Branching modules/Distributor blocks MS-FRM, MS series

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Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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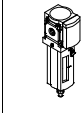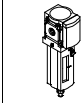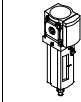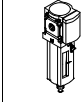| Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]			
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	0.01	1	5	40
Code				AG...	D2	D4	D5	D6	D7	D8	A	B	C	E
Service units														
MSB-FRC		4	G⅛, G¼	G⅛, 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	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	■	■	■	■	–	–	■	■
		12	–	G1, G1¼, G1½, G2	–	–	–	■	■	■	–	–	■	■
Filters **MS-LF**		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	–	–	–	–	–	–	–	–	■	■
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	–	–	–	–	–	–	–	–	–	–
Water separators **MS-LWS**		4	–											
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Condensate drains				Pressure indicator					Security		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	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	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	–	■	■	■	■	■	■	■	–	■	■	■	■	–	■	ms9-lfr
	12	–	■	■	–	■	■	■	■	–	■	–	■	■	–	■	ms12-lfr
Filters **MS-LF**	4	■	■	■	■	■	–	–	–	–	–	–	–	–	–	■	ms4-lf
	6	■	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms6-lf
	9	–	■	■	■	■	■	–	–	–	–	–	–	–	–	■	ms9-lf
	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
Water separators **MS-LWS**	4	–															–
	6	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms6-lws
	9	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms9-lws
	12	–	■	–	–	■	■	–	–	–	–	–	–	–	–	■	ms12-lws

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

Type		Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage			
					0.05 ... 0.7	0.05 ... 2.5	0.1 ... 4	0.3 ... 7	0.1 ... 12	0.5 ... 16	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code				AG…	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices														
Pressure regulators **MS-LR**		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-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	–											
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	G¾, G1	G½, G¾, G1, G1¼, G1½	–	–	–	–	–	–	–	–	–	–
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
On-off valves, manually actuated **MS-EM(1)**		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	–	–	–	–	–	–	–	–	–	–
On-off valves, electrically actuated **MS-EE**		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	–	–	–	–	–	–	■	■	■	■
Soft-start valves, pneumatically actuated **MS-DL**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	–	–	–	–
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	–	–	–	–
		9	–											
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	–	–	–	–
Soft-start valves, electrically actuated **MS-DE**		4	G⅛, G¼	G⅛, G¼, G⅜	–	–	–	–	–	–	■	–	■	■
		6	G¼, G⅜, G½	G¼, G⅜, G½, G¾	–	–	–	–	–	–	■	–	■	■
		9	–											
		12	–	G1, G1¼, G1½, G2	–	–	–	–	–	–	■	■	■	■

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Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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Type	Size	Bowl guard		Pressure indicator					Security		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	Rotary knob with detent, lockable via accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators **MS-LR**	4	–	–	■	■	■	■	■	■	■	–	■	ms4-lr
	6	–	–	■	■	–	■	■	■	■	–	■	ms6-lr
	9	–	–	■	■	–	■	■	■	■	–	■	ms9-lr
	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	–											–
Electrical pressure regulators **MS-LRE**	4	–											–
	6	–	–	■	■	–	■	–	–	–	–	■	ms6-lre
	9	–											–
	12	–											–
Lubricators **MS-LOE**	4	■	■	–	–	–	–	–	–	–	–	■	ms4-loe
	6	■	■	–	–	–	–	–	–	–	–	■	ms6-loe
	9	–	■	–	–	–	–	–	–	–	–	■	ms9-loe
	12	–	■	–	–	–	–	–	–	–	–	■	ms12-loe
On-off valves, manually actuated **MS-EM(1)**	4	–	–	■	■	■	■	■	–	–	■	■	ms4-em1
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-em1
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-em
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-em
On-off valves, electrically actuated **MS-EE**	4	–	–	■	■	■	■	■	–	–	■	■	ms4-ee
	6	–	–	■	■	–	■	■	–	–	■	■	ms6-ee
	9	–	–	■	■	–	■	–	–	–	■	■	ms9-ee
	12	–	–	■	■	–	■	–	–	–	■	■	ms12-ee
Soft-start valves, pneumatically actuated **MS-DL**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-dl
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-dl
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-dl
Soft-start valves, electrically actuated **MS-DE**	4	–	–	■	■	■	■	■	–	–	–	■	ms4-de
	6	–	–	■	■	–	■	■	–	–	–	■	ms6-de
	9	–											–
	12	–	–	■	■	–	■	–	–	–	–	■	ms12-de

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

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Type	Size	Pneumatic connection in housing	Connecting plate	Performance Level		Supply voltage			
				Category 1, 1-channel	Category 4, 2-channel with self-monitoring	24 V DC, connection pattern to EN 175301	24 V DC, connection M12 to IEC 61076-2-101/ to EN 60947-5-2	110 V AC, connection pattern to EN 175301	230 V AC, connection pattern to EN 175301
Code			AG…	C	E	V24	V24P	V110	V230
Individual devices									
Soft start and exhaust valves **MS-SV-C**	4	–							
	6	G½	G¼, G⅜, G½, G¾	■	–	■	■	■	■
	9	G¾, G1	G½, G¾, G1, G1¼, G1½	■	–	■	■	■	■
	12	–							
Soft start and exhaust valves **MS-SV-E**	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 **MS-FRM**	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	–	–	–	–	–	–
Distributor blocks **MS-FRM-FRZ**	4	–	–	–	–	–	–	–	–
	6	–	–	–	–	–	–	–	–
	9	–							
	12	–							
Flow sensors **SFAM**	4	–							
	6	G½	G½	–	–	–	–	–	–
	9	–	G1, G1½	–	–	–	–	–	–
	12	–							

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Subject to change – 2014/08

Branching modules/Distributor blocks MS-FRM, MS series

Product range overview – MS series service units

Type	Size	Bowl guard		Pressure indicator						Switch output		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 G⅛	Adapter plate for EN pressure gauge G¼	Pressure sensor	2x PNP or NPN, 1 analogue output 4 … 20 mA	2x PNP or NPN, 1 analogue output 0 … 10 V	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Soft start and	4	–											–
exhaust valves	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
MS-SV-C	9	–	–	■	■	–	■	■	–	–	■	■	ms9-sv
	12	–											–
Soft start and	4	–											–
exhaust valves	6	–	–	■	■	–	■	■	–	–	■	■	ms6-sv
MS-SV-E	9	–											–
	12	–											–
Membrane air	4	–	■	–	–	–	–	–	–	–	–	■	ms4-ldm1
dryers	6	–	■	–	–	–	–	–	–	–	–	■	ms6-ldm1
MS-LDM1	9	–											–
	12	–											–
Branching	4	–	–	■	■	■	■	■	–	–	–	■	8
modules	6	–	–	■	■	–	■	■	–	–	–	■	8
MS-FRM	9	–	–	■	■	–	■	■	–	–	–	■	20
	12	–	–	■	–	–	–	–	–	–	–	–	28
Distributor	4	–	–	–	–	–	–	–	–	–	–	■	18
blocks	6	–	–	–	–	–	–	–	–	–	–	■	18
MS-FRM-FRZ	9	–											–
	12	–											–
Flow sensors	4	–											–
SFAM	6	–	–	–	–	–	–	–	■	■	–	■	sfam-62
	9	–	–	–	–	–	–	–	■	■	–	■	sfam-90
	12	–											–

Branching modules MS4/MS6-FRM, MS series

Peripherals overview

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Branching module MS4/MS6-FRM

-▤- Note

Additional accessories:
– Module connector for combina-
  tion with size MS4/MS6 or size
  MS9 ➔ Internet: amv, rmv, armv
– Adapter plate for mounting on
 profiles ➔ Internet: ipm-80,
  ipm-40-80, ipm-80-80
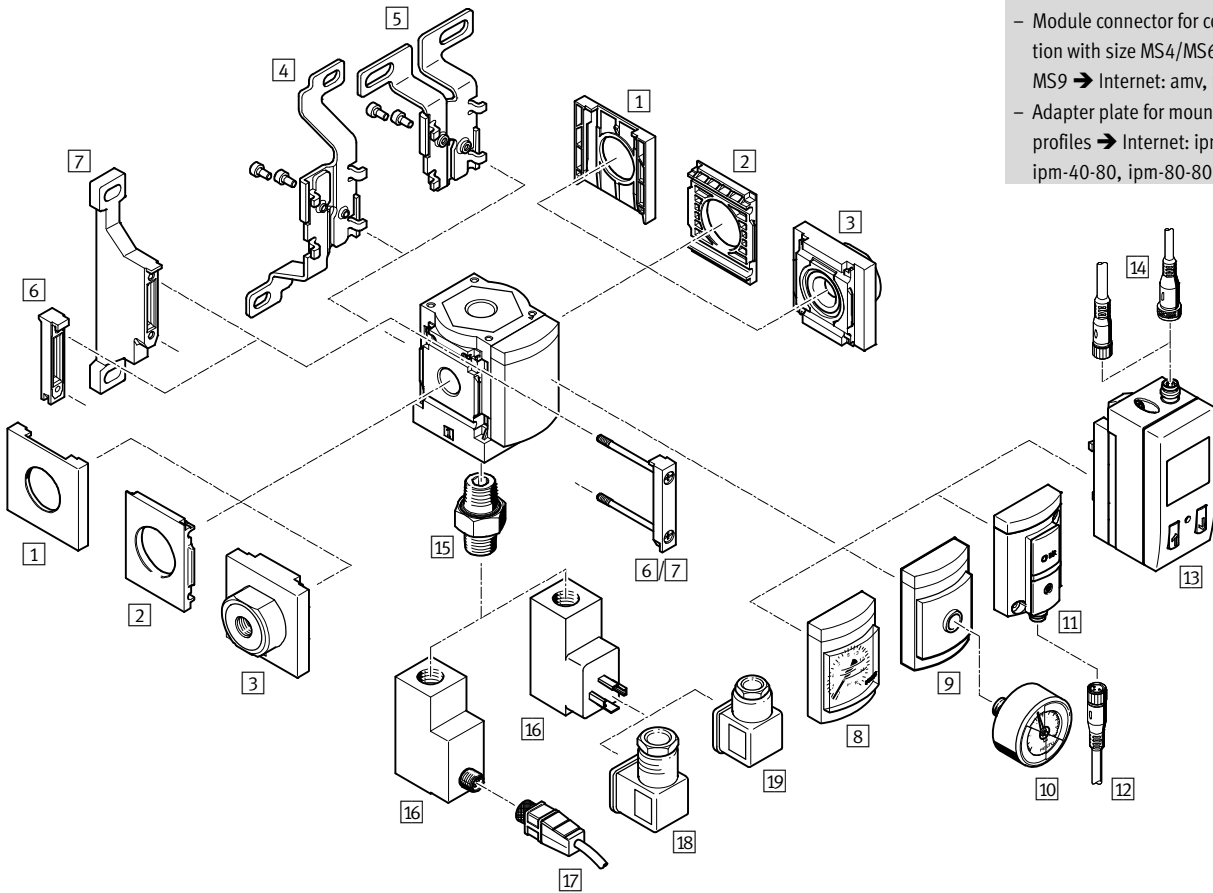
Branching modules MS4/MS6-FRM, MS series

Peripherals overview

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Mounting attachments and accessories		Individual device		Combination		→ Page/Internet
		Without connecting plate	With connecting plate	Without connecting plate	With connecting plate	
1	Cover cap MS4/6-END	■	–	■	–	ms4-end, ms6-end
2	Mounting plate MS4/6-AEND	■[1]	–	■[1]	–	ms4-aend, ms6-aend
3	Connecting plate-SET MS4/6-AG…	–	■[1]	–	■[1]	ms4-ag, ms6-ag
4	Mounting bracket MS4/6-WB	■	■	–	–	ms4-wb, ms6-wb
5	Mounting bracket MS4-WBM	■	■	–	–	ms4-wbm
6	Module connector MS4/6-MV	–	■	■	■	ms4-mv, ms6-mv
7	Mounting bracket MS4/6-WP	■	■	■	■	ms4-wp, ms6-wp
	Mounting bracket (not illustrated) MS4/6-WPB/WPE/WPM	■	■	■	■	ms4-wp, ms6-wp
8	MS pressure gauge AG	■	■	■	■	16
9	Adapter plate for EN pressure gauge ⅛/¼ A8/A4	■	■	■	■	16
10	Pressure gauge MA	■	■	■	■	33
11	Pressure sensor without display AD7 … AD10	■	■	■	■	16
12	Connecting cable NEBU-M8…-LE3	■	■	■	■	33
13	Pressure sensor with display AD1 … AD4	■	■	■	■	16
14	Connecting cable NEBU-M8…-LE3/NEBU-M12…-LE4	■	■	■	■	33
15	Double nipple ESK	■	■	■	■	34
16	Pressure switch PEV X/Y/M12	■	■	■	■	16
17	Connecting cable NEBU-M12…-LE4	■	■	■	■	33
18	Angled socket PEV-¼-WD-LED-…	■	■	■	■	34
19	Plug socket MSSD-C-4P	■	■	■	■	34

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

Branching modules MS4/MS6-FRM, MS series

Type codes

FESTO

MS	4	–	FRM	–	¼	–	Y

Series	
MS	Standard service unit

Size	
4	Grid dimension 40 mm
6	Grid dimension 62 mm

Service function	
FRM	Branching module

Pneumatic connection	
MS4	
⅛	Female thread G⅛
¼	Female thread G¼
MS6	
¼	Female thread G¼
⅜	Female thread G⅜
½	Female 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 ➔ 16

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

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

FESTO

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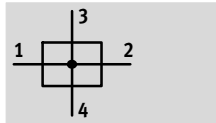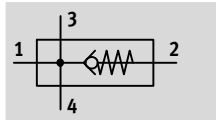
- ▮▮ - Flow rate
1,200 … 14,700 l/min

- ▮ - Temperature range
−10 … +60 °C

With integrated non-return function

- ⏚ - Operating pressure
0 … 20 bar

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

General technical data					
Size	MS4		MS6		
Pneumatic connection 1, 2	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	Via pressure sensor for displaying output pressure via LCD display and electrical output				
	Via pressure sensor for displaying output pressure via operational status indicator and electrical output				
	Via pressure gauge for displaying output pressure				
	Via pressure gauge with red/green scale for displaying output pressure				
	G¼ prepared				
	G⅛ prepared		–		

1) The branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.
- ▮ - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard nominal flow rate 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

FESTO

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

1) Value in brackets applies to MS4/MS6-FRM with pressure sensor AD… or with UL certification.
2) Value in brackets applies to MS4/MS6-FRM with pressure sensor AD… .
3) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	c T6 X
ATEX category dust	II 2D
EX-ignition protection type dust	c 60 °C X
ATEX ambient temperature	−10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

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

Materials

Sectional view
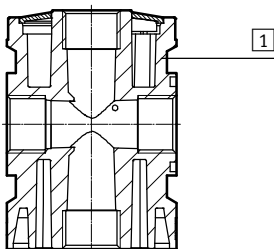
Branching module	
[1] Housing	Die-cast aluminium
Note on materials	RoHS-compliant
	Free of copper and PTFE (not with variants AG or AD…)

Branching modules MS4/MS6-FRM, MS series

FESTO

Technical data

Dimensions – Basic version Download CAD data ➜ **www.festo.com**

With female thread, with cover plate
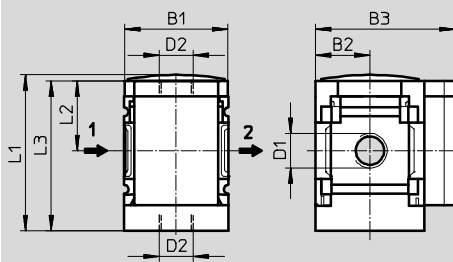
➜ Flow direction

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 to ISO 1179-1 and to ISO 228-1

Dimensions – Pressure gauge/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
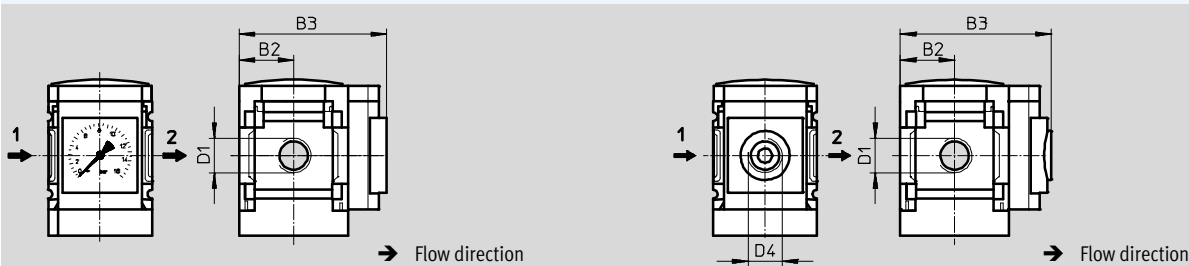
➜ Flow direction   ➜ Flow direction

Type	B2	B3		D1	D4
		Standard	With integrated non-return function I		
MS4-FRM-⅛-…-AG	21	65		G⅛	–
MS4-FRM-¼-…-AG				G¼	
MS4-FRM-⅛-…-RG	21	66.5		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	85	G¼	–
MS6-FRM-⅜-…-AG				G⅜	
MS6-FRM-½-…-AG				G½	
MS6-FRM-¼-…-RG	31	78.5	86.5	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 to ISO 1179-1 and to ISO 228-1

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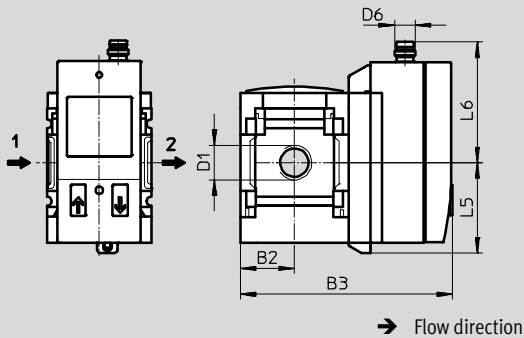
Technical data

FESTO

| Dimensions – Pressure gauge/pressure gauge alternatives	Download CAD data ➔ www.festo.com
Pressure sensor with LCD 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

Pressure sensor with operational status indicator AD7 … AD10	Technical data ➔ Internet: sde5
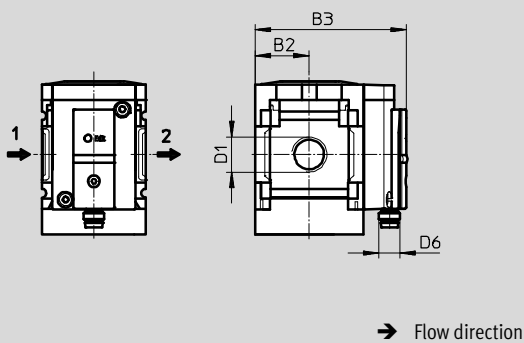
➔ Flow direction

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

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

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

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

Type	B2	B3	D1	D6	L5	L6
MS4-FRM-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			
MS4-FRM-⅛-…-AD7/AD8/AD9/AD10	21	59	G⅛	M8x1	–	–
MS4-FRM-¼-…-AD7/AD8/AD9/AD10			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			
MS6-FRM-¼-…-AD7/AD8/AD9/AD10	31	79	G¼	M8x1	–	–
MS6-FRM-⅜-…-AD7/AD8/AD9/AD10			G⅜			
MS6-FRM-½-…-AD7/AD8/AD9/AD10			G½			

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

Branching modules MS4/MS6-FRM, MS series

Technical data

FESTO

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 EN 175 301, type A

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

Variant M12:
PEV-¼-B-M12 with 4-pin plug M12x1

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

Ordering data							
Size	Connection	Standard		With integrated non-return function		With pressure switch PEV-¼-B-0D (variant Y)	
		Part No.	Type	Part No.	Type	Part No.	Type
MS4	G⅛	529559	MS4-FRM-⅛ [1]	–	–	–	–
	G¼	529555	MS4-FRM-¼ [1]	536966	MS4-FRM-¼-I[1]	529556	MS4-FRM-¼-Y[1]
MS6	G¼	529857	MS6-FRM-¼ [1]	536967	MS6-FRM-¼-I[1]	529858	MS6-FRM-¼-Y[1]
	G⅜	529861	MS6-FRM-⅜ [1]	–	–	529862	MS6-FRM-⅜-Y[1]
	G½	529853	MS6-FRM-½ [1]	536969	MS6-FRM-½-I[1]	529854	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	Pneumatic connection
527703	MS	4	FRM	⅛, ¼, ⅜, ½,
527676		6		AGA, AGB, AGC, AGD, AGE

Order example

527676	**MS**	**6**	–	**FRM**	–	**3/8**

Ordering table

	Grid dimension [mm]	40	62	Conditions	Code	Enter code
M	Module No.	**527703**	**527676**			
	Series	Standard			**MS**	MS
	Size	4	6		**...**	
	Function	Branching module			**-FRM**	-FRM
	Pneumatic connection	Female thread G⅛	–	1	**-⅛**	
		Female thread G¼	Female thread G¼	1	**-¼**	
		–	Female thread G⅜	1	**-⅜**	
		–	Female thread G½	1	**-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**	

1   **⅛, ¼, ⅜, ½, AD1 … AD4, AD7 … AD10, X, Y, M12, WPM**
      Not with EU certification EX4

Transfer order code

	MS		–	**FRM**		–	

Branching modules MS4/MS6-FRM, MS series

Ordering data – Modular products

FESTO

➔ | **O** Options |

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

– [ ] – **AG** – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

Ordering table

		Grid dimension [mm] 40	62	Conditions	Code	Enter code
O	Auxiliary function	With integrated non-return function			-I	
	Pressure gauge/pressure gauge alternatives	MS pressure gauge, bar (with adapter plate)	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 LCD display, plug M8, 1 switching output PNP, 3-pin		1 2	-AD1	
		Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin		1 2	-AD2	
		Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 … 20 mA		1 2	-AD3	
		Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 … 20 mA		1 2	-AD4	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact		1 2	-AD7	
		Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact		1 2	-AD8	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		1 2	-AD9	
		Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		1 2	-AD10	
	Alternative pressure gauge scale	psi		3	-PSI	
		MPa		4	-MPA	
	Pressure switch	Pressure switch PEV with display, plug socket, EN 175301, type A, square		1 5	-X	
		Pressure switch PEV without display, plug socket, EN 175301, type A, square		1 5	-Y	
		Pressure switch PEV without display, plug socket, round, M12, 4-pin		1 5	-M12	
	Type of mounting	Mounting bracket		6	-WP	
		Mounting bracket		1 6	-WPM	
		Mounting bracket			-WB	
		Mounting bracket	–		-WBM	
	EU certification	II 2GD to EU Directive 94/9/EG			-EX4	
	UL certification	cULus, ordinary location for Canada and USA			-UL1	
	Flow direction	Flow direction from right to left			-Z	

2	**AD1 … AD4, AD7 … AD10**		4	**MPA**	Only in combination with pressure gauge AG or RG
		Measuring range max. 10 bar	5	**X, Y, M12**	Max. permissible operating pressure P1 = 12 bar.
3	**PSI**	Only in combination with pressure gauge AG	6	**WP, WPM**	Only with connecting plate AGA, AGB, AGC, AGD or AGE

Transfer order code

– [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ] – [ ]

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

Technical data

FESTO

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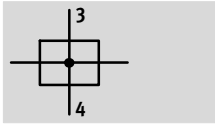
- **Flow rate**
  2,900 ... 14,600 l/min
- **Temperature range**
  −10 ... +60 °C
- **Operating pressure**
  0 ... 20 bar

- **Note**

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

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

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

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

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

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

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

1) Value in brackets applies to MS4/MS6-FRM-FRZ with UL certification.
2) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
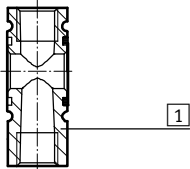
Distributor blocks MS4/MS6-FRM-FRZ, MS series

Technical data

FESTO

Weight [g]		
Size	MS4	MS6
Distributor block	60	163

Materials
Sectional view

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

Dimensions

Download CAD data ➔ **www.festo.com**
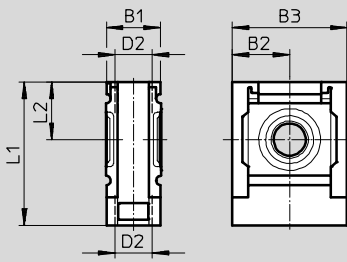
Type	B1	B2	B3	D2	L1	L2
MS4-FRM-FRZ	20	21	42	G¼	52.5	21
MS6-FRM-FRZ	31	31	62	G½	76.5	31

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

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

Branching modules MS9-FRM, MS series

Peripherals overview

FESTO
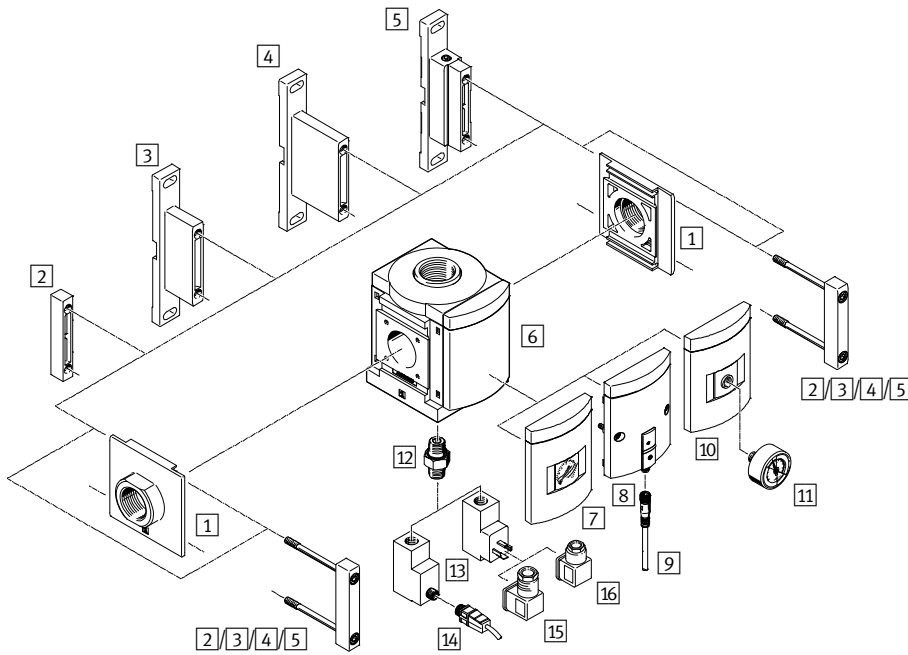
-❘- Note

Additional accessories:
– Module connector for combination with size MS6, MS9 or MS12
➔ Internet: rmv, armv

Mounting attachments and accessories						
		Individual component			Combination	➔ Page/
		With female thread ¾ or 1	With connecting plate AG…		Module without connect-ing thread, without connecting plate G	Internet
			Without EU certification EX4	With EU certification EX4		
1	Connecting plate-SET MS9-AG…	–	■	■	■	ms9-ag
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
6	Cover plate VS	■	■	■	■	26
7	MS pressure gauge AG	■	■	■	■	26
8	Pressure sensor without display AD7 … AD10	■	■	–	■	26
9	Connecting cable NEBU-M8…-LE3	■	■	–	■	33
10	Adapter plate for EN pressure gauge ¼ A4	■	■	■	■	26
11	Pressure gauge MA	■	■	■	■	33
12	Double nipple (included in the scope of delivery) ESK	■	■	–	■	–
13	Pressure switch PEV X/Y/M12	■	■	–	■	26
14	Connecting cable NEBU-M12…-LE4	■	■	–	■	33
15	Angled socket PEV-¼-WD-LED-…	■	■	–	■	34
16	Plug socket MSSD-C-4P	■	■	–	■	34

Branching modules MS9-FRM, MS series

FESTO

Type codes

| | MS | 9 | – | FRM | – | G | – | VS | – | Y |

Series	
MS	Standard service unit

Size	
9	Grid dimension 90 mm

Service function	
FRM	Branching module

Pneumatic connection	
G	Module without connecting thread, without connecting plate

Pressure gauge alternatives	
VS	Cover plate

Pressure switch	
	Without pressure switch
Y	With pressure switch

Additional variants can be ordered using the modular system ➔ 26

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

Branching modules MS9-FRM, MS series
Technical data

FESTO

Function
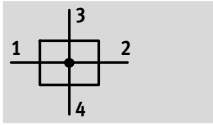
- Flow rate
  10,000 ... 50,000 l/min

- Temperature range
  −10 ... +60 °C

- Operating pressure
  0 ... 20 bar

- Pneumatic manifold with 4 connections
- Attachment facility for auxiliary modules

- Outlet at top and bottom
- Can be used as an intermediate distributor for varying air qualities

- Optional device variant EX4 for use in potentially explosive areas in zones 1, 2, 21 and 22

- Optional pressure sensor

General technical data				
Pneumatic connection 1, 2	G¾ (Female thread)	G1 (Female thread)	G½ ... G1½ (With connecting plate AG…)	– (Module without connecting thread, without connecting plate G)
Pneumatic connection 3, 4	G1			
Design	Branching module			
Type of mounting	Via accessories			
	In-line installation			
	Front panel mounting			
Mounting position	Any[1]			
Pressure display	Via pressure sensor for displaying output pressure via operational status indicator and electrical output			
	Via pressure gauge for displaying output pressure			
	Via pressure gauge with red/green scale for displaying output pressure			
	G¼ prepared			

[1] The branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.
- Note: This product conforms to ISO 1179-1 and to ISO 228-1

Standard nominal flow rate q_{nN}[1] [l/min]					
Pneumatic connection	Connecting plate AGD	Female thread G¾ or connecting plate AGE	Female thread G1 or connecting plate AGF	Connecting plate AGG	Connecting plate AGH
In main flow direction 1 ⇢ 2	10,000	25,000	45,000	47,000	50,000
Outlet at top	13,000				
Outlet at bottom	13,000				

[1] Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar
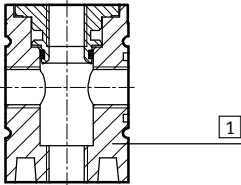
Branching modules MS9-FRM, MS series

Technical data

FESTO

Operating and environmental conditions			
Variant	Standard	Pressure switch X/Y/M12	Pressure sensor AD…
Operating pressure [bar]	0 … 20	0 … 12	0 … 10
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
Note on operating/pilot medium	Operation with lubricated medium possible		
Ambient temperature [°C]	−10 … +60	−10 … +60	0 … +50
Temperature of medium [°C]	−10 … +60	−10 … +60	0 … +50
Storage temperature [°C]	−10 … +60	−10 … +60	−10 … +60
Corrosion resistance class CRC[1]	2		
Certification (variant UL1)	cULus recognized (OL)		

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

ATEX	
EU certification	EX4
ATEX category gas	II 2G
Ex-ignition protection type gas	c T6 X
ATEX category dust	II 2D
EX-ignition protection type dust	c 60 °C X
ATEX ambient temperature	−10 °C ≤ Ta ≤ +60 °C
CE mark (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

Weight [g]	
Branching module	1,000
Branching module with pressure switch X/Y/M12	1,100

Materials

Sectional view

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

Dimensions – Basic version

Download CAD data ➔ **www.festo.com**

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

➔ Flow direction
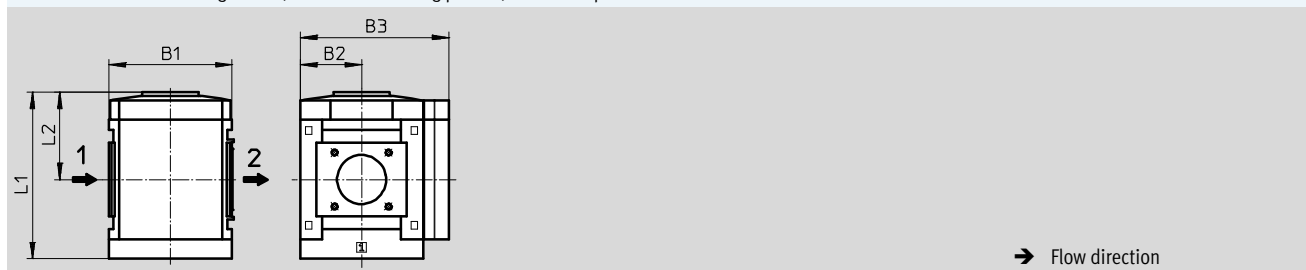
Type	B1	B2	B3	L1	L2
MS9-FRM-G	90	45	109	122	64

Branching modules MS9-FRM, MS series

Technical data
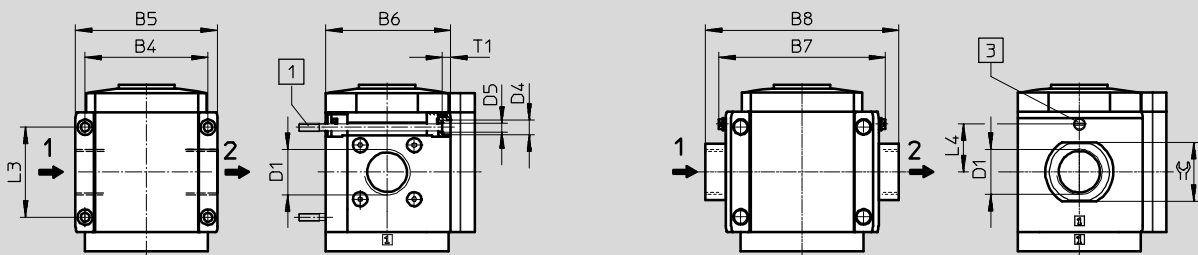
FESTO

Dimensions – Connecting thread/connecting plate   Download CAD data → **www.festo.com**

With female thread ¾ or 1   With connecting plate AG…

|1| Mounting 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-¾	90	104	91.5	–	–	–	G¾	11	6.5	66	–	6	–
MS9-FRM-1							G1						
MS9-FRM-AGD	–	–	–	112	122	132	G½	–	–	–	35	–	30
MS9-FRM-AGE						132	G¾						36
MS9-FRM-AGF						142	G1						41
MS9-FRM-AGG						162	G1¼						50
MS9-FRM-AGH						176	G1½						55

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

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

Integrated MS pressure gauge with standard scale AG or red/green scale RG   Adapter plate A4 for EN pressure gauge ¼, without pressure gauge
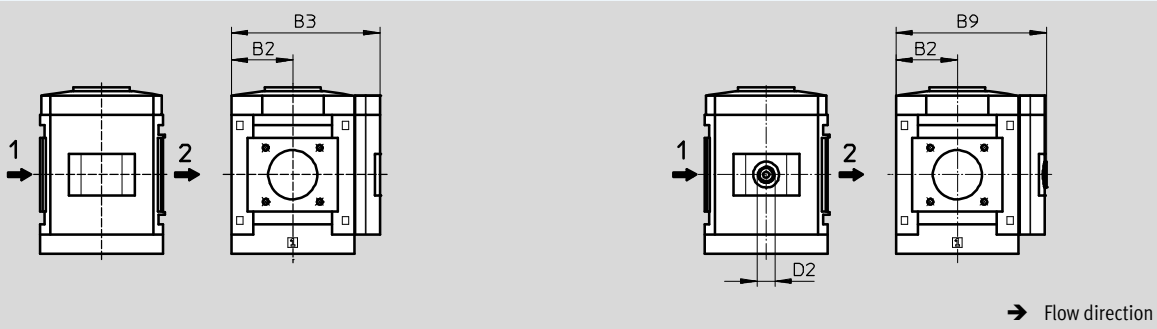
→ Flow direction

Type	B2	B3	B9	D2
MS9-FRM-…-AG/RG	45	109	–	–
MS9-FRM-…-A4		–	110	G¼

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

Branching modules MS9-FRM, MS series

Technical data

FESTO

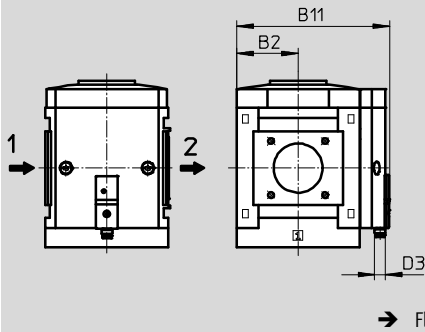### Dimensions – Pressure gauge/pressure gauge alternatives

Pressure sensor with operational status indicator AD7 … AD10

Download CAD data ➔ www.festo.com

Technical data ➔ Internet: sde5

➔ Flow direction

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

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

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

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

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

Dimensions – Pressure switch

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

Download CAD data ➔ www.festo.com

Technical data ➔ Internet: pev-1/4
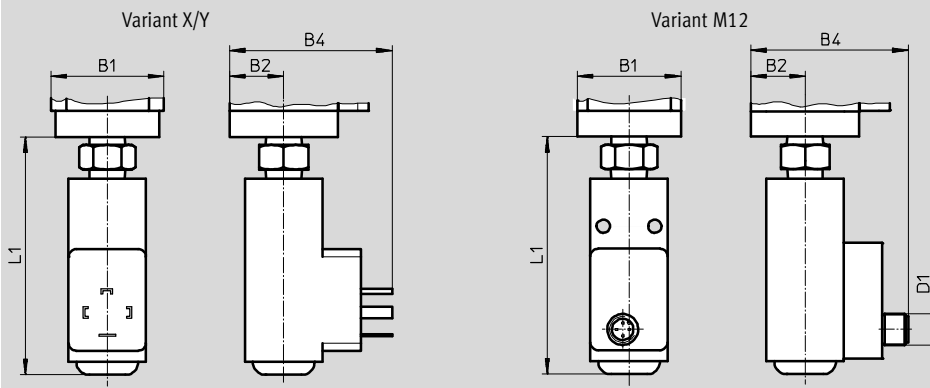
Variant X:
PEV-¼-SC-OD with display, plug, square design to EN 175 301, type A

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

Variant M12:
PEV-¼-B-M12 with 4-pin plug M12x1

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

Ordering data

Size	Connection	Standard		With pressure switch PEV-¼-B-OD (variant Y)	
		Part No.	Type	Part No.	Type
Cover plate					
MS9	–	564145	MS9-FRM-G-VS[1]	564147	MS9-FRM-G-VS-Y[1]

1) Free of copper and PTFE

Branching modules MS9-FRM, MS series

Ordering data – Modular products

FESTO

M **Mandatory data** →

Module No.	Series	Size	Function	Pneumatic connection
562534	MS	9	FRM	¾, 1, AGD, AGE, AGF, AGG, AGH, G
Ordering example				
562534	**MS**	**9**	**– FRM**	**– AGE**

Ordering table

Grid dimension [mm]	90	Condi-tions	Code	Enter code
M Module No.	**562534**			
Series	Standard		**MS**	MS
Size	9		**9**	9
Function	Branching module		**-FRM**	-FRM
Pneumatic connection	Female thread G¾	1	**-¾**	
	Female thread G1	1	**-1**	
	Connecting plate G½		**-AGD**	
	Connecting plate G¾		**-AGE**	
	Connecting plate G1		**-AGF**	
	Connecting plate G1¼		**-AGG**	
	Connecting plate G1½		**-AGH**	
	Module without connecting thread, without connecting plate	1	**-G**	

1 ¾, 1, G, AD7, AD8, AD9, AD10, X, Y, M12, WPM
Not with EU certification EX4

Transfer order code

562534	MS	9	– FRM	–

Branching modules MS9-FRM, MS series

FESTO

Ordering data – Modular products

➔	**M**		**O**	**Options**										

Pressure gauge/ pressure gauge alternatives	Alternative pressure gauge scale	Pressure switch	Type of mounting	EU certification	UL certification	Flow direction
AG, VS, A4, RG, AD7 … AD10	PSI, MPA, BAR	X, Y, M12	WP, WPM, WPB	EX4	UL1	Z
– **VS**	–	–	–	–	–	–

Ordering table					
Grid dimension [mm]	90			Condi- tions	Code	Enter code
M Pressure gauge/pressure gauge alternatives	MS pressure gauge				**-AG**	
	Cover plate				**-VS**	
	Adapter plate for EN pressure gauge ¼, without pressure gauge				**-A4**	
	Integrated pressure gauge, red/green scale			2	**-RG**	
	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact			1 3	**-AD7**	
	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact			1 3	**-AD8**	
	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact			1 3	**-AD9**	
	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact			1 3	**-AD10**	
O Alternative pressure gauge scale	PSI			4	**-PSI**	
	MPa			4	**-MPA**	
	Bar			4	**-BAR**	
Pressure switch	Pressure switch PEV with display, plug socket, EN175301, type A, cube			1 5	**-X**	
	Pressure switch PEV without display, plug socket, EN 175301, type A, cube			1 5	**-Y**	
	Pressure switch PEV without display, plug socket, round, M12, 4-pin			1 5	**-M12**	
Type of mounting	Mounting bracket			6	**-WP**	
	Mounting bracket			1 6	**-WPM**	
	Mounting bracket for large wall gap			6	**-WPB**	
EU certification	II 2GD to EU Directive 94/9/EG				**-EX4**	
UL certification	cULus, ordinary location for Canada and USA				**-UL1**	
Flow direction	Flow direction from right to left				**-Z**	

1	¾, 1, G, AD7, AD8, AD9, AD10, X, Y, M12, WPM		5	X, Y, M12	Max. permissible operating pressure P1 = 12 bar
	Not with EU certification EX4		6	WP, WPM, WPB	Not with module G
2	RG	Not with alternative pressure gauge scale PSI,			
		PSI scale serves only as an auxiliary scale			
3	AD7 … AD10	Measuring range max. 10 bar			
4	PSI, MPA, BAR	Not with pressure gauge alternatives VS, A4, AD7, AD8, AD9, AD10			

Transfer order code

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

Branching modules MS12-FRM
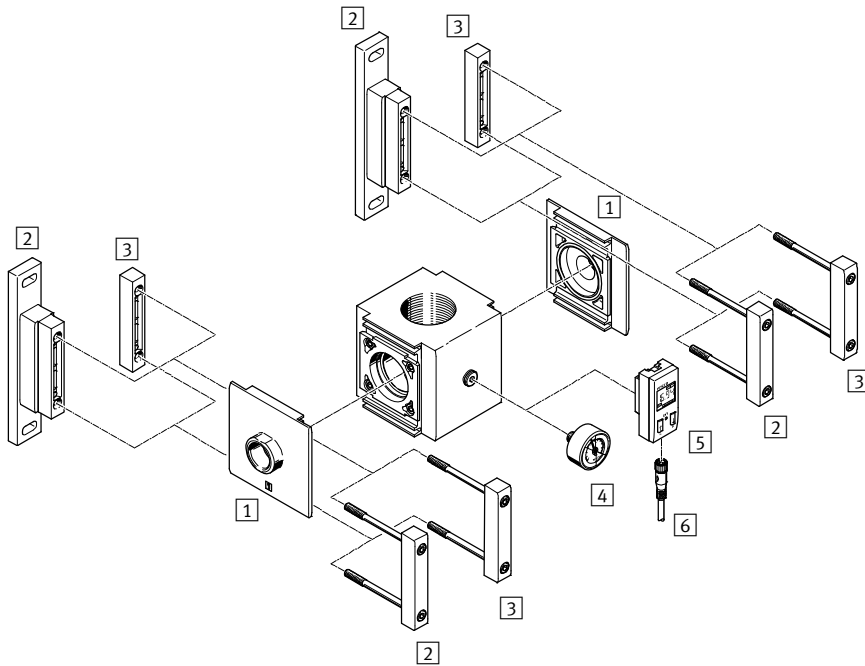
- - Note

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

Mounting attachments and accessories		➔ Page/Internet
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	33
5	Pressure sensor SDE1-…-R14/R18	33
6	Connecting cable NEBU-M8…-LE3/NEBU-M8…-LE4/NEBU-M12…-LE3	33

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 ➔ 32

- Connecting plates
- Type of mounting

Branching modules MS12-FRM, MS series

Technical data

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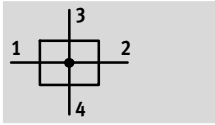
- ▮▮ - Flow rate
  25,000 … 42,000 l/min

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

- ⏚ - Operating pressure
  0 … 20 bar

- Pneumatic manifold with
  4 connections
- Attachment facility for auxiliary
  modules
- Outlet top and bottom

- Can be used as an intermediate
  distributor for varying air qualities

General technical data		
Pneumatic connection 1, 2	G1 … G2 (with connecting plate AG…)	– (without connecting thread G)
Pneumatic connection 3	G2	
Pneumatic connection 4	G1	
Design	Branching module	
Type of mounting	Via accessories	
	In-line installation	
Assembly position	Any	

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

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

1) Dependent on connecting plate AG… selected
   Measured at p1 = 6 bar and p2 = 5 bar, Δp = 1 bar

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

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
   Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
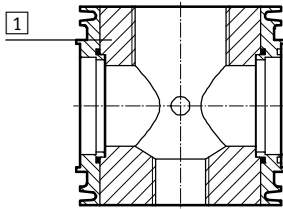
Weights [g]	
Branching module	3,000

Materials

Sectional view

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

Dimensions – Basic version

Download CAD data ➜ **www.festo.com**

Without connecting thread G

[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-G	124	124	134	G2	G1	G¼	122	61

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

Ordering data			
Size	Connection	Part No.	Type
MS12	–	**541681**	**MS12-FRM-G**[1]

1) Free of copper and PTFE
- ▮ - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Branching modules MS12-FRM, MS series

Ordering data – Modular products

FESTO

M **Mandatory data**					O **Options**
Module No.	**Series**	**Size**	**Function**	**Connection size**	**Type of mounting**
535035	MS	12	FRM	AGF AGG AGH AGI G	WP
Order example					
535035	**MS**	**12** –	**FRM** –	**AGF** –	**WP**

Ordering table					
Grid dimension [mm]	124		Condi-tions	Code	Enter code
M Module No.	**535035**				
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

535035	MS	12 –	FRM –	–	
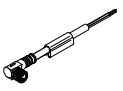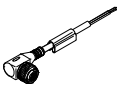
Accessories

Ordering data – Pressure gauge MA

	Nominal size	Pneumatic connection	Display range		Part No.	Type
			[bar]	[psi]		
	Pressure gauge MA, EN 837-1					Technical data → Internet: ma
	40	R¼	0 … 16	0 … 232	**187080**	**MA-40-16-R¼-EN**
		G¼	0 … 16	0 … 232	**183901**	**MA-40-16-G¼-EN**
	Pressure gauge MA, EN 837-1, with red-green range					Technical data → Internet: ma
	40	R⅛	0 … 16	–	**525726**	**MA-40-16-R⅛-E-RG**
	50	R¼	0 … 16	–	**525729**	**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 plate for pneumatic connection included in scope of delivery), pressure measurement range 0 … 10 bar, relative pressure measurement					
	Male thread R⅛	1 switching output PNP	M8x1, 3-pin	LCD	**192026**	**SDE1-D10-G2-R18-C-P1-M8**
			M8x1, 3-pin	Illuminated LCD	**529970**	**SDE1-D10-G2-R18-L-P1-M8**
			M12x1, 3-pin	Illuminated LCD	**534064**	**SDE1-D10-G2-R18-L-P1-M12**
		2 switching outputs PNP	M8x1, 4-pin	LCD	**192027**	**SDE1-D10-G2-R18-C-P2-M8**
		1 switching output PNP and 0 … 10 V analogue	M8x1, 4-pin	LCD	**529958**	**SDE1-D10-G2-R18-C-PU-M8**
			M8x1, 4-pin	Illuminated LCD	**529972**	**SDE1-D10-G2-R18-L-PU-M8**
	Male thread R¼	1 switching output PNP	M8x1, 3-pin	LCD	**192028**	**SDE1-D10-G2-R14-C-P1-M8**
			M8x1, 3-pin	Illuminated LCD	**529967**	**SDE1-D10-G2-R14-L-P1-M8**
			M12x1, 3-pin	Illuminated LCD	**534157**	**SDE1-D10-G2-R14-L-P1-M12**
		2 switching outputs PNP	M8x1, 4-pin	LCD	**192029**	**SDE1-D10-G2-R14-C-P2-M8**
			M8x1, 4-pin	Illuminated LCD	**529968**	**SDE1-D10-G2-R14-L-P2-M8**
		1 switching output PNP and 0 … 10 V analogue	M8x1, 4-pin	LCD	**529957**	**SDE1-D10-G2-R14-C-PU-M8**
			M8x1, 4-pin	Illuminated LCD	**529969**	**SDE1-D10-G2-R14-L-PU-M8**

Ordering data – Connecting cable NEBU-M8

Technical data → Internet: nebu

|	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M8x1, straight socket	3	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-K-5-LE3**
		4	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
			5	**541343**	**NEBU-M8G4-K-5-LE4**
	M8x1, angled socket	3	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541341**	**NEBU-M8W3-K-5-LE3**
		4	2.5	**541344**	**NEBU-M8W4-K-2.5-LE4**
			5	**541345**	**NEBU-M8W4-K-5-LE4**

Ordering data – Connecting cable NEBU-M12

Technical data → Internet: nebu

	Electrical connection	Number of wires	Cable length [m]	Part No.	Type
	M12x1, straight socket	3	2.5	**541363**	**NEBU-M12G5-K-2.5-LE3**
			5	**541364**	**NEBU-M12G5-K-5-LE3**
		4	2.5	**550326**	**NEBU-M12G5-K-2.5-LE4**
			5	**541328**	**NEBU-M12G5-K-5-LE4**
	M12x1, angled socket	3	2.5	**541367**	**NEBU-M12W5-K-2.5-LE3**
			5	**541370**	**NEBU-M12W5-K-5-LE3**
		4	2.5	**550325**	**NEBU-M12W5-K-2.5-LE4**
			5	**541329**	**NEBU-M12W5-K-5-LE4**

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	**164274**	**PEV-¼-WD-LED-24**
		≤ 230 V AC ≤ 180 V DC	4-pin	Yellow LED	**164275**	**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	**171157**	**MSSD-C-4P**

Ordering data – Double nipple ESK

	Description	Pneumatic connection		Part No.	Type
	Adjustable for angular compensation • For retrofitting pressure switch PEV to branching module MS-FRM	R¼	R¼	**151521**	**ESK-¼-¼**
			R½	**534153**	**ESK-¼-½**