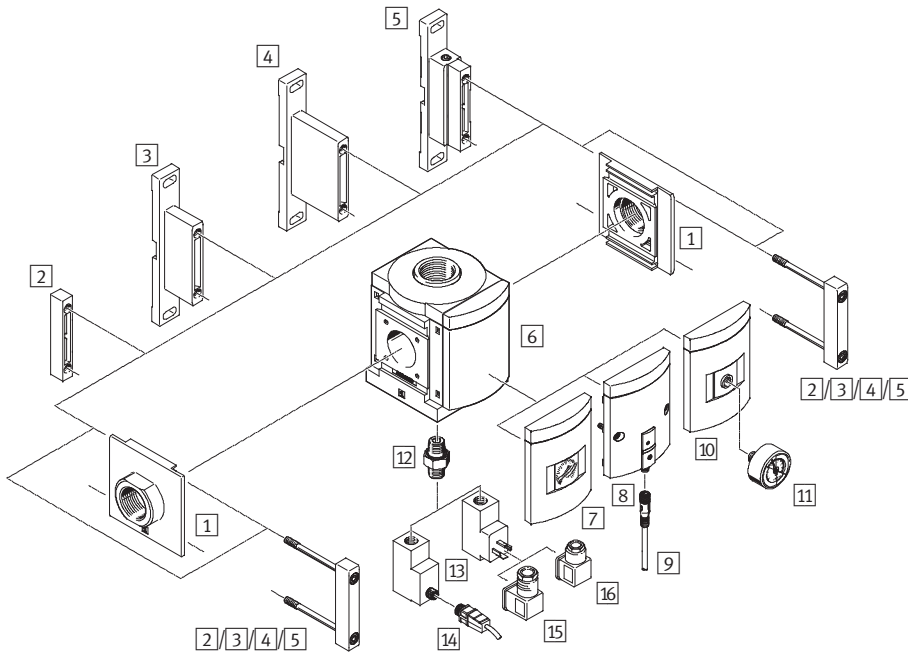


Branching modules MS-FRM, MS series, NPT



Branching modules MS9-FRM, MS series, NPT

Peripherals overview



Note

Additional accessories:

- Module connector for combination with size MS6, MS9 or MS12

→ Internet: rmv, armv

Mounting attachments and accessories					
	Individual component	Combination		→ Page/ Internet	
		With female thread N $\frac{3}{4}$ or N1	With connecting plate AQ...		Module without connecting thread, without connecting plate NG
1	Connecting plate MS9-AQ...	-	■	■	ms9-aq
2	Module connector MS9-MV	-	■	■	ms9-mv
3	Mounting bracket MS9-WP	■	■	■	ms9-wp
4	Mounting bracket MS9-WPB	■	■	■	ms9-wp
5	Mounting bracket MS9-WPM	-	■	■	ms9-wp
6	Cover plate VS	■	■	■	8
7	MS pressure gauge AG	■	■	■	8
8	Pressure sensor without display AD7 ... AD10	■	■	■	8
9	Connecting cable NEBU-M8...-LE3	■	■	■	10
10	Adapter plate for EN pressure gauge $\frac{1}{4}$ A4	■	■	■	8
11	Pressure gauge MA	■	■	■	10
12	Double nipple (included in the scope of delivery) ESK	■	■	■	-
13	Pressure switch PEV X/Y/M12	■	■	■	8
14	Connecting cable NEBU-M12...-LE4	■	■	■	10
15	Angled socket PEV- $\frac{1}{4}$ -WD-LED-...	■	■	■	11
16	Plug socket MSSD-C-4P	■	■	■	11

Branching modules MS9-FRM, MS series, NPT

Type codes

		MS	9	-	FRM	-	NG	-	VS	-	Y
Series											
MS	Standard service unit										
Size											
9	Grid dimension 90 mm										
Service function											
FRM	Branching module										
Pneumatic connection											
NG	Module without connecting thread, without connecting plate										
Pressure gauge alternatives											
VS	Cover plate										
Pressure switch											
	Without pressure switch										
Y	With pressure switch										

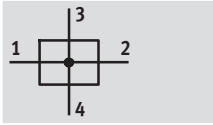
Additional variants can be ordered using the modular system → 8

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

Branching modules MS9-FRM, MS series, NPT

Technical data

Function



Flow rate

10,000 ... 50,000 l/min

Temperature range

-10 ... +60 °C

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 pressure sensor

General technical data

Pneumatic connection 1, 2	NPT $\frac{3}{4}$ -14 (Female thread)	NPT1-11 $\frac{1}{2}$ (Female thread)	NPT $\frac{1}{2}$ -14 ... NPT1 $\frac{1}{2}$ -11 $\frac{1}{2}$ (With connecting plate AQ...)	- (Module without connecting thread, without connecting plate NG)
Pneumatic connection 3, 4	NPT1-11 $\frac{1}{2}$			
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			
	G $\frac{1}{4}$ prepared			

1) The branching module must be mounted vertically when combined with a pressure sensor as condensate must not collect in the pressure sensor.

Standard nominal flow rate q_n ¹⁾ [l/min]

Pneumatic connection	Connecting plate AQR	Female thread NPT $\frac{3}{4}$ -14 or connecting plate AQS	Female thread NPT1-11 $\frac{1}{2}$ or connecting plate AQT	Connecting plate AQU	Connecting plate AQV
In main flow direction 1 \rightarrow 2	10,000	25,000	45,000	47,000	50,000
Outlet at top	13,000				
Outlet at bottom	13,000				

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

Branching modules MS9-FRM, MS series, NPT

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Technical data

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)		

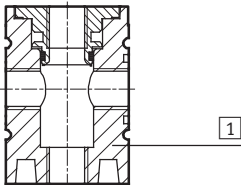
1) Corrosion resistance class 2 according to Festo standard 940 070

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

Materials

Sectional view

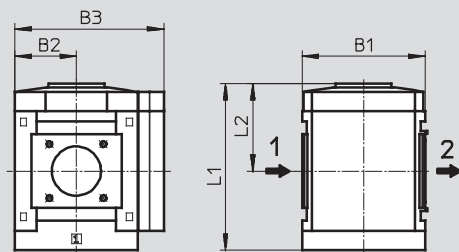


Branching module		
1	Housing	Die-cast aluminium
-	Cover	PA reinforced
-	Connecting plate, module connector, mounting bracket	Die-cast aluminium
Note on materials		RoHS-compliant
		Free of copper and PTFE (not with variant AG)

Dimensions – Basic version

Download CAD Data → www.festo.com/us/cad

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



→ Flow direction

Type	B1	B2	B3	L1	L2
MS9-FRM-NG	90	45	109	122	64

Branching modules MS9-FRM, MS series, NPT

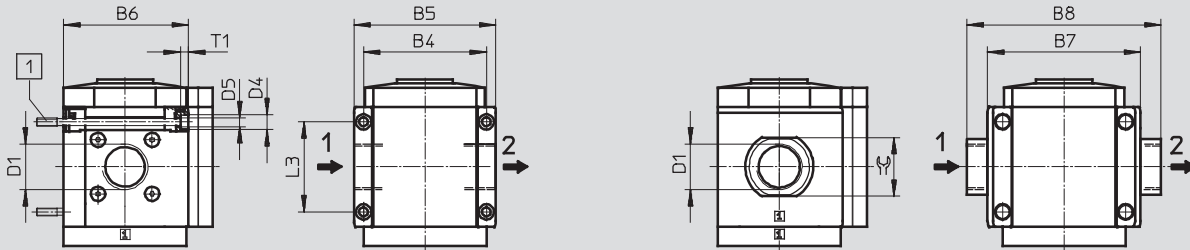
Technical data

Dimensions – Connecting thread/connecting plate

Download CAD Data → www.festo.com/us/cad

With female thread N $\frac{3}{4}$ or N1

With connecting plate AQ...



1 Mounting screw M6x \min .90 to DIN 912 (not included in the scope of delivery) for wall mounting without mounting bracket

→ Flow direction

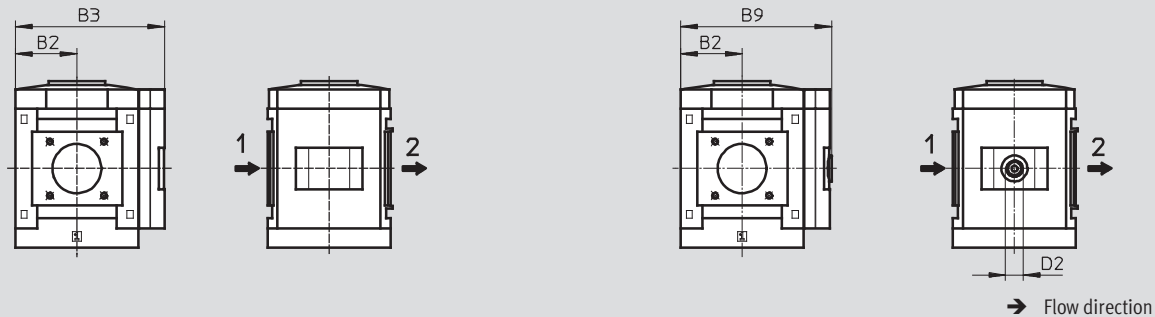
Type	B4	B5	B6	B7	B8	D1	D4	D5	L3	T1	∅
MS9-FRM-N $\frac{3}{4}$	90	104	91.5	-	-	NPT $\frac{3}{4}$ -14	11	6.5	66	6	-
MS9-FRM-N1						NPT1-11 $\frac{1}{2}$					
MS9-FRM-AQR	-	-	-	112	132	NPT $\frac{1}{2}$ -14	-	-	-	-	30
MS9-FRM-AQS					132	NPT $\frac{3}{4}$ -14					36
MS9-FRM-AQT					142	NPT1-11 $\frac{1}{2}$					41
MS9-FRM-AQU					162	NPT1 $\frac{1}{4}$ -11 $\frac{1}{2}$					50
MS9-FRM-AQV					176	NPT1 $\frac{1}{2}$ -11 $\frac{1}{2}$					55

Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

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

Adapter plate A4 for EN pressure gauge $\frac{1}{4}$, without pressure gauge



→ Flow direction

Type	B2	B3	B9	D2
MS9-FRM-...-AG/RG	45	109	-	-
MS9-FRM-...-A4		-	110	G $\frac{1}{4}$

Branching modules MS9-FRM, MS series, NPT

Technical data

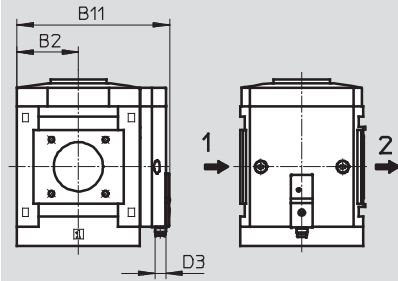
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Dimensions – Pressure gauge/pressure gauge alternatives

Download CAD Data → www.festo.com/us/cad

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 AD9:
SDE5-D10-O3-...-P-M8 with 3-pin plug M8x1, window 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 AD10:
SDE5-D10-C3-...-P-M8 with 3-pin plug M8x1, window comparator, 1 switching output PNP, N/C contact

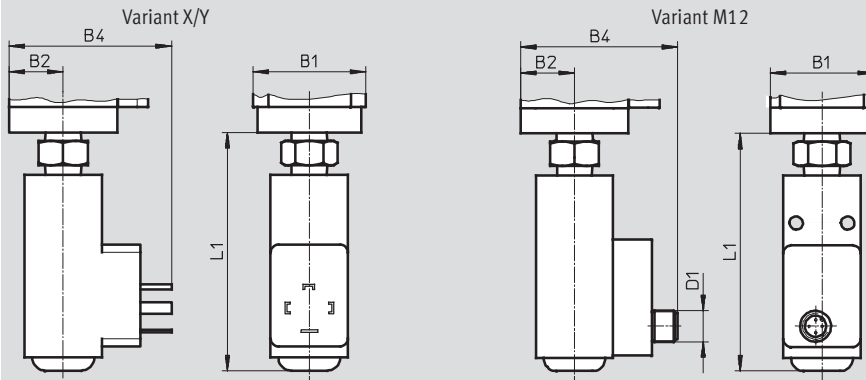
Type	B2	B11	D3
MS9-FRM-...-AD7/AD8/AD9/AD10	45	112	M8

Dimensions – Pressure switch

Download CAD Data → www.festo.com/us/cad

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

Technical data → Internet: pev-1/4



Variant X:
PEV-1/4-SC-OD with display, plug, square design to EN 175 301, type A

Variant Y:
PEV-1/4-B-OD, plug, square design to EN 175 301, type A

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

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

Ordering data

Size	Connection	Standard		With pressure switch PEV-1/4-B-OD (variant Y)	
		Part No.	Type	Part No.	Type
MS9	–	564148	MS9-FRM-NG-VS ¹⁾	564150	MS9-FRM-NG-VS-Y ¹⁾

1) Free of copper and PTFE

Branching modules MS9-FRM, MS series, NPT

Ordering data – Modular products

M Mandatory data →

Module No.	Series	Size	Function	Pneumatic connection
562534	MS	9	FRM	N $\frac{3}{4}$, N1, AQR, AQS, AQT, AQU, AQV, NG
Ordering example				
562534	MS	9	- FRM	- AQS

Ordering table

Grid dimension	[mm]	90	Condition s	Code	Enter code
M Module No.	562534				
Series	Standard			MS	MS
Size	9			9	9
Function	Branching module			-FRM	-FRM
Pneumatic connection	Female thread NPT $\frac{3}{4}$			-N$\frac{3}{4}$	
	Female thread NPT1			-N1	
	Connecting plate NPT $\frac{1}{2}$			-AQR	
	Connecting plate NPT $\frac{3}{4}$			-AQS	
	Connecting plate NPT1			-AQT	
	Connecting plate NPT1 $\frac{1}{4}$			-AQU	
	Connecting plate NPT1 $\frac{1}{2}$			-AQV	
	Module without connecting thread, without connecting plate			-NG	

Transfer order code

562534	MS	9	-	FRM	-	
--------	----	---	---	-----	---	--

Branching modules MS9-FRM, MS series, NPT

Ordering data – Modular products

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→ M		O Options			
Pressure gauge/pressure gauge alternatives	Alternative pressure gauge scale	Pressure switch	Type of mounting	UL certification	Flow direction
AG, VS, A4, RG, AD7 ... AD10	PSI, MPA, BAR	X, Y, M12	WP, WPM, WPB	UL1	Z
- VS	-	-	-	-	-

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

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


Transfer order code

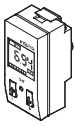
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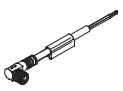
Branching modules MS-FRM, MS series, NPT



Accessories

FESTO

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	R $\frac{1}{4}$	0 ... 16	0 ... 232	187080	MA-40-16-R $\frac{1}{4}$ -EN
			0 ... 25	0 ... 360	187081	MA-40-25-R $\frac{1}{4}$ -EN
		G $\frac{1}{4}$	0 ... 16	0 ... 232	183901	MA-40-16-G $\frac{1}{4}$ -EN
Pressure gauge MA, EN 837-1, with red-green range Technical data → Internet: ma						
40	R $\frac{1}{8}$	0 ... 16	–	525726	MA-40-16-R $\frac{1}{8}$ -E-RG	
50	R $\frac{1}{4}$	0 ... 16	–	525729	MA-50-16-R $\frac{1}{4}$ -E-RG	


Ordering data – Pressure sensor 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 R $\frac{1}{8}$	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 R $\frac{1}{4}$	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	
			1 switching output PNP and 0 ... 10 V analogue	M8x1, 4-pin	LCD	529968	SDE1-D10-G2-R14-L-P2-M8
				M8x1, 4-pin	Illuminated 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						
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type	
					Technical data → Internet: nebu	
	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						
	Electrical connection	Number of wires	Cable length [m]	Part No.	Type	
					Technical data → Internet: nebu	
	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	

Branching modules MS-FRM, MS series, NPT

Accessories

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-1/4-...-OD	15 ... 30 V DC	4-pin	Yellow LED	164274	PEV-1/4-WD-LED-24
		≤ 230 V AC ≤ 180 V DC	4-pin	Yellow LED	164275	PEV-1/4-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-1/4-...-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	R1/4	R1/4	151521	ESK-1/4-1/4
			R1/2	534153	ESK-1/4-1/2

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