

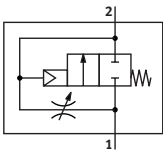
Soft-start valve MS4N-DL

FESTO



Characteristics

At a glance

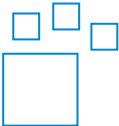


Pneumatically operated soft-start valve for slow pressurization and exhausting of pneumatic systems (for use with on/off valves EM1 and EE)

- The duration of the pressure build-up is set via the flow control attached to the valve cap. According to the set flow control position, the outlet pressure p2 increases slowly. When the cut-through pressure is reached, the main seat opens.
- The actuators move slowly and safely to the initial position
- Sudden and unpredictable movements are avoided
- Main seat opening at approx. 50% of the operating pressure
- Adjustable switch-through time delay
- Optional pressure sensor

Ordering data - modular system

Link [ms4n_dl](#)



Configurable product

This product and all its product options can be ordered online via the configurator.

Pneumatic connection

The installation of connection plates makes it easier to replace the module if necessary (e.g., when using piping).

Pressure gauge alternatives

- Features [AG]/[RG]: integrated pressure gauges
- Features [A4]/[A8]: Adapter for pressure gauge
- Features [AD7]/[AD8]/[AD9]/[AD10]: simple pressure sensors for monitoring the system
- Features [AD11]/[AD12]: functional pressure sensors for monitoring the system

Type of mounting

[WP]

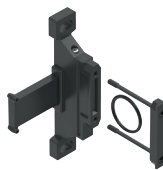
Mounting bracket standard design



- For connecting the modules for wall mounting
- In conjunction with sub-base for wall mounting of a single device
- in conjunction with mounting plate MS-AEND for wall mounting of a single device
- Same wall distance for mixed combination with series MS4 and MS6

[WPM]

Mounting bracket for hooking in air preparation units



- For connecting the modules for wall mounting
- In conjunction with sub-base MS4-AG... for wall mounting of an individual device
- Fast hooking and unhooking

Characteristics

[WB]

Mounting centrally at rear (wall mounting top and bottom),
sub-bases not required



For wall mounting

[WBM]

Mounting centrally at rear (wall mounting top), sub-bases
not required



For wall mounting

Type code

001	Series	
MS	MS series	
002	Size	
4	Width dimension 40 mm	
003	Thread type	
N	NPT thread	
004	Function	
DL	Soft-start valve, pneumatic	
005	Pneumatic connection, inch	
1/8	Internal thread NPT 1/8	
1/4	Internal thread NPT 1/4	
AQK	Sub-base NPT 1/8	
AQN	Sub-base NPT 1/4	
AQP	Sub-base NPT 3/8	

006	Pressure gauge alternatives	
	Without	
A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge	
AD7	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/O	
AD8	Pressure sensor with switching display, M8 plug, threshold value comparator, PNP, N/C	
AD9	Pressure sensor with switching display, M8 plug, window comparator, PNP, N/O	
AD10	Pressure sensor with operational status indicator, M8 plug, window comparator, PNP, N/C	
AD11	Pressure sensor with LCD display, M12 4-pin plug, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 4-pin plug, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AG	MS pressure gauge	
RG	Integrated pressure gauge, red/green scale	

007	Alternative pressure gauge scale	
	MS pressure gauge	
BAR	Bar	
MPA	MPa	

008	Type of mounting	
	Without mounting bracket	
WB	Mounting centrally at rear (wall mounting top and bottom), sub-bases not required	
WBM	Mounting centrally at rear (wall mounting top), sub-bases not required	
WP	Mounting bracket standard design	
WPM	Mounting bracket for hooking in air preparation units	

009	Flow direction	
	Flow direction from left to right	
Z	Flow direction from right to left	

Datasheet

General technical data		
Pneumatic connection 1 ¹⁾	1/8 NPT	1/4 NPT
Pneumatic connection 2	1/8 NPT	1/4 NPT
Structural design	Piston seat	
Type of mounting	Optionally: Line installation With accessories	
Mounting position ²⁾	Any	
Valve function	2/2	
Exhaust air function	With flow control option	
Actuation type	Pneumatic	
Type of control	Direct	
Flow direction	Non-reversible	

1) Via sub-base [AQ...]: 1/8 NPT, 1/4 NPT or 3/8 NPT

2) Vertical mounting position for the on/off valve with pressure sensor, as condensation water must not be allowed to collect in the pressure sensor.

Flow characteristics		
Pneumatic connection 1	1/8 NPT	1/4 NPT
Normal nominal flow rate (normalized to DIN 1343) ¹⁾	1,000 l/min	2,000 l/min
C value	4.6 l/sbar	9.6 l/sbar
b-value	0.5	0.45

1) Measured at p₁ = 6 bar and p₂ = 5 bar, Δp = 1 bar.

Operating and environmental conditions	
Operating pressure	4 ... 14 bar
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4], Inert gases
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)
Ambient temperature	-10 ... 60°C
Temperature of medium	-10 ... 60°C
Corrosion resistance class (CRC) ¹⁾	2 - Moderate corrosion stress
For use in the food industry ²⁾	See supplementary material information

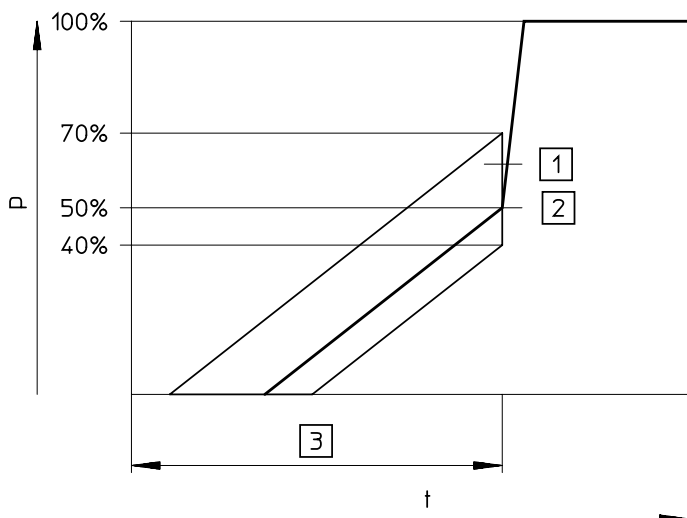
1) For more information, visit www.festo.com/x/topic/kbk

2) Further information www.festo.com/certificates/ms4n-em1

Materials	
Housing material	Die-cast aluminum
Seals material	NBR
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L

Datasheet

Switching point – pressure p as a function of time t



- [1] Tolerance range
- [2] Switching point
- [3] Filling time adjustable via flow control

Note:

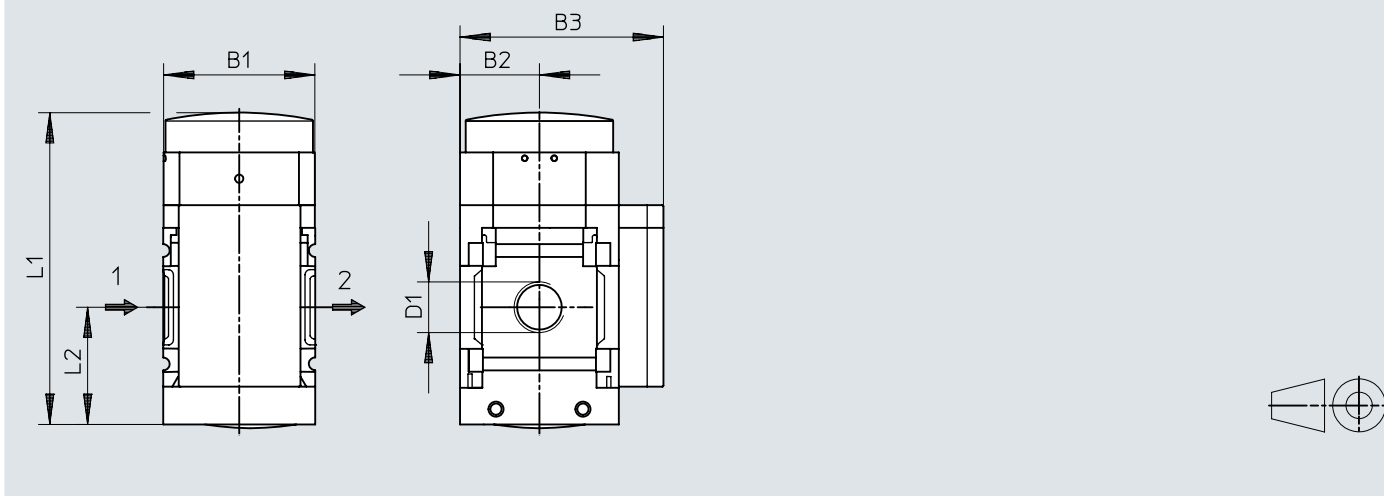
The tolerance specification +20%/–10% of the switch-on point refers to the operating pressure p_1 .

Example: At an operating pressure of 4 bar, a cut-through point of 1.6 to 2.8 bar is permissible.

Dimensions

Dimensions – Basic type with female thread, with cover plate

Download CAD data www.festo.com

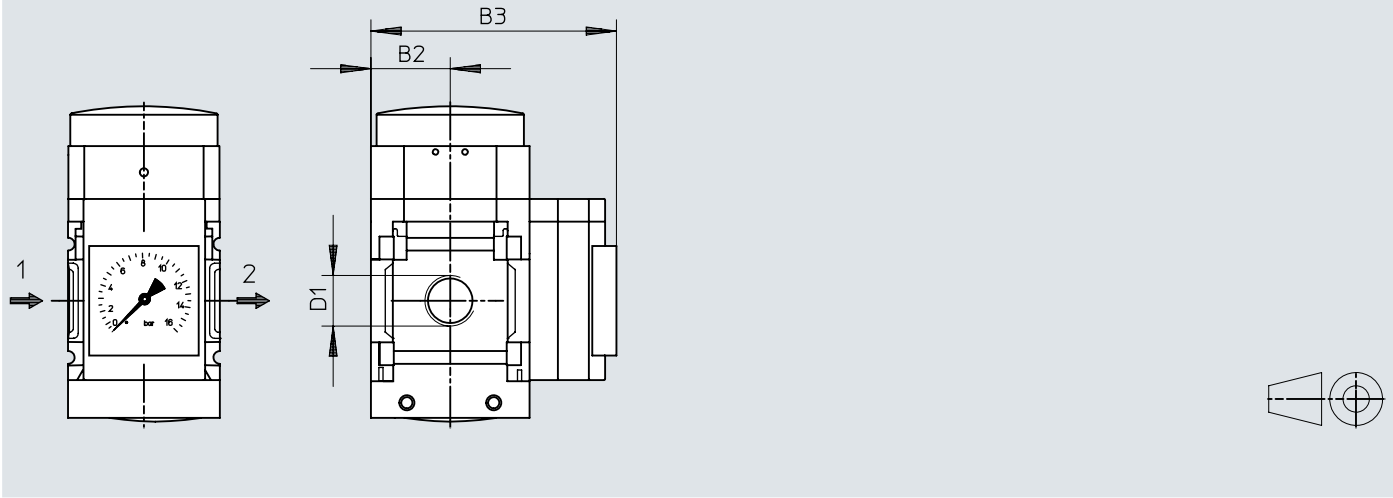


	B1 [inch]	B2 [inch]	B3 [inch]	D1	L1 [inch]	L2 [inch]
MS4N-DL-1/8	1,57	0,83	2,13	1/8 NPT	3,28	1,24
MS4N-DL-1/4				1/4 NPT		

Dimensions

Dimensions – Integrated MS pressure gauge with standard scale/with red-green scale

Download CAD data www.festo.com

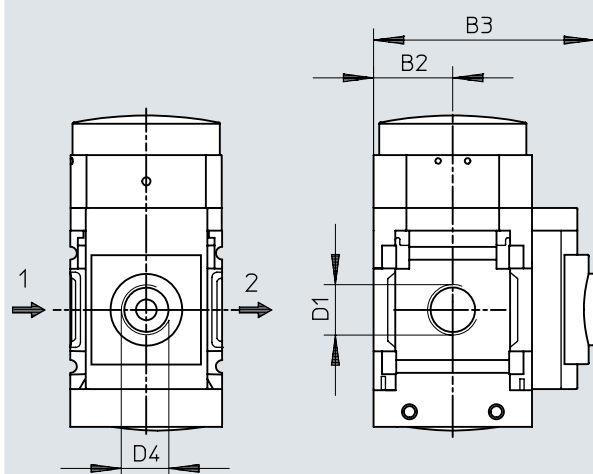


	B2 [inch]	B3 [inch]
MS4N-...-AG	0,83	2,24
MS4N-...-RG		2,30

Dimensions

Dimensions – Adapter for EN pressure gauge 1/8 without pressure gauge/
adapter for EN pressure gauge 1/4, without pressure gauge

Download CAD data www.festo.com

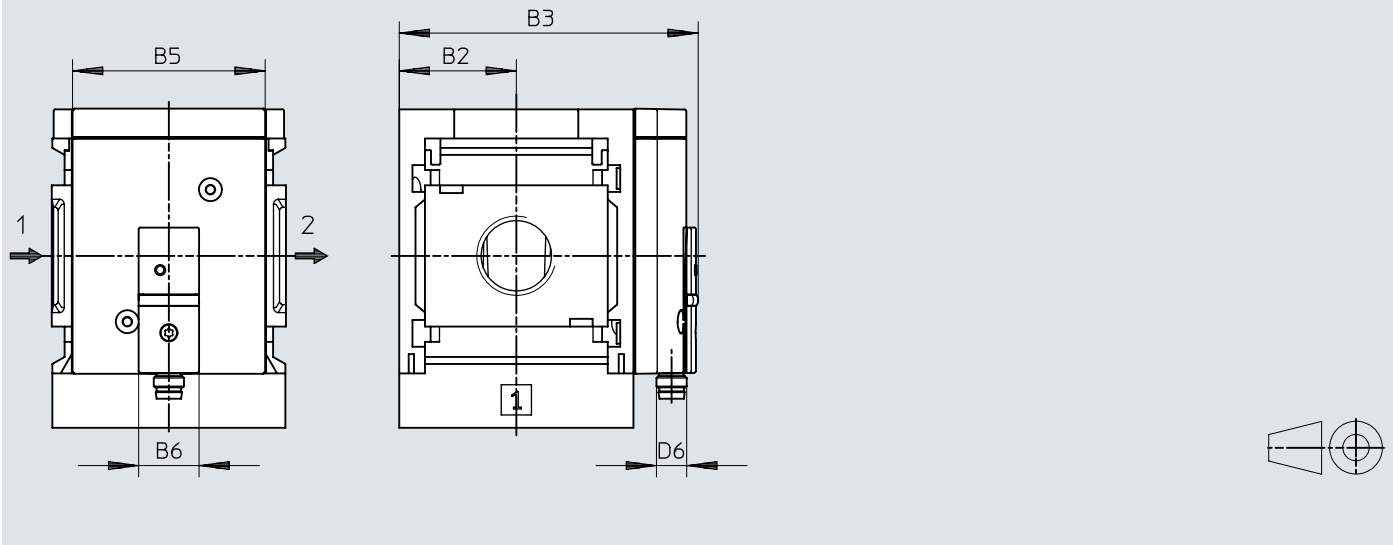


	B2 [inch]	B3 [inch]	D4
MS4N-...-A8	0,83	2,30	1/8 NPT
MS4N-...-A4			1/4 NPT

Dimensions

Dimensions – Pressure sensor with switching indication AD7, AD8, AD9, AD10

Download CAD data www.festo.com

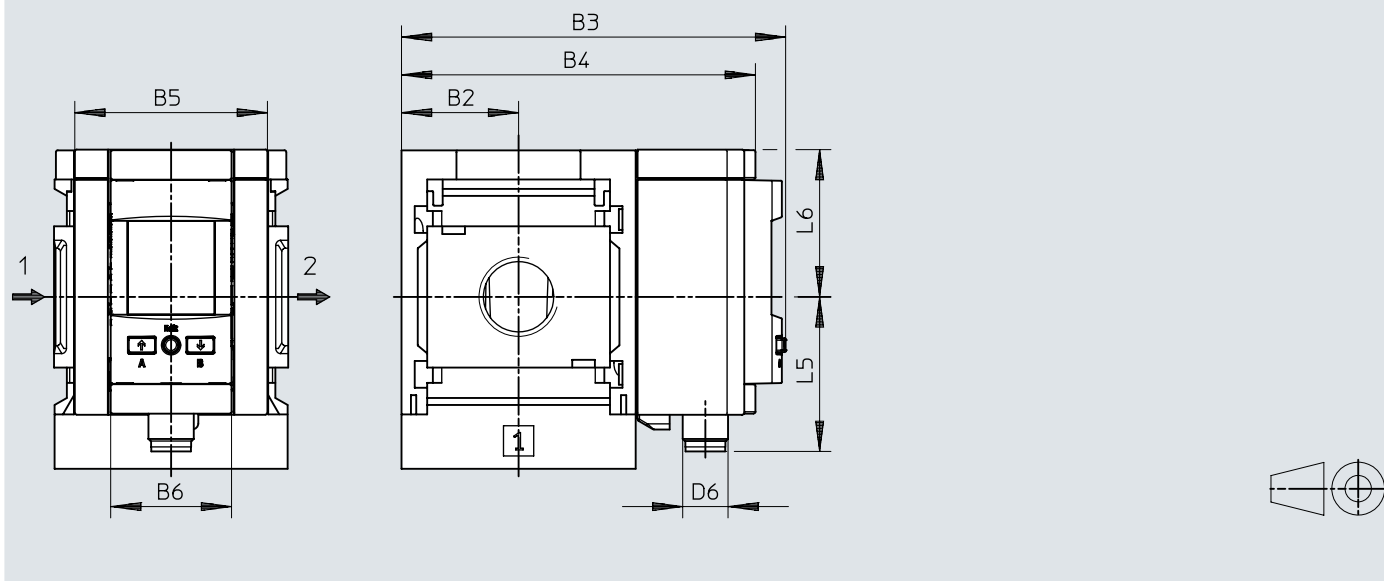


	B2 [inch]	B3 [inch]	B5 [inch]	B6 [inch]	D6
MS4N-...-AD7, AD8, AD9, AD10	0,83	2,33	~1,26	0,63	M8x1

Dimensions

Dimensions – Pressure sensor with LCD display AD11, AD12

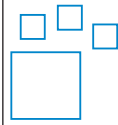
Download CAD data www.festo.com



	B2 [inch]	B3 [inch]	B4 [inch]	B5 [inch]	B6 [inch]	D6	L5 [inch]	L6 [inch]
MS4N-...-AD11	0,83	3,20	2,89	1,26	1,26	M12x1	1,62	1,53
MS4N-...-AD12						M8x1	1,49	

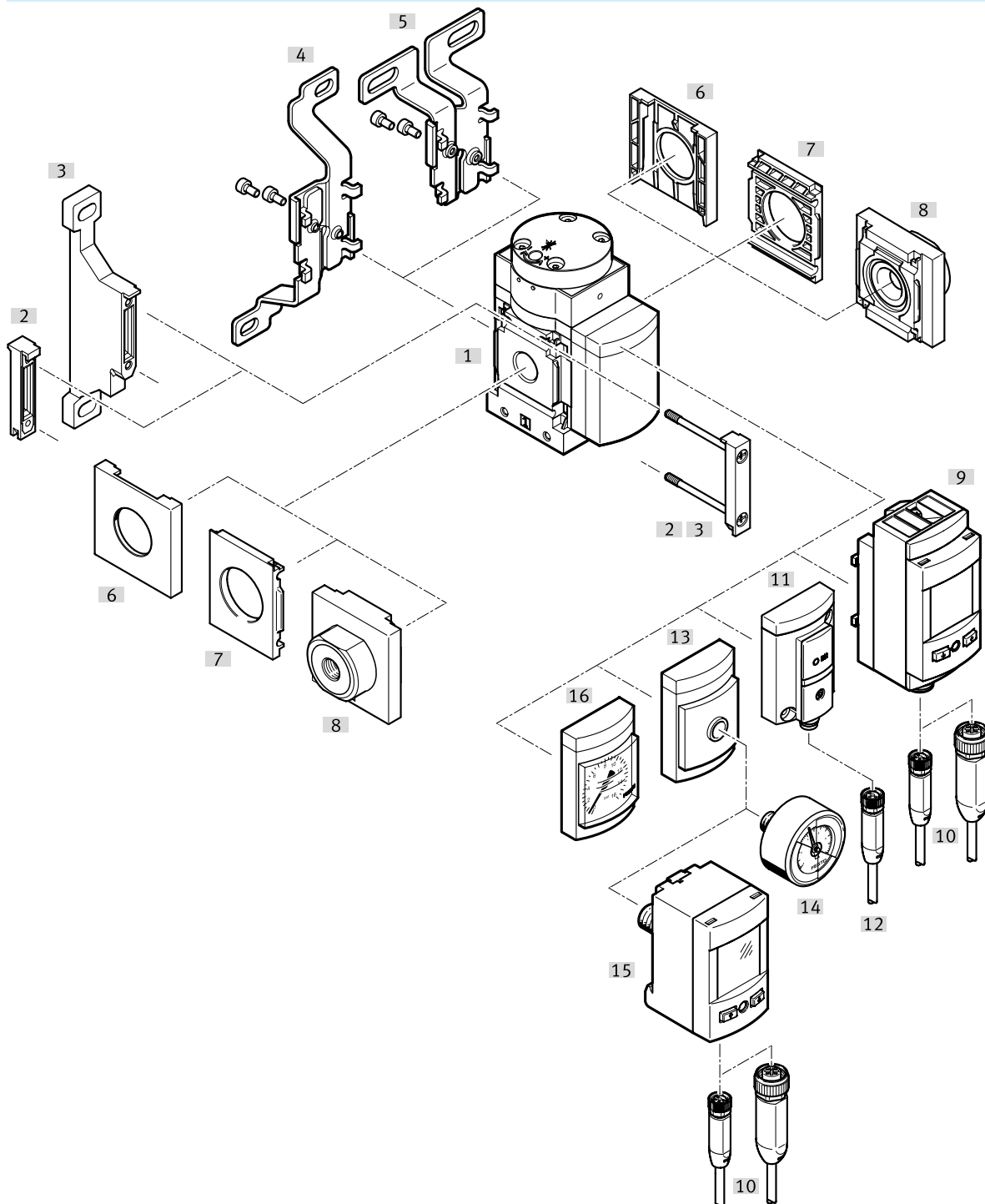
Ordering data

Ordering data					
	Pneumatic connection 1	Flow direction	Product weight	Part no.	Type
	1/8 NPT	From left to right	213 g	531992	MS4N-DL-1/8
	1/4 NPT			531991	MS4N-DL-1/4

Ordering data – Modular product system			
	Type code	Part no.	Type
	MS4N-DL	527712	MS4N-DL

Peripherals overview

Peripherals overview



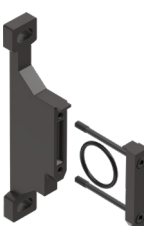
Accessories		→ Page/Internet
Type/order code	Description	
[1] Soft-start valve MS4N-DL	On/off valve	ms4n-dl
[2] Module connector MS4-MV1	For connection of the modules	15
[3] Mounting bracket MS4-WP	Order code [WP]	15
[3] Mounting bracket MS4-WPM	Order code [WPM] (not shown)	15
[4] Mounting bracket MS4-WB	Order code [WB]	15
[5] Mounting bracket MS4-WBM	Order code [WBM]	16
[6] Cover cap MS4-END	Can be used to cover the sides of the housing for the first and last modules if no sub-bases are used.	16
[7] Mounting plate MS4-AEND	Module connector MS4-MV1 [2] or mounting bracket MS4-WP, WPB, WPE, WPM [3] is required for mounting.	16

Peripherals overview

Accessories		→ Page/Internet
Type/order code	Description	
[8] Sub-base SET MS4-AQ...	Order code [AQ...]	16
[9] Pressure sensor with LCD display SPAU	• Display module • Order code [AD11], [AD12]	ms4n-dl
[10] Connecting cable NEBA-M...G...-LE4, straight	Connecting cable for display module	17
[10] Connecting cable NEBA-M...G...-LE4, angled	Connecting cable for display module	17
[11] Pressure sensor with switching indication SDE5	• Display module • Order code [AD7], [AD8], [AD9], [AD10]	ms4n-dl
[12] Connecting cable NEBA-M...G...-LE3, straight	Connecting cable for display module	17
[13] Adapter for EN pressure gauge 1/8, 1/4	Order code [A8], [A4]	ms4n-dl
[14] Pressure gauge MA	Built-in pressure indicator	16
[15] Pressure sensor SPAU-...-T	Display module	17
[16] Pressure gauge MS	Order code [AG], [RG]	ms4n-dl

Accessories

Module connector MS4-MV1						
	Size	Module connector material	LABS (PWIS) conformity	Product weight	Part no.	Type
	4	POM, High-alloy stainless steel	VDMA24364-B1/B2-L	13 g	8119201	MS4-MV1

Mounting bracket MS4-WP...						
	Size	Bracket material	LABS (PWIS) conformity	Product weight	Part no.	Type
	4	Die-cast aluminum	VDMA24364-B1/B2-L	39 g	532184	MS4-WP

Mounting bracket MS4-WPM						
	Size	Module connector material	LABS (PWIS) conformity	Product weight	Part no.	Type
	4	POM, Steel	VDMA24364-B1/B2-L	45 g	526060	MS4-WPM-D

Mounting bracket MS4-WB						
	Size	Bracket material	LABS (PWIS) conformity	Product weight	Part no.	Type
	4	Steel	VDMA24364-B1/B2-L	46 g	532185	MS4-WB

Accessories

Mounting bracket MS4-WBM

	Size	Bracket material	LABS (PWIS) con- formity	Product weight	Part no.	Type
	4	Steel	VDMA24364-B1/ B2-L	48 g	526062	MS4-WBM

Cover cap MS4-END

	Size	Housing material	Part no.	Type
	4	PA-reinforced	538779	MS4-END

Mounting plate MS4-AEND

	Size	Product weight	Part no.	Type
	4	4 g	542966	MS4-AEND

Sub-base SET MS4-AQ...

	Size	Pneumatic connection 1	Product weight	Part no.	Type
	4	1/8 NPT	128 g	526065	MS4N-AQK
		1/4 NPT		526066	MS4N-AQN
		3/8 NPT		526067	MS4N-AQP

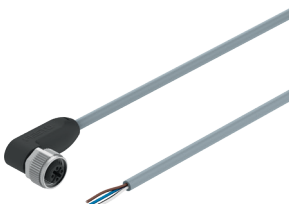
Pressure gauge MA

	Pneumatic con- nection	Display range	Display range	Product weight	Part no.	Type
	R1/8		0 ... 16 bar	60 g	525726	MA-40-16-R1/8-E-RG
	R1/4	0 ... 232 psi		70 g	187080	MA-40-16-R1/4-EN

Accessories

Pressure sensor SPAU						
	Pneumatic connection	Switching output	Electrical connection 1, connection technology	Product weight	Part no.	Type
	R1/8	2 x PNP or 2 x NPN switchable	M12x1 A-coded as per EN 61076-2-101	70 g	8001206	SPAU-P10R-T-R18M-L-PNLK-PNVBA-M12D
			M8x1 A-coded as per EN 61076-2-104		8001203	SPAU-P10R-T-R18M-L-PNLK-PNVBA-M8D
	R1/4		M12x1 A-coded as per EN 61076-2-101		8001208	SPAU-P10R-T-R14M-L-PNLK-PNVBA-M12D
			M8x1 A-coded as per EN 61076-2-104		8001209	SPAU-P10R-T-R14M-L-PNLK-PNVBA-M8D

Connecting cable NEBA, straight						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M12x1 A-coded as per EN 61076-2-101	Open end	3	2.5 m	8078236	NEBA-M12G5-U-2.5-N-LE3
				5 m	8078237	NEBA-M12G5-U-5-N-LE3
			4	2.5 m	8078239	NEBA-M12G5-U-2.5-N-LE4
				5 m	8078240	NEBA-M12G5-U-5-N-LE4
	M8x1 A-coded as per EN 61076-2-104		3	2.5 m	8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	8078224	NEBA-M8G3-U-5-N-LE3
			4	2.5 m	8078227	NEBA-M8G4-U-2.5-N-LE4
				5 m	8078228	NEBA-M8G4-U-5-N-LE4

Connecting cable NEBA, angled						
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/wires	Cable length	Part no.	Type
	M12x1 A-coded as per EN 61076-2-101	Open end	3	2.5 m	8078245	NEBA-M12W5-U-2.5-N-LE3
				5 m	8078246	NEBA-M12W5-U-5-N-LE3
			4	2.5 m	8078248	NEBA-M12W5-U-2.5-N-LE4
				5 m	8078249	NEBA-M12W5-U-5-N-LE4
	M8x1 A-coded as per EN 61076-2-104		3	2.5 m	8078230	NEBA-M8W3-U-2.5-N-LE3
				5 m	8078231	NEBA-M8W3-U-5-N-LE3
			4	2.5 m	8078233	NEBA-M8W4-U-2.5-N-LE4
				5 m	8078234	NEBA-M8W4-U-5-N-LE4