

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

**FESTO**



Festo Core Range  
Solves the majority of your automation tasks

With the Festo Core Range, we have selected the most important products and functions from our broad product catalogue, and added the quickest delivery.

Worldwide: Quickest delivery – wherever, whenever  
Simply good: Expected high Festo quality  
Fast: Easy and fast to select

The Core Range offers you the best value for your automation tasks.

Just look  
for the  
star!

## Key features

### Service unit components of the MS series

Solutions for every application

With its large product range, highly effective components and a wide choice of functions, the MS series from Festo offers a complete concept for compressed air preparation. It is suitable for simple standard applications as well as for application-specific solutions with very high quality requirements.

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.

Freely combinable functional modules

Pressure regulators, on/off and soft-start valves with safety function, filters, pressure and flow sensors, dryers, sensors and lubricators can be assembled into a suitable solution for every task. Thanks to the modular structure the components can be combined as required. The simple connection system saves time because there is no need to disassemble the entire combi-

nation when replacing individual modules.

Many of the components are also UL and ATEX certified.

CAD models and configurator

Convenient tools for planning and selecting application-specific individual devices and combinations. The product configurator can be used to configure customised solutions quickly and to transfer the order data without any hassle.

Engineering tools

Selection tool for choosing the right service unit combination without oversizing, and with the right air purity class:

→ [www.festo.com/engineering/service-unit](http://www.festo.com/engineering/service-unit)

#### 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**

Filter combination is proposed based upon your selected application

- standard pneumatics operation of valves and cylinders, e.g. in automotive industry, secondary packaging
- mining and building industry applications without special air cleanliness requirements
- application of pressure operated tools and machines: pneumatic hammer, air engine, positioning with proportional valve
- electronic, flatpanel and solar industry, textile and paper production application with residual oil content <math>< 0.5 \text{ mg/m}^3</math>
- painting, powder coating, air bearing application with residual oil content <math>< 0.01 \text{ mg/m}^3</math>
- food and beverage industry, optics application with residual oil content <math>< 0.003 \text{ mg/m}^3</math> reduction of oil vapours and aromas

**Selection criteria: ISO-class**

Filter combination is proposed based upon the air cleanliness class according to ISO 8573-1:2010

particle : 4 \* : oil


**ISO**

\* Downstream from the compressor the water content is assumed to be ISO class 4. Better classes can be achieved by applying an adsorption dryer PD4D or a membrane dryer LDM1

**Direct filter selection**

Independent selection of filter combination

- 40 µm Filter
- 5 µm Filter
- 1 µm Fine Filter
- 0.01 µm Micro Filter \*
- Active Carbon Filter



\* 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.

### Integrated sensors

Pressure and flow sensors



- Maximum machine availability thanks to controlled processes
- Reliable compressed air preparation and system supply
- Integrated or stand-alone
- Easy to connect with M8/M12 plug

### Safety functions

Soft-start/quick exhaust valves

MS6-SV/MS9-SV



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

### Saving energy

Service unit combinations MSE6



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

Intelligent mix of sizes



- Optimum flow rate with a size that is up to 18% smaller
- 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                    |
| Connection 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 $q_{nN}^{1)}$ [l/min] | 350      | 1800             | 6500                   | 20000                          | 22000                  |

1) Using pressure regulator MS-LR as an example

## Key features

### Note

#### Information

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

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

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

#### Design of a service unit combination





The order of the individual components within a service unit is relevant for safety and functionality. The service unit components cannot be combined in any order in the flow direction. They are subject to restrictions and rules.

The configurator for the service unit MSB is a reliable and convenient way of combining the individual service unit components and ensures compliance with the applicable rules. As a result, you get a fully assembled unit, including UL or ATEX certification, if necessary.







When combining a unit from individually configured and ordered service unit components, the points on the right must be adhered to under all circumstances.

- Regulators MS-LFR/LR/LRP 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 in the flow direction upstream of an activated carbon filter MS-LFX or membrane air dryer MS-LDM1
- 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

| Product range for service unit components MS series                                 |   |      |                      |               |               |        |                              |                             |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|-----------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                             |
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                             |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                         |
| <b>Combinations</b>   |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSB-FRC</b>  |   |      |                      |               |               |        |                              | Datasheets → Internet: msb  |
|  | Combinations of filter regulator and lubricator   | 4    | –                    | –             | 1/8, 1/4      | –      | –                            | –                           |
|   |   | 6    | –                    | –             | 1/4, 3/8, 1/2 | –      | –                            | –                           |
| <b>Service unit combinations MSB</b>  |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSB</b>  |   |      |                      |               |               |        |                              | Datasheets → Internet: msb  |
|  | Certain predefined combinations   | 4    | –                    | –             | 1/4           | –      | –                            | –                           |
|   |   | 6    | –                    | –             | 1/2           | –      | –                            | –                           |
|  | Freely configurable combinations  | 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   |
| <b>Service unit combinations MSE6</b>   |   |      |                      |               |               |        |                              |                             |
| <b>Service unit combinations MSE6</b>   |   |      |                      |               |               |        |                              | Datasheets → Internet: mse6 |
|  | Combinations with fieldbus connection for measuring pressure, flow rate and consumption | 6    | –                    | –             | –             | –      | 1/2                          | –                           |
|   |   |      |                      |               |               |        |                              |                             |










## Key features

| Product range for service unit components MS series  |   |      |                      |               |               |        |                              |                           |
|--|---|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type   | Description   | Size | Pneumatic connection |               |               |        |                              |                           |
|  |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                           |
|  |   |      |                      | M             | G             | NPT    | G                            | NPT                       |
| <b>Individual devices</b>  |   |      |                      |               |               |        |                              |                           |
| <b>Filter regulators MS-LFR</b> <span style="float: right;">Datasheets → Internet: ms2-lfr; ms4-lfr; ms6-lfr; ms9-lfr; ms12-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           | –                         |
| <b>Filter regulators MS-LFR-B</b> <span style="float: right;">Datasheets → Internet: ms4-lfr-b; ms6-lfr-b</span>                       |   |      |                      |               |               |        |                              |                           |
|   | Filter and pressure regulator in a single device in polymer housing, grade of filtration 5 or 40 µm | 4    | –                    | –             | 1/4           | –      | –                            | –                         |
|  |   | 6    | –                    | –             | 1/2           | –      | –                            | –                         |
| <b>Filters MS-LF</b> <span style="float: right;">Datasheets → Internet: ms4-lf; ms6-lf; ms9-lf; ms12-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           | –                         |
| <b>Fine and micro filters MS-LFM</b> <span style="float: right;">Datasheets → Internet: ms4-lfm; ms6-lfm; ms9-lfm; ms12-lfm</span>     |   |      |                      |               |               |        |                              |                           |
|   | Grade of filtration 0.01 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           | –                         |
| <b>Activated carbon filters MS-LFX</b> <span style="float: right;">Datasheets → Internet: ms4-lfx; ms6-lfx; ms9-lfx; ms12-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           | –                         |
| <b>Water separators MS-LWS</b> <span style="float: right;">Datasheets → Internet: ms6-lws; ms9-lws; ms12-lws</span>                    |   |      |                      |               |               |        |                              |                           |
|   | Remove condensate 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           | –                         |





## Key features

| Product range for service unit components MS series  |  |      |                      |               |               |        |                              |                           |
|--|--|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type   | Description  | Size | Pneumatic connection |               |               |        |                              |                           |
|  |  |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                           |
|  |  |      |                      | M             | G             | NPT    | G                            | NPT                       |
| <b>Individual devices</b>  |  |      |                      |               |               |        |                              |                           |
| <b>Pressure regulators MS-LR</b> <span style="float: right;">Datasheets → Internet: ms2-lr; ms4-lr; ms6-lr; ms9-lr; ms12-lr</span> |  |      |                      |               |               |        |                              |                           |
|   | For setting the required operating pressure, 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           | –                         |
| <b>Pressure regulators MS-LR-B</b> <span style="float: right;">Datasheets → Internet: ms4-lr-b; ms6-lr-b</span>                    |  |      |                      |               |               |        |                              |                           |
|   | For setting the required operating pressure, in polymer housing  | 4    | –                    | –             | 1/4           | –      | –                            | –                         |
|  |  | 6    | –                    | –             | 1/2           | –      | –                            | –                         |
| <b>Pressure regulators MS-LRB</b> <span style="float: right;">Datasheets → Internet: ms4-lrb; ms6-lrb</span>                       |  |      |                      |               |               |        |                              |                           |
|   | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.         | 4    | –                    | –             | 1/4           | –      | 1/8, 1/4, 3/8                | –                         |
|  |  | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
| <b>Precision pressure regulators MS-LRP</b> <span style="float: right;">Datasheets → Internet: ms6-lrp</span>                      |  |      |                      |               |               |        |                              |                           |
|   | For precisely setting the required operating pressure, 4 pressure regulation ranges, 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        |
|  |  |      |                      |               |               |        |                              |                           |
| <b>Precision pressure regulators MS-LRPB</b> <span style="float: right;">Datasheets → Internet: ms6-lrpb</span>                    |  |      |                      |               |               |        |                              |                           |
|   | For configuring a regulator manifold with independent pressure regulation ranges. Pressure output is at the front or rear.         | 6    | –                    | –             | 1/2           | –      | 1/4, 3/8, 1/2, 3/4           | –                         |
|  |  |      |                      |               |               |        |                              |                           |
| <b>Lubricators MS-LOE</b> <span style="float: right;">Datasheets → Internet: ms4-loe; ms6-loe; ms9-loe; ms12-loe</span>            |  |      |                      |               |               |        |                              |                           |
|   | Add a precisely dosed amount of oil to the compressed air. The amount of oil mist 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           | –                         |

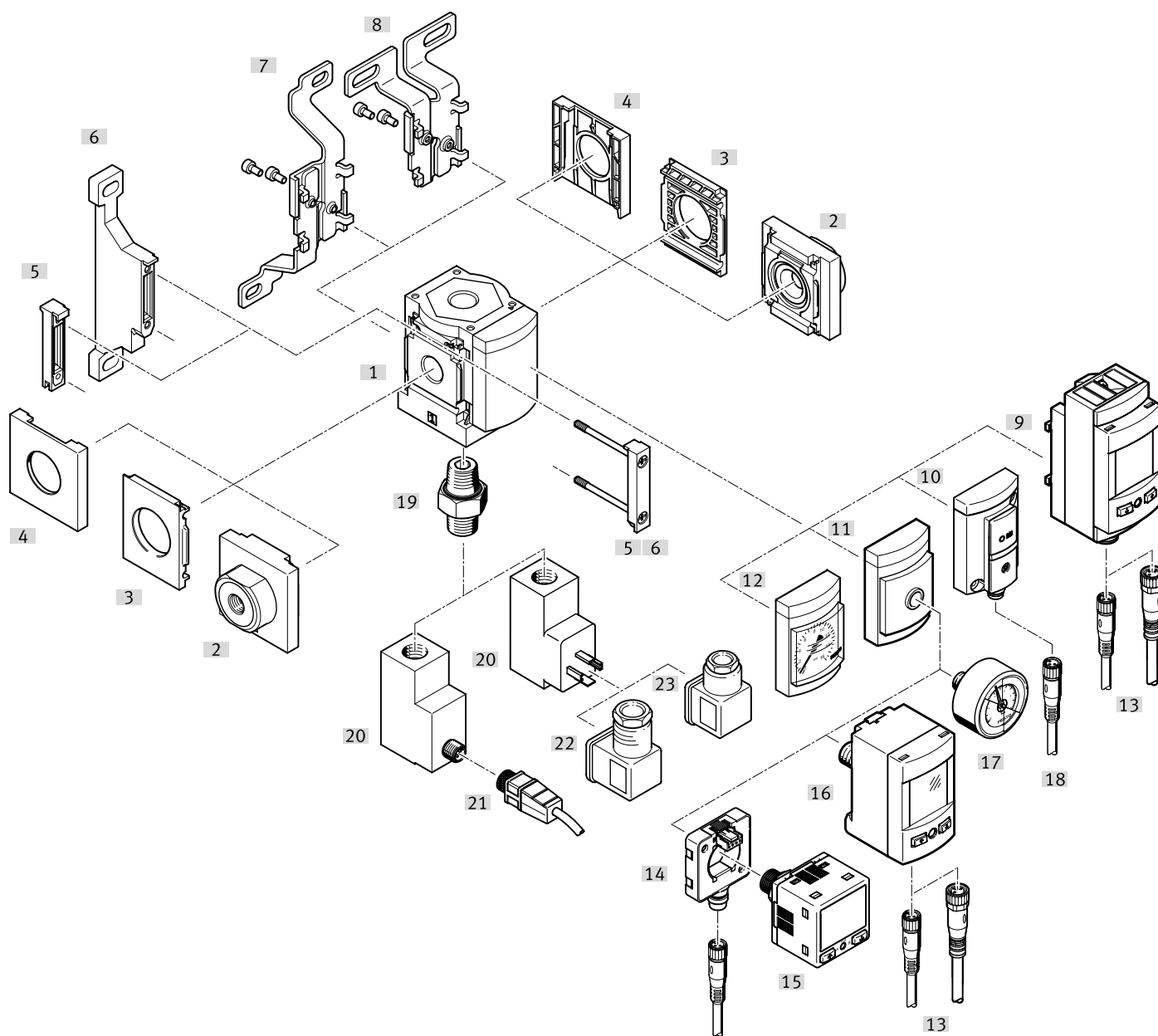
## Key features


| Product range for service unit components MS series                                 |   |      |                      |               |               |  |                           |                           |
|---|---|------|----------------------|---------------|---------------|--|---------------------------|---------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               | Connecting plate with thread                           |                           |                           |
|   |   |      | Push-in connector    | Female thread |               | G  |                           | NPT                       |
|   |   |      | M                    | G             | NPT           | G  | NPT                       |                           |
| <b>Individual devices</b>   |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EM</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-em; ms6-em; ms9-em; ms12-em |                           |                           |
|    | Manually actuated on/off valve for pressurising and exhausting pneumatic systems.   | 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        | –                         |
| <b>On/off valves MS-EE</b>  |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EE</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-ee; ms6-ee; ms9-ee; ms12-ee |                           |                           |
|    | Electrically actuated on/off valve for pressurising and exhausting pneumatic systems.   | 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        | –                         |
| <b>On/off valves MS-EE-B</b>  |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EE-B</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-ee-b; ms6-ee-b              |                           |                           |
|    | Electrically actuated on/off valve in polymer housing for pressurising and exhausting pneumatic systems.                            | 4    | –                    | –             | 1/4           | –  | –                         | –                         |
|   |   | 6    | –                    | –             | 1/2           | –  | –                         | –                         |
| <b>Soft-start valves MS-DL</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start valves MS-DL</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-dl; ms6-dl; ms12-dl         |                           |                           |
|  | Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic systems.                                   | 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        | –                         |
| <b>Soft-start valves MS-DE</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start valves MS-DE</b>  |   |      |                      |               |               | Datasheets → Internet: ms4-de; ms6-de; ms12-de         |                           |                           |
|  | Electrically actuated soft-start valve for slowly pressurising and exhausting pneumatic systems.                                    | 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        | –                         |
| <b>On/off valves MS-EDE-B</b>   |   |      |                      |               |               |  |                           |                           |
| <b>On/off valves MS-EDE-B</b>   |   |      |                      |               |               | Datasheets → Internet: ms4-ed-e-b; ms6-ed-e-b          |                           |                           |
|  | Electrically actuated soft-start valve in polymer housing for slowly pressurising and exhausting pneumatic systems.                 | 4    | –                    | –             | 1/4           | –  | –                         | –                         |
|   |   | 6    | –                    | –             | 1/2           | –  | –                         | –                         |
| <b>Soft-start/quick exhaust valves MS-SV</b>  |   |      |                      |               |               |  |                           |                           |
| <b>Soft-start/quick exhaust valves MS-SV</b>  |   |      |                      |               |               | Datasheets → Internet: ms6-sv; ms9-sv                  |                           |                           |
|  | 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        | –                         |
|   |   |      |                      |               |               |  |                           |                           |

## Key features

| Product range for service unit components MS series   |   |      |                      |               |               |        |                              |                           |
|---|---|------|----------------------|---------------|---------------|--------|------------------------------|---------------------------|
| Type  | Description   | Size | Pneumatic connection |               |               |        |                              |                           |
|   |   |      | Push-in connector    | Female thread |               |        | Connecting plate with thread |                           |
|   |   |      |                      | M             | G             | NPT    | G                            | NPT                       |
| <b>Individual devices</b>   |   |      |                      |               |               |        |                              |                           |
| <b>Membrane air dryer MS-LDM1</b> <span style="float: right;">Datasheets → Internet: ms4-ldm; ms6-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        |
| <b>Branching modules MS-FRM</b> <span style="float: right;">Datasheets → Internet: ms4-frm; ms6-frm; ms9-frm; ms12-frm</span> |   |      |                      |               |               |        |                              |                           |
|    | Compressed air distributors 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           | –                         |
| <b>Distributor blocks MS-FRM-FRZ</b> <span style="float: right;">Datasheets → Internet: ms4-frm-frz; ms6-frm-frz</span>       |   |      |                      |               |               |        |                              |                           |
|    | Compressed air distributors with 4 connections and half the grid width        | 4    | –                    | –             | –             | –      | –                            | –                         |
|   |   | 6    | –                    | –             | –             | –      | –                            | –                         |
| <b>Flow sensors SFAM</b> <span style="float: right;">Datasheets → Internet: sfam</span>                                       |   |      |                      |               |               |        |                              |                           |
|    | For absolute flow rate information and cumulative air consumption measurement | 6    | –                    | –             | –             | –      | 1/2                          | 1/2                       |
|   |   | 9    | –                    | –             | –             | –      | 1, 1 1/2                     | 1, 1 1/2                  |

Peripherals overview



 **Note**  
 Additional accessories:  
 • Module connectors for combination with size MS4/MS6 or size MS9  
 → Internet: amv, rmv, armv  
 • Adapters for mounting on profiles  
 → Internet: ipm-80, ipm-40-80, ipm-80-80



## Peripherals overview

| Mounting attachments and accessories                 |  | Order code                     | → Page/Internet    |
|--|--|--------------------------------|--------------------|
| [1]  | Branching modules MS4/6-FRM                |                                | 8                  |
| <b>Can be ordered via the modular product system</b> |  |                                |                    |
| [2]  | Connecting plate SET <sup>1)</sup>         | [AG...]                        | 18                 |
| [6]  | Mounting bracket                           | [WP]                           |                    |
|  | Mounting bracket (not shown)               | [WPM]                          |                    |
| [7]  | Mounting bracket                           | [WB]                           |                    |
| [8]  | Mounting bracket                           | [WBM]                          |                    |
| [9]  | Pressure sensor SPAU with LCD display      | [AD11]/[AD12]                  |                    |
| [10]   | Pressure sensor SDE5 with status indicator | [AD7]/[AD8]/[AD9]/[AD10]       |                    |
| [11]   | Adapter for EN pressure gauge 1/8, 1/4     | [A8]/[A4]                      |                    |
| [12]   | MS pressure gauge                          | [AG]/[RG]                      |                    |
| [20]   | Pressure switch PEV <sup>2)</sup>          | [X]/[Y]/[M12]                  |                    |
| <b>Can be ordered as accessories</b>                 |  |                                |                    |
| [2]  | Connecting plate SET <sup>3)</sup>         | MS4/6-AG...                    | ms4-ag, ms6-ag     |
| [3]  | Mounting plate <sup>3)</sup>               | MS4/6-AEND                     | ms4-aend, ms6-aend |
| [4]  | Cover cap                                  | MS4/6-END                      | ms4-end, ms6-end   |
| [5]  | Module connector                           | MS4/6-MV1                      | ms4-mv1, ms6-mv1   |
| [6]  | Mounting bracket                           | MS4/6-WP                       | ms4-wp, ms6-wp     |
|  | Mounting bracket (not shown)               | MS4/6-WPB/WPE/WPM              | ms4-wp, ms6-wp     |
| [7]  | Mounting bracket                           | MS4/6-WB                       | ms4-wb, ms6-wb     |
| [8]  | Mounting bracket                           | MS4-WBM                        | ms4-wbm            |
| [13]   | Connecting cable                           | NEBU-M8...-LE4/NEBU-M12...-LE4 | 37                 |
| [14]   | Electrical adapter                         | SASC                           | 36                 |
| [15]   | Pressure sensor                            | SPAN                           | 36                 |
| [16]   | Pressure sensor                            | SPAU...T                       | 36                 |
| [17]   | Pressure gauge                             | MA                             | 36                 |
| [18]   | Connecting cable                           | NEBU-M8...-LE3                 | 37                 |
| [19]   | Double nipple                              | ESK                            | 37                 |
| [21]   | Connecting cable                           | NEBU-M12...-LE4                | 37                 |
| [22]   | Angled plug socket                         | PEV-1/4-WD-LED-...             | 37                 |
| [23]   | Plug socket                                | MSSD-C-4P                      | 37                 |

1) Module connector [4] is included in the scope of delivery.

2) Double nipple [20] is included in the scope of delivery.

3) Module connector MS4/6-MV [4] or mounting bracket MS4/6-WP/WPB/WPE/WPM [5] is required for mounting.

Type codes – MS4-FRM

|             |   |  |
|-------------|---|--|
| <b>001</b>  | <b>Series</b>   |  |
| <b>MS4</b>  | MS series, size 4   |  |
| <b>002</b>  | <b>Size</b>   |  |
| <b>4</b>    | Grid dimension 40 mm  |  |
| <b>003</b>  | <b>Function</b>   |  |
| <b>FRM</b>  | Branching module  |  |
| <b>004</b>  | <b>Pneumatic connection</b>   |  |
| <b>1/8</b>  | Female thread G1/8  |  |
| <b>1/4</b>  | Female thread G1/4  |  |
| <b>AGA</b>  | Sub-base G1/8   |  |
| <b>AGB</b>  | Sub-base G1/4   |  |
| <b>AGC</b>  | Sub-base G3/8   |  |
| <b>005</b>  | <b>Additional function</b>  |  |
|             | None  |  |
| <b>I</b>    | With integrated non-return function   |  |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |  |
|             | None  |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |  |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |  |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |  |
| <b>AG</b>   | MS pressure gauge   |  |
| <b>RG</b>   | Integrated pressure gauge, red/green scale  |  |

|            |   |  |
|------------|---|--|
| <b>007</b> | <b>Alternative pressure gauge scale</b>   |  |
|            | MS pressure gauge   |  |
| <b>PSI</b> | psi   |  |
| <b>MPA</b> | MPa   |  |
| <b>008</b> | <b>Pressure switch</b>  |  |
|            | None  |  |
| <b>X</b>   | Pressure switch PEV with display, plug socket, EN 175301, type A, cube                    |  |
| <b>Y</b>   | Pressure switch PEV without display, plug socket, EN 175301, type A, cube                 |  |
| <b>M12</b> | Pressure switch PEV without display, plug socket, round, M12, 4-pin                       |  |
| <b>009</b> | <b>Type of mounting</b>   |  |
|            | Without mounting bracket  |  |
| <b>WP</b>  | Mounting bracket basic design   |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |  |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |  |
| <b>WBM</b> | Mounting centrally at rear (wall mounting top), connecting plates not required            |  |
| <b>010</b> | <b>EU certification</b>   |  |
|            | None  |  |
| <b>EX4</b> | II 2GD  |  |
| <b>011</b> | <b>UL certification</b>   |  |
|            | None  |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |  |
| <b>012</b> | <b>Flow direction</b>   |  |
|            | Flow direction from left to right   |  |
| <b>Z</b>   | Flow direction from right to left   |  |
| <b>013</b> | <b>Special material properties</b>  |  |
|            | None  |  |
| <b>F1A</b> | Recommended for production facilities for the manufacture of lithium-ion batteries        |  |

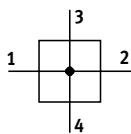
## Type codes – MS6-FRM

|             |   |
|-------------|---|
| <b>001</b>  | <b>Series</b>   |
| <b>MS6</b>  | MS-series, size 6   |
| <b>002</b>  | <b>Size</b>   |
| <b>6</b>    | Grid dimension 62 mm  |
| <b>003</b>  | <b>Function</b>   |
| <b>FRM</b>  | Branching module  |
| <b>004</b>  | <b>Pneumatic connection</b>   |
| <b>1/4</b>  | Female thread G1/4  |
| <b>3/8</b>  | Female thread G3/8  |
| <b>1/2</b>  | Female thread G1/2  |
| <b>AGB</b>  | Sub-base G1/4   |
| <b>AGC</b>  | Sub-base G3/8   |
| <b>AGD</b>  | Sub-base G1/2   |
| <b>AGE</b>  | Sub-base G3/4   |
| <b>005</b>  | <b>Additional function</b>  |
|             | None  |
| <b>I</b>    | With integrated non-return function   |
| <b>006</b>  | <b>Pressure gauge alternatives</b>  |
|             | None  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge   |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge   |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O               |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C               |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O                        |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C             |
| <b>AD11</b> | Pressure sensor with LCD display, M12 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA |
| <b>AD12</b> | Pressure sensor with LCD display, M8 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA  |
| <b>AG</b>   | MS pressure gauge   |
| <b>RG</b>   | Integrated pressure gauge, red/green scale  |

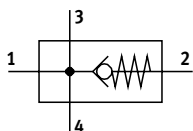
|            |   |
|------------|---|
| <b>007</b> | <b>Alternative pressure gauge scale</b>   |
|            | MS pressure gauge   |
| <b>PSI</b> | psi   |
| <b>MPA</b> | MPa   |
| <b>008</b> | <b>Pressure switch</b>  |
|            | None  |
| <b>X</b>   | Pressure switch PEV with display, plug socket, EN 175301, type A, cube                    |
| <b>Y</b>   | Pressure switch PEV without display, plug socket, EN 175301, type A, cube                 |
| <b>M12</b> | Pressure switch PEV without display, plug socket, round, M12, 4-pin                       |
| <b>009</b> | <b>Type of mounting</b>   |
|            | Without mounting bracket  |
| <b>WP</b>  | Mounting bracket basic design   |
| <b>WPM</b> | Mounting bracket for hooking in service unit components                                   |
| <b>WB</b>  | Mounting centrally at rear (wall mounting top and bottom), connecting plates not required |
| <b>010</b> | <b>EU certification</b>   |
|            | None  |
| <b>EX4</b> | II 2GD  |
| <b>011</b> | <b>UL certification</b>   |
|            | None  |
| <b>UL1</b> | cULus ordinary location for Canada and USA  |
| <b>012</b> | <b>Flow direction</b>   |
|            | Flow direction from left to right   |
| <b>Z</b>   | Flow direction from right to left   |
| <b>013</b> | <b>Special material properties</b>  |
|            | None  |
| <b>F1A</b> | Recommended for production facilities for the manufacture of lithium-ion batteries        |




## Datasheet

Function  
Standard



With integrated non-return function



-  - Flow rate  
1200 ... 14700 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0 ... 20 bar



- Compressed air distributors with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Support for auxiliary modules
- Outlet at the top and underneath
- An integrated check 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    |  | MS4   | MS6                      |
|---------------------------|--|---|--------------------------|
| Size                      |  |   |                          |
| Pneumatic connection 1, 2 |  |   |                          |
| Female thread             |  | G1/8 or G1/4  | G1/4, G3/8 or G1/2       |
| Connecting plate [AG...]  |  | G1/8, G1/4 or G3/8  | G1/4, G3/8, G1/2 or G3/4 |
| Pneumatic connection 3, 4 |  | G1/4  | G1/2                     |
| Design                    |  | Branching module<br>Branching module with non-return function   |                          |
| Type of mounting          |  | With accessories<br>In-line installation  |                          |
| Mounting position         |  | Any <sup>1)</sup>   |                          |
| Pressure indication       |  | With pressure sensor for indicating the output pressure via LCD display and electrical output<br>With pressure sensor for indicating the output pressure via status indicator and electrical output<br>Via pressure gauge for displaying the output pressure<br>With pressure gauge with red/green scale for indicating the output pressure<br>Prepared for G1/8<br>Prepared for G1/4 |                          |

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 ISO 228-1.

| Standard nominal flow rate $q_{nN}^{1)}$ [l/min] |      |      |      |      |       |
|--|------|------|------|------|-------|
| Size   | MS4  |      | MS6  |      |       |
| Pneumatic connection 1, 2                        | G1/8 | G1/4 | G1/4 | G3/8 | G1/2  |
| <b>Standard</b>                                  |      |      |      |      |       |
| In main flow direction 1 → 2                     | 1800 | 4600 | 4200 | 9200 | 14700 |
| Outlet at the top                                | 1600 | 1500 | 6000 | 4700 | 4400  |
| Outlet underneath                                | 1700 | 1500 | 6400 | 4800 | 4600  |
| <b>With non-return function</b>                  |      |      |      |      |       |
| In main flow direction 1 → 2                     | 1200 | 1750 | 3200 | 5500 | 6000  |
| Outlet at the top                                | 500  | 500  | 2700 | 2900 | 3100  |
| Outlet underneath                                | 500  | 500  | 2800 | 3200 | 3300  |

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

| Electrical data <sup>1)</sup> |     |           |
|-------------------------------|-----|-----------|
| Operating voltage range AC    | [V] | 0 ... 250 |
| Operating voltage range DC    | [V] | 0 ... 125 |

1) Only in combination with pressure switch

## Datasheet

| Operating and environmental conditions          |   |                                   |                      |   |                                   |                      |
|---|---|-----------------------------------|----------------------|---|-----------------------------------|----------------------|
| Size  | MS4   |                                   |                      | MS6                                     |                                   |                      |
| Branching module                                | Without pressure switch/pressure sensor   | With pressure switch              | With pressure sensor | Without pressure switch/pressure sensor | With pressure switch              | With pressure sensor |
| Operating pressure [bar]                        | 0 ... 14 (0 ... 10) <sup>1)</sup>   | 0 ... 12 (0 ... 10) <sup>1)</sup> | 0 ... 10             | 0 ... 20 (0 ... 10) <sup>1)</sup>       | 0 ... 12 (0 ... 10) <sup>1)</sup> | 0 ... 10             |
| Operating medium                                | Compressed air to ISO 8573-1:2010 [7:4:4]<br>Inert gases  |                                   |                      |   |                                   |                      |
| Note on the operating/pilot medium              | Lubricated operation possible (in which case lubricated operation will always be required)  |                                   |                      |   |                                   |                      |
| Ambient temperature [°C]                        | -10 ... +60   |                                   | 0 ... +50            | -10 ... +60                             |                                   | 0 ... +50            |
| Temperature of medium [°C]                      | -10 ... +60   |                                   | 0 ... +50            | -10 ... +60                             |                                   | 0 ... +50            |
| Storage temperature [°C]                        | -10 ... +60   |                                   |                      |   |                                   |                      |
| Corrosion resistance class CRC <sup>2)</sup>    | 2   |                                   |                      |   |                                   |                      |
| Suitability for the food industry <sup>3)</sup> | See supplementary material information  |                                   |                      |   |                                   |                      |
| UL certification <sup>3)</sup>                  | c UL us - Recognized (OL)   |                                   |                      |   |                                   |                      |
| Application note <sup>4)</sup>                  | Foreign particles can adhere to the product or form during installation. Depending on the application, it may be necessary to purge the product with clean compressed air, to clean it after installation and operate it with ducted exhaust air. |                                   |                      |   |                                   |                      |

1) Value in brackets applies to MS4-FRM with non-return function or to MS4/MS6-FRM with UL certification.

2) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

3) More information: [www.festo.com/catalogue/ms-fm](http://www.festo.com/catalogue/ms-fm) → Support/Downloads.

4) Applies to products for battery production (F1A)

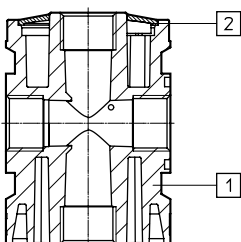
| ATEX   |   |
|--|---|
| EU certification   | EX4   |
| ATEX category for gas                                      | II 2G                                       |
| Type of ignition protection for gas                        | Ex h IIC T6 Gb X                            |
| ATEX category for dust                                     | II 2D                                       |
| Type of ignition protection for dust                       | Ex h IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                        | -10°C ≤ Ta ≤ +60°C                          |
| Explosion protection certification outside the EU          | EPL Db (GB)<br>EPL Gb (GB)                  |
| CE marking (see declaration of conformity) <sup>1)</sup>   | To EU Explosion Protection Directive (ATEX) |
| UKCA marking (see declaration of conformity) <sup>1)</sup> | To UK explosion regulations                 |

1) More information: [www.festo.com/catalogue/ms-fm](http://www.festo.com/catalogue/ms-fm) → Support/Downloads.

| Weight [g]   |     |     |
|--|-----|-----|
| Size   | MS4 | MS6 |
| Branching module   | 165 | 458 |
| Branching module with non-return function                  | 160 | 400 |
| Branching module with pressure sensor for LCD display      | 245 | 528 |
| Branching module with pressure sensor for status indicator | 182 | 488 |
| Branching module with pressure switch                      | 405 | 736 |

## Materials

## Sectional view



| Branching module  |         |   |
|---|---------|---|
| [1]   | Housing | Die-cast aluminium  |
| [2]   | Cover   | Reinforced PA   |
| Note on materials   |         | RoHS-compliant  |
| LABS (PWIS) conformity  |         | VDMA24364-B1/B2-L   |
| Suitable for the production of Li-ion batteries <sup>1)</sup> |         | Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils |

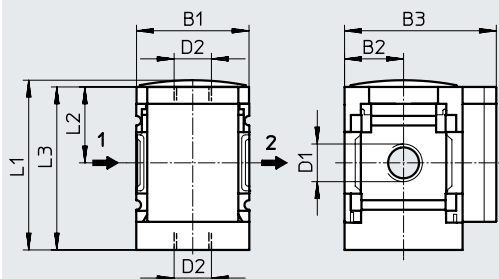
1) Applies to products for battery production (F1A)

## Datasheet

### 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 |      |      |    |      |

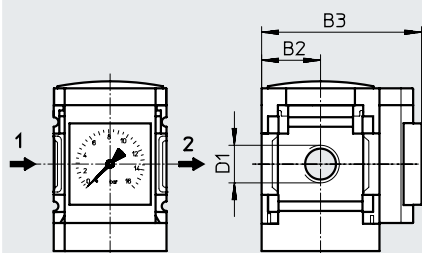
Note: This product conforms to ISO 1179-1 and ISO 228-1.

### Dimensions – Pressure gauges/adapters

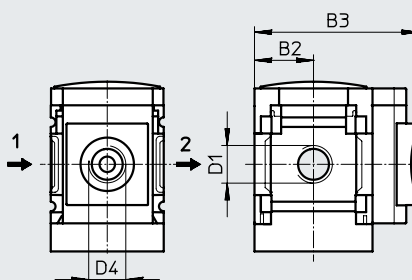
Download CAD data → [www.festo.com](http://www.festo.com)

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

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



→ Flow direction



→ Flow direction

| Type               | B2 | B3       |                                     | D1   | D4   |
|--------------------|----|----------|-------------------------------------|------|------|
|                    |    | Standard | With integrated non-return function |      |      |
| MS4-FRM-1/8-...-AG | 21 | 65       |                                     | G1/8 | -    |
| MS4-FRM-1/4-...-AG |    | 66.5     |                                     | G1/4 |      |
| MS4-FRM-1/8-...-RG | 21 | 66.5     |                                     | G1/8 | -    |
| MS4-FRM-1/4-...-RG |    | 68.5     |                                     | G1/4 |      |
| MS4-FRM-1/8-...-A8 | 21 | 58.5     |                                     | G1/8 | G1/8 |
| MS4-FRM-1/4-...-A8 |    | 58.5     |                                     | G1/4 |      |
| MS4-FRM-1/8-...-A4 | 21 | 58.5     |                                     | G1/8 | G1/4 |
| MS4-FRM-1/4-...-A4 |    | 58.5     |                                     | 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-...-A8 | 31 | 78.5     |                                     | G1/4 | G1/8 |
| MS6-FRM-3/8-...-A8 |    |          |                                     | G3/8 |      |
| MS6-FRM-1/2-...-A8 |    |          |                                     | 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 |      |

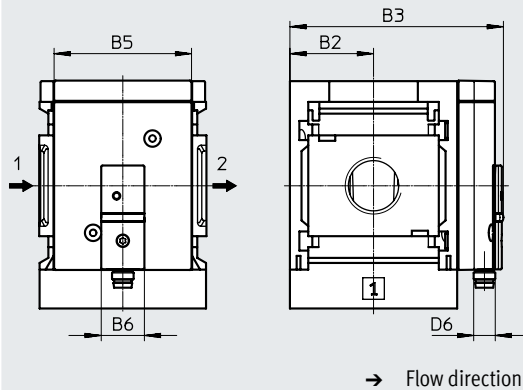
Datasheet

**Dimensions – Pressure sensor**

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

[AD7]/[AD8]/[AD9]/[AD10] Pressure sensor with status indicator

Datasheets → Internet: sde5



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

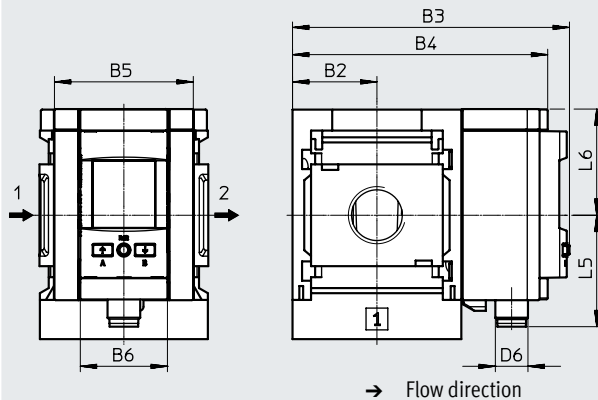
[AD9]:  
SDE5-D10-O3-...-P-M8 with 3-pin M8x1 plug, window comparator, 1 switching output PNP, N/O contact

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

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

[AD11]/[AD12] Pressure sensor with LCD display

Datasheets → Internet: spau



[AD11]:  
SPAU-P10R-MS...-L-PNLK-M12D with 4-pin M12x1 plug, A-coded, switching output 2x PNP or 2x NPN switchable and 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA analogue

[AD12]:  
SPAU-P10R-MS...-L-PNLK-M8D with 4-pin M8x1 plug, A-coded, switching output 2x PNP or 2x NPN switchable and 0 ... 10 V, 1 ... 5 V, 4 ... 20 mA analogue

| Type                    | B2 | B3    | B4   | B5  | B6 | D6    | L5   | L6 |
|-------------------------|----|-------|------|-----|----|-------|------|----|
| MS4-...AD7/AD8/AD9/AD10 | 21 | 59.1  | –    | ~32 | 16 | M8x1  | –    | –  |
| MS4-...AD11             | 21 | 81.2  | 73.3 | 32  | 32 | M12x1 | 41.2 | 39 |
| MS4-...AD12             |    |       |      |     |    | M8x1  | 37.9 |    |
| MS6-...AD7/AD8/AD9/AD10 | 31 | 79.1  | –    | ~51 | 16 | M8x1  | –    | –  |
| MS6-...AD11             | 31 | 101.8 | 93.7 | 51  | 32 | M12x1 | 41.2 | 39 |
| MS6-...AD12             |    |       |      |     |    | M8x1  | 37.9 |    |

Datasheet

**Dimensions – Pressure switch**

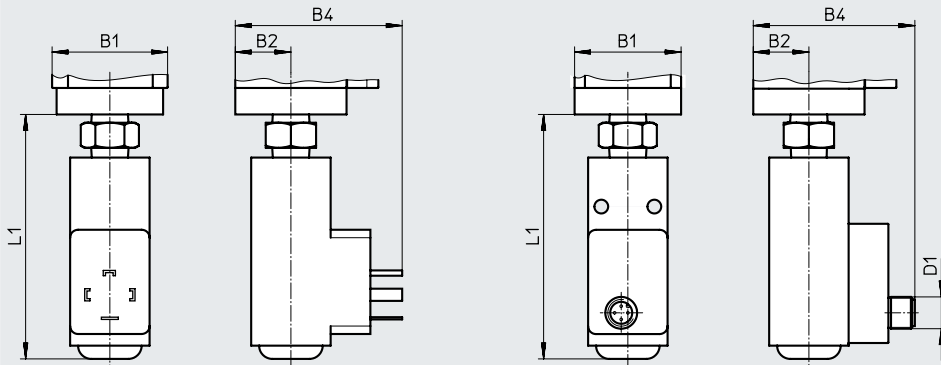
[X]/[Y]/[M12] Pressure switch with adjustable pressure switching point

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

Datasheets → Internet: pev-1/4

[X]/[Y]

[M12]



[X]:

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

[Y]:

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

[M12]:

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

| Type            | B1 | B2 | B4 | D1    | L1   |
|-----------------|----|----|----|-------|------|
| MS4-FRM-...-X/Y | 40 | 21 | 63 | –     | 91.8 |
| MS4-FRM-...-M12 | 40 | 21 | 61 | M12x1 | 91.8 |
| MS6-FRM-...-X/Y | 62 | 31 | 73 | –     | 99   |
| MS6-FRM-...-M12 | 62 | 31 | 71 | M12x1 | 99   |



## Datasheet

## ★ Core Range

| Ordering data |           |           |                    |          |             |
|---------------|-----------|-----------|--------------------|----------|-------------|
| Size          | Port 1, 2 | Port 3, 4 | Flow direction     | Part no. | Type        |
| MS6           | G1/4      | G thread  | From left to right | ★ 529857 | MS6-FRM-1/4 |
|               | G1/2      | G thread  | From left to right | ★ 529853 | MS6-FRM-1/2 |

| Ordering data |           |           |                    |          |               |
|---------------|-----------|-----------|--------------------|----------|---------------|
| Size          | Port 1, 2 | Port 3, 4 | Flow direction     | Part no. | Type          |
| MS4           | G1/8      | G thread  | From left to right | 529559   | MS4-FRM-1/8   |
|               | G1/4      | G thread  | From left to right | 529555   | MS4-FRM-1/4   |
|               |           |           | From right to left | 529558   | MS4-FRM-1/4-Z |
| MS6           | G3/8      | G thread  | From left to right | 529861   | MS6-FRM-3/8   |
|               | G1/2      | G thread  | From right to left | 529856   | MS6-FRM-1/2-Z |

| With integrated non-return function |      |          |                    |        |                 |
|-------------------------------------|------|----------|--------------------|--------|-----------------|
| MS4                                 | G1/4 | G thread | From left to right | 536966 | MS4-FRM-1/4-I   |
|                                     |      |          | From right to left | 536971 | MS4-FRM-1/4-I-Z |
| MS6                                 | G1/4 | G thread | From left to right | 536967 | MS6-FRM-1/4-I   |
|                                     | G1/2 | G thread | From left to right | 536969 | MS6-FRM-1/2-I   |

| With pressure switch PEV-1/4-B-0D |      |          |                    |        |                 |
|-----------------------------------|------|----------|--------------------|--------|-----------------|
| MS4                               | G1/4 | G thread | From left to right | 529556 | MS4-FRM-1/4-Y   |
|                                   |      |          | From right to left | 529557 | MS4-FRM-1/4-Y-Z |
| MS6                               | G1/4 | G thread | From left to right | 529858 | MS6-FRM-1/4-Y   |
|                                   | G3/8 | G thread | From left to right | 529862 | MS6-FRM-3/8-Y   |
|                                   | G1/2 | G thread | From left to right | 529854 | MS6-FRM-1/2-Y   |
|                                   |      |          | From right to left | 529855 | MS6-FRM-1/2-Y-Z |

| Ordering data – Products for battery production (F1A) |           |   |                    |          |                    |
|---|-----------|---|--------------------|----------|--------------------|
| Size  | Port 1, 2 | Pressure gauge alternatives                               | Flow direction     | Part no. | Type               |
| MS4   | G1/4      | Adapter for EN pressure gauge 1/8, without pressure gauge | From left to right | 8183570  | MS4-FRM-1/4-A8-F1A |
| MS6   | G1/2      | Adapter for EN pressure gauge 1/4, without pressure gauge | From left to right | 8183566  | MS6-FRM-1/2-A4-F1A |
|   |           | Adapter for EN pressure gauge 1/8, without pressure gauge |                    | 8183567  | MS6-FRM-1/2-A8-F1A |

Ordering data – Modular product system

| Ordering table                   |  |                       |               |            |              |            |
|----------------------------------|--|-----------------------|---------------|------------|--------------|------------|
| Grid dimension                   | [mm]   | 40                    | 62            | Conditions | Code         | Enter code |
| 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]        | <b>-1/8</b>  |            |
|                                  | Female thread G1/4   | Female thread G1/4    |               | [1]        | <b>-1/4</b>  |            |
|                                  | –  | Female thread G3/8    |               | [1]        | <b>-3/8</b>  |            |
|                                  | –  | Female thread G1/2    |               | [1]        | <b>-1/2</b>  |            |
|                                  | 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>  |            |
| Additional function              | None   |                       |               |            |              |            |
|                                  | With integrated non-return function  |                       |               |            | <b>-I</b>    |            |
| Pressure gauge/adapter           | None   |                       |               |            |              |            |
|                                  | MS pressure gauge, bar   |                       |               |            | <b>-AG</b>   |            |
|                                  | Adapter for EN pressure gauge 1/8, without pressure gauge  |                       |               |            | <b>-A8</b>   |            |
|                                  | Adapter for EN pressure gauge 1/4, without pressure gauge  |                       |               |            | <b>-A4</b>   |            |
|                                  | Integrated pressure gauge, red/green scale   |                       |               |            | <b>-RG</b>   |            |
|                                  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact             |                       |               | [1]        | <b>-AD7</b>  |            |
|                                  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact             |                       |               | [1]        | <b>-AD8</b>  |            |
|                                  | Pressure sensor with status indicator, M8 plug, window comparator, PNP, N/O contact                      |                       |               | [1]        | <b>-AD9</b>  |            |
|                                  | Pressure sensor with status indicator, M8 plug, window comparator, PNP, N/C contact                      |                       |               | [1]        | <b>-AD10</b> |            |
|                                  | Pressure sensor with LCD display, plug M12, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA |                       |               | [1]        | <b>-AD11</b> |            |
|                                  | Pressure sensor with LCD display, plug M8, 4-pin, IO-Link®, PNP, NPN, 0... 10 V, 1 ... 5 V, 4 ... 20 mA  |                       |               | [1]        | <b>-AD12</b> |            |
| Alternative pressure gauge scale | None   |                       |               |            |              |            |
|                                  | psi  |                       |               | [2]        | <b>-PSI</b>  |            |
|                                  | MPa  |                       |               | [2]        | <b>-MPA</b>  |            |

[1] 1/8, 1/4, 3/8, Not with EU EX4 certification.  
1/2, AD7 ... AD12,  
X, Y, M12, WPM

[2] PSI, MPA Only in combination with pressure gauge AG.

## Ordering data – Modular product system

| Ordering table      |   | Grid dimension | [mm] | 40 | 62 | Conditions  | Code | Enter code |
|---------------------|---|----------------|------|----|----|-------------|------|------------|
| Pressure switch     | Without pressure switch   |                |      |    |    |             |      |            |
|                     | Pressure switch PEV with display, plug socket, EN 175301, type A, square                                    |                |      |    |    | [1] [3] [4] | -X   |            |
|                     | Pressure switch PEV without display, plug socket, EN 175301, type A, square                                 |                |      |    |    | [1] [3] [4] | -Y   |            |
|                     | Pressure switch PEV without display, plug socket, round, M12, 4-pin   |                |      |    |    | [1] [3] [4] | -M12 |            |
| Type of mounting    | Without mounting bracket  |                |      |    |    |             |      |            |
|                     | Mounting bracket standard design  |                |      |    |    | [5]         | -WP  |            |
|                     | Mounting bracket for hooking in service unit components   |                |      |    |    | [1] [5]     | -WPM |            |
|                     | Mounting bracket centrally at rear (wall mounting top and bottom), connecting plates not required           |                |      |    |    |             | -WB  |            |
|                     | Mounting bracket centrally at the rear (wall mounting top), connecting plates not required                  |                |      |    |    |             | -WBM |            |
| EU certification    | None  |                |      |    |    |             |      |            |
|                     | II 2GD to EU Explosion Protection Directive (ATEX)  |                |      |    |    |             | -EX4 |            |
| UL certification    | None  |                |      |    |    |             |      |            |
|                     | cULus, ordinary location for Canada and USA   |                |      |    |    |             | -UL1 |            |
| Special             | None  |                |      |    |    |             |      |            |
| Material properties | Recommended for production facilities for the manufacture of lithium-ion batteries (Cu<=1%, Zn<=1%, Ni<=1%) |                |      |    |    | [6]         | -F1A |            |
|                     | Flow direction from left to right   |                |      |    |    |             |      |            |
| Flow direction      | Flow direction from right to left   |                |      |    |    |             | -Z   |            |

[1] 1/8, 1/4, 3/8, Not with EU EX4 certification.  
1/2, AD7 ... AD12,  
X, Y, M12, WPM

[3] X, Y, M12 Max. permissible operating pressure P1 = 12 bar.

[4] X, Y, M12 Not in combination with AD5 or AD6.

[5] WP, WPM Only with connecting plate AGA, AGB, AGC, AGD or AGE.

[6] F1A Only with 1/4, 1/2, A8, A4

Only these are permitted:

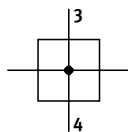
8183566 MS6-FRM-1/2-A4-F1A




8183567 MS6-FRM-1/2-A8-F1A

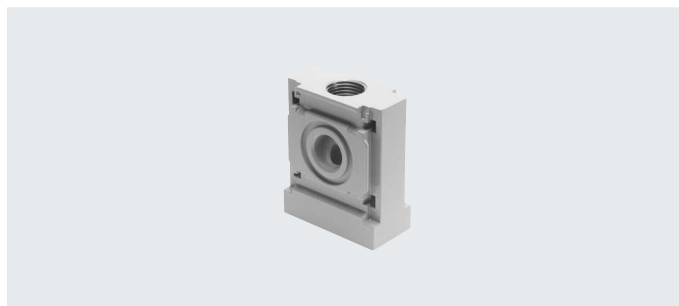
8183570 MS4-FRM-1/4-A8-F1A

## Datasheet

### Function



-  - Flow rate  
2900 ... 14600 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0 ... 20 bar



### Note

The distributor block MS4/6-FRM-FRZ has half the normal grid dimension.

- Compressed air distributors with 4 connections
- Outlet at the top and underneath
- Can be used as an intermediate distributor for varying air qualities
- Can be used as an adapter for size MS4 between two pressure regulators with pressure gauge with large rotary knob

### General technical data

| Size                      | MS4                  | MS6  |
|---------------------------|----------------------|------|
| Pneumatic connection 3, 4 | G1/4                 | G1/2 |
| Design                    | Branching module     |      |
| Type of mounting          | With accessories     |      |
|                           | In-line installation |      |
| Mounting position         | Any                  |      |

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

### Standard nominal flow rate $q_{nN}^{1)}$ [l/min]

| Size                         | MS4  | MS6   |
|------------------------------|------|-------|
| In main flow direction 1 → 2 | 4050 | 14600 |
| Outlet at the top            | 3250 | 10400 |
| Outlet underneath            | 2900 | 9850  |

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 to ISO 8573-1:2010 [7:4:4]  |                                   |
|  | Inert gases  |                                   |
| Note on the operating/pilot medium           | Lubricated operation 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>               | c UL us - Recognized (OL)  |                                   |

1) Value in brackets applies to installation in a service unit MS4/MS6 with UL certification.

2) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

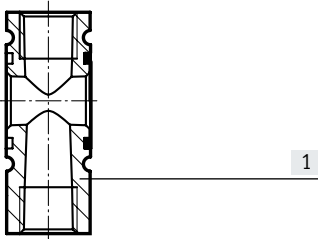
3) More information: [www.festo.com/catalogue/ms-frm](http://www.festo.com/catalogue/ms-frm) → Support/Downloads.

## Datasheet

|                   |     |     |
|-------------------|-----|-----|
| <b>Weight [g]</b> |     |     |
| Size              | MS4 | MS6 |
| Distributor block | 60  | 163 |

### Materials

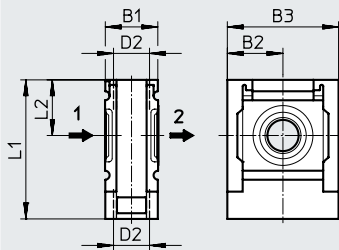
#### Sectional view



|                        |                    |
|------------------------|--------------------|
| Distributor block      |                    |
| [1] Housing            | Die-cast aluminium |
| Note on materials      | RoHS-compliant     |
| LABS (PWIS) conformity | VDMA24364-B1/B2-L  |

### Dimensions

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



| Type        | B1 | B2 | B3 | D2   | L1   | L2 |
|-------------|----|----|----|------|------|----|
| MS4-FRM-FRZ | 20 | 21 | 42 | G1/4 | 52.5 | 21 |
| MS6-FRM-FRZ | 31 | 31 | 62 | G1/2 | 76.5 | 31 |

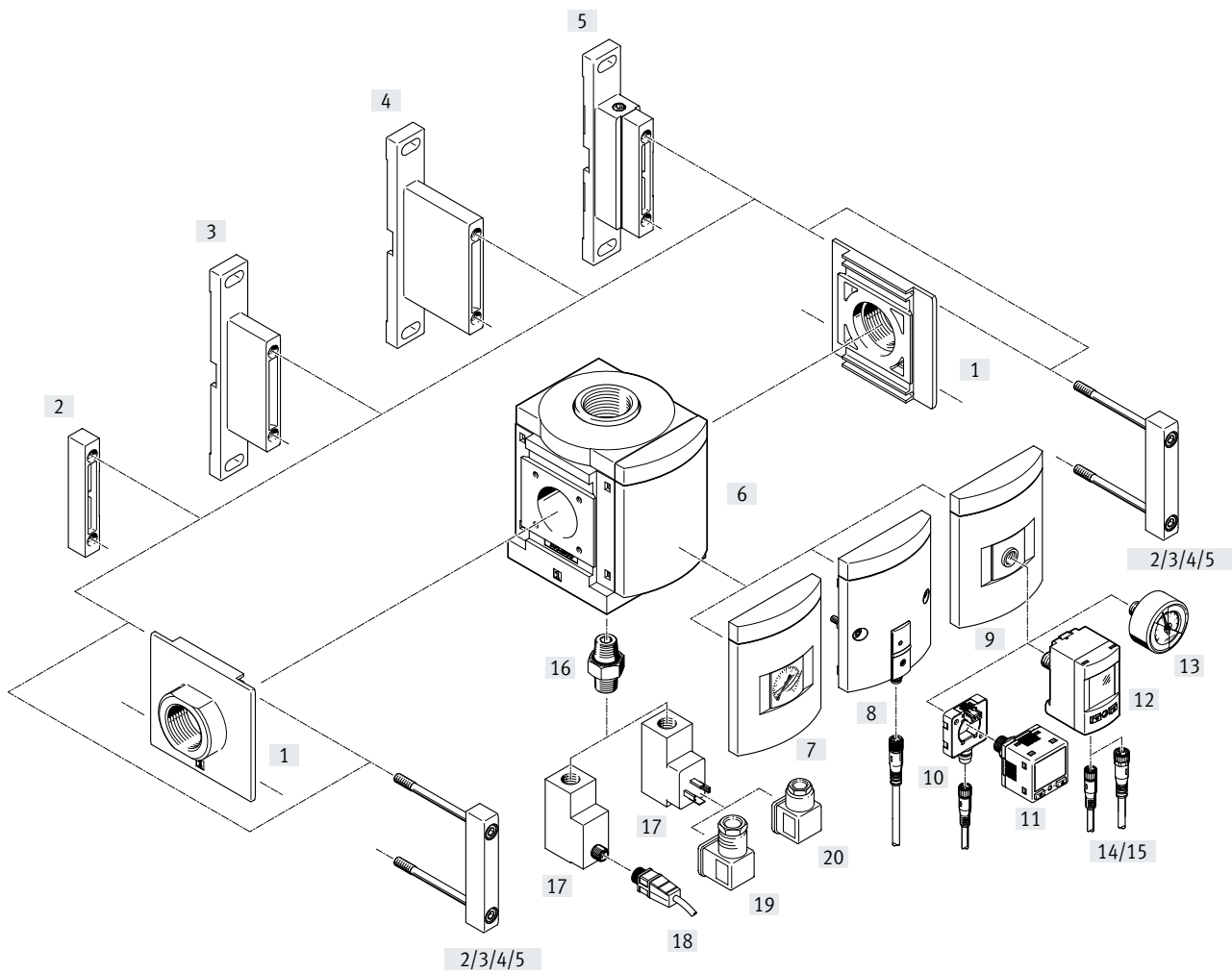
† Note: This product conforms to ISO 1179-1 and ISO 228-1.


### ★ Core Range

#### Ordering data

| Size | Port 1, 2                 | Port 3, 4 | Flow direction | Part no. | Type        |
|------|---------------------------|-----------|----------------|----------|-------------|
| MS4  | Without connecting thread | G thread  | –              | ★ 549336 | MS4-FRM-FRZ |
| MS6  |                           | G thread  | –              | ★ 549337 | MS6-FRM-FRZ |

Peripherals overview



 - **Note**

Additional accessories:

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

## Peripherals overview

| Mounting attachments and accessories                 |  | Order code                     | → Page/Internet |
|--|--|--------------------------------|-----------------|
| <b>Can be ordered via the modular product system</b> |  |                                |                 |
| [1]  | Connecting plate SET <sup>1)</sup>         | [AG...]                        | 30              |
|  | Connecting plate SET <sup>1)</sup>         | [AQ...]                        |                 |
| [3]  | Mounting bracket                           | [WP]                           |                 |
| [4]  | Mounting bracket                           | [WPB]                          |                 |
| [5]  | Mounting bracket                           | [WPM]                          |                 |
| [6]  | Cover plate                                | [VS]                           |                 |
| [7]  | MS pressure gauge                          | [AG]/[RG]                      |                 |
| [8]  | Pressure sensor SDE5 with status indicator | [AD7]/[AD8]/[AD9]/[AD10]       |                 |
| [9]  | Adapter for EN pressure gauge 1/8, 1/4     | [A8]/[A4]                      |                 |
| [17]   | Pressure switch PEV <sup>2)</sup>          | [X]/[Y]/[M12]                  |                 |
| <b>Can be ordered as accessories</b>                 |  |                                |                 |
| [1]  | Connecting plate SET                       | MS9-AG...                      | ms9-ag          |
|  | Connecting plate SET                       | MS9-AQ...                      | ms9-aq          |
| [2]  | Module connector                           | MS9-MV                         | ms9-mv          |
| [3]  | Mounting bracket                           | MS9-WP                         | ms9-wp          |
| [4]  | Mounting bracket                           | MS9-WPB                        | ms9-wp          |
| [5]  | Mounting bracket                           | MS9-WPM                        | ms9-wp          |
| [10]   | Electrical adapter                         | SASC                           | 36              |
| [11]   | Pressure sensor                            | SPAN                           | 36              |
| [12]   | Pressure sensor                            | SPAU-...T                      | 36              |
| [13]   | Pressure gauge                             | MA                             | 36              |
| [14]   | Connecting cable                           | NEBU-M8...-LE3                 | 37              |
| [15]   | Connecting cable                           | NEBU-M8...-LE4/NEBU-M12...-LE4 | 37              |
| [18]   | Connecting cable                           | NEBU-M12...-LE4                | 37              |
| [19]   | Angled plug socket                         | PEV-1/4-WD-LED-...             | 37              |
| [20]   | Plug socket                                | MSSD-C-4P                      | 37              |

1) Module connector [2] is included in the scope of delivery.

2) Double nipple [16] is included in the scope of delivery.

## Type codes

|            |               |  |
|------------|---------------|--|
| <b>001</b> | <b>Series</b> |  |
| <b>MS</b>  | MS series     |  |

|            |                      |  |
|------------|----------------------|--|
| <b>002</b> | <b>Size</b>          |  |
| <b>9</b>   | Grid dimension 90 mm |  |

|            |                  |  |
|------------|------------------|--|
| <b>003</b> | <b>Function</b>  |  |
| <b>FRM</b> | Branching module |  |

|             |   |  |
|-------------|---|--|
| <b>004</b>  | <b>Pneumatic connection</b>                               |  |
| <b>3/4</b>  | Female thread G3/4  |  |
| <b>1</b>    | Female thread G1  |  |
| <b>AGD</b>  | Sub-base G1/2   |  |
| <b>AGE</b>  | Sub-base G3/4   |  |
| <b>AGF</b>  | Sub-base G1   |  |
| <b>AGG</b>  | Sub-base G11/4  |  |
| <b>AGH</b>  | Sub-base G11/2  |  |
| <b>N3/4</b> | 3/4 NPT   |  |
| <b>N1</b>   | 1 NPT   |  |
| <b>AQR</b>  | Sub-base 1/2 NPT  |  |
| <b>AQS</b>  | Sub-base 3/4 NPT  |  |
| <b>AQT</b>  | Sub-base 1 NPT  |  |
| <b>AQU</b>  | Sub-base 1 1/4 NPT  |  |
| <b>AQV</b>  | Sub-base 1 1/2 NPT  |  |
| <b>G</b>    | Module without connecting thread, without sub-base        |  |
| <b>NG</b>   | Module without connecting thread, without sub-base (inch) |  |

|             |   |  |
|-------------|---|--|
| <b>005</b>  | <b>Pressure gauge alternatives</b>  |  |
| <b>AG</b>   | MS pressure gauge   |  |
| <b>VS</b>   | Cover plate   |  |
| <b>A8</b>   | Adapter for EN pressure gauge 1/8, without pressure gauge                               |  |
| <b>A4</b>   | Adapter for EN pressure gauge 1/4, without pressure gauge                               |  |
| <b>RG</b>   | Integrated pressure gauge, red/green scale  |  |
| <b>AD7</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O   |  |
| <b>AD8</b>  | Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C   |  |
| <b>AD9</b>  | Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O            |  |
| <b>AD10</b> | Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C |  |

|            |   |  |
|------------|---|--|
| <b>006</b> | <b>Alternative pressure gauge scale</b> |  |
|            | MS pressure gauge                       |  |
| <b>PSI</b> | psi                                     |  |
| <b>MPA</b> | MPa                                     |  |
| <b>BAR</b> | bar                                     |  |

|            |   |  |
|------------|---|--|
| <b>007</b> | <b>Pressure switch</b>  |  |
|            | None  |  |
| <b>X</b>   | Pressure switch PEV with display, plug socket, EN 175301, type A, cube    |  |
| <b>Y</b>   | Pressure switch PEV without display, plug socket, EN 175301, type A, cube |  |
| <b>M12</b> | Pressure switch PEV without display, plug socket, round, M12, 4-pin       |  |

|            |   |  |
|------------|---|--|
| <b>008</b> | <b>Type of mounting</b>                                 |  |
|            | Without mounting bracket                                |  |
| <b>WP</b>  | Mounting bracket basic design                           |  |
| <b>WPM</b> | Mounting bracket for hooking in service unit components |  |
| <b>WPB</b> | Mounting bracket for large wall gap                     |  |

|            |                         |  |
|------------|-------------------------|--|
| <b>009</b> | <b>EU certification</b> |  |
|            | None                    |  |
| <b>EX4</b> | II 2GD                  |  |

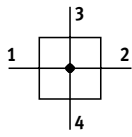
|            |  |  |
|------------|--|--|
| <b>010</b> | <b>UL certification</b>                    |  |
|            | None                                       |  |
| <b>UL1</b> | cULus ordinary location for Canada and USA |  |





|            |                                   |  |
|------------|-----------------------------------|--|
| <b>011</b> | <b>Flow direction</b>             |  |
|            | Flow direction from left to right |  |
| <b>Z</b>   | Flow direction from right to left |  |



## Datasheet

## Function



-  - Flow rate  
10000 ... 50000 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



- Compressed air distributors with 4 connections
- Support for auxiliary modules
- Outlet at the top and underneath
- 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  | G3/4, G1, 3/4 NPT or 1 NPT   |
| Connecting plate [AG...]                                   | G1/2, G3/4, G1, G1 1/4 or G1 1/2   |
| [AQ...]  | 1/2 NPT, 3/4 NPT, 1 NPT, 1 1/4 NPT or 1 1/2 NPT  |
| Module without connecting thread/connecting plate [G]/[NG] | -  |
| Pneumatic connection 3, 4                                  |  |
| [3/4]/[1]/[AG...]/[G]                                      | G1   |
| [N3/4]/[N1]/[AQ...]/[NG]                                   | 1 NPT  |
| Design   | Branching module   |
| Type of mounting   | With accessories<br>In-line installation<br>Front panel mounting   |
| Mounting position  | Any <sup>1)</sup>  |
| Pressure indication  | With pressure sensor for indicating the output pressure via status indicator and electrical output<br>Via pressure gauge for displaying the output pressure<br>With pressure gauge with red/green scale for indicating the output pressure<br>Prepared for G1/8<br>Prepared for G1/4 |

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 ISO 228-1.

**Standard nominal flow rate  $q_{nN}^{1)}$  [l/min]**

| Pneumatic connection 1, 2    | G1/2,<br>1/2 NPT | G3/4,<br>3/4 NPT | G1,<br>1 NPT | G1 1/4,<br>1 1/4 NPT | G1 1/2,<br>1 1/2 NPT |
|------------------------------|------------------|------------------|--------------|----------------------|----------------------|
| In main flow direction 1 → 2 | 10000            | 25000            | 45000        | 47000                | 50000                |
| Outlet at the top            | 13000            |                  |              |                      |                      |
| Outlet underneath            | 13000            |                  |              |                      |                      |

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

**Electrical data<sup>1)</sup>**

|                                |           |
|--------------------------------|-----------|
| Operating voltage range AC [V] | 0 ... 250 |
| Operating voltage range DC [V] | 0 ... 125 |

1) Only in combination with pressure switch

## Datasheet

| Operating and environmental conditions       |       |   |                 |                 |
|--|-------|---|-----------------|-----------------|
|  |       | Without pressure switch/pressure sensor   | Pressure switch | Pressure sensor |
| Operating pressure                           | [bar] | 0 ... 20                                  | 0 ... 12        | 0 ... 10        |
| Operating medium                             |       | Compressed air to ISO 8573-1:2010 [7:4:4] |                 |                 |
| Note on the operating/pilot medium           |       | Lubricated operation 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>               |       | c UL us - Recognized (OL)                 |                 |                 |

1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

2) More information: [www.festo.com/catalogue/ms-frm](http://www.festo.com/catalogue/ms-frm) → Support/Downloads.

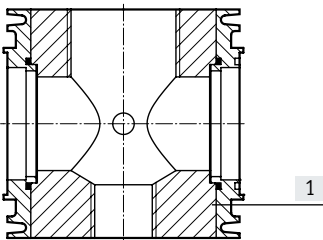
| ATEX   |   |
|--|---|
| EU certification   | [EX4]                                       |
| ATEX category for gas                                      | II 2G                                       |
| Type of ignition protection for gas                        | Ex h IIC T6 Gb X                            |
| ATEX category for dust                                     | II 2D                                       |
| Type of ignition protection for dust                       | Ex h IIIC T60°C Db X                        |
| Explosion-proof ambient temperature                        | -10°C ≤ Ta ≤ +60°C                          |
| Explosion protection certification outside the EU          | EPL Db (GB)<br>EPL Gb (GB)                  |
| CE marking (see declaration of conformity) <sup>1)</sup>   | To EU Explosion Protection Directive (ATEX) |
| UKCA marking (see declaration of conformity) <sup>1)</sup> | To UK explosion regulations                 |

1) More information: [www.festo.com/catalogue/ms-frm](http://www.festo.com/catalogue/ms-frm) → Support/Downloads.

| Weight [g]                            |      |
|---------------------------------------|------|
| Branching module                      | 1000 |
| Branching module with pressure switch | 1100 |

### Materials

#### Sectional view



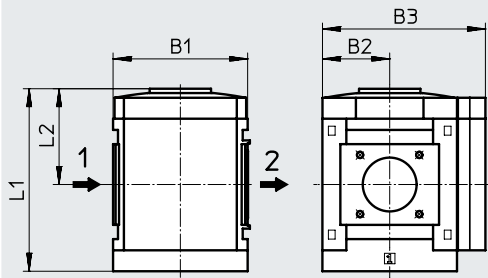
| Branching module       |  |                    |
|------------------------|--|--------------------|
| [1]                    | Housing  | Die-cast aluminium |
| -                      | Covering   | Reinforced PA      |
| -                      | Connecting plate, module connector, mounting bracket | Die-cast aluminium |
| Note on materials      |  | RoHS-compliant     |
| LABS (PWIS) conformity |  | VDMA24364-B1/B2-L  |

## Datasheet

### Dimensions – Basic version

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

[G]/[NG] Module without connecting thread, without connecting plate  
 [VS] Cover plate



→ Flow direction

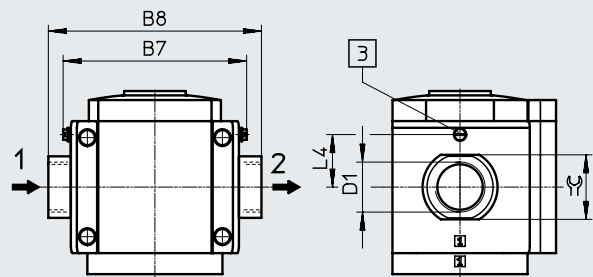
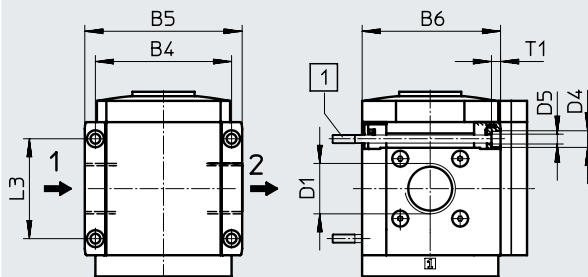
| Type            | B1 | B2 | B3  | L1  | L2 |
|-----------------|----|----|-----|-----|----|
| MS9-FRM-G/NG-VS | 90 | 45 | 109 | 122 | 64 |

### Dimensions – Female thread/connecting plate

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

[3/4]/[1]/[N3/4]/[N1] Female thread

[AG...]/[AQ...] Connecting plate



[1] Retaining screw M6xmin. 90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

[3] Earthing screw M4x8 (only with MS9-...-EX4)

→ Flow direction

| Type         | B4    | B5  | B6   | B7  |       | B8  | D1        | D4 | D5  | L3 | L4 |       | T1   | ≙ |
|--------------|-------|-----|------|-----|-------|-----|-----------|----|-----|----|----|-------|------|---|
|              |       |     |      |     | [EX4] |     |           |    |     |    |    | [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 | - |
| MS9-FRM-N1   | 1 NPT |     |      |     |       |     |           |    |     |    |    |       |      |   |
| MS9-FRM-AQR  | -     | -   | -    | 112 | -     | 132 | 1/2 NPT   | -  | -   | -  | -  | -     | 30   |   |
| MS9-FRM-AQS  |       |     |      |     |       | 132 | 3/4 NPT   |    |     |    |    |       | 36   |   |
| MS9-FRM-AQT  |       |     |      |     |       | 142 | 1 NPT     |    |     |    |    |       | 41   |   |
| MS9-FRM-AQU  |       |     |      |     |       | 162 | 1 1/4 NPT |    |     |    |    |       | 50   |   |
| MS9-FRM-AQV  |       |     |      |     |       | 176 | 1 1/2 NPT |    |     |    |    |       | 55   |   |

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

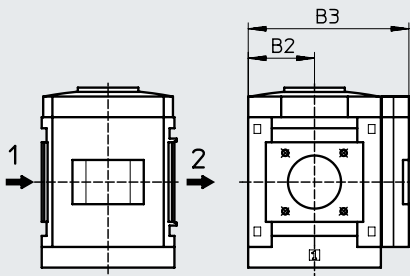
Datasheet

**Dimensions – Pressure gauges/adapters**

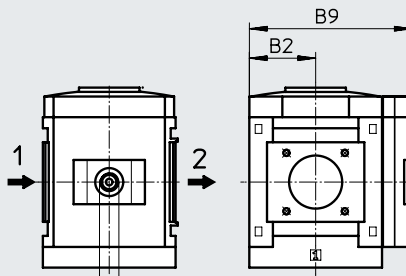
Download CAD data → [www.festo.com](http://www.festo.com)

- [AG] Integrated MS pressure gauge with standard scale
- [RG] Integrated MS pressure gauge with red/green scale

- [A8] Adapter for EN pressure gauge 1/8, without pressure gauge
- [A4] Adapter for EN pressure gauge 1/4, without pressure gauge



→ Flow direction



→ Flow direction

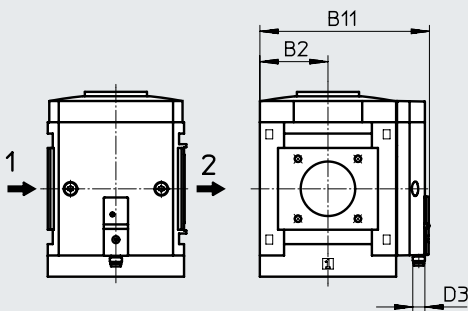
| Type              | B2 | B3  | B9  | D2   |
|-------------------|----|-----|-----|------|
| MS9-FRM-...-AG/RG | 45 | 109 | –   | –    |
| MS9-FRM-...-A8    |    | –   | 110 | G1/8 |
| MS9-FRM-...-A4    |    |     |     | G1/4 |

**Dimensions – Pressure sensor**

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

- [AD7]/[AD8]/[AD9]/[AD10] Pressure sensor with status indicator

Datasheets → Internet: sde5



→ Flow direction

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

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

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

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

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

## Datasheet

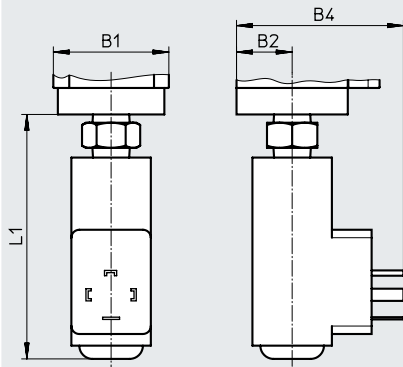
**Dimensions – Pressure switch**

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

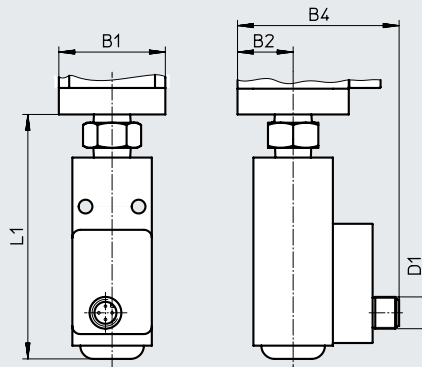
Datasheets → Internet: pev-1/4

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

[X]/[Y]



[M12]



[X]:

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

[Y]:

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

[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**

## Cover plate

| Size | Port 1, 2                 | Port 3, 4  | Flow direction     | Part no.      | Type                 |
|------|---------------------------|------------|--------------------|---------------|----------------------|
| MS9  | Without connecting thread | G thread   | From left to right | <b>564145</b> | <b>MS9-FRM-G-VS</b>  |
|      |                           | NPT thread | From left to right | <b>564148</b> | <b>MS9-FRM-NG-VS</b> |

**With pressure switch PEV-1/4-B-0D**

|     |                           |            |                    |               |                        |
|-----|---------------------------|------------|--------------------|---------------|------------------------|
| MS9 | Without connecting thread | G thread   | From left to right | <b>564147</b> | <b>MS9-FRM-G-VS-Y</b>  |
|     |                           | NPT thread | From left to right | <b>564150</b> | <b>MS9-FRM-NG-VS-Y</b> |

## Ordering data – Modular product system

| Ordering table                   |   | Grid dimension | [mm] | 90 | Conditions | Code         | Enter code |
|----------------------------------|---|----------------|------|----|------------|--------------|------------|
| Module no.                       | <b>562534</b>   |                |      |    |            |              |            |
| Series                           | Standard  |                |      |    |            | <b>MS</b>    | MS         |
| Size                             | 9   |                |      |    |            | <b>9</b>     | 9          |
| Function                         | Branching module  |                |      |    |            | <b>-FRM</b>  | -FRM       |
| Pneumatic connection             | Female thread G3/4  | [1]            |      |    |            | <b>-3/4</b>  |            |
|                                  | Female thread G1  | [1]            |      |    |            | <b>-1</b>    |            |
|                                  | Connecting plate G1/2   |                |      |    |            | <b>-AGD</b>  |            |
|                                  | Connecting plate G3/4   |                |      |    |            | <b>-AGE</b>  |            |
|                                  | Connecting plate G1   |                |      |    |            | <b>-AGF</b>  |            |
|                                  | Connecting plate G1 1/4   |                |      |    |            | <b>-AGG</b>  |            |
|                                  | Connecting plate G1 1/2   |                |      |    |            | <b>-AGH</b>  |            |
|                                  | Female thread 3/4 NPT   | [1]            |      |    |            | <b>-N3/4</b> |            |
|                                  | Female thread 1 NPT   | [1]            |      |    |            | <b>-N1</b>   |            |
|                                  | Connecting plate 1/2 NPT  | [1]            |      |    |            | <b>-AQR</b>  |            |
|                                  | Connecting plate 3/4 NPT  | [1]            |      |    |            | <b>-AQS</b>  |            |
|                                  | Connecting plate 1 NPT  | [1]            |      |    |            | <b>-AQT</b>  |            |
|                                  | Connecting plate 1 1/4 NPT  | [1]            |      |    |            | <b>-AQU</b>  |            |
|                                  | Connecting plate 1 1/2 NPT  | [1]            |      |    |            | <b>-AQV</b>  |            |
|                                  | Module without connecting thread, without connecting plate  | [1]            |      |    |            | <b>-G</b>    |            |
|                                  | Module without connecting thread, without connecting plate (pneumatic connections 3 and 4 in NPT) | [1]            |      |    |            | <b>-NG</b>   |            |
| Pressure gauge/adapter           | MS pressure gauge   |                |      |    |            | <b>-AG</b>   |            |
|                                  | Cover plate   |                |      |    |            | <b>-VS</b>   |            |
|                                  | Adapter for EN pressure gauge 1/8, without pressure gauge   |                |      |    |            | <b>-A8</b>   |            |
|                                  | Adapter for EN pressure gauge 1/4, without pressure gauge   |                |      |    |            | <b>-A4</b>   |            |
|                                  | Integrated pressure gauge, red/green scale  | [2]            |      |    |            | <b>-RG</b>   |            |
|                                  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/O contact      | [1] [3]        |      |    |            | <b>-AD7</b>  |            |
|                                  | Pressure sensor with status indicator, plug M8, threshold value comparator, PNP, N/C contact      | [1] [3]        |      |    |            | <b>-AD8</b>  |            |
|                                  | Pressure sensor with status indicator, M8 plug, window comparator, PNP, N/O contact               | [1] [3]        |      |    |            | <b>-AD9</b>  |            |
|                                  | Pressure sensor with status indicator, M8 plug, window comparator, PNP, N/C contact               | [1] [3]        |      |    |            | <b>-AD10</b> |            |
| Alternative pressure gauge scale | None  | [4]            |      |    |            |              |            |
|                                  | psi   | [5]            |      |    |            | <b>-PSI</b>  |            |
|                                  | MPa   | [5]            |      |    |            | <b>-MPA</b>  |            |
|                                  | bar   | [5]            |      |    |            | <b>-BAR</b>  |            |
| Pressure switch                  | Without pressure switch   |                |      |    |            |              |            |
|                                  | Pressure switch PEV with display, plug socket, EN 175301, type A, square                          | [1] [6]        |      |    |            | <b>-X</b>    |            |
|                                  | Pressure switch PEV without display, plug socket, EN 175301, type A, square                       | [1] [6]        |      |    |            | <b>-Y</b>    |            |
|                                  | Pressure switch PEV without display, plug socket, round, M12, 4-pin                               | [1] [6]        |      |    |            | <b>-M12</b>  |            |
| Type of mounting                 | Without mounting bracket  |                |      |    |            |              |            |
|                                  | Mounting bracket standard design  | [7]            |      |    |            | <b>-WP</b>   |            |
|                                  | Mounting bracket for hooking in service unit components   | [1] [7]        |      |    |            | <b>-WPM</b>  |            |
|                                  | Mounting bracket for large wall gap   | [7]            |      |    |            | <b>-WPB</b>  |            |
| EU certification                 | None  |                |      |    |            |              |            |
|                                  | II 2GD to EU Explosion Protection Directive (ATEX)  |                |      |    |            | <b>-EX4</b>  |            |
| UL certification                 | None  |                |      |    |            |              |            |
|                                  | cULus, ordinary location for Canada and USA   |                |      |    |            | <b>-UL1</b>  |            |
| Flow direction                   | Flow direction from left to right   |                |      |    |            |              |            |
|                                  | Flow direction from right to left   |                |      |    |            | <b>-Z</b>    |            |

[1] 3/4, 1, N3/4, N1, Not with EU EX4 certification.

AQR, AQS, AQT,  
AQU, AQV, G, NG,  
AD7 ... AD10, X, Y,  
M12, WPM

[2] RG Not with alternative pressure gauge scale PSI, PSI scale is only used as an auxiliary scale.

[3] AD7 ... AD10 Measuring range max. 10 bar.

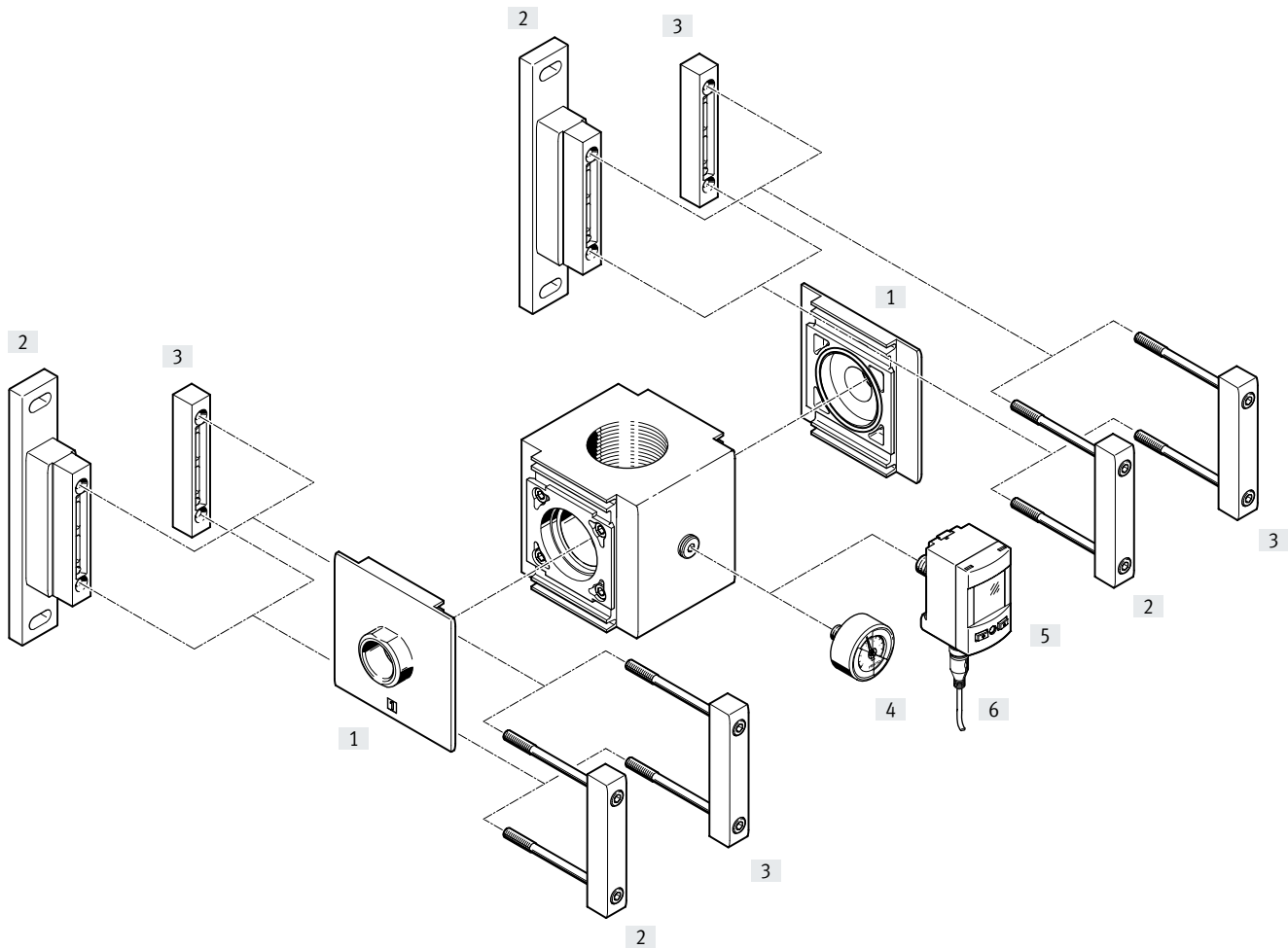
[4] - Not with pressure gauge AG, RG.

[5] PSI, MPA, BAR Not with adapter VS, A8, A4, AD7, AD8, AD9, AD10.

[6] X, Y, M12 Max. permissible operating pressure P1 = 12 bar.

[7] WP, WPM, WPB Not with pneumatic connection G, NG.

## Peripherals overview



**Note**  
 Additional accessories:  
 • Module connector for combination with size MS9  
 → Internet: armv

| Mounting attachments and accessories                 |                                    | Order code                      | → Page/Internet |
|--|------------------------------------|---------------------------------|-----------------|
| <b>Can be ordered via the modular product system</b> |                                    |                                 |                 |
| [1]  | Connecting plate SET <sup>1)</sup> | [AG...]                         | 35              |
| [2]  | Mounting bracket                   | [WP]                            |                 |
| <b>Can be ordered as accessories</b>                 |                                    |                                 |                 |
| [1]  | Connecting plate SET               | MS12-AG...                      | ms12-ag         |
| [2]  | Mounting bracket                   | MS12-WP                         | ms12-wp         |
| [3]  | Module connector                   | MS12-MV                         | ms12-mv         |
| [4]  | Pressure gauge                     | MA-...-G1/4, MA-...-R1/4        | 36              |
| [5]  | Pressure sensor                    | SPAU-...-TR14M                  | 36              |
| [6]  | Connecting cable                   | NEBU-M8...-LE4, NEBU-M12...-LE4 | 37              |

1) Module connector [3] is included in the scope of delivery.

## Type codes

| 001 | Series    |
|-----|-----------|
| MS  | MS series |

| 002 | Size                  |
|-----|-----------------------|
| 12  | Grid dimension 124 mm |

| 003 | Function         |
|-----|------------------|
| FRM | Branching module |

| 004 | Pneumatic connection                               |
|-----|--|
| AGF | Sub-base G1  |
| AGG | Sub-base G1 1/4                                    |
| AGH | Sub-base G1 1/2                                    |
| AGI | Sub-base G2  |
| G   | Module without connecting thread, without sub-base |

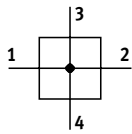
  





| 005 | Type of mounting              |
|-----|-------------------------------|
|     | Without mounting bracket      |
| WP  | Mounting bracket basic design |



## Datasheet

## Function



-  - Flow rate  
25000 ... 42000 l/min
-  - Temperature range  
-10 ... +60°C
-  - Operating pressure  
0 ... 20 bar
-  - [www.festo.com](http://www.festo.com)



- Compressed air distributors with 4 connections
- Support for auxiliary modules
- Outlet at the top and underneath
- Can be used as an intermediate distributor for varying air qualities

**General technical data**

|   |  |
|---|--|
| Pneumatic connection 1, 2                             |  |
| Connecting plate [AG...]                              | G1, G1 1/4, G1 1/2 or G2                 |
| Module without connecting thread/connecting plate [G] | -  |
| Pneumatic connection 3                                | G2                                       |
| Pneumatic connection 4                                | G1                                       |
| Design  | Branching module                         |
| Type of mounting                                      | With accessories<br>In-line installation |
| Mounting position                                     | Any                                      |

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

**Standard nominal flow rate  $q_{nN}^{1)}$  [l/min]**

|                              |                 |
|------------------------------|-----------------|
| In main flow direction 1 → 2 | 25000 ... 42000 |
|------------------------------|-----------------|

1) Dependent on the connecting plate selected. Must be ordered separately as an accessory → Internet: ms12-ag  
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 to ISO 8573-1:2010 [-:-:-] |
| Ambient temperature [°C]                     | -10 ... +60                               |
| Temperature of medium [°C]                   | -10 ... +60                               |
| Storage temperature [°C]                     | -10 ... +60                               |
| Corrosion resistance class CRC <sup>1)</sup> | 2   |

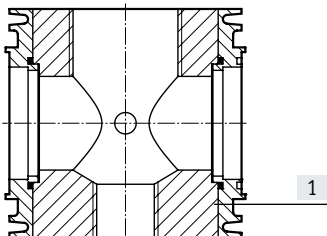
1) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Datasheet

|                   |      |
|-------------------|------|
| <b>Weight [g]</b> |      |
| Branching module  | 3000 |

### Materials

Sectional view

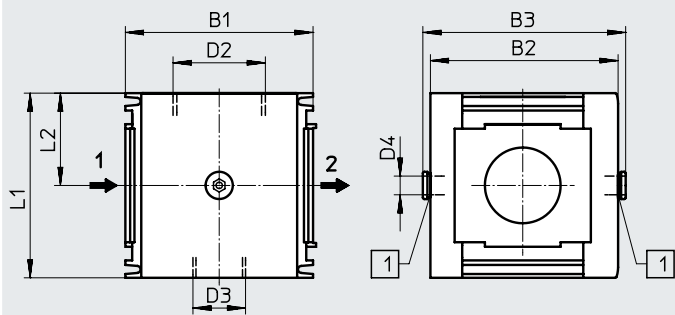


|                        |  |                    |
|------------------------|--|--------------------|
| Branching module       |  |                    |
| [1]                    | Housing  | Die-cast aluminium |
| -                      | Seals  | NBR                |
| -                      | Connecting plate, module connector, mounting bracket | Die-cast aluminium |
| LABS (PWIS) conformity |  | VDMA24364-B1/B2-L  |

### Dimensions – Basic version

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

[G] Module without connecting thread, without connecting plate



[1] Female thread G1/4 in housing, sealed with plug screw as standard

→ 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 ISO 228-1.

### Ordering data


| Size | Port 1, 2                 | Port 3, 4 | Flow direction     | Part no.      | Type              |
|------|---------------------------|-----------|--------------------|---------------|-------------------|
| MS12 | Without connecting thread | G thread  | From left to right | <b>541681</b> | <b>MS12-FRM-G</b> |



## Ordering data – Modular product system


| Ordering table       |  | Grid dimension   | [mm] | 124 | Conditions | Code        | Enter code |
|----------------------|--|--|------|-----|------------|-------------|------------|
| Module no.           |  | <b>535035</b>  |      |     |            |             |            |
| Series               |  | Standard   |      |     |            | <b>MS</b>   | MS         |
| Size                 |  | 12   |      |     |            | <b>12</b>   | 12         |
| Function             |  | Branching module   |      |     |            | <b>-FRM</b> | -FRM       |
| Pneumatic connection |  | Connecting plate G1  |      |     |            | <b>-AGF</b> |            |
|                      |  | Connecting plate G1 1/4                                    |      |     |            | <b>-AGG</b> |            |
|                      |  | Connecting plate G1 1/2                                    |      |     |            | <b>-AGH</b> |            |
|                      |  | Connecting plate G2  |      |     |            | <b>-AGI</b> |            |
|                      |  | Module without connecting thread, without connecting plate |      |     |            | <b>-G</b>   |            |
| Type of mounting     |  | Without mounting bracket                                   |      |     |            |             |            |
|                      |  | Mounting bracket standard design                           |      |     | [1]        | <b>-WP</b>  |            |


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

## Accessories

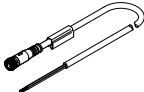
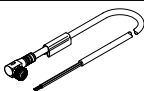
| Ordering data – Pressure gauge MA  |   |                      |                 |               |                           |                         |
|--|---|----------------------|-----------------|---------------|---------------------------|-------------------------|
|  | Nominal size  | Pneumatic connection | Indicator range |               | Part no.                  | Type                    |
|  |   |                      | [bar]           | [psi]         |                           |                         |
|  | <b>Pressure gauge MA, EN 837-1</b> <span style="float: right;">Datasheets → Internet: ma</span>                       |                      |                 |               |                           |                         |
|  | 40  | R1/4                 | 0 ... 16        | 0 ... 232     | <b>187080</b>             | <b>MA-40-16-R1/4-EN</b> |
|  |   | G1/4                 | 0 ... 16        | 0 ... 232     | <b>183901</b>             | <b>MA-40-16-G1/4-EN</b> |
|  | <b>Pressure gauge MA, EN 837-1, with red/green range</b> <span style="float: right;">Datasheets → Internet: ma</span> |                      |                 |               |                           |                         |
| 40   | R1/8  | 0 ... 16             | –               | <b>525726</b> | <b>MA-40-16-R1/8-E-RG</b> |                         |
| 50   | R1/4  | 0 ... 16             | –               | <b>525729</b> | <b>MA-50-16-R1/4-E-RG</b> |                         |

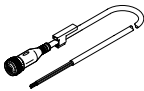
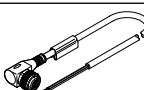
| Ordering data – Pressure sensor SPAU  |                      |                 |                             |                       |                |   |
|---|----------------------|-----------------|-----------------------------|-----------------------|----------------|---|
|   | Pneumatic connection | Display type    | Switching output            | Electrical connection | Part no.       | Type                                      |
|   |                      |                 |                             |                       |                |   |
|   | Male thread R1/8     | Illuminated LCD | 2x PNP or 2x NPN switchable | M8x1, 4-pin           | <b>8001203</b> | <b>SPAU-P10R-T-R18M-L-PNLK-PNVBA-M8D</b>  |
|   |                      |                 |                             | M12x1, 4-pin          | <b>8001206</b> | <b>SPAU-P10R-T-R18M-L-PNLK-PNVBA-M12D</b> |
|   | Male thread R1/4     |                 |                             | 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> |
| <b>Order code from modular product system [AD11]/[AD12]: for mounting on flange, pressure measuring range 0 ... 10 bar, relative pressure measurement</b> |                      |                 |                             |                       |                |   |
|   | Flange MS4           | Illuminated LCD | 2x PNP or 2x NPN switchable | M8x1, 4-pin           | <b>8035302</b> | <b>SPAU-P10R-MS4-F-L-PNLK-PNVBA-M8D</b>   |
|   |                      |                 |                             | M12x1, 4-pin          | <b>8035304</b> | <b>SPAU-P10R-MS4-F-L-PNLK-PNVBA-M12D</b>  |
|   | Flange MS6           |                 |                             | M8x1, 4-pin           | <b>8035303</b> | <b>SPAU-P10R-MS6-F-L-PNLK-PNVBA-M8D</b>   |
|   |                      |                 |                             | M12x1, 4-pin          | <b>8074906</b> | <b>SPAU-P10R-MS6-F-L-PNLK-PNVBA-M12D</b>  |


| Ordering data – Electrical adapter SASC  |                          |                       |                |                       |  |  |
|--|--------------------------|-----------------------|----------------|-----------------------|--|--|
|  | Description              | Electrical connection | Part no.       | Type                  |  |  |
|  |                          |                       |                |                       |  |  |
|  | For pressure sensor SPAN | M8x1, 4-pin           | <b>8000326</b> | <b>SASC-P4-A-M8-A</b> |  |  |


| Ordering data – Pressure sensor SPAN   |                      |                 |                             |                                    |                  |                                     |
|--|----------------------|-----------------|-----------------------------|------------------------------------|------------------|-------------------------------------|
|  | Pneumatic connection | Display type    | Switching output            | Analogue output                    | Part no.         | Type                                |
|  |                      |                 |                             |                                    |                  |                                     |
|  | Male thread G1/8     | Illuminated LCD | 2x PNP or 2x NPN switchable | –                                  | ★ <b>8035544</b> | <b>SPAN-P10R-G18M-PN-PN-L1</b>      |
|  |                      |                 |                             | 0 ... 10 V, 0 ... 5 V, 4 ... 20 mA | <b>8035533</b>   | <b>SPAN-P10R-G18M-PNLK-PNVBA-L1</b> |
|  | Male thread R1/8     |                 |                             | –                                  | ★ <b>8035547</b> | <b>SPAN-P10R-R18M-PN-PN-L1</b>      |
|  |                      |                 |                             | 0 ... 10 V, 0 ... 5 V, 4 ... 20 mA | <b>8035536</b>   | <b>SPAN-P10R-R18M-PNLK-PNVBA-L1</b> |


## Accessories


| Ordering data – Connecting cable NEBU-M8  |                       |                 |                  |          |                     | Datasheets → 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   |                        |                 |                  |          |                      | Datasheets → 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   |                             |

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

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

| Ordering data – Double nipple ESK   |   |                      |      |          |             | Datasheets → Internet: esk |
|---|---|----------------------|------|----------|-------------|----------------------------|
|   | Description   | Pneumatic connection |      | Part no. | Type        |                            |
|  | For subsequent mounting of pressure switch PEV on branching module MS-FRM | R1/4                 | R1/4 | 151521   | ESK-1/4-1/4 |                            |
|   |   |                      | R1/2 | 534153   | ESK-1/4-1/2 |                            |

| Ordering data – Plug screw NPQR-BK  |   |                                |  |          |             | Datasheets → Internet: npqr |
|---|---|--------------------------------|--|----------|-------------|-----------------------------|
|   | Description                               | Pneumatic connection Anschluss |  | Part no. | Type        |                             |
|  | For branching modules MS4-FRM-1/4-...-F1A | G1/4                           |  | 8085674  | NPQR-BK-G14 |                             |
|   | For branching modules MS6-FRM-1/2-...-F1A | G1/2                           |  | 8085676  | NPQR-BK-G12 |                             |