

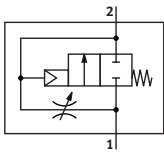
Soft-start valve MS4N-DL

FESTO



Characteristics

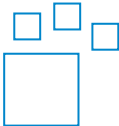
At a glance



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

- The duration of the pressure build-up is set using the restrictor attached to the valve cap. The output pressure p2 rises slowly according to the restrictor setting. The main seat opens when the switch-through pressure is reached.
- The drives 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 switching 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

By installing connecting plates it is easier to replace the module if necessary (e.g. when using piping).

Pressure gauge alternatives

- Key features [AG]/[RG]: integrated pressure gauges
- Key features [A4]/[A8]: Adapter for pressure gauge
- Key features [O.D7]/[O.D.8]/[O.D.9]/[O.D.10]: simple pressure sensors for monitoring the system
- Key features [AD11]/[AD12]: functional pressure sensors for monitoring the system

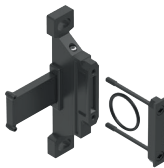
Type of mounting

[WP] Mounting bracket basic design



- For connecting the modules for wall mounting
- In combination with connecting plate for wall mounting an individual unit
- In conjunction with mounting plate MS-AEND or wall mounting a single device
- Same wall distance for combinations of series MS4 and MS6

[WPM] Mounting bracket for hooking in service unit components



- For connecting the modules for wall mounting
- In combination with connecting plate MS4-AG... for mounting an individual device on a wall
- Fast hooking and unhooking

[WB] Mounting centrally at rear (wall mounting top and bottom), connecting plates not required



For wall mounting

[WBM] Mounting centrally at rear (wall mounting top), connecting plates not required



For wall mounting

Type code

001	Series	
MS	MS series	
002	Size	
4	Grid dimension 40 mm	
003	Thread type	
N	NPT thread	
004	Function	
DL	Soft-start valve, pneumatic	
005	Pneumatic connection, inch	
1/8	Female thread NPT 1/8	
1/4	Female thread NPT 1/4	
AQK	Sub-base NPT1/8	
AQN	Sub-base NPT1/4	
AQP	Sub-base NPT3/8	

006	Pressure gauge alternatives	
	None	
A4	Adapter for EN pressure gauge 1/4, without pressure gauge	
A8	Adapter 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 plug, 4-pin, IO-Link®, PNP, NPN, 0...10 V, 1...5 V, 4...20 mA	
AD12	Pressure sensor with LCD display, M8 plug, 4-pin, 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), connecting plates not required	
WBM	Mounting centrally at rear (wall mounting top), connecting plates not required	
WP	Mounting bracket basic design	
WPM	Mounting bracket for hooking in service unit components	

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

Datasheet

General technical data

Pneumatic connection, port 1 ¹⁾	1/8 NPT	1/4 NPT
Pneumatic connection, port 2	1/8 NPT	1/4 NPT
Design	Piston seat	
Type of mounting	Either: Inline installation With accessories	
Mounting position ²⁾	Any	
Valve function	2/2	
Exhaust-air function	Can be throttled	
Type of actuation	Pneumatic	
Type of piloting	Direct	
Flow direction	Non-reversible	

1) Via connecting plate [AQ...]: 1/8 NPT, 1/4 NPT or 3/8 NPT

2) The on/off valve must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

Flow characteristics

Pneumatic connection, port 1	1/8 NPT	1/4 NPT
Standard nominal flow rate (standardised 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 to ISO 8573-1:2010 [7:4:4], Inert gas
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	-10 ... 60°C
Media temperature	-10 ... 60°C
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress
Suitable for use with food ²⁾	See supplementary material information

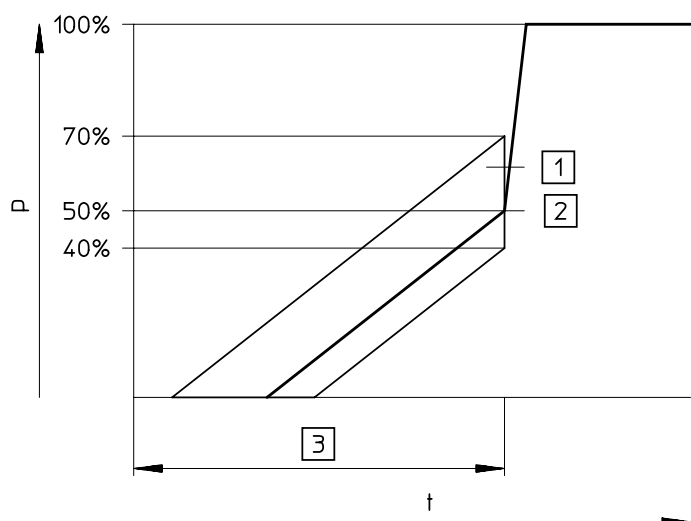
1) More information www.festo.com/x/topic/crc

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

Materials

Material housing	Die-cast aluminium
Material seals	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

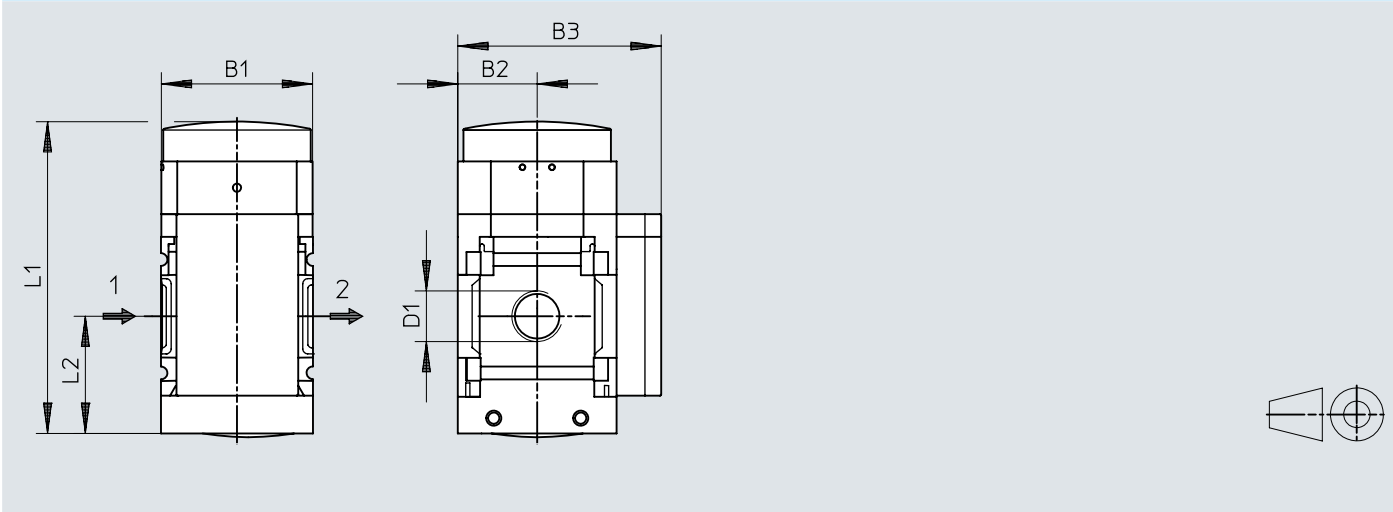
Note:

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

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

Dimensions

Dimensions – Basic type with female thread, with cover plate Download CAD data www.festo.com

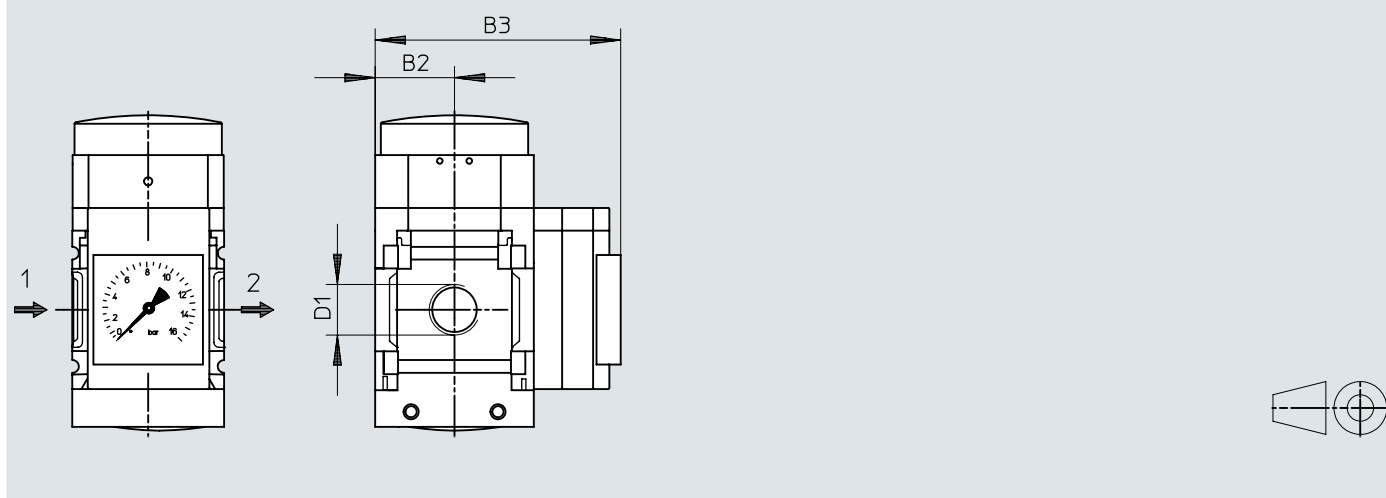


	B1 [inch]	B2 [inch]	B3 [inch]	D1	L1 [inch]	L2 [inch]
MS4N-DL-1/8	1,57	0,83	2,13	1/8 NPT	3,28	1,24
MS4N-DL-1/4				1/4 NPT		

Dimensions

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

Download CAD data www.festo.com

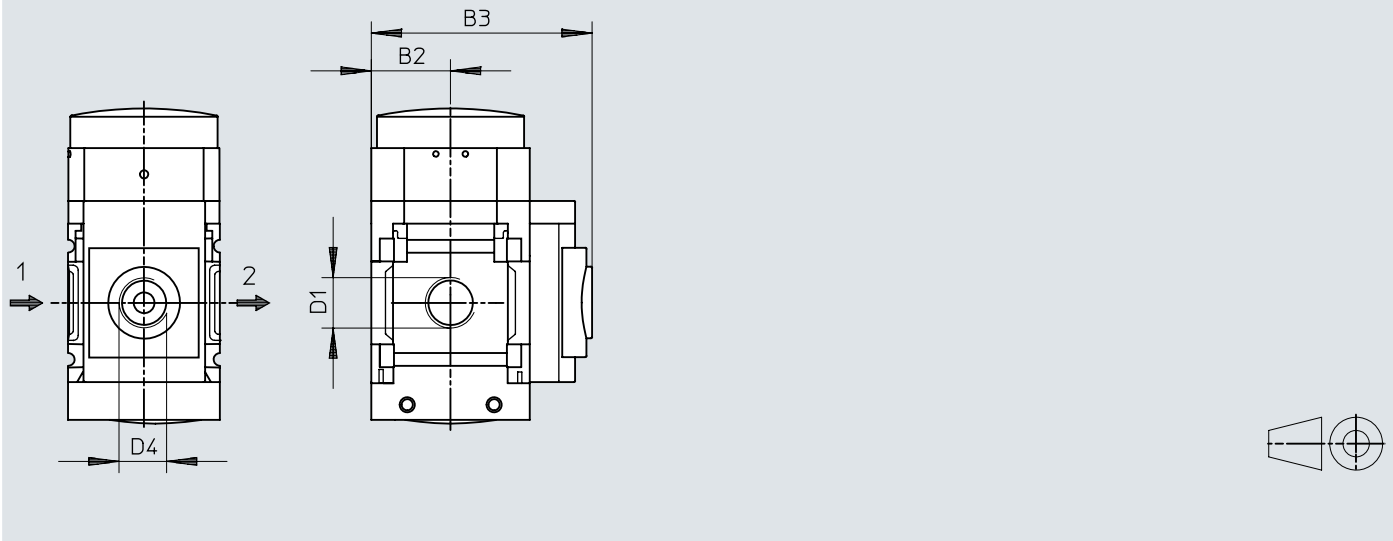


	B2 [inch]	B3 [inch]
MS4N-...-AG	0,83	2,24
MS4N-...-RG		2,30

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

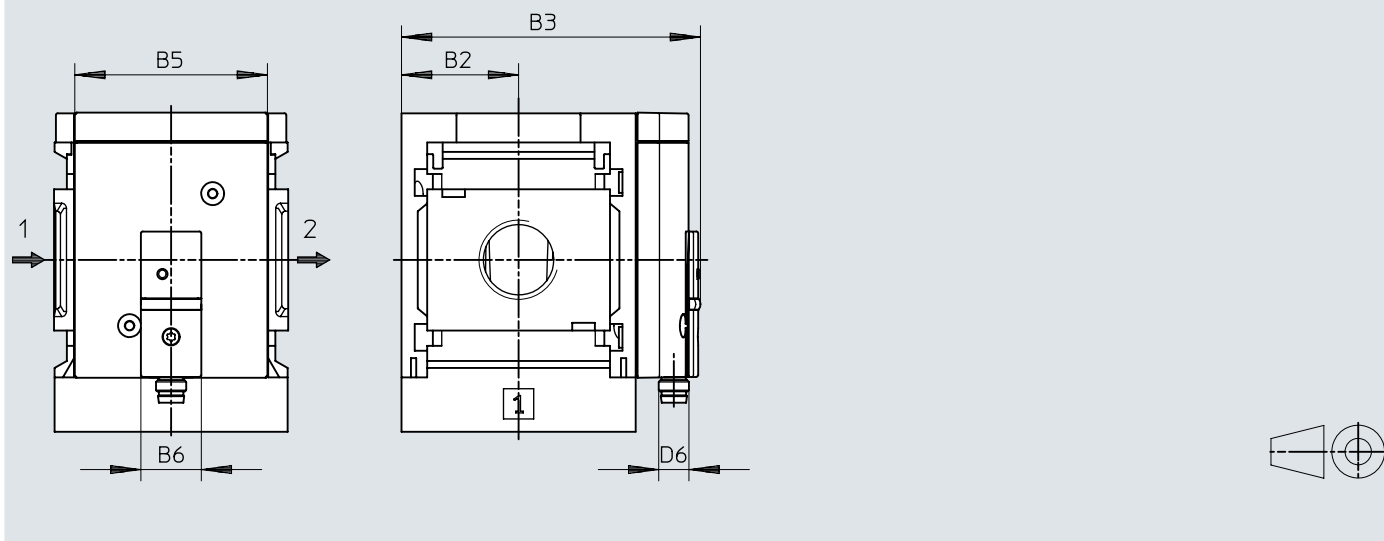


	B2 [inch]	B3 [inch]	D4
MS4N-...-A8	0,83	2,30	1/8 NPT
MS4N-...-A4			1/4 NPT

Dimensions

Dimensions – Pressure sensor with status indicator AD7, AD8, AD9, AD10

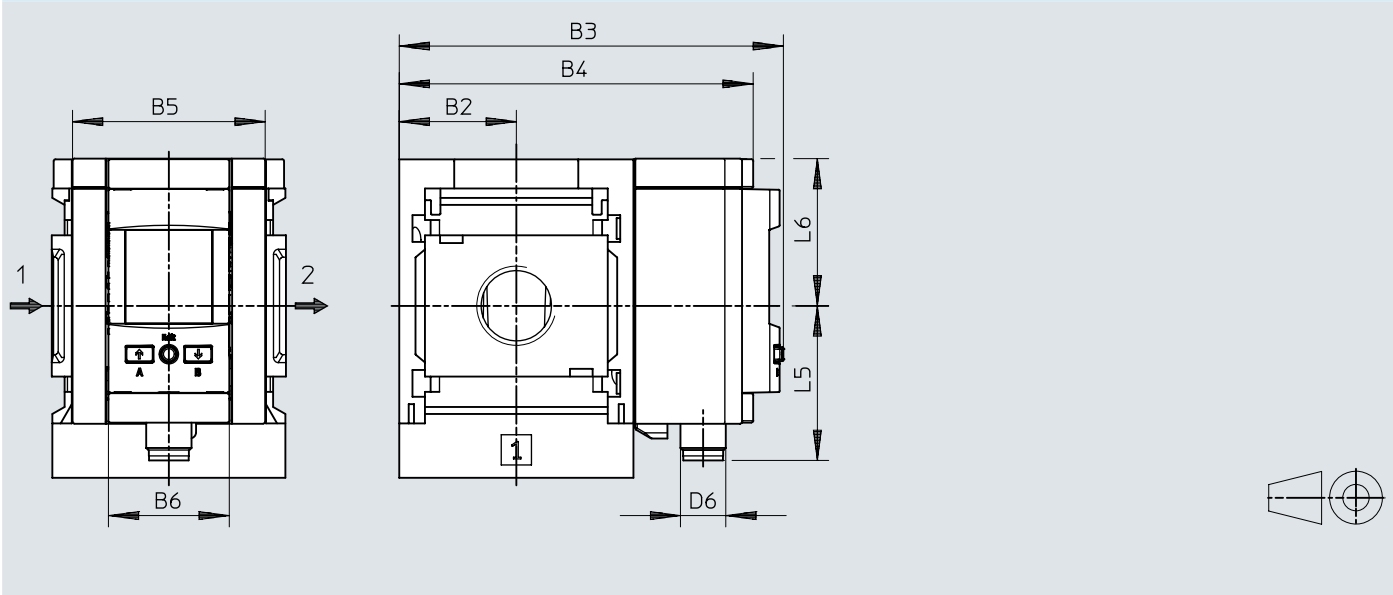
Download CAD data www.festo.com



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

Dimensions

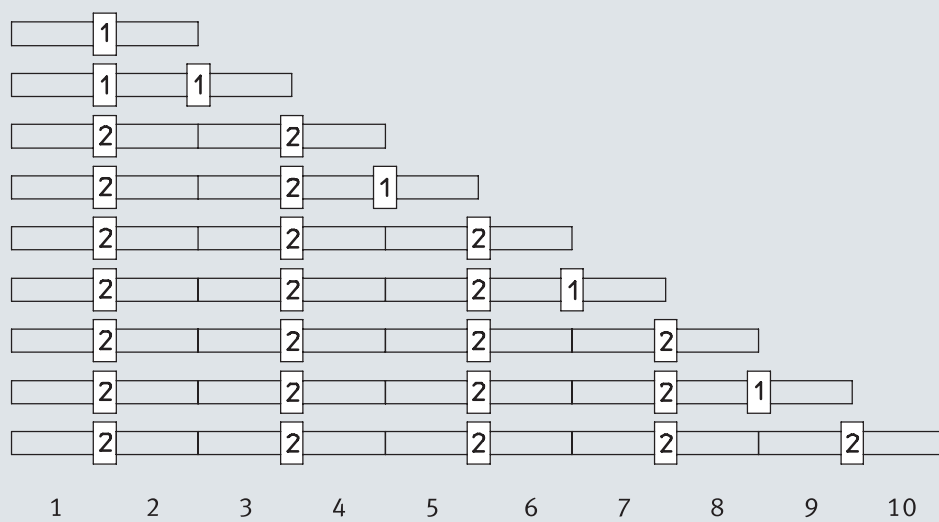
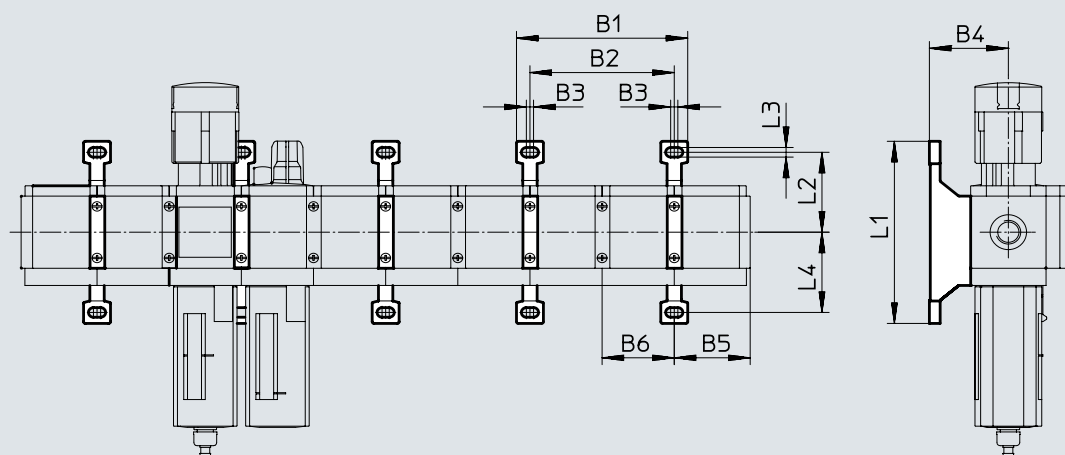
Dimensions – Pressure sensor with LCD display AD11, AD12 Download CAD data www.festo.com



	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	

Dimensions

Dimensions – Mounting clearances for mounting service unit combinations

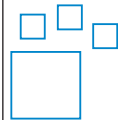
[Download CAD data](http://www.festo.com)


- [1] Mounting bracket WP, WPB, WPE or WPM-D
 [2] Mounting bracket WP, WPB, WPE or WPM-2D
 [3] Number of components

	B1 ¹⁾ [inch]	B2 ¹⁾ [inch]	B3 [inch]	B4 [inch]	B5 ¹⁾²⁾ [inch]	B6 ¹⁾ [inch]	L1 [inch]	L2 [inch]	L3 [inch]	L4 [inch]
MS4-WP	3,76	3,17	0,16	1,73	1,65	1,58	4,17	1,83	0,22	1,84
MS4-WPB/WPE				2,60						
MS4-WPM-...D				1,73			3,65	1,37		1,78

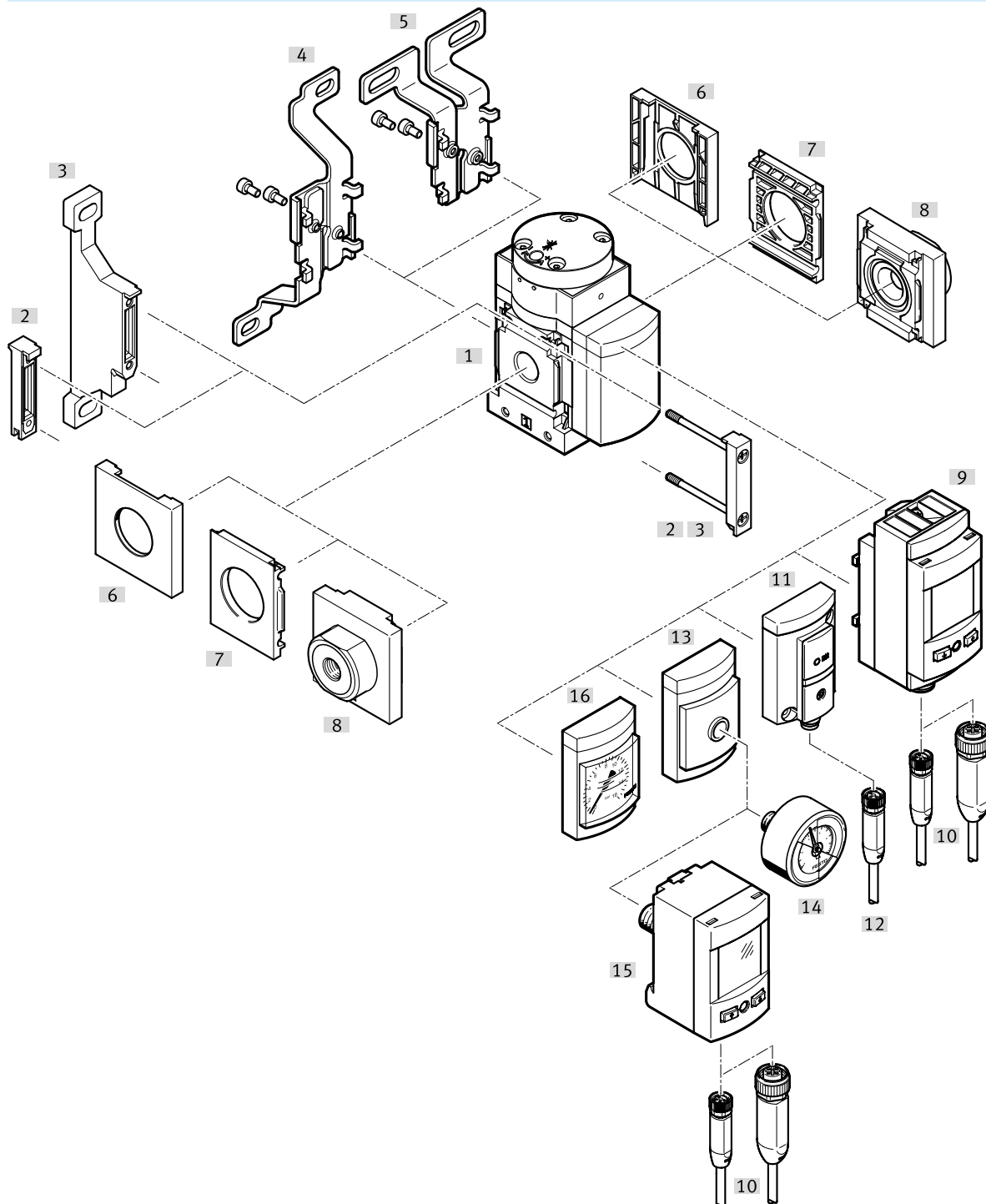
Ordering data

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

Ordering information – Modular product system			
	Short type code	Part no.	Type
	MS4N-DL	527712	MS4N-DL

Peripherals

Peripherals overview



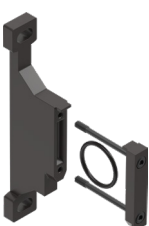
Accessories			→ Link
Type/order code	Description		
[1] Soft-start valve MS4N-DL	On/off valve		ms4n-dl
[2] Module connector MS4-MV1	For connecting the modules		15
[3] Mounting bracket MS4-WP	Order code [WP]		15
[3] Mounting bracket MS4-WPM	Order code [WPM] (without illustration)		15
[4] Mounting bracket 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 module if no connecting plates 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

Accessories		→ Link
Type/order code	Description	
[8] Connecting plate 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 status indicator 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	Material module connector	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	Material bracket	LABS (PWIS) conformity	Product weight	Part no.	Type
	4	Die-cast aluminium	VDMA24364-B1/B2-L	39 g	532184	MS4-WP

Mounting bracket MS4-WPM						
	Size	Material module connector	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	Material bracket	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	Material bracket	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	Material housing	Part no.	Type
	4	Reinforced PA	538779	MS4-END

Mounting plate MS4-AEND

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

Connecting plate SET MS4-AQ...

	Size	Pneumatic connection, port 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

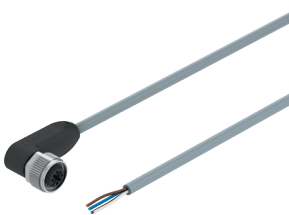
Pressure gauge MA

	Pneumatic con- nection	Indicating range	Indicating 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, connector system	Product weight	Part no.	Type
	R1/8	2 x PNP or 2 x NPN, switchable	M12x1, A-coded to EN 61076-2-101	70 g	8001206	SPAU-P10R-T-R18M-L-PNLK-PNVBA-M12D
			M8x1, A-coded, to EN 61076-2-104		8001203	SPAU-P10R-T-R18M-L-PNLK-PNVBA-M8D
	R1/4		M12x1, A-coded to EN 61076-2-101		8001208	SPAU-P10R-T-R14M-L-PNLK-PNVBA-M12D
			M8x1, A-coded, to EN 61076-2-104		8001209	SPAU-P10R-T-R14M-L-PNLK-PNVBA-M8D

Connecting cable NEBA, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/ cores	Cable length	Part no.	Type
	M12x1, A-coded to 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, to 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, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/ cores	Cable length	Part no.	Type
	M12x1, A-coded to 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, to 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