Branching modules/Distributor blocks MS-FRM, MS series

FESTO

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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Type Code	Size	Pneumatic connection in housing	Connecting plate AG...	Pressure regulation range [bar] 0.05 ... 0.7 D2	0.05 ... 2.5 D4	0.1 ... 4 D5	0.3 ... 7 D6	0.1 ... 12 D7	0.5 ... 16 D8	Grade of filtration [µm] 0.01 A	1 B	5 C	40 E
Service units													
MSB-FRC	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
	9	–											
	12	–											
Service unit combinations (further variants can be ordered using the configurator ➔ Internet: msb4, msb6 or msb9)													
MSB	4	G¼	G⅛, G¼, G⅜	–	–	–	■	■	–	–	–	■	■
	6	G½	G¼, G⅜, G½, G¾	–	–	–	■	■	–	–	–	■	■
	9	–											
	12	–											
Individual devices													
Filter regulators **MS-LFR**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	■	■
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	■	■
	9	–											
	12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■
Filter **MS-LF**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	■	■
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	■	■
	9	–											
	12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	■	■
Fine and micro filters **MS-LFM**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	■	–	–
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	■	–	–
	9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	■	■	–	–
	12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	–	–
Activated carbon filters **MS-LFX**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
	9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
	12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
Pressure regulators **MS-LR**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	–	–
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	–	–
	9	–											
	12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	–	–
Pressure regulators **MS-LRB**	4	G¼	G⅛, G¼, G⅜	–	–	■	■	■	–	–	–	–	–
	6	G½	G¼, G⅜, G½, G¾	–	–	■	■	■	■	–	–	–	–
	9	–											
	12	–											
Precision pressure regulators **MS-LRP**	4	–											
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	■	■	■	–	■	–	–	–	–	–
	9	–											
	12	–											
Precision pressure regulators **MS-LRPB**	4	–											
	6	G½	G¼, G⅜, G½, G¾	■	■	■	–	■	–	–	–	–	–
	9	–											
	12	–											

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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Type	Size	Bowl guard		Condensate drains				Pressure indicator					Actuator lock		Options		→ Page/Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Manual rotary	Semi-automatic	Fully automatic	External, fully automatic, electrical	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	Rotary knob, lockable	Rotary knob, long	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E …	VS	AG	A8	A4	AD…	AS	LD	S	Z	
Service units																	
MSB-FRC	4	■	–	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Service unit combinations																	
MSB	4	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb4
	6	■	■	■	–	■	–	–	■	–	–	–	■	–	–	■	msb6
	9	–															–
	12	–															–
Individual devices																	
Filter regulators **MS-LFR**	4	■	■	■	■	■	–	■	■	■	■	■	■	■	–	■	ms4-lfr
	6	■	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms6-lfr
	9	–															–
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters **MS-LF**	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–															–
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lf
Fine and micro filters **MS-LFM**	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lfm
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lfm
	9	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lfm
	12	–	■	■	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lfm
Activated carbon filters **MS-LFX**	4	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms4-lfx
	6	■	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms6-lfx
	9	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms9-lfx
	12	–	■	–	–	–	–	–	–	–	–	–	–	–	–	■	ms12-lfx
Pressure regulators **MS-LR**	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	ms6-lr
	9	–															–
	12	–	–	–	–	–	–	■	■	–	■	–	■	■	–	■	ms12-lr
Pressure regulators **MS-LRB**	4	–	–	–	–	–	–	■	■	■	■	■	■	■	–	■	ms4-lrb
	6	–	–	–	–	–	–	■	■	–	■	■	■	■	–	■	ms6-lrb
	9	–															–
	12	–															–
Precision pressure regulators **MS-LRP**	4	–															–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	ms6-lrp
	9	–															–
	12	–															–
Precision pressure regulators **MS-LRPB**	4	–															–
	6	–	–	–	–	–	–	■	–	■	■	■	■	■	–	■	ms6-lrpb
	9	–															–
	12	–															–

Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]				Supply voltage			
					0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code				AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices												
Electrical pressure regulators **MS-LRE**		4	–									
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	■	■	■	■	–	–	–	–
		9	–									
		12	–									
Lubricators **MS-LOE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–
Electrical on-off valves **MS-EM(1)**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–
Electrical on-off valves **MS-EE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	■	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	■	–	■	■
		9	–									
		12	–	G1, G1¼, G1½, G2	–	–	–	–	■	■	■	■
Electrical soft-start valves **MS-DL**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–
		9	–									
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–
Electrical soft-start valves **MS-DE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	■	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	■	–	■	■
		9	–									
		12	–	G1, G1¼, G1½, G2	–	–	–	–	■	■	■	■
Soft start and exhaust valves **MS-SV**		4	–									
		6	G½	G¼, G⅜, G½, G¾	–	–	–	–	■	–	–	–
		9	–									
		12	–									
Membrane air dryers **MS-LDM1**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–
		9	–									
		12	–									

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator					Options		→ Page/Internet
		Plastic bowl with plastic bowl guard	Metal bowl	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	Silencer	Flow direction from right to left	
		R	U	VS	AG	A8	A4	AD...	S	Z	
Individual devices											
Electrical pressure regulators **MS-LRE**	4	–									–
	6	–	–	■	■	–	■	–	–	■	ms6-lre
	9	–									–
	12	–									–
Lubricators **MS-LOE**	4	■	■	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	■	ms6-loe
	9	–									–
	12	–	■	–	–	–	–	–	–	■	ms12-loe
Electrical on-off valves **MS-EM(1)**	4	–	–	■	■	■	■	■	■	■	ms4-em1
	6	–	–	■	■	–	■	■	■	■	ms6-em1
	9	–									–
	12	–	–	■	■	–	■	–	■	■	ms12-em
Electrical on-off valves **MS-EE**	4	–	–	■	■	■	■	■	■	■	ms4-ee
	6	–	–	■	■	–	■	■	■	■	ms6-ee
	9	–									–
	12	–	–	■	■	–	■	–	■	■	ms12-ee
Electrical soft-start valves **MS-DL**	4	–	–	■	■	■	■	■	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	■	ms6-dl
	9	–									–
	12	–	–	■	■	–	■	–	–	■	ms12-dl
Electrical soft-start valves **MS-DE**	4	–	–	■	■	■	■	■	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	■	ms6-de
	9	–									–
	12	–	–	■	■	–	■	–	–	■	ms12-de
Soft start and exhaust valves **MS-SV**	4	–									–
	6	–	–	■	■	–	■	■	■	■	ms6-sv
	9	–									–
	12	–									–
Membrane air dryers **MS-LDM1**	4	–	■	–	–	–	–	–	–	■	ms4-ldm1
	6	–	■	–	–	–	–	–	–	■	ms6-ldm1
	9	–									–
	12	–									–

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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Type	Size			Pressure regulation range [bar]				Supply voltage			
		Pneumatic connection in housing	Connecting plate	0.3 ... 4	0.3 ... 7	0.5 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection pattern M12 to DESINA	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG...	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices											
Branching modules **MS-FRM**	4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–
	6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–
	9	–									
	12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–
Distributor blocks **MS-FRM-FRZ**	4	G¼	–	–	–	–	–	–	–	–	–
	6	G½	–	–	–	–	–	–	–	–	–
	9	–									
	12	–									
Flow sensors **MS-SFE**	4	–									
	6	G½	G½	–	–	–	–	–	–	–	–
	9	–									
	12	–									

➔ Internet: www.festo.com/catalogue/...

Subject to change – 2008/06

Type	Size	Pressure indicator					Switch output		Options		→ Page/ Internet
		Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor with display	2x PNP	2x NPN	Silencer	Flow direction from right to left	
		VS	**AG**	**A8**	**A4**	**AD...**	**P2**	**N2**	**S**	**Z**	
Individual devices											
Branching modules **MS-FRM**	4	■	■	■	■	■	–	–	–	■	8
	6	■	■	–	■	■	–	–	–	■	8
	9	–									–
	12	■	–	–	–	–	–	–	–	–	20
Distributor blocks **MS-FRM-FRZ**	4	–	–	–	–	–	–	–	–	–	18
	6	–	–	–	–	–	–	–	–	–	18
	9	–									–
	12	–									–
Flow sensors **MS-SFE**	4	–									–
	6	–	–	–	–	–	■	■	–	■[1]	ms6-sfe
	9	–									–
	12	–									–

1) Can only be ordered using the configurator → Internet: ms6-sfe

Branching modules MS4/MS6-FRM, MS series

Peripherals overview

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Branching modules MS4/MS6-FRM, MS series

Peripherals overview

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Mounting attachments and accessories		Individual unit		Combination		→ Page/Internet
		without connect-ing plate	with connecting plate	without connect-ing plate	with connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Connecting plate MS4/6-AG...	–	■	–	■	ms4-ag, ms6-ag
3	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
4	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
5	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
6	MS pressure gauge AG	■	■	■	■	16
7	Adapter for EN pressure gauge ⅛/¼ A8/A4	■	■	■	■	16
8	Pressure gauge MA	■	■	■	■	25
9	Pressure sensor SDE1-...-MS AD1 ... AD4	■	■	■	■	16
10	Plug socket with cable SIM-M8-3.../SIM-M12-4...	■	■	■	■	sim
11	Pressure switch PEV X/Y/M12	■	■	■	■	16
12	Plug socket with cable SIM-M12-4...	■	■	■	■	sim
13	Angled socket PEV-¼-WD-LED-...	■	■	■	■	25
14	Plug socket MSSD-C-4P	■	■	■	■	25
15	Double nipple ESK	■	■	■	■	25
16	Pressure sensor SDE1-...-H18/W18 AD5/AD6	■	■	■	■	16
17	Plug socket with cable SIM-M8-3.../SIM-M12-5...	■	■	■	■	sim
–	Mounting bracket MS4/6-WP/WPB/WPM	–	■	■	■	ms4-wp, ms6-wp

Branching modules MS4/MS6-FRM, MS series

Type codes

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MS	4	–	FRM	–	⅛	–	Y

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
FRM	Branching module

Connection size	
⅛	Thread G⅛
¼	Thread G¼
⅜	Thread G⅜
½	Thread G½

Non-return function/pressure switch		
	Standard	
I	With integrated non-return function	
Y	With pressure switch	

Further variants can be ordered using the modular system	
Branching modules FRM	➔ 16

- Connecting plates
- Pressure gauge alternatives
- Alternative pressure gauge scale
- Pressure switch
- Type of mounting
- Alternative flow direction

Branching modules MS4/MS6-FRM, MS series

Technical data

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Function
Standard
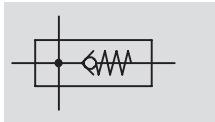
-¶¶- Flow rate
1,200 … 14,700 l/min

With integrated non-return function

-¶- Temperature range
-10 … +60 °C

⏚ Operating pressure
0 … 20 bar

- Pneumatic manifold with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- Attachment facility for auxiliary modules
- Outlet top and bottom
- An integrated non-return valve prevents the return flow e.g. of lubricated compressed air
- Optional pressure sensor with display

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	G⅛	G¼	G¼	G⅜	G½
Pneumatic connection 3, 4	G¼		G½		
Design	Branching module				
	Branching module with non-return function				
Type of mounting	Via accessories				
	In-line installation				
Assembly position	Any[1]				
Pressure display	With pressure sensor for the output pressure display and with electric output				
	With pressure gauge for the output pressure display				

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 with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate qnN[1] [l/min]					
Size	MS4		MS6		
Pneumatic connection	G⅛	G¼	G¼	G⅜	G½
Standard					
In main flow direction 1 ⟶ 2	1,800	4,600	4,200	9,200	14,700
Outlet at top	1,600	1,500	6,000	4,700	4,400
Outlet at bottom	1,700	1,500	6,400	4,800	4,600
With non-return function					
In main flow direction 1 ⟶ 2	1,200	1,750	3,200	5,500	6,000
Outlet at top	500	500	2,700	2,900	3,100
Outlet at bottom	500	500	2,800	3,200	3,300

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

Branching modules MS4/MS6-FRM, MS series
Technical data

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Operating and environmental conditions									
Variant		Standard		Non-return function I		Pressure switch X/Y/M12		Pressure sensor with display AD…	
Size		MS4	MS6	MS4	MS6	MS4	MS6	MS4	MS6
Operating pressure	[bar]	0 … 14	0 … 20	0 … 10	0 … 20	0 … 12	0 … 12	0 … 10	0 … 10
Operating medium		Compressed air		Compressed air		Compressed air		Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Ambient temperature	[°C]	-10 … +60		-10 … +60		-10 … +60		0 … +50	
Temperature of medium	[°C]	-10 … +60		-10 … +60		-10 … +60		0 … +50	
Storage temperature	[°C]	-10 … +60		-10 … +60		-10 … +60		-10 … +60	
Corrosion resistance class	CRC[1]	2							

1) Corrosion resistance class 2 according to Festo standard 940 070
   Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

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

Materials
Sectional view
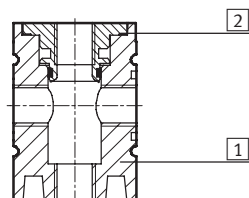
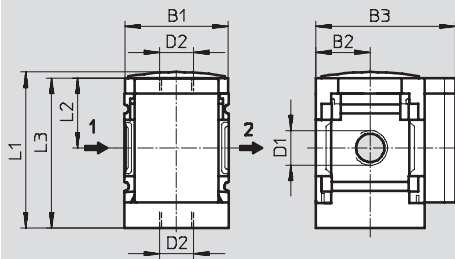| Branching module		
1	Housing	Die-cast aluminium
2	Threaded insert	Aluminium
	Note on materials	Free of copper and PTFE (not with variants AG or AD…)

Branching modules MS4/MS6-FRM, MS series

Technical data

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Dimensions – Standard   Download CAD data → **www.festo.com**

→ Flow direction

Type	B1	B2	B3	D1	D2	L1	L2	L3
MS4-FRM-⅛	40	21	54	G⅛	G¼	60.4	27	58
MS4-FRM-¼				G¼				
MS6-FRM-¼	62	31	76	G¼	G½	87.2	39	84.5
MS6-FRM-⅜				G⅜				
MS6-FRM-½				G½				

· ┃ · Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauge alternatives   Download CAD data → **www.festo.com**

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

Adapter plate A8/A4 for EN pressure gauge ⅛/¼, without pressure gauge
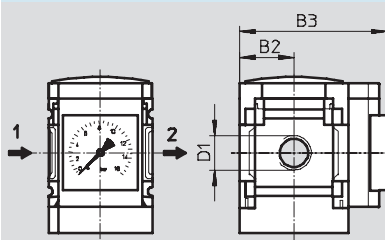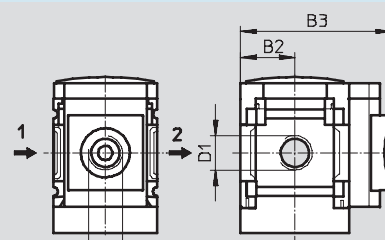
→ Flow direction   → Flow direction

Type	B2	B3	D1	D4
MS4-FRM-⅛-…-AG	21	57	G⅛	–
MS4-FRM-¼-…-AG			G¼	
MS4-FRM-⅛-…-RG	21	58.5	G⅛	–
MS4-FRM-¼-…-RG			G¼	
MS4-FRM-⅛-…-A8	21	58.5	G⅛	G⅛
MS4-FRM-¼-…-A8			G¼	
MS4-FRM-⅛-…-A4	21	58.5	G⅛	G¼
MS4-FRM-¼-…-A4			G¼	
MS6-FRM-¼-…-AG	31	77	G¼	–
MS6-FRM-⅜-…-AG			G⅜	
MS6-FRM-½-…-AG			G½	
MS6-FRM-¼-…-RG	31	78.5	G¼	–
MS6-FRM-⅜-…-RG			G⅜	
MS6-FRM-½-…-RG			G½	
MS6-FRM-¼-…-A4	31	78.5	G¼	G¼
MS6-FRM-⅜-…-A4			G⅜	
MS6-FRM-½-…-A4			G½	

· ┃ · Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Branching modules MS4/MS6-FRM, MS series

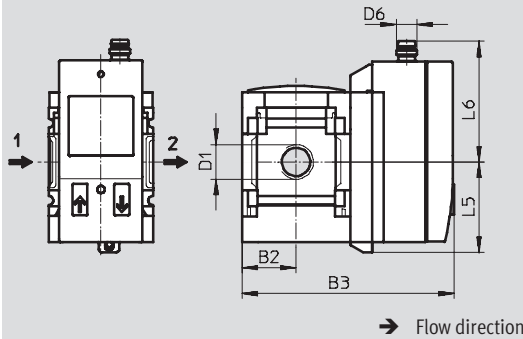Technical data

FESTO

Dimensions – Pressure gauge alternatives					Download CAD data ➔ **www.festo.com**
Pressure sensor with display AD1 … AD4					Technical data ➔ Internet: sde1

➔ Flow direction

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

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

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

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

| Type	B2	B3	D1	D6	L5	L6
MS4-FRM-⅛-…-AD1/AD2	21	82.6	G⅛	M8x1	35.1	46.7
MS4-FRM-¼-…-AD1/AD2			G¼			
MS4-FRM-⅛-…-AD3/AD4	21	82.6	G⅛	M12x1	35.1	55.8
MS4-FRM-¼-…-AD3/AD4			G¼			
MS6-FRM-¼-…-AD1/AD2	31	103	G¼	M8x1	35.1	46.7
MS6-FRM-⅜-…-AD1/AD2			G⅜			
MS6-FRM-½-…-AD1/AD2			G½			
MS6-FRM-¼-…-AD3/AD4	31	103	G¼	M12x1	35.1	55.8
MS6-FRM-⅜-…-AD3/AD4			G⅜			
MS6-FRM-½-…-AD3/AD4			G½			

-❘- Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Dimensions – Pressure gauge alternatives							Download CAD data ➔ **www.festo.com**
Pressure sensor with display AD5/AD6							Technical data ➔ Internet: sde1
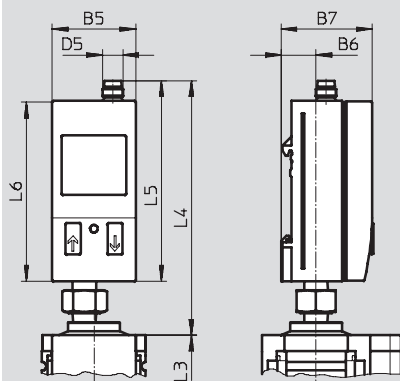
Variant AD5:
SDE1-D10-G2-H18-C-P1-M8 with
3-pin plug M8x1, 1 switch output
PNP

Variant AD6:
SDE1-D10-G2-W18-L-2I-M12 with
5-pin plug M12x1, 2 switch outputs
PNP and 4 … 20 mA analogue

Type	B5	B6	B7	D5	L3	L4	L5	L6
MS4-FRM-…-AD5	32.3	13.5	35.2	M8	58	99	78	70
MS4-FRM-…-AD6				M12		108	87	
MS6-FRM-…-AD5	32.3	13.5	35.2	M8	84.5	94	78	70
MS6-FRM-…-AD6				M12		103	87	

Branching modules MS4/MS6-FRM, MS series

Technical data

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Dimensions – Pressure switch	Download CAD data ➔ **www.festo.com**
Pressure switch with adjustable pressure switching point X/Y/M12	Technical data ➔ Internet: pev-1/4

Variant X/Y

Variant M12

Variant X:
PEV-¼-SC-0D with display, plug, square design to DIN EN 175 301, type A

Variant Y:
PEV-¼-B-0D, plug, square design to DIN EN 175 301, type A

Variant M12:
PEV-¼-B-M12 with 4-pin plug M12x1
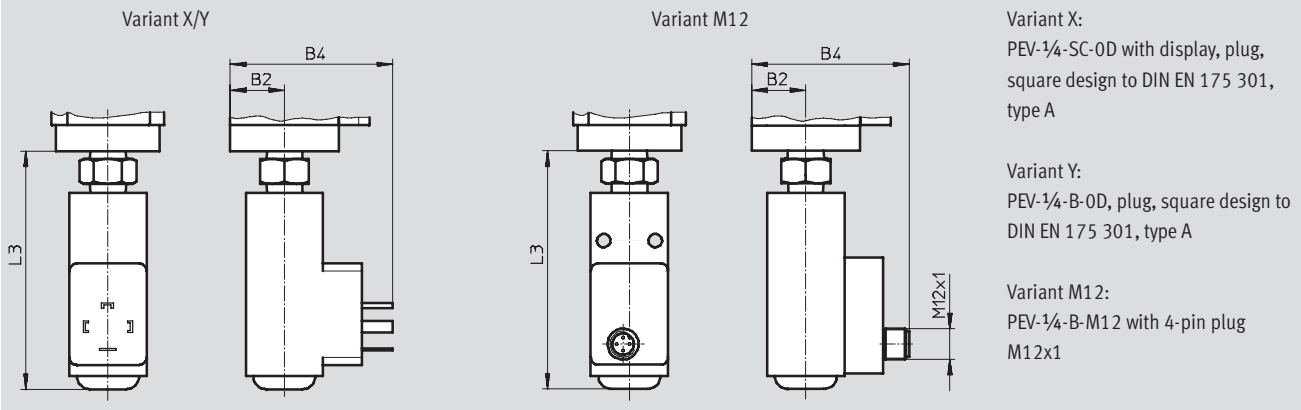
Type	B2	B4	L3
MS4-FRM-…-X/Y	21	63	92.3
MS4-FRM-…-M12	21	61	92.3
MS6-FRM-…-X/Y	31	73	99.5
MS6-FRM-…-M12	31	71	99.5

Ordering data			
Size	Connection	Part No.	Type
Standard			
MS4	G⅛	**529 559**	**MS4-FRM-⅛** [1]
	G¼	**529 555**	**MS4-FRM-¼** [1]
MS6	G¼	**529 857**	**MS6-FRM-¼** [1]
	G⅜	**529 861**	**MS6-FRM-⅜** [1]
	G½	**529 853**	**MS6-FRM-½** [1]
With integrated non-return function			
MS4	G⅛	**536 965**	**MS4-FRM-⅛-I**[1] -◉- New
	G¼	**536 966**	**MS4-FRM-¼-I**[1] -◉- New
MS6	G¼	**536 967**	**MS6-FRM-¼-I**[1] -◉- New
	G⅜	**536 968**	**MS6-FRM-⅜-I**[1] -◉- New
	G½	**536 969**	**MS6-FRM-½-I**[1] -◉- New
With pressure switch PEV-¼-B-0D (variant Y)			
MS4	G⅛	**529 560**	**MS4-FRM-⅛-Y**[1]
	G¼	**529 556**	**MS4-FRM-¼-Y**[1]
MS6	G¼	**529 858**	**MS6-FRM-¼-Y**[1]
	G⅜	**529 862**	**MS6-FRM-⅜-Y**[1]
	G½	**529 854**	**MS6-FRM-½-Y**[1]

1) Free of copper and PTFE

Branching modules MS4/MS6-FRM, MS series

Ordering data – Modular products

FESTO

M Mandatory data					➜

Module No.	Series	Size	Function		Connection sizes
527 703	MS	4	FRM		⅛, ¼, ⅜> ½,
527 676		6			AGA, AGB, AGC, AGD, AGE
Order example					
527 676	**MS**	**6**	**– FRM**	**–**	**3/8**

Ordering table						
Grid dimension [mm]	40	62	Condi-tions	Code		Enter code
M Module No.	**527 703**	**527 676**				
Series	Standard			**MS**		MS
Size	4	6		**...**		
Function	Branching module			**-FRM**		-FRM
Connection sizes	Thread G⅛	–		**-⅛**		
	Thread G¼	Thread G¼		**-¼**		
	–	Thread G⅜		**-⅜**		
	–	Thread G½		**-½**		
	Connecting plate G⅛	–		**-AGA**		
	Connecting plate G¼	Connecting plate G¼		**-AGB**		
	Connecting plate G⅜	Connecting plate G⅜		**-AGC**		
	–	Connecting plate G½		**-AGD**		
	–	Connecting plate G¾		**-AGE**		

Transfer order code

	MS		–	FRM		–	

Branching modules MS4/MS6-FRM, MS series
Ordering data – Modular products

FESTO

➜ | ⓪ **Options** |

Additional function	Pressure gauge alternatives	Alternative pressure gauge scale	Pressure switch	Type of mounting	Alternative flow direction
I	AG, A8, A4, RG, AD1, AD2, AD3, AD4, AD5, AD6	PSI MPA	X Y M12	WP WPM WB WBM	Z
–	– AG	– PSI	– M12	– WB	– Z

Ordering table						
Grid dimension [mm]	40	62		Condi-tions	Code	Enter code
⓪ Additional function	With integrated non-return function			①	**-I**	
Pressure gauge alternatives	MS pressure gauge, bar (with adapter)	MS pressure gauge, bar			**-AG**	
	Adapter plate for EN pressure gauge ⅛, without pressure gauge	–			**-A8**	
	Adapter plate for EN pressure gauge ¼, without pressure gauge				**-A4**	
	Integrated pressure gauge, red-green scale				**-RG**	
	Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin			②	**-AD1**	
	Pressure sensor with display, plug M8, 1 switch output NPN, 3-pin			②	**-AD2**	
	Pressure sensor with display, plug M12, 1 switch output PNP, 4-pin, analogue output 4 … 20 mA			②	**-AD3**	
	Pressure sensor with display, plug M12, 1 switch output NPN, 4-pin, analogue output 4 … 20 mA			②	**-AD4**	
	Pressure sensor with display, plug M8, 1 switch output PNP, 3-pin			②	**-AD5**	
	Pressure sensor with display, plug M12, 2 switch outputs PNP, 5-pin, analogue output 4 … 20 mA			②	**-AD6**	
Alternative pressure gauge scale	psi			③	**-PSI**	
	MPa			③	**-MPA**	
Pressure switch	Pressure switch PEV with display, socket, EN 175301, type A, cube			④	**-X**	
	Pressure switch PEV without display, socket, EN 175301, type A, cube			④	**-Y**	
	Pressure switch PEV without display, socket, round, M12, 4-pin			④	**-M12**	
Type of mounting	Mounting bracket			⑤	**-WP**	
	Mounting bracket (for retro-fitting M-series)			⑤	**-WPM**	
	Mounting bracket				**-WB**	
	Mounting bracket	–			**-WBM**	
Alternative flow direction	Flow direction from right to left				**-Z**	

|		
① **I**	Not with pressure gauge alternatives AD5 or AD6	
② **AD1 … AD6**	Measuring range max. 10 bar	
③ **PSI, MPA**	Only with pressure gauge alternatives AG or RG	
④ **X, Y, M12**	Max. permissible input pressure P1 = 12 bar. Not with pressure gauge alternatives AD5 or AD6	
⑤ **WP, WPM**	Only with connecting plate AGA, AGB, AGC, AGD or AGE	

Transfer order code

– _____ – _____ – _____ – _____ – _____ – _____

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

FESTO

Technical data

Function
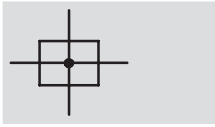
- ❙❙ - Flow rate
2,900 ... 14,600 l/min

- ❙ - Temperature range
−10 ... +60 °C

- ⊥ - Operating pressure
0 ... 20 bar

- ▮ - Note

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

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

- Can be used as an intermediate distributor between two pressure regulators with large rotary knob with pressure gauge on size MS4

General technical data		
Size	MS4	MS6
Pneumatic connection 1, 2, 3, 4	G¼	G½
Design	Branching module	
Type of mounting	Via accessories	
	In-line installation	
Assembly position	Any	

- ❙ - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate qnN[1] [l/min]		
Size	MS4	MS6
Pneumatic connection	G¼	G½
In main flow direction 1 ⋯⟶ 2	4,050	14,600
Outlet at top	3,250	10,400
Outlet at bottom	2,900	9,850

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

Operating and environmental conditions			
Size		MS4	MS6
Operating pressure	[bar]	0 ... 14	0 ... 20
Operating medium		Compressed air	
Ambient temperature	[°C]	−10 ... +60	
Temperature of medium	[°C]	−10 ... +60	
Storage temperature	[°C]	−10 ... +60	
Corrosion resistance class CRC[1]		2	

1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
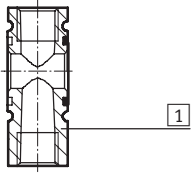
Weight [g]		
Size	MS4	MS6
Distributor block	60	163

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

Technical data

FESTO

Materials	
Sectional view	

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

Dimensions	Download CAD data → **www.festo.com**
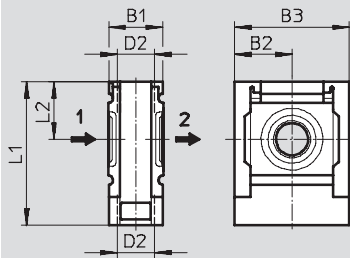
→ Flow direction

Type	B1	B2	B3	D2	L1	L2
MS4-FRM-FRZ	20	21	42	G¼	52.5	21
MS6-FRM-FRZ	31	31	62	G½	76.5	31

· ▌· Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data			
Size	Connection	Part No.	Type
MS4	G¼	**549 336**	**MS4-FRM-FRZ**[1]
MS6	G½	**549 337**	**MS6-FRM-FRZ**[1]

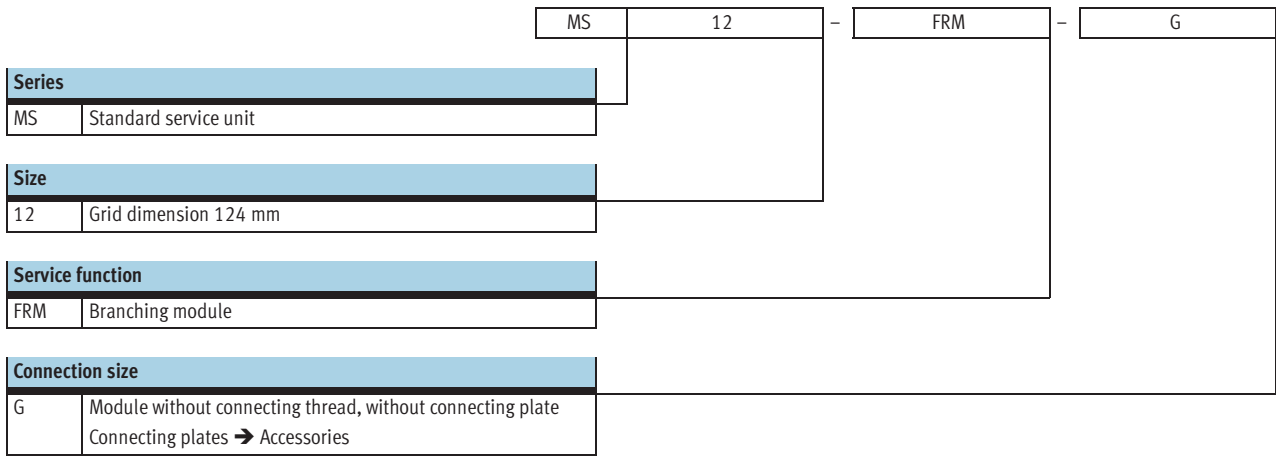1)   Free of copper and PTFE
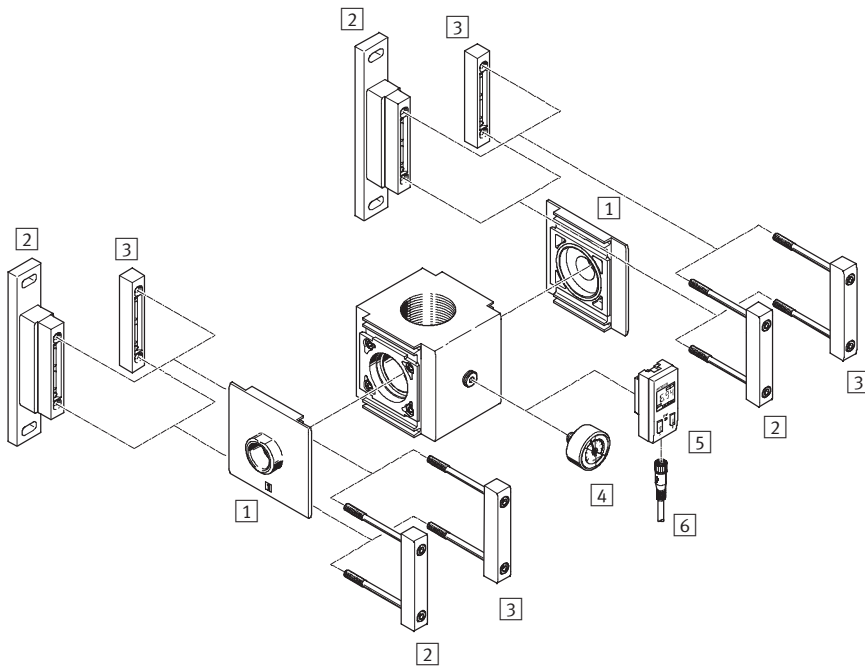
- ▮ - Note

Additional accessories:
– Module connector for combination with size MS9 ➜ Internet: armv

Mounting attachments and accessories		➜ Page/Internet
1	Connecting plate MS12-AG…	ms12-ag
2	Mounting bracket MS12-WP	ms12-wp
3	Module connector MS12-MV	ms12-mv
4	Pressure gauge MA	25
5	Pressure sensor SDE1-…-R14/R18	25
6	Plug socket with cable SIM-M8-3…/SIM-M8-4…/SIM-M12-3…	sim

Branching modules MS12-FRM, MS series

Type codes

					MS	12	–	FRM	–	G

Series	
MS	Standard service unit

Size	
12	Grid dimension 124 mm

Service function	
FRM	Branching module

Connection size	
G	Module without connecting thread, without connecting plate
	Connecting plates ➔ Accessories

Further variants can be ordered using the modular system	
Branching modules FRM	➔ 24

- Connecting plates
- Type of mounting

Branching modules MS12-FRM, MS series

Technical data

FESTO

Function
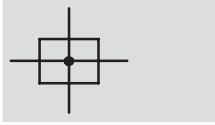
- ▮▮ - Flow rate
25,000 ... 42,000 l/min

- ▮ - Temperature range
−10 ... +60 °C

- ▬ - Operating pressure
0 ... 21 bar

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

General technical data				
Pneumatic connection 1, 2[1]	G1	G1¼	G1½	G2
Pneumatic connection 3	G2			
Pneumatic connection 4	G1			
Design	Branching module			
Type of mounting	Via accessories			
	In-line installation			
Assembly position	Any			

1) Dependent on connecting plate selected, must be ordered separately as an accessory ➜ Internet: ms12-ag
- ▮ - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Standard nominal flow rate qnN[1] [l/min]	
In main flow direction 1 ⤍ 2	25,000 ... 42,000

1) Dependent on connecting plate selected, must be ordered separately as an accessory ➜ Internet: ms12-ag
Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

Operating and environmental conditions		
Operating pressure	[bar]	0 ... 21
Operating medium		Compressed air
Ambient temperature	[°C]	−10 ... +60
Temperature of medium	[°C]	−10 ... +60
Storage temperature	[°C]	−10 ... +60
Corrosion resistance	CRC[1]	2

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
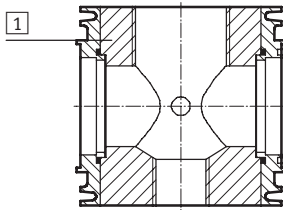
Branching modules MS12-FRM, MS series

Technical data

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Weights [g]	
Branching module	3,000

Materials
Sectional view

Branching module		
1	Body	Die-cast aluminium
–	Seals	Nitrile rubber
	Note on materials	Free of copper and PTFE

Dimensions – Standard
Download CAD data ➔ www.festo.com

1 G¼ Female thread in body, sealed with cover plate by default

➔ Flow direction

Type	B1	B2	B3	D2	D3	D4	L1	L2
MS12-FRM	124	124	134	G2	G1	G¼	122	61

- ⱶ - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Ordering data			
Size	Connection	Part No.	Type
MS12	G1 … G2[1]	**541 681**	**MS12-FRM-G** [2]

1) Connecting plate must be ordered separately as an accessory ➔ Internet: ms12-ag
2) Free of copper and PTFE
- ⱶ - Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

2008/06 – Subject to change

➔ Internet: www.festo.com/catalogue/... 23

Branching modules MS12-FRM, MS series

Ordering data – Modular products

M Mandatory data						O Options
Module No.	**Series**	**Size**	**Function**		**Connection size**	**Type of mounting**
535 035	MS	12	FRM		AGF AGG AGH AGI G	WP
Order example						
535 035	**MS**	**12**	–	**FRM**	– **AGF**	– **WP**

Ordering table					
Grid dimension [mm]	124		Condi-tions	Code	Enter code
M Module No.	**535 035**				
Series	Standard			**MS**	MS
Size	12			**12**	12
Function	Branching module			**-FRM**	-FRM
Connection size	Connecting plate G1			**-AGF**	
	Connecting plate G1¼			**-AGG**	
	Connecting plate G1½			**-AGH**	
	Connecting plate G2			**-AGI**	
	Module without connecting thread, without connecting plate			**-G**	
O Type of mounting	Mounting bracket		1	**-WP**	

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

Transfer order code
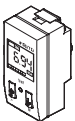
535 035	MS	12	–	FRM	–	–

Branching modules/Distributor blocks MS-FRM, MS series

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Accessories

Ordering data – Pressure gauge MA						
	Nominal size	Pneumatic connection	Indicating range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, DIN EN 837-1				Technical data ➜ Internet: ma	
	40	G¼	0 … 16	0 … 232	**183 901**	**MA-40-16-G¼-EN**
	Pressure gauge MA, DIN EN 837-1, with red-green range				Technical data ➜ Internet: ma	
	40	R⅛	0 … 16	–	**525 726**	**MA-40-16-R⅛-E-RG**
	50	R¼	0 … 16	–	**525 729**	**MA-50-16-R¼-E-RG**

Ordering data – Pressure sensor SDE1					Technical data ➜ Internet: sde1	
	Pneumatic connection	Electrical output	Electrical connection	Display	Part No.	Type
	Pressure sensor SDE1 for direct mounting on the service unit with pressure gauge connection (adapter for pneumatic connection included in scope of delivery), pressure measuring range 0 … 10 bar, relative pressure measurement					
	Male thread R⅛	1 switch output PNP	M8x1, 3-pin	LCD	**192 026**	**SDE1-D10-G2-R18-C-P1-M8**
			M8x1, 3-pin	Illuminated LCD	**529 970**	**SDE1-D10-G2-R18-L-P1-M8**
			M12x1, 3-pin	Illuminated LCD	**534 064**	**SDE1-D10-G2-R18-L-P1-M12**
		2 switch outputs PNP	M8x1, 4-pin	LCD	**192 027**	**SDE1-D10-G2-R18-C-P2-M8**
			M8x1, 4-pin	Illuminated LCD	**529 971**	**SDE1-D10-G2-R18-L-P2-M8**
		1 switch output PNP and 0 … 10 V analogue	M8x1, 4-pin	LCD	**529 958**	**SDE1-D10-G2-R18-C-PU-M8**
			M8x1, 4-pin	Illuminated LCD	**529 972**	**SDE1-D10-G2-R18-L-PU-M8**
	Male thread R¼	1 switch output PNP	M8x1, 3-pin	LCD	**192 028**	**SDE1-D10-G2-R14-C-P1-M8**
			M8x1, 3-pin	Illuminated LCD	**529 967**	**SDE1-D10-G2-R14-L-P1-M8**
			M12x1, 3-pin	Illuminated LCD	**534 157**	**SDE1-D10-G2-R14-L-P1-M12**
		2 switch outputs PNP	M8x1, 4-pin	LCD	**192 029**	**SDE1-D10-G2-R14-C-P2-M8**
			M8x1, 4-pin	Illuminated LCD	**529 968**	**SDE1-D10-G2-R14-L-P2-M8**
		1 switch output PNP and 0 … 10 V analogue	M8x1, 4-pin	LCD	**529 957**	**SDE1-D10-G2-R14-C-PU-M8**
			M8x1, 4-pin	Illuminated LCD	**529 969**	**SDE1-D10-G2-R14-L-PU-M8**

Ordering data – Angled socket PEV					Technical data ➜ Internet: pev-1/4	
	Description	Operating voltage range	Electrical connection	Switching status display	Part No.	Type
	for PEV-¼-…-OD	15 …. 30 V DC	4-pin	Yellow LED	**164 274**	**PEV-¼-WD-LED-24**
		≤ 230 V AC ≤ 180 V DC	4-pin	Yellow LED	**164 275**	**PEV-¼-WD-LED-230**

Ordering data – Plug socket MSSD					Technical data ➜ Internet: mssd-c-4p	
	Description	Operating voltage range	Electrical connection	Type of mounting cable connection	Part No.	Type
	for PEV-¼-…-OD	≤ 250 V AC/DC	3-pin	Clamping screws	**171 157**	**MSSD-C-4P**

Ordering data – Double nipple ESK				
	Description	Pneumatic connection		Part No.	Type
	Adjustable for angular compensation • For retro-fitting pressure switch PEV or pressure sensor SDE1 to branching module MS-FRM	R⅛	R¼	**534 151**	**ESK-⅛-¼**
		R¼	R¼	**151 521**	**ESK-¼-¼**
			R½	**534 153**	**ESK-¼-½**