

Proportional pressure regulators VPPM

FESTO



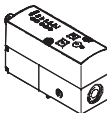
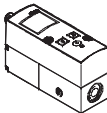
- Inline or flanged sub-base valve
- Manifold assembly
- Choice of pressure ranges
- Special adaptation to individual pressure ranges
- Setpoint value input as analogue voltage or current signal
- Optional setpoint module
- Connection sizes
G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{1}{2}$



Proportional pressure regulators VPPM

Product range overview

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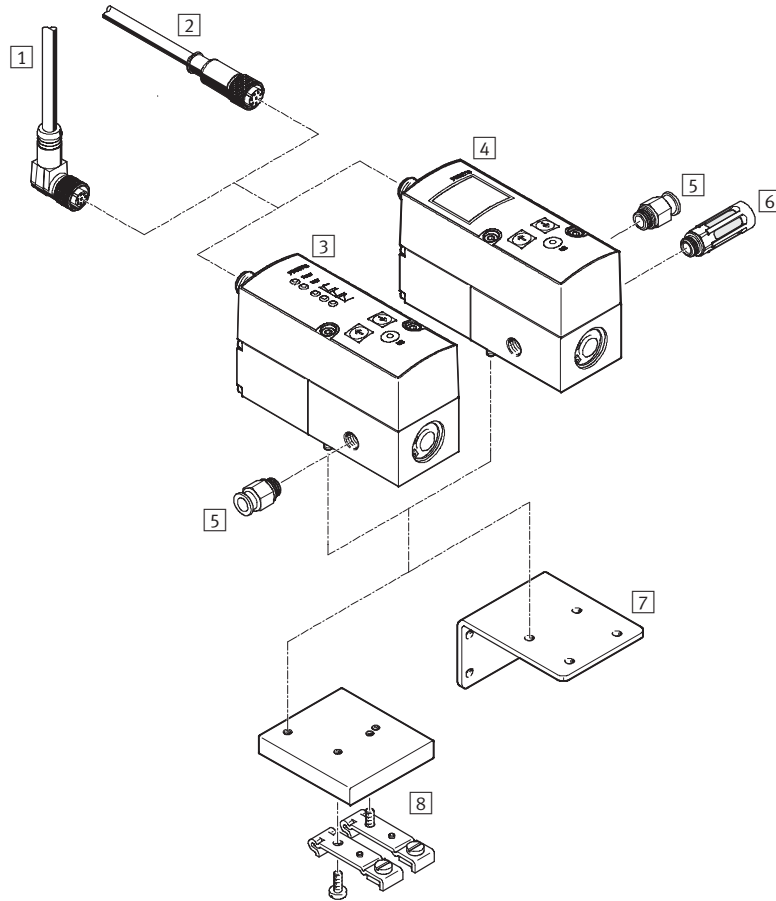
Function	Version	Constructional design	Pneumatic connection 1, 2, 3	Nominal diameter, pressurise/ exhaust [mm]	Pressure regulation range [bar]	Setpoint value input		→ Page
						Voltage type 0 ... 10 V	Current type 4 ... 20 mA	
Pressure regulators	With LED							
		Piloted dia- phragm valve	G1/8	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	2 / 6.3-6
			Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	
	With LCD							
		Piloted dia- phragm valve	G1/8	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	2 / 6.3-6
			Sub-base	6/4.5	0.02 ... 2 0.06 ... 6 0.1 ... 10	■	■	

Proportional pressure regulators VPPM

Peripherals overview

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Individual valve



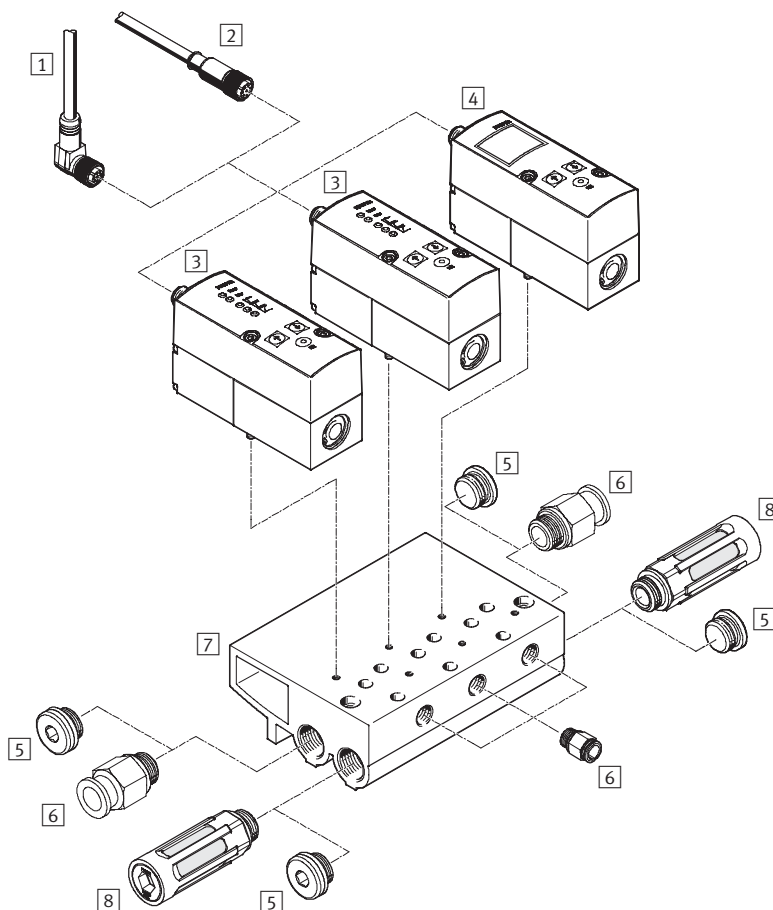
Accessories		
	Brief description	→ Page
1	Plug socket with cable, angled NEBU-M12W8-...	2 / 6.3-16
2	Plug socket with cable, straight SIM-M12-8GD-...	2 / 6.3-16
3	Proportional pressure regulator VPPM	Operator unit with LED 2 / 6.3-6
4	Proportional pressure regulator VPPM	Operator unit with LCD 2 / 6.3-6
5	Push-in fitting QS	For connecting compressed air tubing with standard external diameters Volume 3
6	Silencer	For fitting in exhaust ports Volume 3
7	Mounting bracket VAME-P1-A	For attaching the valve 2 / 6.3-15
8	DIN H-rail mounting VAME-P1-T	For mounting on a DIN H-rail 2 / 6.3-14

Proportional pressure regulators VPPM

Peripherals overview

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Valve manifold



Accessories		
	Brief description	→ Page
1	Plug socket with cable, angled NEBU-M12W8-...	2 / 6.3-16
2	Plug socket with cable, straight SIM-M12-8GD-...	2 / 6.3-16
3	Proportional pressure regulator VPPM	Operator unit with LED 2 / 6.3-6
4	Proportional pressure regulator VPPM	Operator unit with LCD 2 / 6.3-6
5	Blanking plug B	— Volume 3
6	Push-in fitting QS	For connecting compressed air tubing with standard external diameters Volume 3
7	Manifold block VABM	— 2 / 6.3-14
8	Silencer	For fitting in exhaust ports Volume 3

Proportional pressure regulators VPPM

Type codes

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		VPPM	-	6	L		-	L	-	1	-	G18	-	0L	6H	-	V1	N	-	S1	-	
Type																						
VPPM	Modular proportional pressure regulator																					
Nominal diameter																						
6	6 mm																					
Design																						
L	In-line valve																					
F	Flanged valve																					
Mounting method																						
	Freely mountable																					
Dynamic response class																						
L	Low																					
Valve function																						
1	3/2-way valve, normally closed																					
Pneumatic connection																						
G18	G1/8 thread																					
F	Flange/sub-base																					
Lower pressure value of regulation range																						
0L	0 bar																					
Upper pressure value of regulation range																						
2H	2 bar																					
6H	6 bar																					
10H	10 bar																					
Setpoint specification for individual valve																						
V1	0 ... 10 V																					
A4	4 ... 20 mA																					
Switch output																						
N	Negative switching																					
Accuracy																						
	2% (standard)																					
S1	1%																					
Operator unit																						
	LED (standard)																					
C1	With LCD, pressure unit variable																					

Proportional pressure regulators VPPM

Technical data

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-  Flow rate
380 ... 1,200 l/min
-  Voltage
21.6 ... 26.4 V DC
-  Pressure regulation range
0.02 ... 10 bar

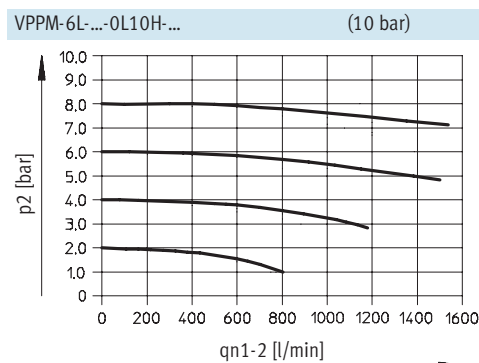
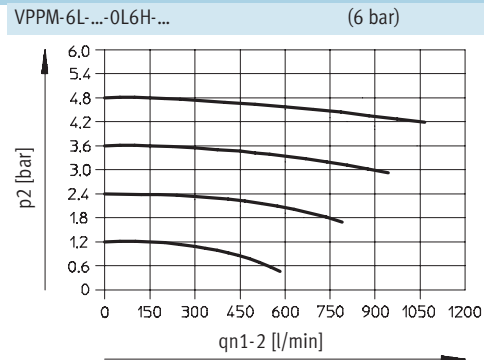
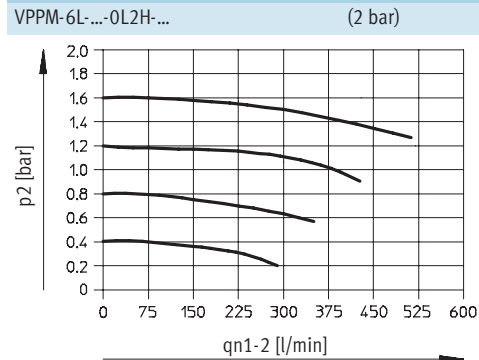
Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA



General technical data			
Pneumatic connection 1 and 2		G1/8	Connecting plate
Constructional design		Pilot-actuated diaphragm regulator	
Sealing principle		Soft	
Actuation type		Electrical	
Control type		Pilot actuated via 2/2-way valves	
Type of mounting		Via through-hole, via accessories	
Mounting position		Any	
Nominal diameter	Pressurising	[mm]	6
	Exhaust	[mm]	4.5
Standard nominal flow rate		[l/min]	→ Graphs
Product weight		[g]	400

Flow rate q_n as a function of the output pressure p_2



Proportional pressure regulators VPPM

Technical data

Electrical data			
Electrical connection		Plug, round design, 8-pin, M12	
Operating voltage range		[V DC]	24±10% = 21.6 ... 26.4
Residual ripple			10%
Max. electrical power consumption		[W]	7
Signal setpoint input	Voltage	[V DC]	0 ... 10
	Current	[mA]	4 ... 20
Protection against short circuit		For all electrical connections	
Protection against polarity reversal		For all electrical connections	
Protection class		IP65	
CE mark		EU conformity in accordance with the directive 89/336/EEC (EMC)	

Operating and environmental conditions				
Pressure regulation range	[bar]	0.02 ... 2	0.06 ... 6	0.1 ... 10
Operating medium		Compressed air, filtered, unlubricated, grade of filtration 40µm Neutral gases		
Input pressure 1	[bar]	0 ... 4 ²⁾	0 ... 8 ²⁾	0 ... 11 ²⁾
Max. hysteresis	[mbar]	10	30	50
Linearity error FS	[%]	1		
Repetition accuracy FS	[%]	0.5		
Temperature coefficient	[%]	0.04		
Ambient temperature	[°C]	0 ... 60		
Temperature of medium	[°C]	10 ... 50		
Corrosion resistance class	[CRC]	2 ¹⁾		

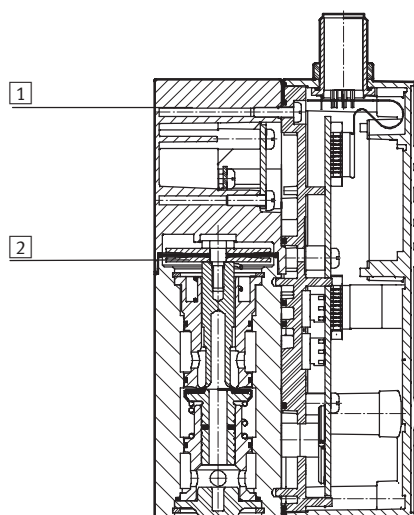
- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Input pressure 1 should always be 1 bar greater than the maximum regulated output pressure.

 Note

If the power supply cable is interrupted, output pressure is maintained unregulated.

Materials

Sectional view



1	Housing	Wrought aluminium alloy
2	Diaphragm	Nitrile rubber

Proportional pressure regulators VPPM

Technical data

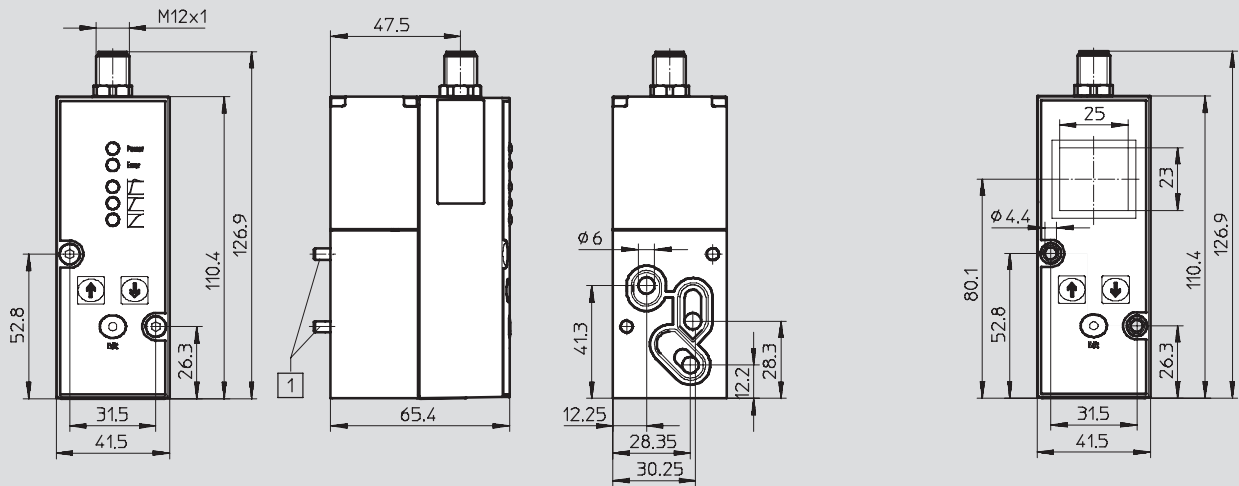
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Dimensions

Download CAD data → www.festo.com/en/engineering

VPPM-6F

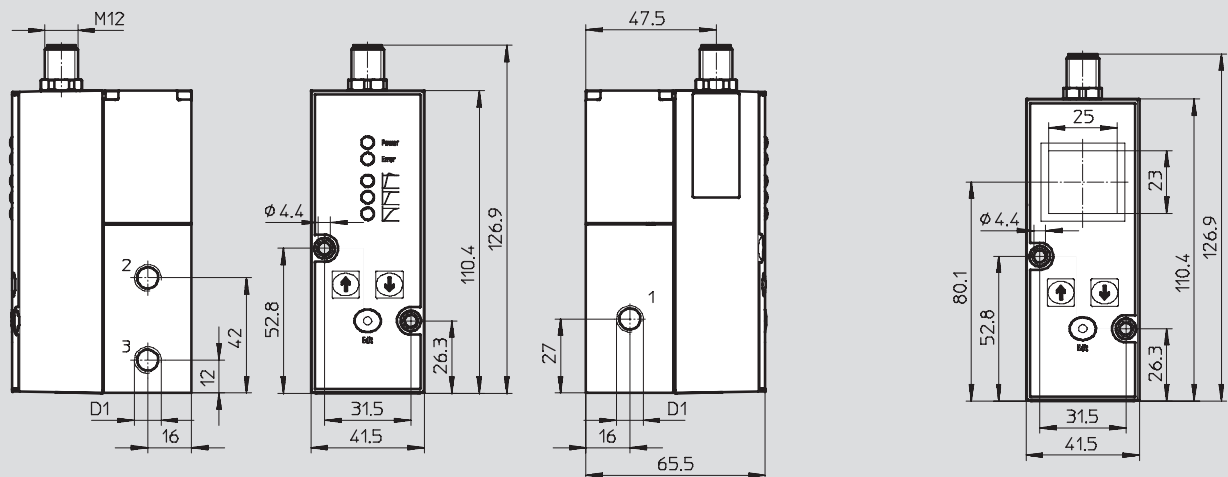
With LCD



1 Socket head screw M5x65

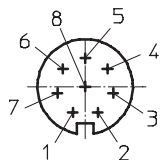
VPPM-6L

With LCD



D1 = G1/8

M12 – Pin allocation

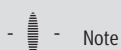


- 1 Digital InS1
- 2 24 V DC
- 3 Nom. Value –
- 4 Nom. Value +
- 5 Digital In-S2
- 6 Analogue Out
- 7 Ground
- 8 Digital Out

Proportional pressure regulators VPPM

Technical data

Ordering data					
Pneumatic connection	Pressure regulation range [bar]	Voltage type 0 ... 10 V		Current type 4 ... 20 mA	
		Part No.	Type	Part No.	Type
Overall accuracy 2%					
G $\frac{1}{8}$	0.02 ... 2	542 233	VPPM-6L-L-1-G18-0L2H-V1N	542 236	VPPM-6L-L-1-G18-0L2H-A4N
	0.06 ... 6	542 234	VPPM-6L-L-1-G18-0L6H-V1N	542 237	VPPM-6L-L-1-G18-0L6H-A4N
	0.1 ... 10	542 235	VPPM-6L-L-1-G18-0L10H-V1N	542 238	VPPM-6L-L-1-G18-0L10H-A4N
Sub-base	0.02 ... 2	542 245	VPPM-6L-L-1-F-0L2H-V1N	542 248	VPPM-6L-L-1-F-0L2H-A4N
	0.06 ... 6	542 246	VPPM-6L-L-1-F-0L6H-V1N	542 249	VPPM-6L-L-1-F-0L6H-A4N
	0.1 ... 10	542 247	VPPM-6L-L-1-F-0L10H-V1N	542 250	VPPM-6L-L-1-F-0L10H-A4N
Overall accuracy 1%					
G $\frac{1}{8}$	0.02 ... 2	542 227	VPPM-6L-L-1-G18-0L2H-V1N-S1	542 230	VPPM-6L-L-1-G18-0L2H-A4N-S1
	0.06 ... 6	542 228	VPPM-6L-L-1-G18-0L6H-V1N-S1	542 231	VPPM-6L-L-1-G18-0L6H-A4N-S1
	0.1 ... 10	542 229	VPPM-6L-L-1-G18-0L10H-V1N-S1	542 232	VPPM-6L-L-1-G18-0L10H-A4N-S1
Sub-base	0.02 ... 2	542 239	VPPM-6L-L-1-F-0L2H-V1N-S1	542 242	VPPM-6L-L-1-F-0L2H-A4N-S1
	0.06 ... 6	542 240	VPPM-6L-L-1-F-0L6H-V1N-S1	542 243	VPPM-6L-L-1-F-0L6H-A4N-S1
	0.1 ... 10	542 241	VPPM-6L-L-1-F-0L10H-V1N-S1	542 244	VPPM-6L-L-1-F-0L10H-A4N-S1



Note

Further variants can be ordered using the modular system.

➔ 2 / 6.3-10

Proportional pressure regulators VPPM

Ordering data – Modular products

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M Mandatory data →

Module No.	Design	Nominal diameter	Valve type	Dynamic response	Valve mode	Connection type
543 432	VPPM	6	L F	L	1	G18 F
Order example						
543 432	VPPM	- 6	F	- L	- 1	- F

Ordering table					
Size	6	Condi- tions	Code	Enter code	
M Module No.	543 432				
Design	Modular pressure regulator		VPPM		VPPM
Nominal diameter	6		-6		-6
Valve type	In-line	1	L		
	Flanged valve	2	F		
Dynamic response	Low dynamic response (pilot-actuated, soft-sealing)		-L		-L
Valve mode	3/2-way valve, normally closed		-1		-1
Connection type	G $\frac{1}{8}$ thread		-G18		
	Flange/connecting plate		-F		

1 L Only with connection type G18 (G $\frac{1}{8}$ thread)

2 F Only with connection type F (flange/sub-base)

Transfer order code

543 432	VPPM	- 6		- L	- 1	-	
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Proportional pressure regulators VPPM

Ordering data – Modular products

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→ [M] Mandatory data					[O] Options	
Pressure regulation range	Alternative lower pressure regulation range	Alternative upper pressure regulation range	Setpoint specification	Switch output	Overall accuracy	Operator unit
0L2H 0L6H 0L10H	0.1 ... 10L	0.1 ... 10H	V1 A4	P N	S1	C1
-	6.5L	7.1H	- A4	P	- S1	C1

Ordering table					
Size	6	Condi- tions	Code		Enter code
↓ [M]	Pressure regulation range	0 ... 2 bar	-0L2H		
		0 ... 6 bar	-0L6H		
		0 ... 10 bar	-0L10H		
	Alternative lower pressure regulation range	0.1 ... 10 bar	[3] ...L		
	Alternative upper pressure regulation range	0.1 ... 10 bar	[4] ...H		
	Setpoint specification	Voltage (standard 0 ... 10 V)	-V1		
		Current (standard 4 ... 20 mA)	-A4		
[O]	Switch output	Positive switching	P		
		Negative switching	N		
	Overall accuracy	1%	-S1		
	Operator unit	With LCD, pressure unit variable	C1		

[3] ...L Not with pressure regulation range (0L2H, 0L6H, 0L10H).

Must always be less than alternative upper pressure regulation range H

[4] ...H Not with pressure regulation range (0L2H, 0L6H, 0L10H).

Must always be greater than alternative lower pressure regulation range L

Transfer order code

- - -

Proportional pressure regulators MPPE/VPPE/MPPES

Accessories

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Setpoint module MPZ

-  - Voltage
20 ... 30 V DC

Function

- Generation of 6+1 analogue setpoint values for the proportional pressure regulators MPPE, MPPES and MPYE
- Digital controller
- Output voltage adjustable via spindle potentiometer



General technical data		
Mode of operation		Digital-analogue circuit with analogue output
Electrical connection		Screw terminal
Connection cross section	[mm ²]	2.5
Operating voltage range	[V DC]	20 ... 30
Adjustable output voltage	[V DC]	0 ... 10
Max. output current	[mA]	27
Power consumption at 24 V DC	[W]	1.5
Supply setpoint value adjustment	Voltage	[V] 10 ... 10.6
	Current	[mA] 6 ... 6.36
External setpoint input	Voltage	[V DC] 0 ... 10
	Potentiometer	[kΩ] 2.5 ... 10
Setpoint controller	Input resistance	[kΩ] 3
Residual ripple	[%]	Max. 10
Display	Ready	Green LED
	Setpoint active	Yellow LED
Type of mounting		On H-rail
Assembly position		Any
Product weight	[g]	80

Operating and environmental conditions		
Ambient temperature	[°C]	0 ... 60
Protection class		IP20
CE symbol (declaration of conformity)		In accordance with EU EMC directive
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

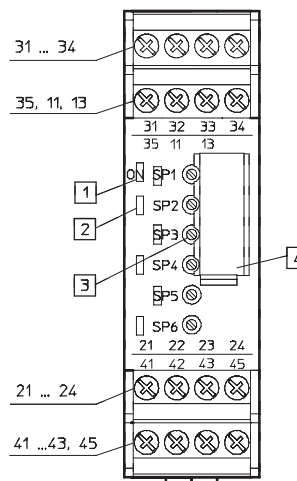
Proportional pressure regulators MPPE/VPPE/MPPES

Accessories

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Connections and control elements

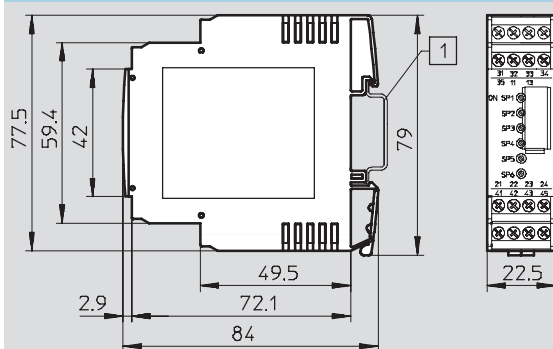
Connections			Priority
31	Activate setpoint 1	SP1	1 (highest)
32	Activate setpoint 2	SP2	2
33	Activate setpoint 3	SP3	3
34	Activate setpoint 4	SP4	4
35	Activate setpoint 5	SP5	5
11	Activate setpoint 6	SP6	6
13	Control line	0 V	–
21	Control line	0 V	–
22	External setpoint input	$U_{w, in} = 0 \dots 10 \text{ V DC}$	7 (lowest)
23	Control line	10 V DC	–
24	Screening	PE	–
41	Control line	0 V DC	–
42	Setpoint output	$U_{w, out}$	–
43	Power supply	–	–
45	Power supply	+	–



- 1 Operational status display, green LED
- 2 Setpoint display active (SP1 ... SP6), yellow LED
- 3 Setpoint potentiometer SP1 ... SP6
- 4 Inscription label

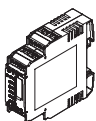
Dimensions

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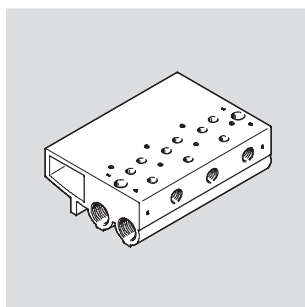
- 1 H-rail to DIN EN 60715

Ordering data

	Description	Part No.	Type
	Setpoint module for generating 6 + 1 analogue voltage signals	546 224	MPZ-1-24DC-SGH-6-SW

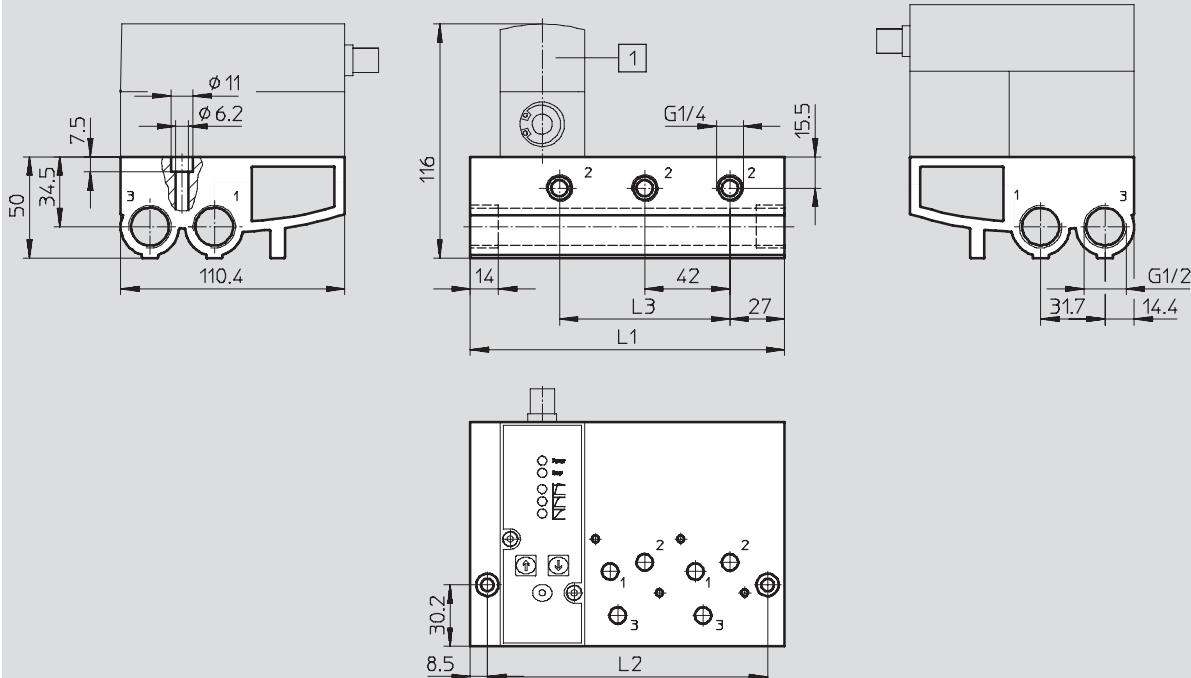
Accessories

Material:
Wrought aluminium alloy



Dimensions

Download CAD data ➔ www.festo.com/en/engineering



1 Proportional pressure regulator
VPPM

Dimensions and ordering data						
Valve positions	L1	L2	L3	Weight [g]	CRC ¹⁾	Part No. Type
2	113	96	42	900	2	542 252 VABM-P1-SF-G18-2-P3
3	155	138	84	1,230	2	542 253 VABM-P1-SF-G18-3-P3
4	197	180	126	1,565	2	542 254 VABM-P1-SF-G18-4-P3

1) Corrosion resistance class 2 to Festo standard 940 070

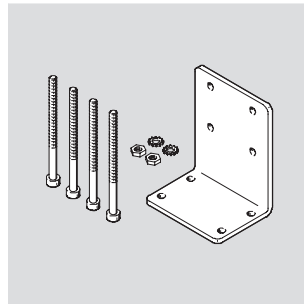
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Proportional pressure regulators VPPM

Accessories

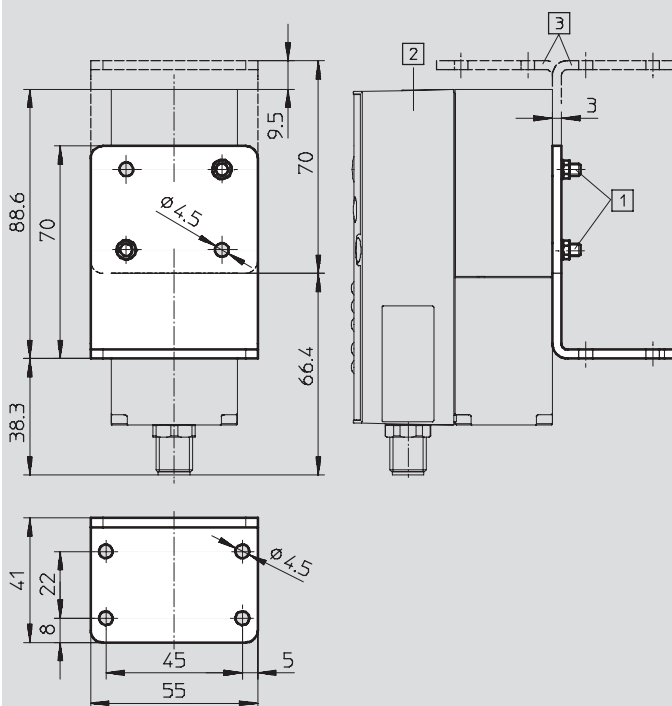
Mounting bracket VAME-P1-A

Material:
Wrought aluminium alloy, steel



Dimensions

Download CAD data → www.festo.com/en/engineering



1 Socket head screw M4

2 Proportional pressure regulator
VPPM

3 Mounting bracket can
optionally be turned

Ordering data			
Weight [g]	CRC ¹⁾	Part No.	Type
71	1	542 251	VAME-P1-A

1) Corrosion resistance class 1 to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Proportional pressure regulators VPPM

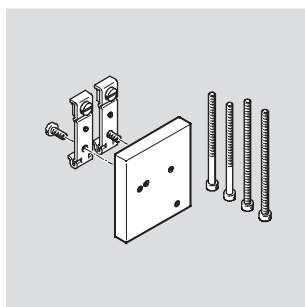
Accessories

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H-rail mounting VAME-P1-T

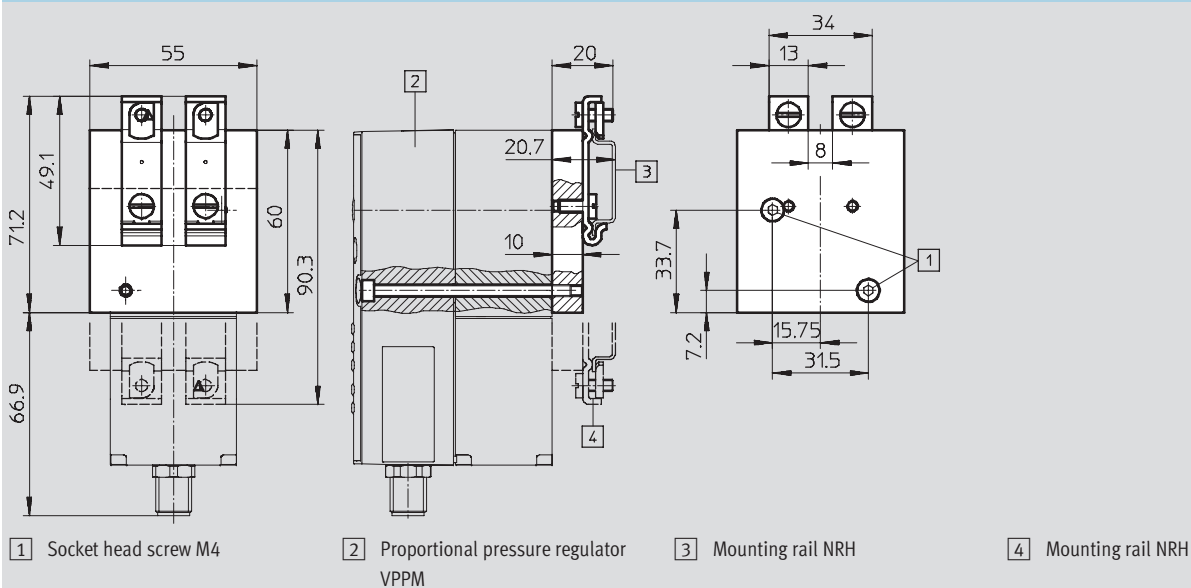
Material:

Wrought aluminium alloy, steel



Dimensions

Download CAD data → www.festo.com/en/engineering



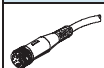
Ordering data

Weight [g]	CRC ¹⁾	Part No.	Type
150	1	542 255	VAME-P1-T

1) Corrosion resistance class 1 to Festo standard 940 070

Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Ordering data

	Description	Cable length [m]	Part No.	Type
Plug socket with cable			Technical data → Volume 4	
	Straight, 8-pin, M12	2	525 616	SIM-M12-8GD-2-PU
		5	525 618	SIM-M12-8GD-5-PU
	Angled, 8-pin, M12	2	542 256	NEBU-M12W8-2-N-LE8
		5	542 257	NEBU-M12W8-5-N-LE8