       |      |      |

– Note: This product conforms to ISO 1179-1 and to ISO 228-1

# Branching modules MS4/MS6-FRM, MS series

Technical data

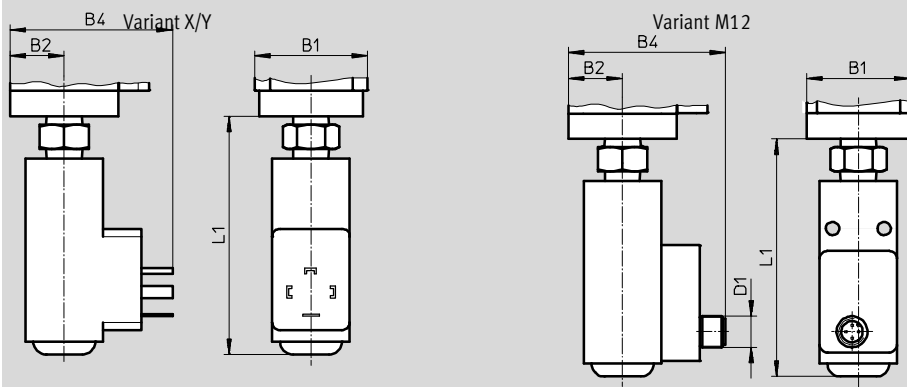
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## Dimensions – Pressure switch

Pressure switch with adjustable pressure switching point X/Y/M12

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

Technical data → Internet: pev-1/4



Variant X:  
PEV-1/4-SC-0D with display, plug,  
square design to EN 175 301,  
type A

Variant Y:  
PEV-1/4-B-0D, plug, square design to  
EN 175 301, type A

Variant M12:  
PEV-1/4-B-M12 with 4-pin plug  
M12x1

| Type            | B1 | B2 | B4 | D1    | L1   |
|-----------------|----|----|----|-------|------|
| MS4-FRM-...-X/Y | 40 | 21 | 63 | –     | 92.3 |
| MS4-FRM-...-M12 | 40 | 21 | 61 | M12x1 | 92.3 |
| MS6-FRM-...-X/Y | 62 | 31 | 73 | –     | 99.5 |
| MS6-FRM-...-M12 | 62 | 31 | 71 | M12x1 | 99.5 |

## ★ Core product range

| Ordering data |            |          |             |
|---------------|------------|----------|-------------|
| Size          | Connection | Part No. | Type        |
| MS6           | G1/4       | ★ 529857 | MS6-FRM-1/4 |
|               | G1/2       | ★ 529853 | MS6-FRM-1/2 |

| Ordering data                                 |            |          |               |
|-----------------------------------------------|------------|----------|---------------|
| Size                                          | Connection | Part No. | Type          |
| MS4                                           | G1/8       | 529559   | MS4-FRM-1/8   |
|                                               | G1/4       | 529555   | MS4-FRM-1/4   |
| MS6                                           | G3/8       | 529861   | MS6-FRM-3/8   |
| With integrated non-return function           |            |          |               |
| MS4                                           | G1/4       | 536966   | MS4-FRM-1/4-I |
| MS6                                           | G1/4       | 536967   | MS6-FRM-1/4-I |
|                                               | G1/2       | 536969   | MS6-FRM-1/2-I |
| With pressure switch PEV-1/4-B-0D (variant Y) |            |          |               |
| MS4                                           | G1/4       | 529556   | MS4-FRM-1/4-Y |
| MS6                                           | G1/4       | 529858   | MS6-FRM-1/4-Y |
|                                               | G3/8       | 529862   | MS6-FRM-3/8-Y |
|                                               | G1/2       | 529854   | MS6-FRM-1/2-Y |

Festo core product range

- ★ Generally ready for shipping ex works in 24 hours
- ☆ Generally ready for shipping ex works in 5 days

## Branching modules MS4/MS6-FRM, MS series

FESTO

Ordering data – Modular products

| Mandatory data →     |           |          |              |                           |
|----------------------|-----------|----------|--------------|---------------------------|
| Module No.           | Series    | Size     | Function     | Pneumatic connection      |
| 527703<br>527676     | MS        | 4<br>6   | FRM          | 1/8, 1/4, 3/8, 1/2, AG... |
| <b>Order example</b> |           |          |              |                           |
| <b>527676</b>        | <b>MS</b> | <b>6</b> | <b>- FRM</b> | <b>- 3/8</b>              |

| Ordering table |                      |                       |                       |                 |             |               |
|----------------|----------------------|-----------------------|-----------------------|-----------------|-------------|---------------|
| Grid dimension | [mm]                 | 40                    | 62                    | Condi-<br>tions | Code        | Enter<br>code |
| M              | Module No.           | <b>527703</b>         | <b>527676</b>         |                 |             |               |
|                | Series               | Standard              |                       |                 | <b>MS</b>   | MS            |
|                | Size                 | 4                     | 6                     |                 | ...         |               |
|                | Function             | Branching module      |                       |                 | <b>-FRM</b> | -FRM          |
|                | Pneumatic connection | Female thread G1/8    | –                     | 1               | -1/8        |               |
|                |                      | Female thread G1/4    | Female thread G1/4    | 1               | -1/4        |               |
|                |                      | –                     | Female thread G3/8    | 1               | -3/8        |               |
|                |                      | –                     | Female thread G1/2    | 1               | -1/2        |               |
|                |                      | Connecting plate G1/8 | –                     |                 | <b>-AGA</b> |               |
|                |                      | Connecting plate G1/4 | Connecting plate G1/4 |                 | <b>-AGB</b> |               |
|                |                      | Connecting plate G3/8 | Connecting plate G3/8 |                 | <b>-AGC</b> |               |
|                |                      | –                     | Connecting plate G1/2 |                 | <b>-AGD</b> |               |
|                |                      | –                     | Connecting plate G3/4 |                 | <b>-AGE</b> |               |

1 1/8, 1/4, 3/8, 1/2, AD1 ... AD4, AD7 ... AD10, X, Y, M12, WPM  
Not with EU certification EX4

Transfer order code

|  |    |  |   |     |  |   |  |
|--|----|--|---|-----|--|---|--|
|  | MS |  | - | FRM |  | - |  |
|--|----|--|---|-----|--|---|--|

# Branching modules MS4/MS6-FRM, MS series

FESTO

Ordering data – Modular products

| Options            |                                            |                                  |                 |                  |                  |                  |                |
|--------------------|--------------------------------------------|----------------------------------|-----------------|------------------|------------------|------------------|----------------|
| Auxiliary function | Pressure gauge/pressure gauge alternatives | Alternative pressure gauge scale | Pressure switch | Type of mounting | EU certification | UL certification | Flow direction |
| I                  | AG, A8, A4, RG, AD1 ... AD4, AD7 ... AD10  | PSI, MPA                         | X, Y, M12       | WP, WPM, WB, WBM | EX4              | UL1              | Z              |
| -                  | - AG                                       | -                                | -               | -                | -                | -                | -              |

| Ordering table |                                            |                                                                                                          |    |            |       |            |  |
|----------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------|----|------------|-------|------------|--|
| Grid dimension | [mm]                                       | 40                                                                                                       | 62 | Conditions | Code  | Enter code |  |
| 0              | Auxiliary function                         | With integrated non-return function                                                                      |    |            | -I    |            |  |
|                | Pressure gauge/pressure gauge alternatives | MS pressure gauge, bar                                                                                   |    |            | -AG   |            |  |
|                |                                            | Adapter plate for EN pressure gauge 1/8, without pressure gauge                                          | -  |            | -A8   |            |  |
|                |                                            | Adapter plate for EN pressure gauge 1/4, without pressure gauge                                          |    |            | -A4   |            |  |
|                |                                            | Integrated pressure gauge, red-green scale                                                               |    |            | -RG   |            |  |
|                |                                            | Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin                                 |    | 1 2        | -AD1  |            |  |
|                |                                            | Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin                                 |    | 1 2        | -AD2  |            |  |
|                |                                            | Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA   |    | 1 2        | -AD3  |            |  |
|                |                                            | Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA   |    | 1 2        | -AD4  |            |  |
|                |                                            | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact |    | 1 2        | -AD7  |            |  |
|                |                                            | Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact |    | 1 2        | -AD8  |            |  |
|                |                                            | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact          |    | 1 2        | -AD9  |            |  |
|                |                                            | Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact          |    | 1 2        | -AD10 |            |  |
|                | Alternative pressure gauge scale           | psi                                                                                                      |    | 3          | -PSI  |            |  |
|                |                                            | MPa                                                                                                      |    | 4          | -MPA  |            |  |
|                | Pressure switch                            | Pressure switch PEV with display, plug socket, EN 175301, type A, square                                 |    | 1 5        | -X    |            |  |
|                |                                            | Pressure switch PEV without display, plug socket, EN 175301, type A, square                              |    | 1 5        | -Y    |            |  |
|                |                                            | Pressure switch PEV without display, plug socket, round, M12, 4-pin                                      |    | 1 5        | -M12  |            |  |
|                | Type of mounting                           | Mounting bracket standard design                                                                         |    | 6          | -WP   |            |  |
|                |                                            | Mounting bracket for attaching the service units                                                         |    | 1 6        | -WPM  |            |  |
|                |                                            | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required        |    |            | -WB   |            |  |
|                |                                            | Mounting bracket centrally at rear (wall mounting top), connecting plates not required                   | -  |            | -WBM  |            |  |
|                | EU certification                           | II 2GD to EU Explosion Protection Directive (ATEX)                                                       |    |            | -EX4  |            |  |
|                | UL certification                           | cULus, ordinary location for Canada and USA                                                              |    |            | -UL1  |            |  |
|                | Flow direction                             | Flow direction from right to left                                                                        |    |            | -Z    |            |  |

2 AD1 ... AD4, AD7 ... AD10

Measuring range max. 10 bar

3 PSI

Only in combination with pressure gauge AG

4 MPA

Only in combination with pressure gauge AG or RG

5 X, Y, M12

Max. permissible operating pressure P1 = 12 bar.

6 WP, WPM

Only with connecting plate AGA, AGB, AGC, AGD or AGE

Transfer order code

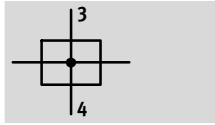
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# Distributor blocks MS4/MS6-FRM-FRZ, MS series

FESTO

Technical data

Function



-  - Flow rate  
2,900 ... 14,600 l/min
-  - Temperature range  
-10 ... +60 °C
-  - Operating pressure  
0 ... 20 bar



-  - Note  
The distributor block MS4/6-FRM-FRZ has a half grid dimension width.

- Pneumatic manifold with 4 connections
- Outlet top and bottom
- Can be used as an intermediate distributor for varying air qualities
- Can be used as an intermediate distributor between two pressure regulators with large rotary knob with pressure gauge on size MS4

| General technical data    |                      |      |
|---------------------------|----------------------|------|
| Size                      | MS4                  | MS6  |
| Pneumatic connection 3, 4 | G1/4                 | G1/2 |
| Design                    | Branching module     |      |
| Type of mounting          | Via accessories      |      |
|                           | In-line installation |      |
| Assembly position         | Any                  |      |

-  - Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |       |        |
|--------------------------------------------------|-------|--------|
| Size                                             | MS4   | MS6    |
| In main flow direction 1 → 2                     | 4,050 | 14,600 |
| Outlet at top                                    | 3,250 | 10,400 |
| Outlet at bottom                                 | 2,900 | 9,850  |

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

| Operating and environmental conditions       |                                                                                                        |                                   |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------|
| Size                                         | MS4                                                                                                    | MS6                               |
| Operating pressure [bar]                     | 0 ... 14 (0 ... 10) <sup>1)</sup>                                                                      | 0 ... 20 (0 ... 10) <sup>1)</sup> |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4]                                              |                                   |
|                                              | Inert gases                                                                                            |                                   |
| Note on operating/pilot medium               | Operation with lubricated medium possible (in which case lubricated operation will always be required) |                                   |
| Ambient temperature [°C]                     | -10 ... +60                                                                                            |                                   |
| Temperature of medium [°C]                   | -10 ... +60                                                                                            |                                   |
| Storage temperature [°C]                     | -10 ... +60                                                                                            |                                   |
| Corrosion resistance class CRC <sup>2)</sup> | 2                                                                                                      |                                   |
| UL certification <sup>3)</sup>               | cULus recognized (OL)                                                                                  |                                   |

1) Value in brackets applies to MS4/MS6-FRM-FRZ with UL certification.

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

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

3) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

## Distributor blocks MS4/MS6-FRM-FRZ, MS series

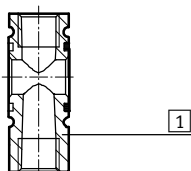
FESTO

Technical data

| Weight [g]        |     |     |
|-------------------|-----|-----|
| Size              | MS4 | MS6 |
| Distributor block | 60  | 163 |

### Materials

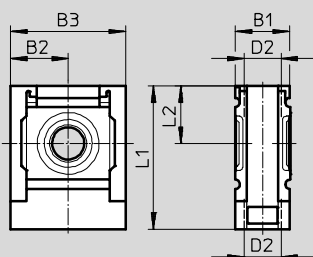
Sectional view



| Distributor block |         |                         |
|-------------------|---------|-------------------------|
| 1                 | Housing | Die-cast aluminium      |
| Note on materials |         | RoHS-compliant          |
|                   |         | Free of copper and PTFE |

### Dimensions

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



| Type        | B1 | B2 | B3 | D2              | L1   | L2 |
|-------------|----|----|----|-----------------|------|----|
| MS4-FRM-FRZ | 20 | 21 | 42 | G $\frac{1}{4}$ | 52.5 | 21 |
| MS6-FRM-FRZ | 31 | 31 | 62 | G $\frac{1}{2}$ | 76.5 | 31 |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

### ★ Core product range

| Ordering data |          |             |
|---------------|----------|-------------|
| Size          | Part No. | Type        |
| MS4           | ★ 549336 | MS4-FRM-FRZ |
| MS6           | ★ 549337 | MS6-FRM-FRZ |

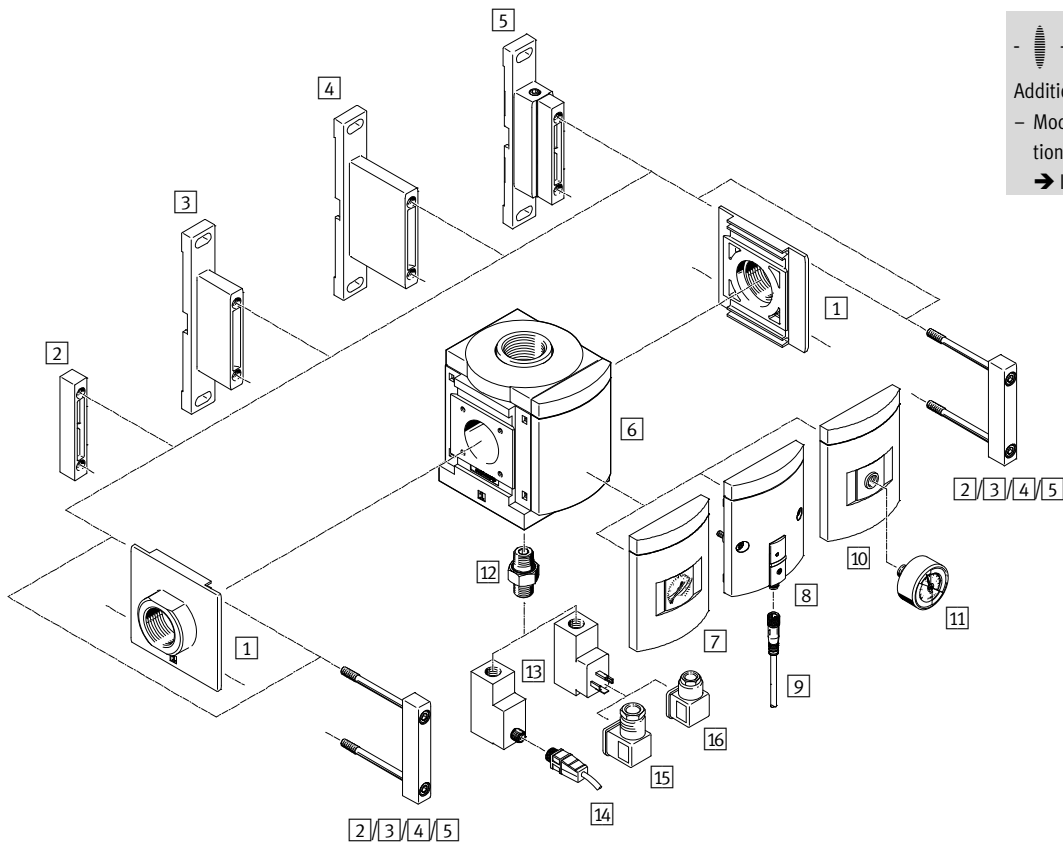
Festo core product range

- ★ Generally ready for shipping ex works in 24 hours
- ★ Generally ready for shipping ex works in 5 days

## Branching modules MS9-FRM, MS series

Peripherals overview

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Note

Additional accessories:

- Module connector for combination with size MS6, MS9 or MS12
- Internet: rmv, armv

## Branching modules MS9-FRM, MS series

Peripherals overview

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| Mounting attachments and accessories |                                                          |                                 |                                   |                              |                                                                         |                     |
|--------------------------------------|----------------------------------------------------------|---------------------------------|-----------------------------------|------------------------------|-------------------------------------------------------------------------|---------------------|
|                                      |                                                          | Individual component            |                                   |                              | Combination                                                             | ➔ Page/<br>Internet |
|                                      |                                                          | With female thread<br>¾/1/N¾/N1 | With connecting plate AG.../AQ... |                              | Module without connect-<br>ing thread, without<br>connecting plate G/NG |                     |
|                                      |                                                          |                                 | Without EU<br>certification EX4   | With EU<br>certification EX4 |                                                                         |                     |
| 1                                    | Connecting plate-SET<br>MS9-AG...                        | –                               | ■                                 | ■                            | ■                                                                       | ms9-ag              |
|                                      | Connecting plate-SET<br>MS9-AQ...                        | –                               | ■                                 | –                            | ■                                                                       | ms9-aq              |
| 2                                    | Module connector<br>MS9-MV                               | –                               | –                                 | –                            | ■                                                                       | ms9-mv              |
| 3                                    | Mounting bracket<br>MS9-WP                               | ■                               | ■                                 | ■                            | ■                                                                       | ms9-wp              |
| 4                                    | Mounting bracket<br>MS9-WPB                              | ■                               | ■                                 | ■                            | ■                                                                       | ms9-wp              |
| 5                                    | Mounting bracket<br>MS9-WPM                              | ■                               | ■                                 | –                            | ■                                                                       | ms9-wp              |
| 6                                    | Cover plate<br>VS                                        | ■                               | ■                                 | ■                            | ■                                                                       | 34                  |
| 7                                    | MS pressure gauge<br>AG                                  | ■                               | ■                                 | ■                            | ■                                                                       | 34                  |
| 8                                    | Pressure sensor without display<br>AD7 ... AD10          | ■                               | ■                                 | –                            | ■                                                                       | 34                  |
| 9                                    | Connecting cable<br>NEBU-M8...-LE3                       | ■                               | ■                                 | –                            | ■                                                                       | 41                  |
| 10                                   | Adapter plate for EN pressure gauge ¼<br>A4              | ■                               | ■                                 | ■                            | ■                                                                       | 34                  |
| 11                                   | Pressure gauge<br>MA                                     | ■                               | ■                                 | ■                            | ■                                                                       | 41                  |
| 12                                   | Double nipple (included in the scope of delivery)<br>ESK | ■                               | ■                                 | –                            | ■                                                                       | –                   |
| 13                                   | Pressure switch PEV<br>X/Y/M12                           | ■                               | ■                                 | –                            | ■                                                                       | 34                  |
| 14                                   | Connecting cable<br>NEBU-M12...-LE4                      | ■                               | ■                                 | –                            | ■                                                                       | 41                  |
| 15                                   | Angled socket<br>PEV-¼-WD-LED-...                        | ■                               | ■                                 | –                            | ■                                                                       | 42                  |
| 16                                   | Plug socket<br>MSSD-C-4P                                 | ■                               | ■                                 | –                            | ■                                                                       | 42                  |

## Branching modules MS9-FRM, MS series

FESTO

Type codes

|                                    |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
|------------------------------------|------------------------------------------------------------------------------------------------------|----|---|---|-----|---|---|---|----|---|---|
|                                    |                                                                                                      | MS | 9 | - | FRM | - | G | - | VS | - | Y |
| <b>Series</b>                      |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
| MS                                 | Standard service unit                                                                                |    |   |   |     |   |   |   |    |   |   |
| <b>Size</b>                        |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
| 9                                  | Grid dimension 90 mm                                                                                 |    |   |   |     |   |   |   |    |   |   |
| <b>Service function</b>            |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
| FRM                                | Branching module                                                                                     |    |   |   |     |   |   |   |    |   |   |
| <b>Pneumatic connection</b>        |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
| G                                  | Module without connecting thread, without connecting plate                                           |    |   |   |     |   |   |   |    |   |   |
| NG                                 | Module without connecting thread, without connecting plate<br>(pneumatic connections 3 and 4 in NPT) |    |   |   |     |   |   |   |    |   |   |
| <b>Pressure gauge alternatives</b> |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
| VS                                 | Cover plate                                                                                          |    |   |   |     |   |   |   |    |   |   |
| <b>Pressure switch</b>             |                                                                                                      |    |   |   |     |   |   |   |    |   |   |
|                                    | Without pressure switch                                                                              |    |   |   |     |   |   |   |    |   |   |
| Y                                  | With pressure switch                                                                                 |    |   |   |     |   |   |   |    |   |   |

Additional variants can be ordered using the modular system → 34

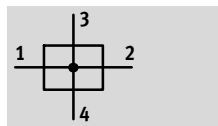
- Pneumatic connection
- Pressure gauge/pressure gauge alternatives
- Alternative pressure gauge scale
- Pressure switch
- Type of mounting
- EU certification
- UL certification
- Flow direction

# Branching modules MS9-FRM, MS series

FESTO

Technical data

Function



-  Flow rate  
10,000 ... 50,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
0 ... 20 bar
-  [www.festo.com](http://www.festo.com)



- Pneumatic manifold with 4 connections
- Attachment facility for auxiliary modules
- Outlet at top and bottom
- Can be used as an intermediate distributor for varying air qualities
- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22
- Optional pressure sensor

| General technical data                      |                                                                                                                                                                                                                                                                      |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pneumatic connection 1, 2                   |                                                                                                                                                                                                                                                                      |
| Female thread                               | G $\frac{3}{4}$ , G1, NPT $\frac{3}{4}$ or NPT1                                                                                                                                                                                                                      |
| Connecting plate AG...                      | G $\frac{1}{2}$ , G $\frac{3}{4}$ , G1, G1 $\frac{1}{4}$ or G1 $\frac{1}{2}$                                                                                                                                                                                         |
| Connecting plate AQ...                      | NPT $\frac{1}{2}$ , NPT $\frac{3}{4}$ , NPT1, NPT1 $\frac{1}{4}$ or NPT1 $\frac{1}{2}$                                                                                                                                                                               |
| Module without connecting thread/plate G/NG | –                                                                                                                                                                                                                                                                    |
| Pneumatic connection 3, 4                   | G1 (pneumatic connection 1, 2: $\frac{3}{4}$ /1/AG.../G)<br>NPT1-1 $\frac{1}{2}$ (pneumatic connection 1, 2: N $\frac{3}{4}$ /N1/AQ.../NG)                                                                                                                           |
| Design                                      | Branching module                                                                                                                                                                                                                                                     |
| Type of mounting                            | Via accessories<br>In-line installation<br>Front panel mounting                                                                                                                                                                                                      |
| Mounting position                           | Any <sup>1)</sup>                                                                                                                                                                                                                                                    |
| Pressure display                            | Via pressure sensor for displaying output pressure via operational status indicator and electrical output<br>Via pressure gauge for displaying output pressure<br>Via pressure gauge with red/green scale for displaying output pressure<br>G $\frac{1}{4}$ prepared |

1) The branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Standard nominal flow rate $q_{nN^{1)}$ [l/min] |                          |                                                                             |                                                 |                          |                          |
|-------------------------------------------------|--------------------------|-----------------------------------------------------------------------------|-------------------------------------------------|--------------------------|--------------------------|
| Pneumatic connection                            | Connecting plate AGD/AQR | Female thread G $\frac{3}{4}$ /NPT $\frac{3}{4}$ , connecting plate AGE/AQS | Female thread G1/NPT1, connecting plate AGF/AQT | Connecting plate AGG/AQU | Connecting plate AGH/AQV |
| In main flow direction 1 → 2                    | 10,000                   | 25,000                                                                      | 45,000                                          | 47,000                   | 50,000                   |
| Outlet at top                                   | 13,000                   |                                                                             |                                                 |                          |                          |
| Outlet at bottom                                | 13,000                   |                                                                             |                                                 |                          |                          |

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

# Branching modules MS9-FRM, MS series

Technical data

**FESTO**

| Operating and environmental conditions       |                                                           |                            |                          |
|----------------------------------------------|-----------------------------------------------------------|----------------------------|--------------------------|
| Variant                                      | Standard                                                  | Pressure switch<br>X/Y/M12 | Pressure sensor<br>AD... |
| Operating pressure [bar]                     | 0 ... 20                                                  | 0 ... 12                   | 0 ... 10                 |
| Operating medium                             | Compressed air in accordance with ISO 8573-1:2010 [7:4:4] |                            |                          |
| Note on operating/pilot medium               | Operation with lubricated medium possible                 |                            |                          |
| Ambient temperature [°C]                     | -10 ... +60                                               | -10 ... +60                | 0 ... +50                |
| Temperature of medium [°C]                   | -10 ... +60                                               | -10 ... +60                | 0 ... +50                |
| Storage temperature [°C]                     | -10 ... +60                                               | -10 ... +60                | -10 ... +60              |
| Corrosion resistance class CRC <sup>1)</sup> | 2                                                         |                            |                          |
| UL certification <sup>2)</sup>               | cULus recognized (OL)                                     |                            |                          |

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

Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

2) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

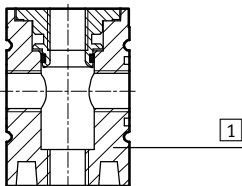
| ATEX                                                  |                                             |
|-------------------------------------------------------|---------------------------------------------|
| EU certification                                      | EX4                                         |
| ATEX category gas                                     | II 2G                                       |
| Ex-ignition protection type gas                       | Ex h IIC T6 Gb X                            |
| ATEX category dust                                    | II 2D                                       |
| Ex-ignition protection type dust                      | Ex h IIIC T60°C Db X                        |
| ATEX ambient temperature                              | -10 °C ≤ Ta ≤ +60 °C                        |
| CE mark (see declaration of conformity) <sup>1)</sup> | To EU Explosion Protection Directive (ATEX) |

1) Additional information [www.festo.com/sp](http://www.festo.com/sp) → Certificates.

| Weight [g]                                       |       |
|--------------------------------------------------|-------|
| Branching module                                 | 1,000 |
| Branching module with pressure switch<br>X/Y/M12 | 1,100 |

## Materials

Sectional view



| Branching module                                       |                                               |
|--------------------------------------------------------|-----------------------------------------------|
| 1 Housing                                              | Die-cast aluminium                            |
| – Cover                                                | PA reinforced                                 |
| – Connecting plate, module connector, mounting bracket | Die-cast aluminium                            |
| Note on materials                                      | RoHS-compliant                                |
|                                                        | Free of copper and PTFE (not with variant AG) |

# Branching modules MS9-FRM, MS series

Technical data

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## Dimensions – Basic version

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

Module without connecting thread, without connecting plate G/NG, with cover plate VS



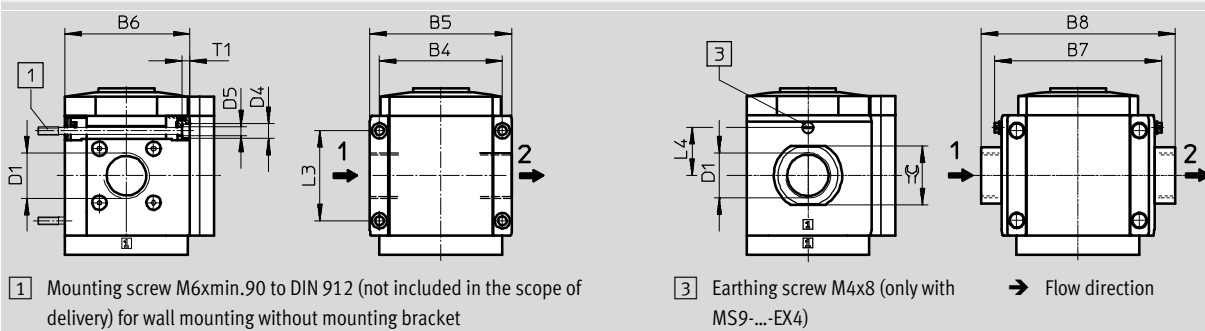
| Type         | B1 | B2 | B3  | L1  | L2 |
|--------------|----|----|-----|-----|----|
| MS9-FRM-G/NG | 90 | 45 | 109 | 122 | 64 |

## Dimensions – Connecting thread/connecting plate

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

With female thread 3/4/1/N3/4/N1

With connecting plate AG.../AQ...



| Type         | B4 | B5  | B6   | B7  |     | B8  | D1              | D4 | D5  | L3 | L4 | T1 | ≙  |
|--------------|----|-----|------|-----|-----|-----|-----------------|----|-----|----|----|----|----|
|              |    |     |      |     | EX4 |     |                 |    |     |    |    |    |    |
| MS9-FRM-3/4  | 90 | 104 | 91.5 | -   | -   | -   | G3/4            | 11 | 6.5 | 66 | -  | 6  | -  |
| MS9-FRM-1    |    |     |      |     |     |     | G1              |    |     |    |    |    |    |
| MS9-FRM-AGD  | -  | -   | -    | 112 | 122 | 132 | G1/2            | -  | -   | -  | 35 | -  | 30 |
| MS9-FRM-AGE  |    |     |      |     |     | 132 | G3/4            |    |     |    |    |    | 36 |
| MS9-FRM-AGF  |    |     |      |     |     | 142 | G1              |    |     |    |    |    | 41 |
| MS9-FRM-AGG  |    |     |      |     |     | 162 | G1 1/4          |    |     |    |    |    | 50 |
| MS9-FRM-AGH  |    |     |      |     |     | 176 | G1 1/2          |    |     |    |    |    | 55 |
| MS9-FRM-N3/4 | 90 | 104 | 91.5 | -   | -   | -   | NPT3/4-14       | 11 | 6.5 | 66 | -  | 6  | -  |
| MS9-FRM-N1   |    |     |      |     |     |     | NPT1-11 1/2     |    |     |    |    |    |    |
| MS9-FRM-AQR  | -  | -   | -    | 112 | -   | 132 | NPT1/2-14       | -  | -   | -  | -  | -  | 30 |
| MS9-FRM-AQS  |    |     |      |     |     | 132 | NPT3/4-14       |    |     |    |    |    | 36 |
| MS9-FRM-AQT  |    |     |      |     |     | 142 | NPT1-11 1/2     |    |     |    |    |    | 41 |
| MS9-FRM-AQU  |    |     |      |     |     | 162 | NPT1 1/4-11 1/2 |    |     |    |    |    | 50 |
| MS9-FRM-AQV  |    |     |      |     |     | 176 | NPT1 1/2-11 1/2 |    |     |    |    |    | 55 |

- Note: This product conforms to ISO 1179-1 and to ISO 228-1

## Branching modules MS9-FRM, MS series

Technical data

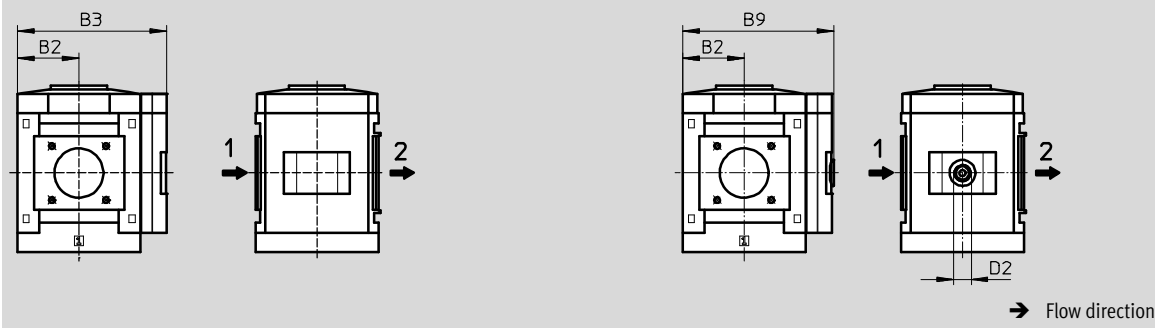
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### Dimensions – Pressure gauge/pressure gauge alternatives

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

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

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



| Type              | B2 | B3  | B9  | D2   |
|-------------------|----|-----|-----|------|
| MS9-FRM-...-AG/RG | 45 | 109 | –   | –    |
| MS9-FRM-...-A4    |    | –   | 110 | G1/4 |

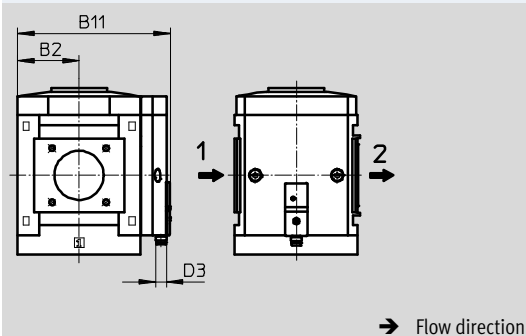
– ¶ – Note: This product conforms to ISO 1179-1 and to ISO 228-1

### Dimensions – Pressure gauge/pressure gauge alternatives

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

Pressure sensor with operational status indicator AD7 ... AD10

Technical data → Internet: [sde5](http://sde5.festo.com)



Variant AD7:  
SDE5-D10-0-...-P-M8 with 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact

Variant AD9:  
SDE5-D10-03-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/O contact

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

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

| Type                         | B2 | B11 | D3 |
|------------------------------|----|-----|----|
| MS9-FRM-...-AD7/AD8/AD9/AD10 | 45 | 112 | M8 |

## Branching modules MS9-FRM, MS series

Technical data

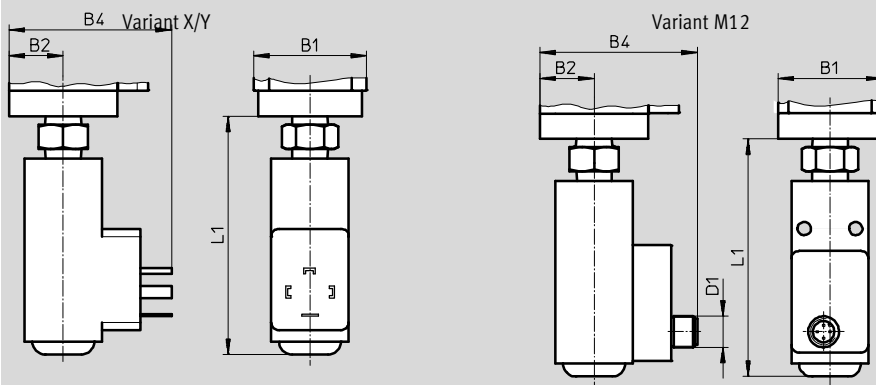
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### Dimensions – Pressure switch

Pressure switch with adjustable pressure switching point X/Y/M12

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

Technical data → Internet: pev-1/4



Variant X:  
PEV-1/4-SC-OD with display, plug,  
square design to EN 175 301,  
type A

Variant Y:  
PEV-1/4-B-OD, plug, square design  
to EN 175 301, type A

Variant M12:  
PEV-1/4-B-M12 with 4-pin plug  
M12x1

| Type            | B1 | B2 | B4 | D1    | L1  |
|-----------------|----|----|----|-------|-----|
| MS9-FRM-...-X/Y | 90 | 45 | 87 | –     | 105 |
| MS9-FRM-...-M12 | 90 | 45 | 85 | M12x1 | 105 |

### Ordering data

| Size                                              | Standard |               | With pressure switch PEV-1/4-B-OD (variant Y) |                 |
|---------------------------------------------------|----------|---------------|-----------------------------------------------|-----------------|
|                                                   | Part No. | Type          | Part No.                                      | Type            |
| Cover plate                                       |          |               |                                               |                 |
| MS9                                               | 564145   | MS9-FRM-G-VS  | 564147                                        | MS9-FRM-G-VS-Y  |
| Pneumatic connections 3 and 4 in NPT, cover plate |          |               |                                               |                 |
| MS9                                               | 564148   | MS9-FRM-NG-VS | 564150                                        | MS9-FRM-NG-VS-Y |

## Branching modules MS9-FRM, MS series

Ordering data – Modular products

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| Mandatory data →        |           |          |              |                                   |
|-------------------------|-----------|----------|--------------|-----------------------------------|
| Module No.              | Series    | Size     | Function     | Pneumatic connection              |
| 562534                  | MS        | 9        | FRM          | ¾, 1, AG..., N¾, N1, AQ..., G, NG |
| <b>Ordering example</b> |           |          |              |                                   |
| <b>562534</b>           | <b>MS</b> | <b>9</b> | <b>- FRM</b> | <b>- AGE</b>                      |

| Ordering table |                      |                                                                                                   |                 |      |               |
|----------------|----------------------|---------------------------------------------------------------------------------------------------|-----------------|------|---------------|
| Grid dimension | [mm]                 | 90                                                                                                | Condi-<br>tions | Code | Enter<br>code |
| M              | Module No.           | 562534                                                                                            |                 |      |               |
|                | Series               | Standard                                                                                          |                 | MS   | MS            |
|                | Size                 | 9                                                                                                 |                 | 9    | 9             |
|                | Function             | Branching module                                                                                  |                 | -FRM | -FRM          |
|                | Pneumatic connection | Female thread G¾                                                                                  | 1               | -¾   |               |
|                |                      | Female thread G1                                                                                  | 1               | -1   |               |
|                |                      | Connecting plate G1½                                                                              |                 | -AGD |               |
|                |                      | Connecting plate G¾                                                                               |                 | -AGE |               |
|                |                      | Connecting plate G1                                                                               |                 | -AGF |               |
|                |                      | Connecting plate G1¼                                                                              |                 | -AGG |               |
|                |                      | Connecting plate G1½                                                                              |                 | -AGH |               |
|                |                      | Female thread NPT¾                                                                                | 1               | -N¾  |               |
|                |                      | Female thread NPT1                                                                                | 1               | -N1  |               |
|                |                      | Connecting plate NPT1½                                                                            | 1               | -AQR |               |
|                |                      | Connecting plate NPT¾                                                                             | 1               | -AQS |               |
|                |                      | Connecting plate NPT1                                                                             | 1               | -AQT |               |
|                |                      | Connecting plate NPT1¼                                                                            | 1               | -AQU |               |
|                |                      | Connecting plate NPT1½                                                                            | 1               | -AQV |               |
|                |                      | Module without connecting thread, without connecting plate                                        | 1               | -G   |               |
|                |                      | Module without connecting thread, without connecting plate (pneumatic connections 3 and 4 in NPT) | 1               | -NG  |               |

1 ¾, 1, N¾, N1, AQR, AQS, AQT, AQU, AQV, G, NG, AD7, AD8, AD9, AD10, X, Y, M12, WPM

Not with EU certification EX4

Transfer order code

|        |    |   |   |     |   |  |
|--------|----|---|---|-----|---|--|
| 562534 | MS | 9 | - | FRM | - |  |
|--------|----|---|---|-----|---|--|

# Branching modules MS9-FRM, MS series

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Ordering data – Modular products

| → M                                               | Options                                |                 |                  |                  |                  |                |
|---------------------------------------------------|----------------------------------------|-----------------|------------------|------------------|------------------|----------------|
| Pressure gauge/<br>pressure gauge<br>alternatives | Alternative<br>pressure gauge<br>scale | Pressure switch | Type of mounting | EU certification | UL certification | Flow direction |
| AG, VS, A4, RG,<br>AD7 ... AD10                   | PSI, MPA, BAR                          | X, Y, M12       | WP, WPM, WPB     | EX4              | UL1              | Z              |
| - VS                                              | -                                      | -               | -                | -                | -                | -              |

| Ordering table                                  |                                                                                                               |                                                                           |                 |       |               |  |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------|-------|---------------|--|
| Grid dimension                                  | [mm]                                                                                                          | 90                                                                        | Condi-<br>tions | Code  | Enter<br>code |  |
| M Pressure gauge/pressure gauge<br>alternatives | MS pressure gauge                                                                                             |                                                                           |                 | -AG   |               |  |
|                                                 | Cover plate                                                                                                   |                                                                           |                 | -VS   |               |  |
|                                                 | Adapter plate for EN pressure gauge 1/4, without pressure gauge                                               |                                                                           |                 | -A4   |               |  |
|                                                 | Integrated pressure gauge, red/green scale                                                                    |                                                                           | 2               | -RG   |               |  |
|                                                 | Pressure sensor with operational status indicator, plug M8, threshold value compara-<br>tor, PNP, N/O contact |                                                                           | 1 3             | -AD7  |               |  |
|                                                 | Pressure sensor with operational status indicator, plug M8, threshold value compara-<br>tor, PNP, N/C contact |                                                                           | 1 3             | -AD8  |               |  |
|                                                 | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/O contact            |                                                                           | 1 3             | -AD9  |               |  |
|                                                 | Pressure sensor with operational status indicator, plug M8, window comparator,<br>PNP, N/C contact            |                                                                           | 1 3             | -AD10 |               |  |
| O Alternative pressure gauge scale              | psi                                                                                                           |                                                                           | 4               | -PSI  |               |  |
|                                                 | MPa                                                                                                           |                                                                           | 4               | -MPA  |               |  |
|                                                 | bar                                                                                                           |                                                                           | 4               | -BAR  |               |  |
|                                                 | Pressure switch                                                                                               | Pressure switch PEV with display, plug socket, EN175301, type A, cube     | 1 5             | -X    |               |  |
|                                                 |                                                                                                               | Pressure switch PEV without display, plug socket, EN 175301, type A, cube | 1 5             | -Y    |               |  |
|                                                 |                                                                                                               | Pressure switch PEV without display, plug socket, round, M12, 4-pin       | 1 5             | -M12  |               |  |
|                                                 | Type of mounting                                                                                              | Mounting bracket standard design                                          | 6               | -WP   |               |  |
|                                                 |                                                                                                               | Mounting bracket for attaching the service units                          | 1 6             | -WPM  |               |  |
|                                                 |                                                                                                               | Mounting bracket for large wall gap                                       | 6               | -WPB  |               |  |
|                                                 | EU certification                                                                                              | II 2GD to EU Explosion Protection Directive (ATEX)                        |                 | -EX4  |               |  |
|                                                 | UL certification                                                                                              | cULus, ordinary location for Canada and USA                               |                 | -UL1  |               |  |
|                                                 | Flow direction                                                                                                | Flow direction from right to left                                         |                 | -Z    |               |  |

1 3/4, 1, N3/4, N1, AQR, AQS, AQT, AQU, AQV, G, NG, AD7, AD8, AD9, AD10, X, Y, M12, WPM

5 X, Y, M12

Max. permissible operating pressure P1 = 12 bar

6 WP, WPM, WPB

Not with pneumatic connection G/NG

2 RG

Not with EU certification EX4

Not with alternative pressure gauge scale PSI,

PSI scale serves only as an auxiliary scale

3 AD7 ... AD10

Measuring range max. 10 bar

4 PSI, MPA, BAR

Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10

Transfer order code

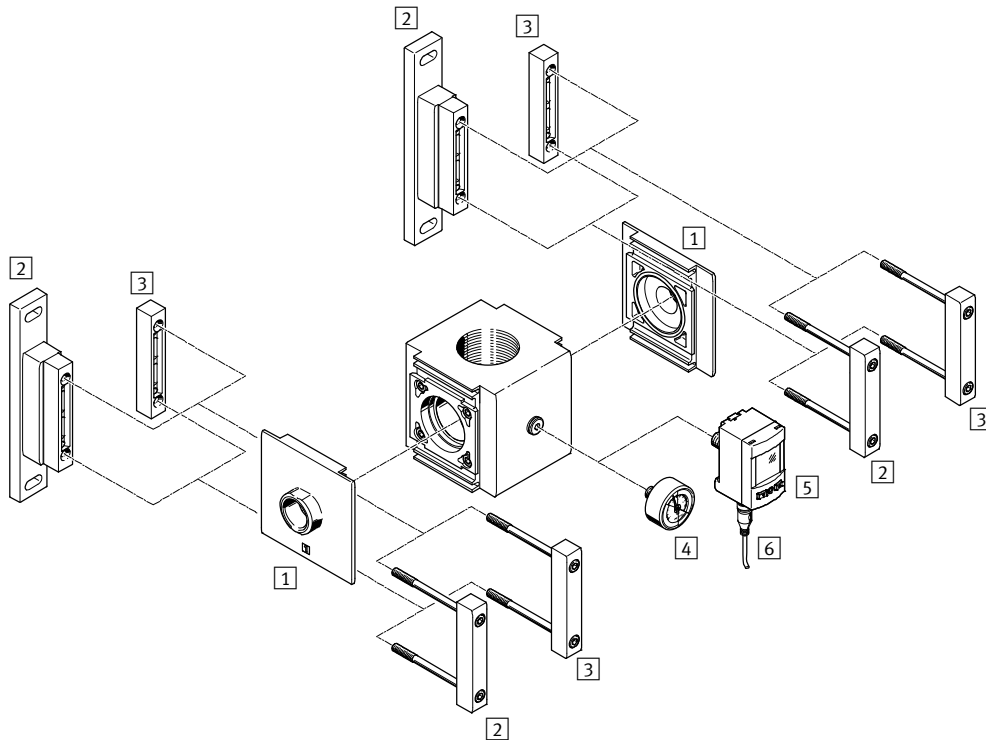
-  -  -  -  -  -  -

## Branching modules MS12-FRM, MS series

Peripherals overview

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### Branching modules MS12-FRM



 Note

Additional accessories:

- Module connector for combination with size MS9 → Internet: armv

#### Mounting attachments and accessories

|   |                                                    | → Page/Internet |
|---|----------------------------------------------------|-----------------|
| 1 | Connecting plate-SET<br>MS12-AG...                 | ms12-ag         |
| 2 | Mounting bracket<br>MS12-WP                        | ms12-wp         |
| 3 | Module connector<br>MS12-MV                        | ms12-mv         |
| 4 | Pressure gauge<br>MA                               | 41              |
| 5 | Pressure sensor<br>SPAU                            | 41              |
| 6 | Connecting cable<br>NEBU-M8...-LE4/NEBU-M12...-LE4 | 41              |

## Branching modules MS12-FRM, MS series

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Type codes

|                         |                                                                                               |    |    |   |     |   |   |
|-------------------------|-----------------------------------------------------------------------------------------------|----|----|---|-----|---|---|
|                         |                                                                                               | MS | 12 | – | FRM | – | G |
| <b>Series</b>           |                                                                                               |    |    |   |     |   |   |
| MS                      | Standard service unit                                                                         |    |    |   |     |   |   |
| <b>Size</b>             |                                                                                               |    |    |   |     |   |   |
| 12                      | Grid dimension 124 mm                                                                         |    |    |   |     |   |   |
| <b>Service function</b> |                                                                                               |    |    |   |     |   |   |
| FRM                     | Branching module                                                                              |    |    |   |     |   |   |
| <b>Connection size</b>  |                                                                                               |    |    |   |     |   |   |
| G                       | Module without connecting thread, without connecting plate<br>Connecting plates ➔ Accessories |    |    |   |     |   |   |

Further variants can be ordered using the modular system → 40

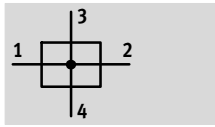
- Connecting plates
- Type of mounting

# Branching modules MS12-FRM, MS series

Technical data

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Function



-  Flow rate  
25,000 ... 42,000 l/min
-  Temperature range  
-10 ... +60 °C
-  Operating pressure  
0 ... 20 bar



- Pneumatic manifold with 4 connections
- Attachment facility for auxiliary modules
- Outlet top and bottom
- Can be used as an intermediate distributor for varying air qualities

| General technical data                   |                      |
|------------------------------------------|----------------------|
| Pneumatic connection 1, 2                |                      |
| Connecting plate AG...                   | G1, G1¼, G1½ or G2   |
| Module without connecting thread/plate G | –                    |
| Pneumatic connection 3                   | G2                   |
| Pneumatic connection 4                   | G1                   |
| Design                                   | Branching module     |
| Type of mounting                         | Via accessories      |
|                                          | In-line installation |
| Assembly position                        | Any                  |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |                   |
|--------------------------------------------------|-------------------|
| In main flow direction 1 → 2                     | 25,000 ... 42,000 |

1) Dependent on connecting plate AG... selected  
Measured at  $p_1 = 6$  bar and  $p_2 = 5$  bar,  $\Delta p = 1$  bar

| Operating and environmental conditions |                   |                                                           |
|----------------------------------------|-------------------|-----------------------------------------------------------|
| Operating pressure                     | [bar]             | 0 ... 20                                                  |
| Operating medium                       |                   | Compressed air in accordance with ISO 8573-1:2010 [–:–:–] |
| Ambient temperature                    | [°C]              | –10 ... +60                                               |
| Temperature of medium                  | [°C]              | –10 ... +60                                               |
| Storage temperature                    | [°C]              | –10 ... +60                                               |
| Corrosion resistance                   | CRC <sup>1)</sup> | 2                                                         |

1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

## Branching modules MS12-FRM, MS series

Technical data

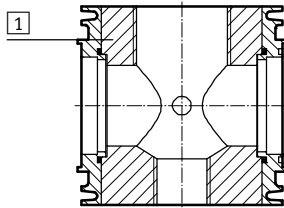
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### Weights [g]

|                  |       |
|------------------|-------|
| Branching module | 3,000 |
|------------------|-------|

### Materials

Sectional view



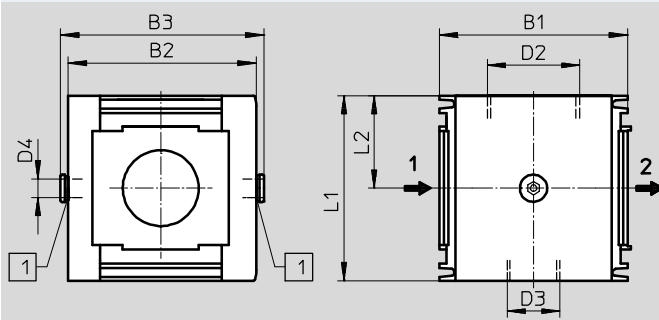
### Branching module

|                   |                                                      |                         |
|-------------------|------------------------------------------------------|-------------------------|
| 1                 | Body                                                 | Die-cast aluminium      |
| -                 | Seals                                                | NBR                     |
| -                 | Connecting plate, module connector, mounting bracket | Die-cast aluminium      |
| Note on materials |                                                      | Free of copper and PTFE |

### Dimensions – Basic version

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

Without connecting thread G



1 G1/4 Female thread in body, sealed with cover plate by default

→ Flow direction

| Type       | B1  | B2  | B3  | D2 | D3 | D4   | L1  | L2 |
|------------|-----|-----|-----|----|----|------|-----|----|
| MS12-FRM-G | 124 | 124 | 134 | G2 | G1 | G1/4 | 122 | 61 |

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

### Ordering data

| Size | Part No. | Type       |
|------|----------|------------|
| MS12 | 541681   | MS12-FRM-G |

## Branching modules MS12-FRM, MS series

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Ordering data – Modular products

| M Mandatory data     |        |      |          |                      | O Options        |
|----------------------|--------|------|----------|----------------------|------------------|
| Module No.           | Series | Size | Function | Pneumatic connection | Type of mounting |
| 535035               | MS     | 12   | FRM      | AG..., G             | WP               |
| <b>Order example</b> |        |      |          |                      |                  |
| 535035               | MS     | 12   | - FRM    | - AGF                | - WP             |

| Ordering table       |                                                            |     |                 |      |               |
|----------------------|------------------------------------------------------------|-----|-----------------|------|---------------|
| Grid dimension       | [mm]                                                       | 124 | Condi-<br>tions | Code | Enter<br>code |
| M Module No.         | 535035                                                     |     |                 |      |               |
| Series               | Standard                                                   |     |                 | MS   | MS            |
| Size                 | 12                                                         |     |                 | 12   | 12            |
| Function             | Branching module                                           |     |                 | -FRM | -FRM          |
| Pneumatic connection | Connecting plate G1                                        |     |                 | -AGF |               |
|                      | Connecting plate G1 ¼                                      |     |                 | -AGG |               |
|                      | Connecting plate G1 ½                                      |     |                 | -AGH |               |
|                      | Connecting plate G2                                        |     |                 | -AGI |               |
|                      | Module without connecting thread, without connecting plate |     |                 | -G   |               |
| O Type of mounting   | Mounting bracket standard design                           |     | 1               | -WP  |               |

1 WP Only with connecting plate AGF, AGG, AGH or AGI.

Transfer order code

535035 MS 12 - FRM - -

## Branching modules/distributor blocks MS-FRM, MS series

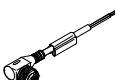
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Accessories

| Ordering data – Pressure gauge MA                                                 |                                                   |                      |               |           |          |                                |
|-----------------------------------------------------------------------------------|---------------------------------------------------|----------------------|---------------|-----------|----------|--------------------------------|
|                                                                                   | Nominal size                                      | Pneumatic connection | Display range |           | Part No. | Type                           |
|                                                                                   |                                                   |                      | [bar]         | [psi]     |          |                                |
|  | Pressure gauge MA, EN 837-1                       |                      |               |           |          | Technical data → Internet: ma  |
|                                                                                   | 40                                                | R $\frac{1}{4}$      | 0 ... 16      | 0 ... 232 | 187080   | MA-40-16-R $\frac{1}{4}$ -EN   |
|                                                                                   |                                                   | G $\frac{1}{4}$      | 0 ... 16      | 0 ... 232 | 183901   | MA-40-16-G $\frac{1}{4}$ -EN   |
|                                                                                   | Pressure gauge MA, EN 837-1, with red-green range |                      |               |           |          | Technical data → Internet: ma  |
|                                                                                   | 40                                                | R $\frac{1}{8}$      | 0 ... 16      | –         | 525726   | MA-40-16-R $\frac{1}{8}$ -E-RG |
|                                                                                   | 50                                                | R $\frac{1}{4}$      | 0 ... 16      | –         | 525729   | MA-50-16-R $\frac{1}{4}$ -E-RG |

| Ordering data – Pressure sensor SPAU                                                                                                                                                                                               |                      |                                      |                 |                       |                | Technical data → Internet: spau           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------|-----------------|-----------------------|----------------|-------------------------------------------|
|                                                                                                                                                                                                                                    | Pneumatic connection | Switching output                     | Display type    | Electrical connection | Part No.       | Type                                      |
| Pressure sensor SPAU for direct mounting on the service unit with pressure gauge connection (adapter for pneumatic connection included in scope of delivery), pressure measuring range 0 ... 10 bar, relative pressure measurement |                      |                                      |                 |                       |                |                                           |
|                                                                                                                                                   | Male thread R1/8     | 2x PNP or<br>2x NPN, switch-<br>able | Illuminated LCD | M8x1, 4-pin           | <b>8001203</b> | <b>SPAU-P10R-T-R18M-L-PNLK-PNVBA-M8D</b>  |
|                                                                                                                                                                                                                                    | Male thread R1/4     |                                      |                 | M12x1, 4-pin          | <b>8001206</b> | <b>SPAU-P10R-T-R18M-L-PNLK-PNVBA-M12D</b> |
|                                                                                                                                                                                                                                    |                      |                                      |                 | M8x1, 4-pin           | <b>8001209</b> | <b>SPAU-P10R-T-R14M-L-PNLK-PNVBA-M8D</b>  |
|                                                                                                                                                                                                                                    |                      |                                      |                 | M12x1, 4-pin          | <b>8001208</b> | <b>SPAU-P10R-T-R14M-L-PNLK-PNVBA-M12D</b> |

| Ordering data – Connecting cable NEBU-M8                                            |                       |                 |                  |          | Technical data → Internet: nebu |  |
|-------------------------------------------------------------------------------------|-----------------------|-----------------|------------------|----------|---------------------------------|--|
|                                                                                     | Electrical connection | Number of wires | Cable length [m] | Part No. | Type                            |  |
|  | M8x1, straight socket | 3               | 2.5              | ★ 541333 | NEBU-M8G3-K-2.5-LE3             |  |
|                                                                                     |                       |                 | 5                | ★ 541334 | NEBU-M8G3-K-5-LE3               |  |
|                                                                                     |                       | 4               | 2.5              | 541342   | NEBU-M8G4-K-2.5-LE4             |  |
|                                                                                     |                       |                 | 5                | 541343   | NEBU-M8G4-K-5-LE4               |  |
|  | M8x1, angled socket   | 3               | 2.5              | ★ 541338 | NEBU-M8W3-K-2.5-LE3             |  |
|                                                                                     |                       |                 | 5                | ★ 541341 | NEBU-M8W3-K-5-LE3               |  |
|                                                                                     |                       | 4               | 2.5              | 541344   | NEBU-M8W4-K-2.5-LE4             |  |
|                                                                                     |                       |                 | 5                | 541345   | NEBU-M8W4-K-5-LE4               |  |

| Ordering data – Connecting cable NEBU-M12                                           |                        |                 |                  |          | Technical data → Internet: nebu |  |
|-------------------------------------------------------------------------------------|------------------------|-----------------|------------------|----------|---------------------------------|--|
|                                                                                     | Electrical connection  | Number of wires | Cable length [m] | Part No. | Type                            |  |
|  | M12x1, straight socket | 3               | 2.5              | ★ 541363 | NEBU-M12G5-K-2.5-LE3            |  |
|                                                                                     |                        |                 | 5                | ★ 541364 | NEBU-M12G5-K-5-LE3              |  |
|                                                                                     |                        | 4               | 2.5              | ★ 550326 | NEBU-M12G5-K-2.5-LE4            |  |
|                                                                                     |                        |                 | 5                | ★ 541328 | NEBU-M12G5-K-5-LE4              |  |
|  | M12x1, angled socket   | 3               | 2.5              | 541367   | NEBU-M12W5-K-2.5-LE3            |  |
|                                                                                     |                        |                 | 5                | 541370   | NEBU-M12W5-K-5-LE3              |  |
|                                                                                     |                        | 4               | 2.5              | 550325   | NEBU-M12W5-K-2.5-LE4            |  |
|                                                                                     |                        |                 | 5                | 541329   | NEBU-M12W5-K-5-LE4              |  |

Festo core product range

- ★ Ready for dispatch from the Festo factory in 24 hours
- ☆ Ready for dispatch in 5 days maximum from stock

## Branching modules/distributor blocks MS-FRM, MS series

**FESTO**

Accessories

| Ordering data – Angled socket PEV                                                 |                    |                         |                       |                          | Technical data → Internet: pev-1/4 |                           |
|-----------------------------------------------------------------------------------|--------------------|-------------------------|-----------------------|--------------------------|------------------------------------|---------------------------|
|                                                                                   | Description        | Operating voltage range | Electrical connection | Switching status display | Part No.                           | Type                      |
|  | For PEV-1/4-...-OD | 15 ... 30 V DC          | 4-pin                 | Yellow LED               | <b>164274</b>                      | <b>PEV-1/4-WD-LED-24</b>  |
|                                                                                   |                    | ≤ 230 V AC              | 4-pin                 | Yellow LED               | <b>164275</b>                      | <b>PEV-1/4-WD-LED-230</b> |
|                                                                                   |                    | ≤ 180 V DC              |                       |                          |                                    |                           |

| Ordering data – Plug socket MSSD                                                  |                    |                         |                       |                                    | Technical data → Internet: mssd-c-4p |                  |
|-----------------------------------------------------------------------------------|--------------------|-------------------------|-----------------------|------------------------------------|--------------------------------------|------------------|
|                                                                                   | Description        | Operating voltage range | Electrical connection | Type of mounting: cable connection | Part No.                             | Type             |
|  | For PEV-1/4-...-OD | ≤ 250 V AC/DC           | 3-pin                 | Clamping screws                    | <b>171157</b>                        | <b>MSSD-C-4P</b> |

| Ordering data – Double nipple ESK                                                 |                                                                 |                      |      |               |                    |  |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------|------|---------------|--------------------|--|
|                                                                                   | Description                                                     | Pneumatic connection |      | Part No.      | Type               |  |
|  | For retrofitting pressure switch PEV to branching module MS-FRM | R1/4                 | R1/4 | <b>151521</b> | <b>ESK-1/4-1/4</b> |  |
|                                                                                   |                                                                 |                      | R1/2 | <b>534153</b> | <b>ESK-1/4-1/2</b> |  |

## Festo - Your Partner in Automation



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