Proportional pressure regulator VPPX

Characteristics

At a glance

Innovative:
- Multi-sensor control (cascade control)
- Control characteristic is adjustable via FCT
- Temperature-compensated
- High dynamic response
- High repetition accuracy

Flexible:
- Sub-base valves (manifold/flanged valve)
- Actual value input for external sensors
- Limit value is freely adjustable
- Possible to control many physical variables
- Current or voltage can be adjusted individually via FCT

Operationally safe:
- Integrated pressure sensor with separate output
- Cable break monitoring
- Pressure is maintained if the controller fails
- LED indicator

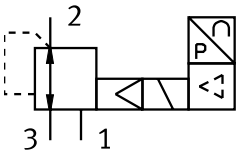
Easy to assemble:
- H-rail mounting
- Individually with mounting bracket
- Mounting bracket can be fitted in increments of 180°
- Compressed air supply/exhaust on both sides

Parameterisation:
- The proportional valve VPPX can be parameterised using the Festo Configuration Tool. The Festo Configuration Tool can be downloaded from the Support Portal.
- The connection between the PC and the proportional valve VPPX is via a programming cable (VAVE) and the adapter (NEFC-M12G5-0.3-U1G5). A conventional USB connecting cable is required to connect the adapter to the PC.

Sensor connection:
- The DUO cable makes it easy to connect an external sensor to the VPPX. The sensor and valve signals are pre-assigned to ensure a reliable connection.

Valve function

[3] 3-way valve



Diagrams

Link vppx

The diagrams shown in this document are also available online. These can be used to display precise values.

Type code

001	Nominal width [mm]	
6	6	
8	8	
12	12	

002	Directional control valve type	
L	In-line valve	
F	Flanged valve	

003	Dynamic response	
L	Low	

004	Valve function	
1	3/2-way valve, normally closed	

005	Pneumatic connection	
F	Flange/sub-base	
G18	G1/8	
G14	G1/4	
G12	G1/2	

006	Lower pressure value of control range	
0L	0 bar	

007	Upper pressure value of control range	
10H	10 bar	

008	Overall accuracy	
S1	1 %	

Datasheet

General technical data

Pneumatic connection, port 1	Sub-base		G1/8	G1/4	G1/2
Standard nominal flow rate (standardised to DIN 1343)	1,400 l/min	1,650 l/min	1,400 l/min	2,750 l/min	7,000 l/min
Valve function	3-way proportional pressure regulator				
Design	Piloted diaphragm regulator				
Sealing principle	Soft				
Type of actuation	Electric				
Type of piloting	Pilot actuated				
Type of reset	Mechanical spring				
Type of mounting	Either: With through-hole With accessories				
Mounting position	optional				
Nominal size, supply	6 mm	8 mm	6 mm	8 mm	12 mm
Nominal size, exhaust	4.5 mm	7 mm	4.5 mm	7 mm	12 mm
Product weight	400 g	560 g	400 g	560 g	2,050 g

Electrical data

Pneumatic connection, port 1	Sub-base	G1/8	G1/4	G1/2
Electrical connection	8-pin, M12, Plugs			
Operational voltage range DC	21.6 ... 26.4 V			
Residual ripple	10%			
Duty cycle	100%			
Max. electrical power consumption	7 W			12 W
Signal range analogue input	0 - 10 V 4 - 20 mA 0 - 20 mA			
Signal range analogue output	0 - 10 V 0 - 20 mA 4 - 20 mA			
Short circuit current rating	For all electrical connections			
Reverse polarity protection	For all electrical connections			
Degree of protection	IP65			

Operating and environmental conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating and pilot medium	Lubricated operation not possible
Inlet pressure 1 [1]	0 ... 11 bar
Pressure regulation range	0.1 ... 10 bar
Max. pressure hysteresis	0.05 bar
Linearity error in ± %FS	–
Repetition accuracy in ± %FS	0.5 %FS
Temperature cooefficient	0.04 %/K
Ambient temperature	0 ... 60°C
Media temperature	10 ... 50°C
Note on materials	RoHS-compliant
Corrosion resistance class CRC [2]	2 - Moderate corrosion stress
CE mark (see declaration of conformity) [3]	To EU EMC Directive In accordance with EU RoHS Directive
Approval	RCM trademark c UL us listed (OL)

1) The input pressure 1 should always be 1 bar greater than the maximum regulated outlet pressure.

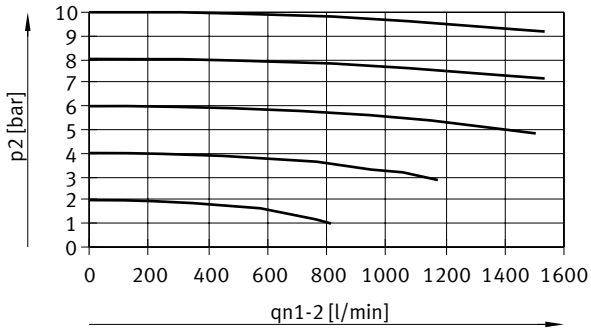
2) More information www.festo.com/x/topic/crc

3) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... d Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Datasheet

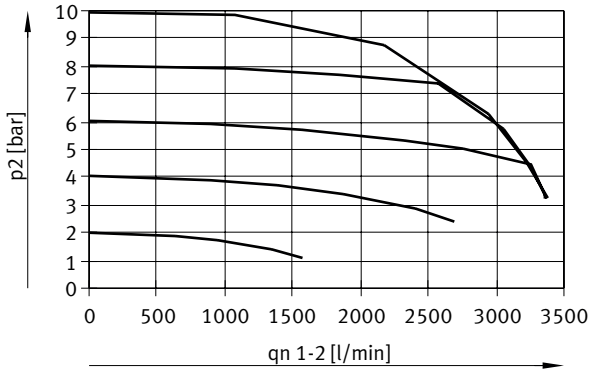
Materials	
Material housing	Wrought aluminium alloy Anodised

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-6L/F-...-0L10H-... (10 bar)



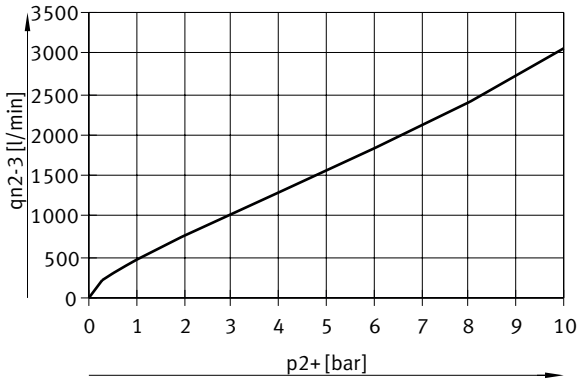
Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-6L/F-...-0L10H-... (10 bar)

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-8L/F-...-0L10H-... (10 bar)

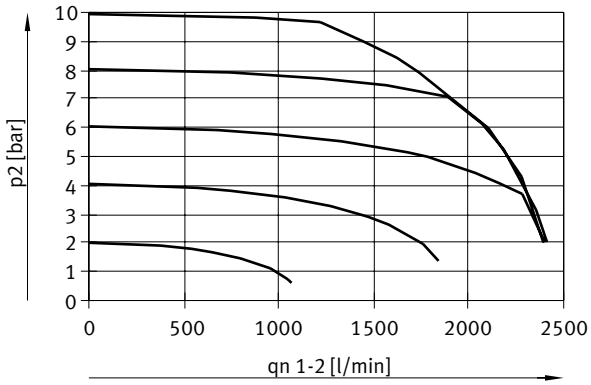


Datasheet

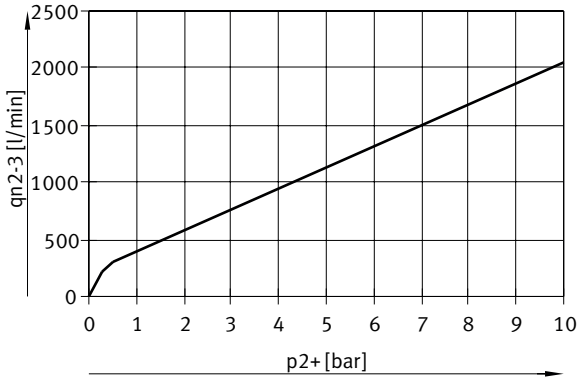
Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-8L/F-...-0L10H-... (10 bar)



Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-8F-...-0L10H-... (10 bar)

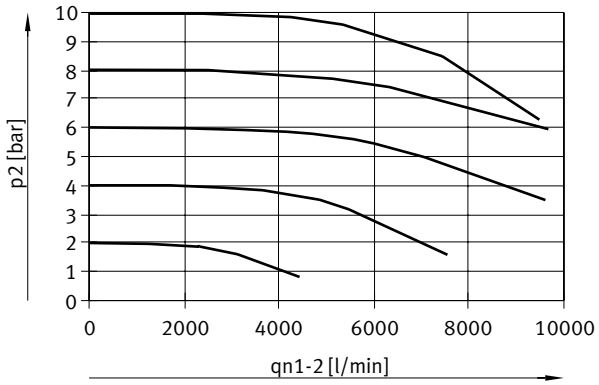


Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-8F-...-0L10H-... (10 bar)

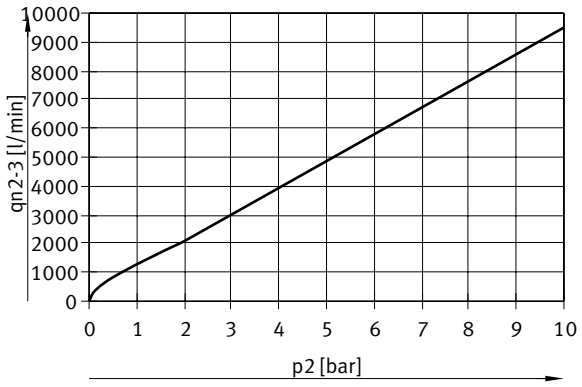


Datasheet

Flow rate qn from 1 → 2 as a function of output pressure p2, VPPX-12L-...-0L10H-... (10 bar)



Flow rate qn from 2 → 3 as a function of output pressure p2, VPPX-12L-...-0L10H-... (10 bar)



Programming cable VAVE, general technical data

Design	T-distributor with cable on controller side
Distrubution	1 to 2
Conforms to standard	DIN 47100 EN 61076-2-101

Programming cable VAVE, technical data - electrical connection 1

Electrical connection 1, function	Field device side
Electrical connection 1, design	Round
Electrical connection 1, connection type	Socket
Electrical connection 1, cable outlet	Straight
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 1, number of connections/cores	8
Electrical connection 1, used connections/cores	8

Datasheet

Programming cable VAVE, technical data - electrical connection 2	
Electrical connection 2, function	Controller side
Electrical connection 2, design	Round
Electrical connection 2, connection type	Plugs
Electrical connection 2, cable outlet	Straight
Electrical connection 2, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 2, number of connections/cores	8
Electrical connection 2, used connections/cores	8

Programming cable VAVE, technical data - electrical connection 3	
Electrical connection 3, function	Controller side
Electrical connection 3, design	Round
Electrical connection 3, connection type	Socket
Electrical connection 3, cable outlet	Straight
Electrical connection 3, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 3, number of connections/cores	5
Electrical connection 3, used connections/cores	4

Programming cable VAVE, electrical data	
Cable structure	8 x 0.25 mm²
Shielding	yes
Cable diameter 1	6.3 mm
Cable length 1	0.15 m
Cable designation	Without inscription label holder

Programming cable VAVE, operating and environmental conditions	
Note on materials	RoHS-compliant, Free of halogen
CE mark (see declaration of conformity) [1)]	To EU EMC Directive
UKCA marking (see declaration of conformity)[2)]	To UK instructions for EMC

1) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

2) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.
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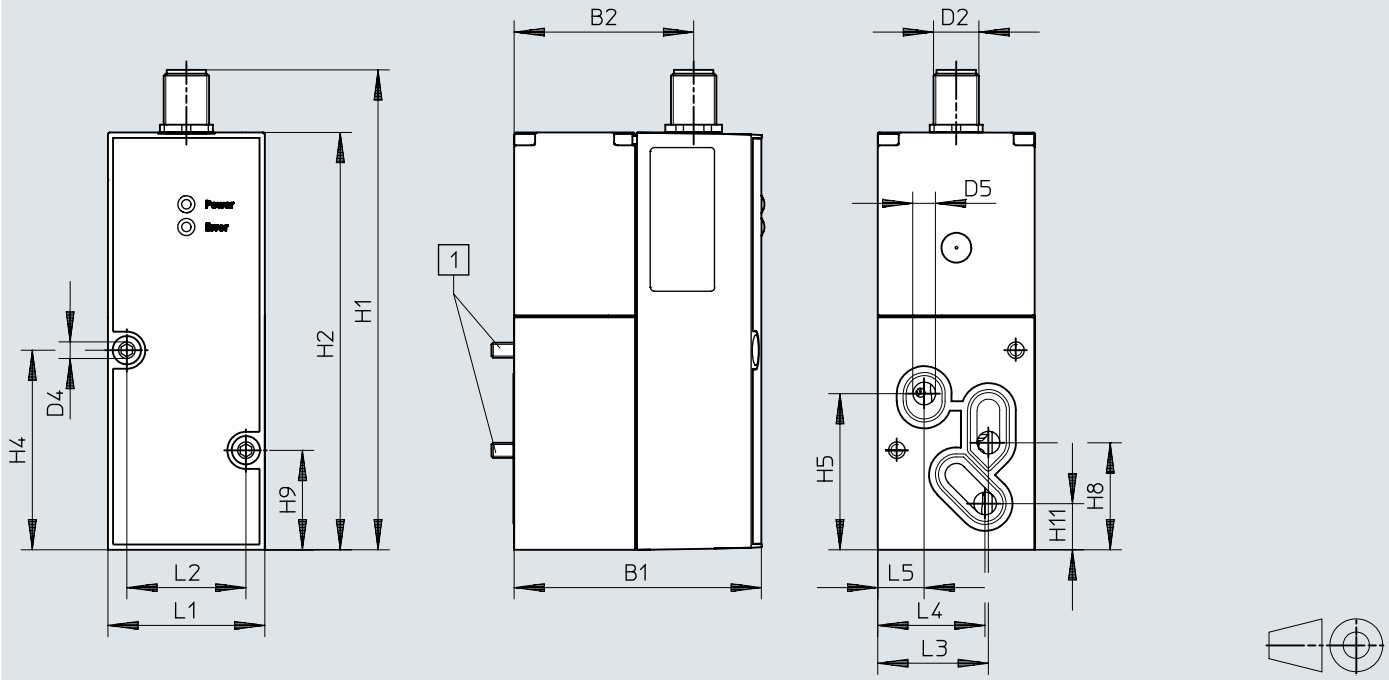
Dimensions

Dimensions – VPPX-6F Download CAD data www.festo.com



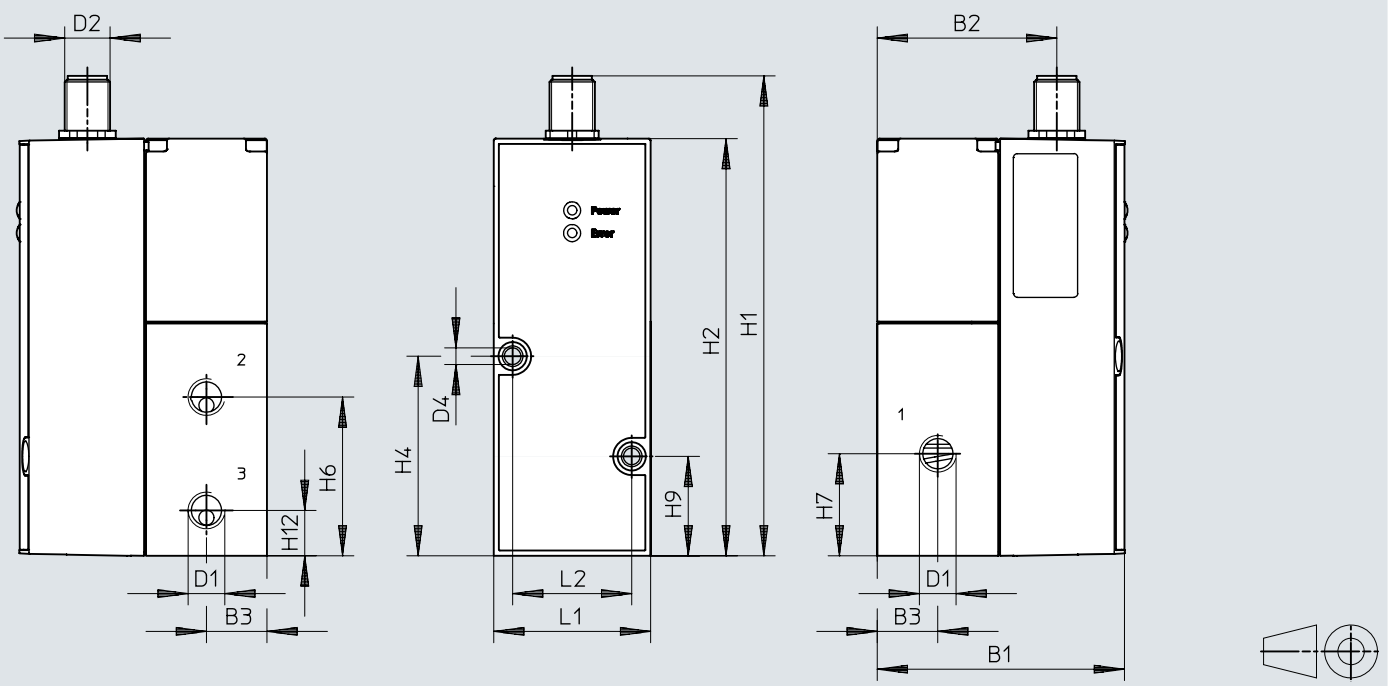
[1] Socket head screw M4x65

	B1	B2	D2	D4 ⌀	D5 ⌀	H1	H2	H4	H5	H8	H9	H11
VPPX-6F	65,4	47,5	M12	4,4	6	126,9	110,4	52,8	41,3	28,3	26,3	12,2

	L1	L2	L3	L4	L5
VPPX-6F	41,5	31,5	29,3	28,4	12,3

Dimensions

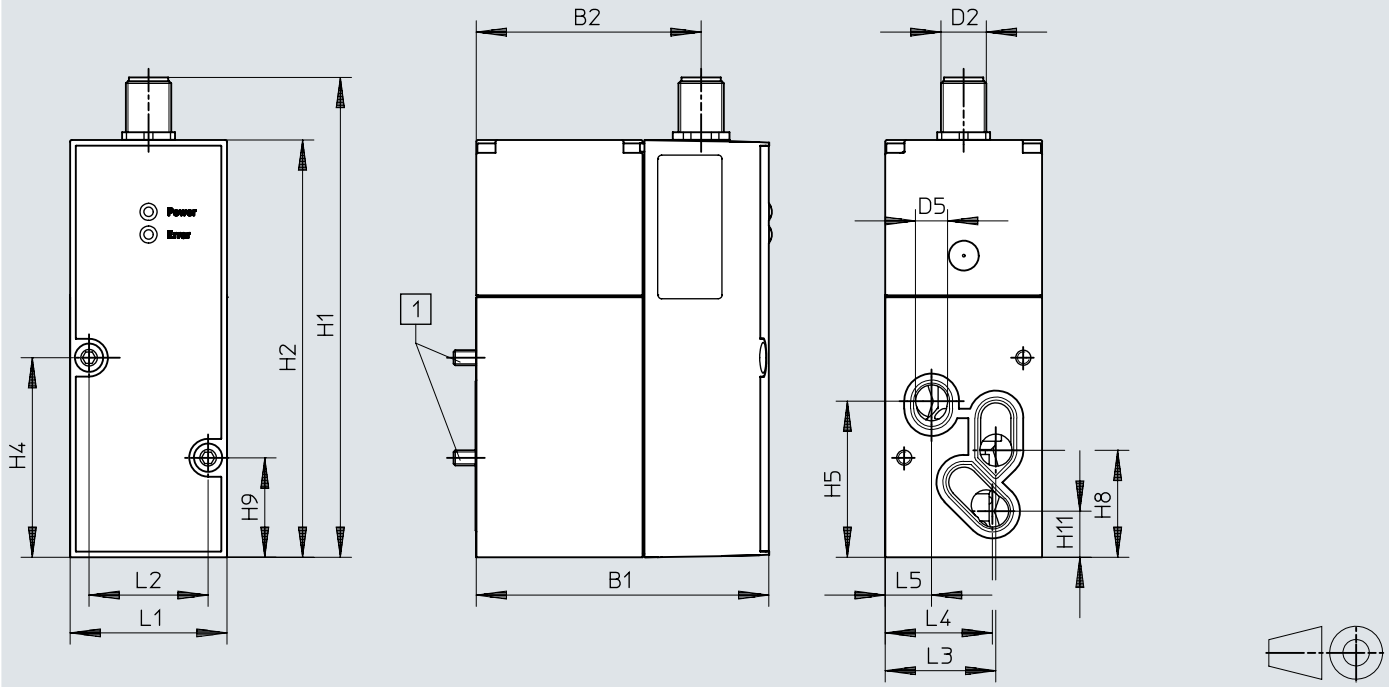
Dimensions – VPPX-6L Download CAD data www.festo.com



	B1	B2	B3	D1	D2	D4 ø	H1	H2	H4	H6	H7	H9	H12	L1	L2
VPPX-6L	65,5	47,5	16	G1/8	M12	4,4	126,9	110,4	52,8	42	27	26,3	12	41,5	31,5

Dimensions

Dimensions – VPPX-8F Download CAD data www.festo.com



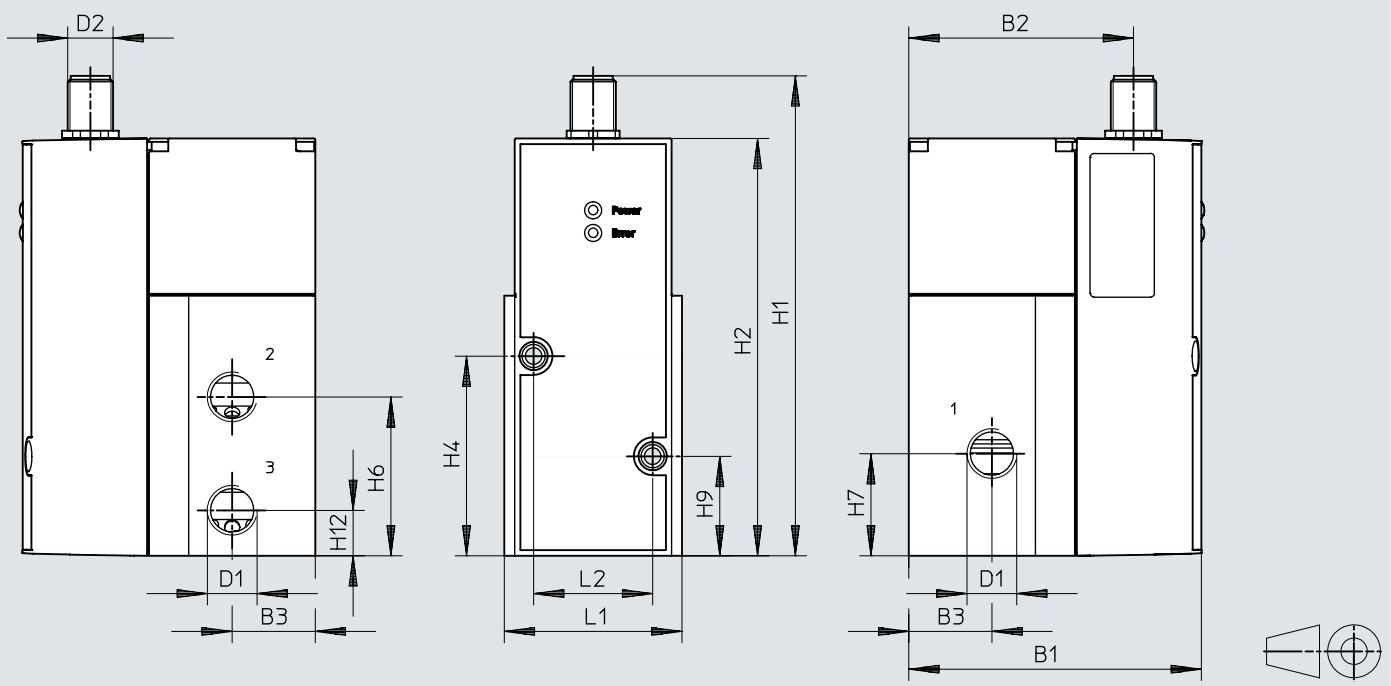
[1] Socket head screw M4x77

	B1	B2	D2	D5 ⌀	H1	H2	H4	H5	H8	H9	H11
VPPX-8F	77,4	59,5	M12	8,5	126,9	110,4	52,8	41,3	28,3	26,3	12,2

	L1	L2	L3	L4	L5
VPPX-8F	41,5	31,5	29,3	28,4	12,3

Dimensions

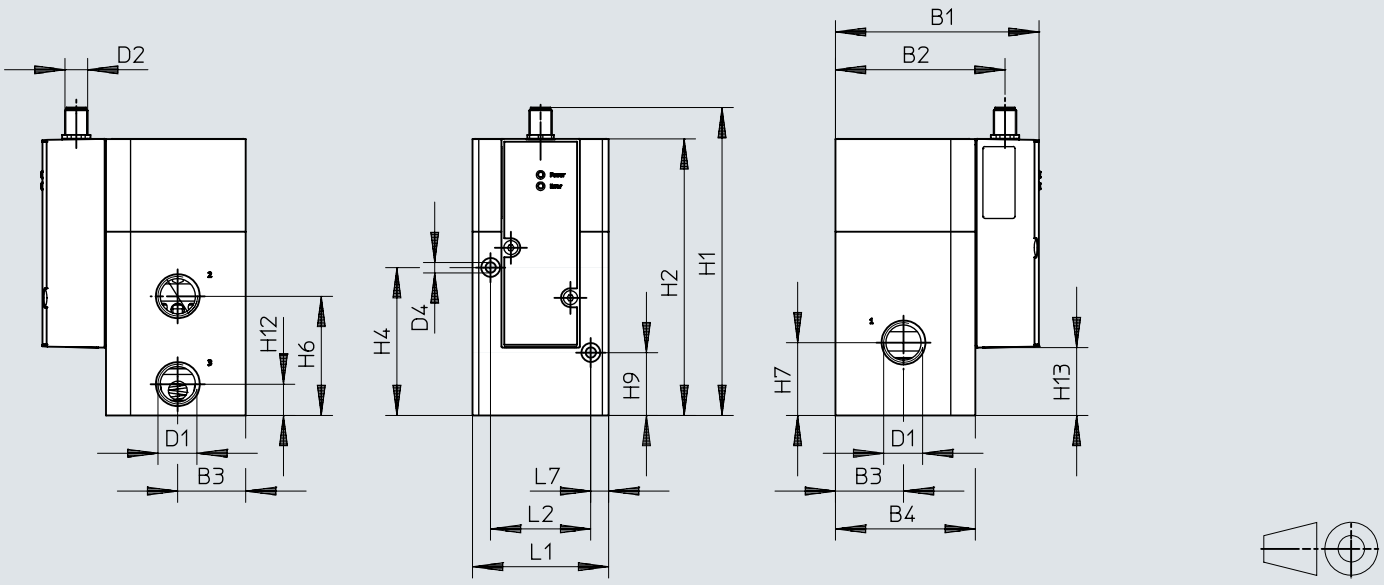
Dimensions – VPPX-8L Download CAD data www.festo.com



	B1	B2	B3	D1	D2	H1	H2	H4	H6	H7	H9	H12	L1	L2
VPPX-8L	77,4	59,5	22	G1/4	M12	126,9	110,4	52,8	42	27	26,3	12	47	31,5

Dimensions

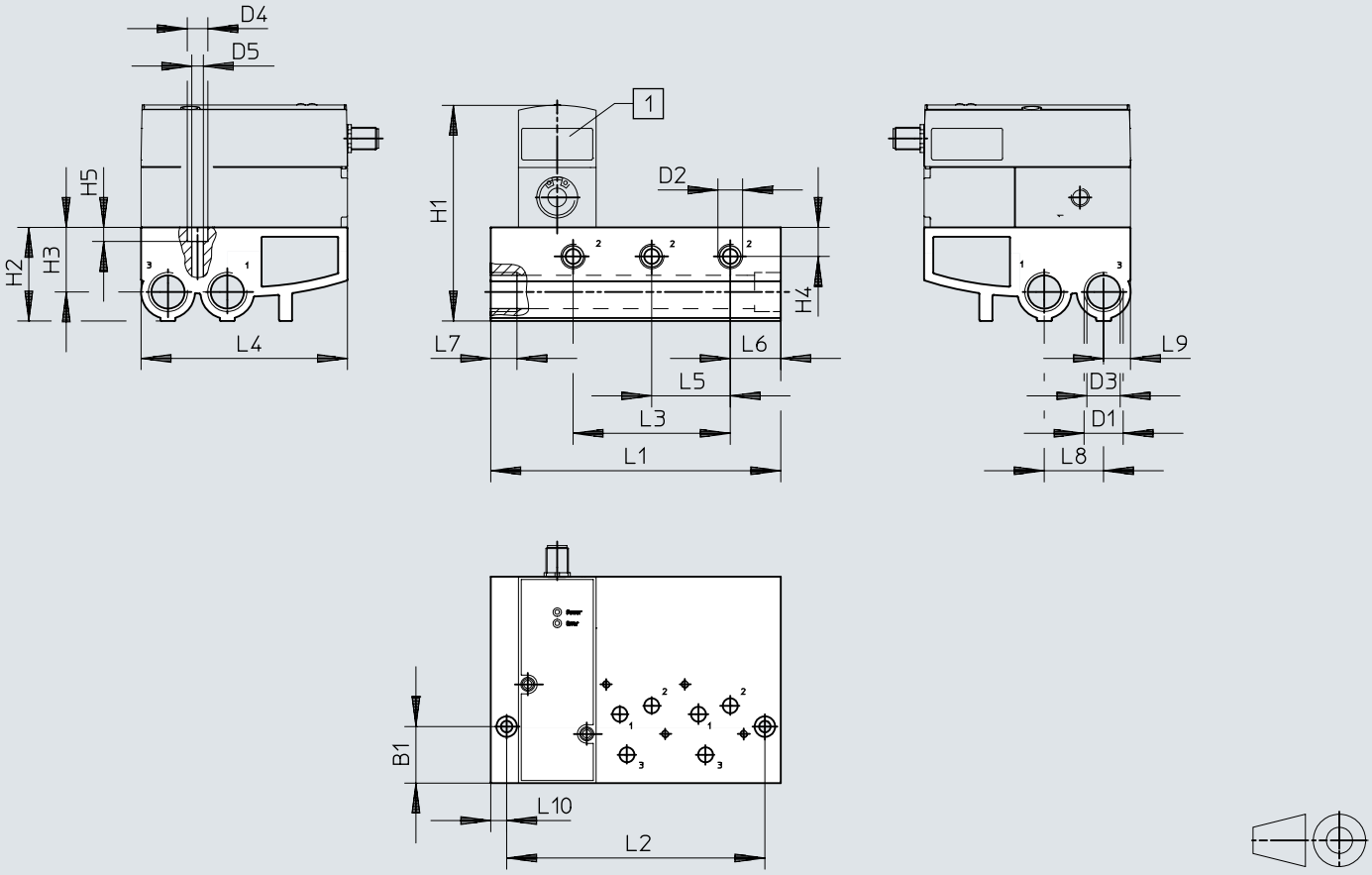
Dimensions – VPPX-12L Download CAD data www.festo.com



	B1	B2	B3	B4	D1	D2	H1	H2	H4	H6	H7	H9	H12	L1	L2	L7
VPPX-12L	107,3	89,4	36	74	G1/2	M12	162,8	146,3	78,2	63	38,5	33,2	16,5	72	53	9,5

Dimensions

Dimensions – Manifold block VABM-P1 Download CAD data www.festo.com



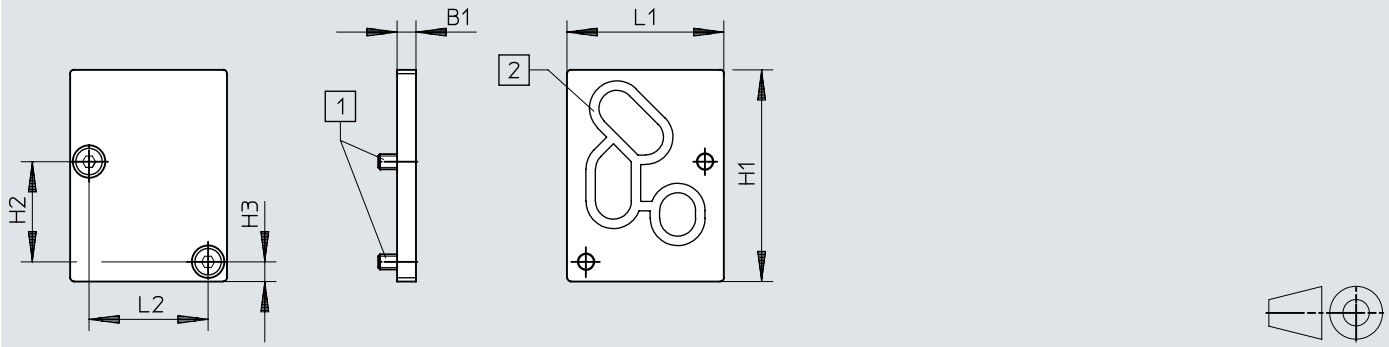
[1] Proportional-pressure regulator VPPX

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
VABM-P1-SF-G14-2-P3	113	96	42	110,4	42	27	14	31,7	14,4	8,5
VABM-P1-SF-G14-3-P3	155	138	84	110,4	42	27	14	31,7	14,4	8,5
VABM-P1-SF-G14-4-P3	197	180	126	110,4	42	27	14	31,7	14,4	8,5

	B1	D1	D2	D3 ø	D4	D5	H1	H2	H3	H4	H5
VABM-P1-SF-G14-2-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5
VABM-P1-SF-G14-3-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5
VABM-P1-SF-G14-4-P3	30,2	G1/2	G1/4	17,8	11	6,2	116	50	34,5	15,5	7,5

Dimensions

Dimensions – Cover plate VABB-P1 Download CAD data www.festo.com

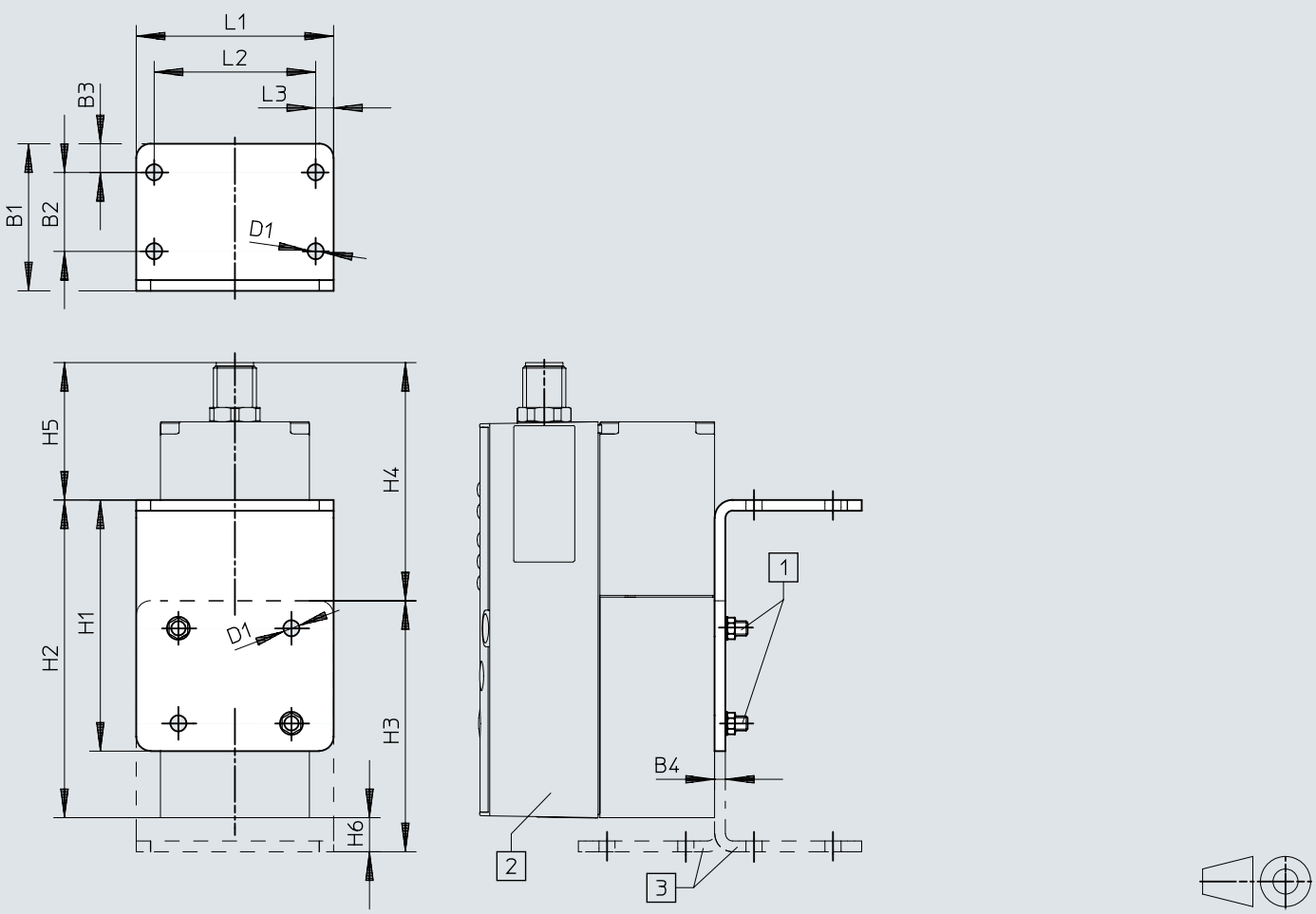


[1] Countersunk screw M4x10
[2] Seal VMPA- ...

	B1	H1	H2	H3	L1	L2
VABB-P1	5	56	26,5	5,2	41,5	31,5

Dimensions

Dimensions – Bracket VAME-P1-A Download CAD data www.festo.com

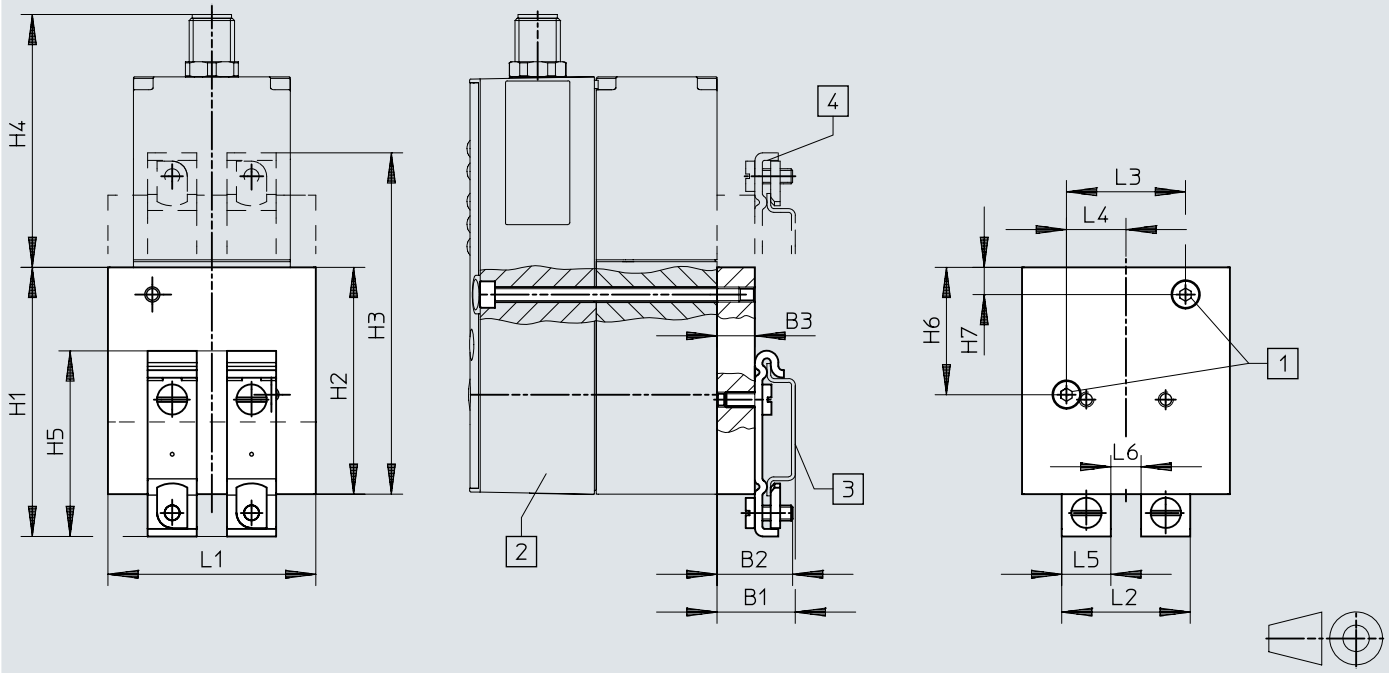


[1] Socket head screw M4
[2] Proportional-pressure regulator VPPX
[3] Bracket can be reversed if required

	B1	B2	B3	B4	D1 ø	H1	H2	H3	H4	H5	H6	L1	L2	L3
VAME-P1-A	41	22	8	3	4,5	70	88,6	70	66,4	38,3	9,5	55	45	5

Dimensions

Dimensions – DIN rail mounting VAME-P1-T Download CAD data www.festo.com

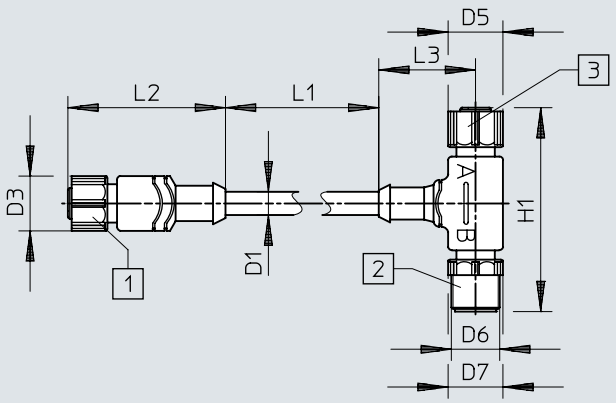


[1] Socket head screw M4
[2] Proportional-pressure regulator VPPX
[3] H-rail NRH
[4] H-rail mounting can be rotated 180° if required

	B1	B2	B3	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6
VAME-P1-T	20,7	20	10	71,2	60	90,3	66,9	49,1	33,7	7,2	55	34	31,5	15,75	13	8

Dimensions

Dimensions – Programming cable VAVE Download CAD data www.festo.com

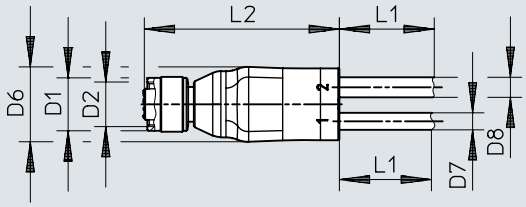


[1] Socket M12x1, 8-pin
[2] M12x1 plug, 8-pin
[3] M12x1 socket, 4-pin

	D1 ø ±0,2	D3 ø	D5 ø	D6	D7 ø	H1	L1	L2	L3
VAVE-P8-VPS	6,2	14,5	14,5	M12x1	14,5	54	150	41,7	11,1

Dimensions

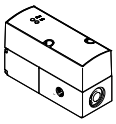
Dimensions – DUO cable NEDU-L1R2-V9-M12G8-E Download CAD data www.festo.com



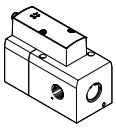
	D1 ø	D2	D6 ø	D7 ø	D8 ø	L1	L2
NEDU-L1R2-V9	14,5	M12x1	20	4,5	5,3	5000+200	51,6

Ordering data

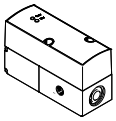
Proportional-pressure regulator VPPX, G1/8 and G1/4

	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	G1/8	G1/8	G1/8	**570967**	**VPPX-6L-L-1-G18-0L10H-S1**
	G1/4	G1/4	G1/4	**570969**	**VPPX-8L-L-1-G14-0L10H-S1**

Proportional-pressure regulator VPPX, G1/2

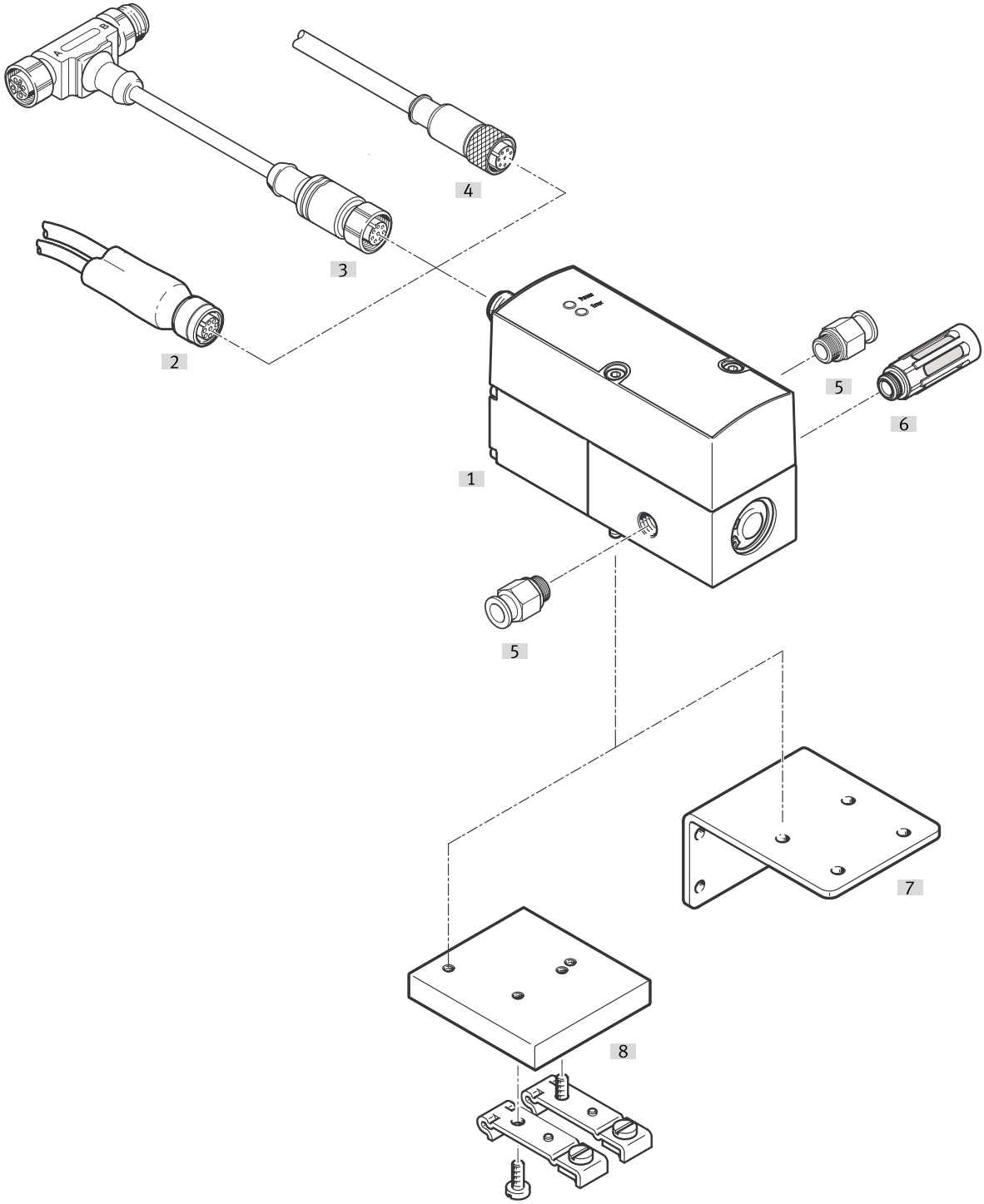
	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	G1/2	G1/2	G1/2	**2448444**	**VPPX-12L-L-1-G12-0L10H-S1**

Proportional pressure regulator VPPX, sub-base

	Pneumatic connection, port 1	Pneumatic connection, port 2	Pneumatic connection, port 3	Part no.	Type
	Sub-base	Sub-base	Sub-base	**570970**	**VPPX-8F-L-1-F-0L10H-S1**
				570968	**VPPX-6F-L-1-F-0L10H-S1**

Peripherals

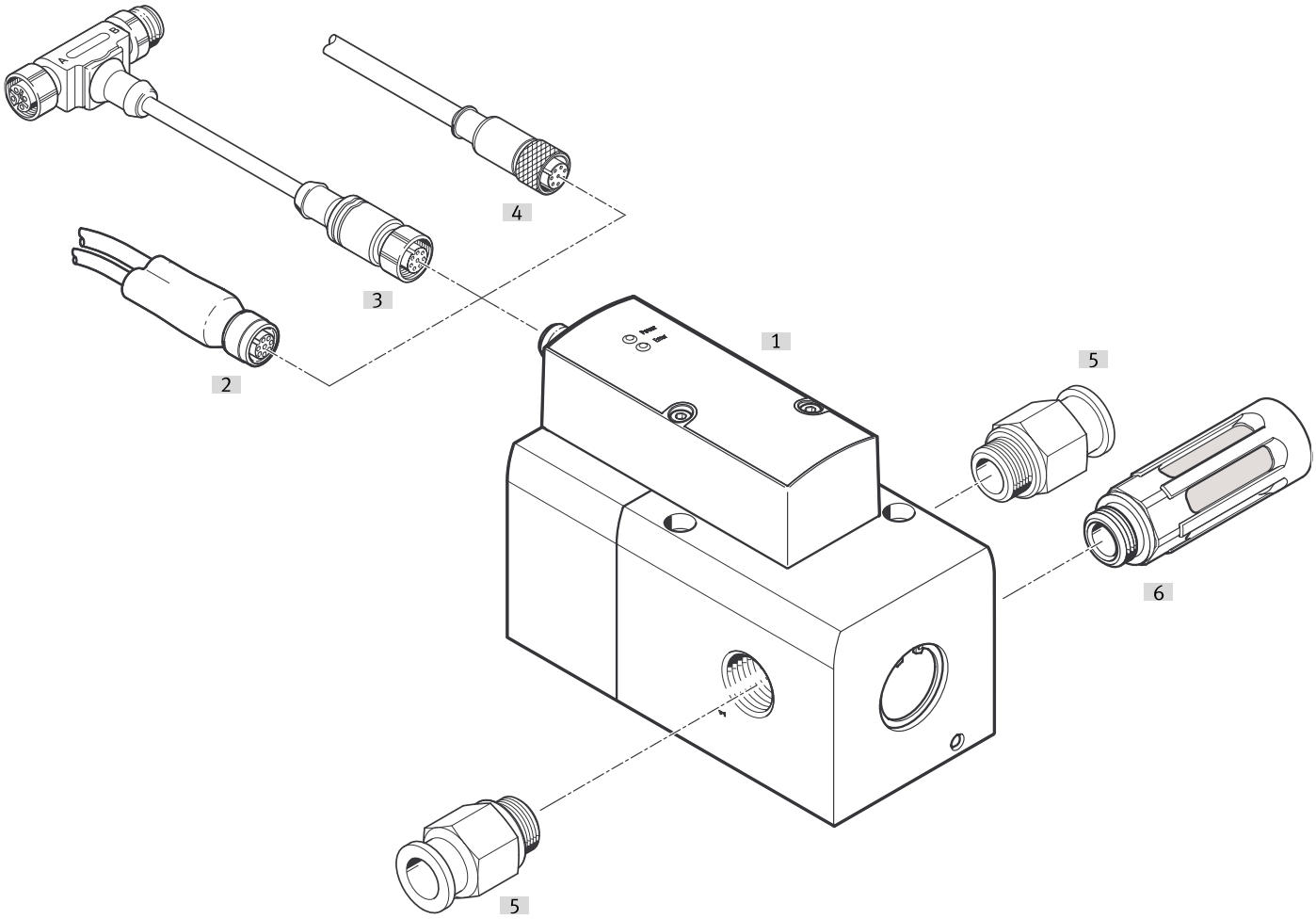
Individual valve VPPX-6L-..., VPPX-8L-...



Accessories			→ Link
	Type/order code	Description	
[1]	Proportional pressure control valve VPPX	Operator unit with LED	vppx
[2]	DUO cable	For connecting a sensor to the VPPX	25
[3]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[6]	Silencer	For mounting in exhaust ports	u
[7]	Bracket VAME-P1-A	For mounting the valve	24
[8]	H-rail mounting VAME-P1-T	For mounting on an H-rail	24

Peripherals

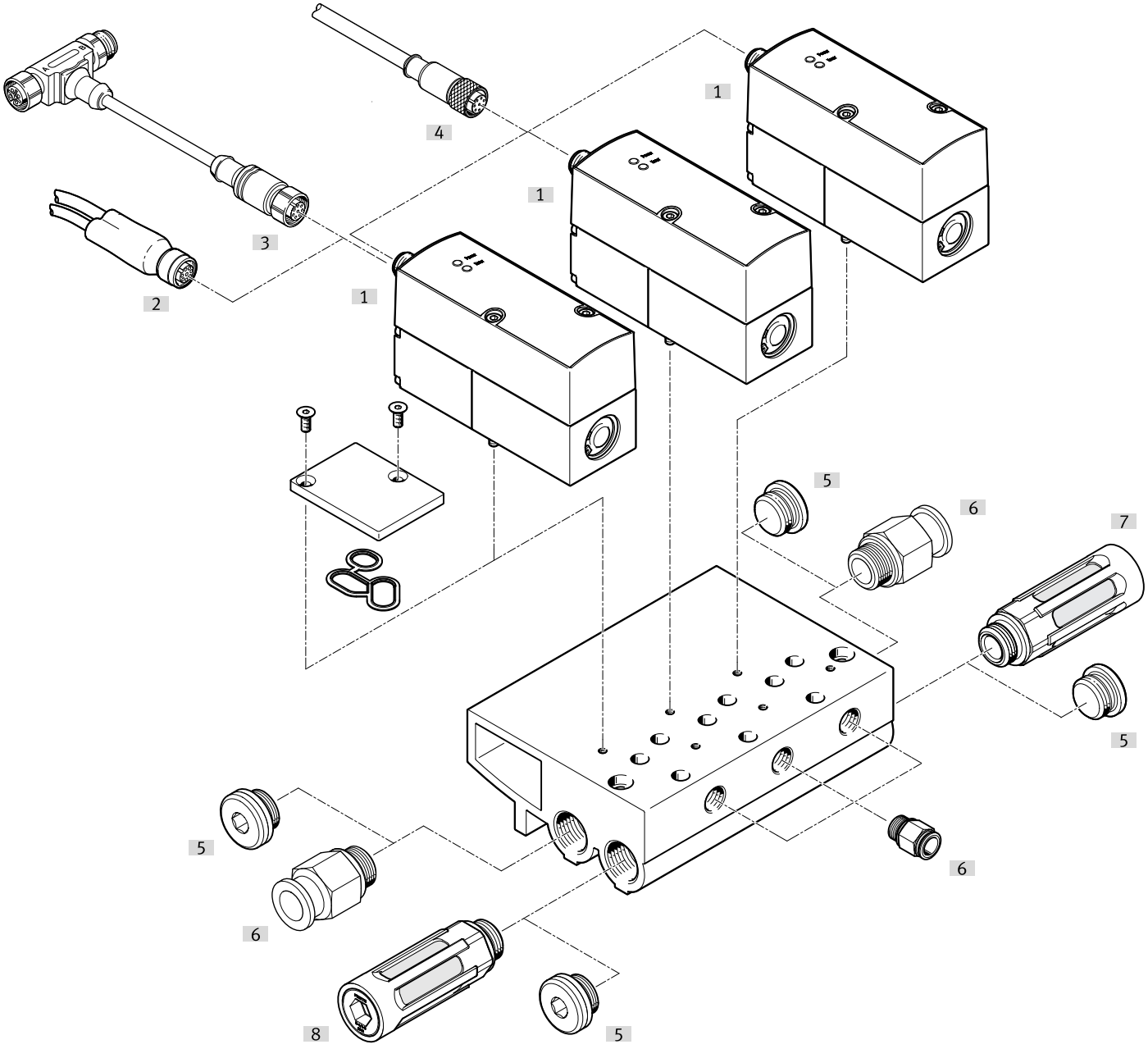
Individual valve VPPX-12L-...



Accessories			→ Link
	Type/order code	Description	
[1]	Proportional-pressure regulator VPPX	Operator unit with LED	vppx
[2]	DUO cable	For connecting a sensor to the VPPX	25
[3]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[6]	Silencer	For mounting in exhaust ports	u

Peripherals

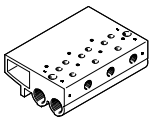
Valve manifold assembly VPPX-6F ..., VPPX-8F-...



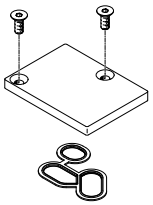
Accessories			→ Link
	Type/order code	Description	
[1]	Proportional-pressure regulator VPPX	Operator unit with LED	vppx
[2]	DUO cable	For connecting a sensor to the VPPX	25
[3]	Programming cable VAVE	For adapter NEFC, for the connection between the VPPX and PC	
[4]	Plug socket with cable, straight, SIM-M12-8GD-...	–	24
[5]	Blanking plug B	–	
[6]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[7]	Silencer	For mounting in exhaust ports	u
[8]	Silencer	For mounting in exhaust ports	u

Accessories

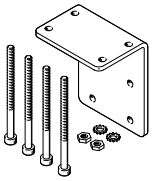
Manifold block

	Material manifold rail	Part no.	Type
	Wrought aluminium alloy	**542253**	**VABM-P1-SF-G14-3-P3**
		542252	**VABM-P1-SF-G14-2-P3**
		542254	**VABM-P1-SF-G14-4-P3**

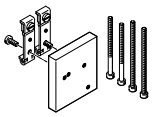
Cover plate

	Material cover plate	Material seals	Material screws	Part no.	Type
	Wrought aluminium alloy	NBR	Steel	**558350**	**VABB-P1**

Bracket

	Material bracket	Part no.	Type
	Wrought aluminium alloy Steel	**542251**	**VAME-P1-A**

H-rail mounting

	Material H-rail mounting	Part no.	Type
	Wrought aluminium alloy Steel	**542255**	**VAME-P1-T**

Programming cable

	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, number of connections/ cores	Electrical connection 1, connector system	Part no.	Type
	Socket	Straight	8	M12x1, A-coded to EN 61076-2-101	**570971**	**VAVE-P8-VPS**

Plug socket with cable, straight socket

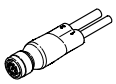
	Electrical connection 1, connection type	Electrical connection 1, number of connections/ cores	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	8	M12x1, A-coded to EN 61076-2-101	2 m	**525616**	**SIM-M12-8GD-2-PU**
				5 m	**525618**	**SIM-M12-8GD-5-PU**
				10 m	**570008**	**SIM-M12-8GD-10-PU**

Accessories

Adapter for connecting the interface of the VPPX valves/VPPX manifold to the PC. A standard USB cable with mini USB connector is also required

	Cable length	Part no.	Type
	0.3 m	**547432**	**NEFC-M12G5-0.3-U1G5**

DUO cable

	Material seals	Material housing	Material cable sheath	Material insulating sheath	Part no.	Type
	FPM	TPE-U(PUR)	TPE-U(PUR)	PVC	**2903567**	**NEDU-L1R2-V9-M12G8-E-LE5-5R1-LE3-5R2**