

Proportional pressure regulator VPPI

FESTO



Characteristics

At a glance

Special characteristics:

- Three predefined regulator presets, as well as a custom preset can be selected
- Low noise
- Flexible
- Extremely dynamic up to 30 Hz
- The max. frequency of 30 Hz protects the system
- Precise and stable: the powerful moving coil actuator also ensures that setpoint value changes are quick, easy and precise
- Various pressure ranges
- Pressure regulation range: -0.1 ... 1.2 MPa

PWM operation: the VPPI recognises PWM signals generated by any machine controller and adjusts automatically

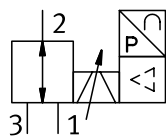
- Bluetooth interface available

Function:

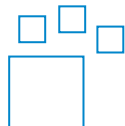
- The valve VPPI is a directly actuated proportional pressure regulator that uses two proportional 2/2-way valves as a basis.
- The valve regulates a pneumatic pressure to an electronically specified value. This makes use of cascaded closed-loop control of pressure/motion and current.
- Control is provided using an analogue current or voltage signal, or alternatively using a digital pattern (voltage version only) for adjustable setpoint values, or using a PWM signal (voltage version only).

Valve function

[1] Normally closed



Ordering data - modular system



Configurable product

This product and all its product options can be ordered online via the configurator.

Diagrams



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

Type code

001	Series	
VPPI	Proportional-pressure regulator	
002	Nominal width [mm]	
5	5	
003	Directional control valve type	
L	In-line valve	
004	Valve function	
3	3/3-way valve, normally closed	
005	Pneumatic connection	
G18	G1/8	
006	Lower pressure value of control range	
1V	-1 bar	
0L	0 bar	
...L	... bar	

007	Upper pressure value of control range	
0H	0 bar	
1H	1 bar	
2H	2 bar	
6H	6 bar	
10H	10 bar	
12H	12 bar	
...H	... bar	
008	Setpoint input for individual valves	
A4	4 ... 20 mA	
V1	0 ... 10 V	
009	Overall accuracy	
S1	1 %	
010	Operator unit/interface	
	None	
D	Display	
BT	Bluetooth	
011	Certificate	
	None	
T	Test report	

Datasheet

General technical data						
Pressure regulation range	0 ... 1.2 MPa	-0.1 ... 0.1 MPa	-0.1 ... 0 MPa	0 ... 1 MPa	0 ... 0.2 MPa	0 ... 0.6 MPa
Pressure regulation range	0 ... 12 bar	16 bar	-1 ... 0 bar	0 ... 10 bar	0 ... 2 bar	0 ... 6 bar
Valve function	3-way proportional pressure regulator					
Design	Poppet valve with spring return					
Type of reset	Mechanical spring					
Dimensions (W x L x H)	42.2 x 95.3 x 94.3 mm					
Display type	TFT colour		LED	LED, TFT colour	LED	LED, TFT colour
Safety instructions	Safety position VPPI, normally closed					
Display size	1.77"		–	1.77"	–	1.77"
Display resolution	128x160 pixels		–	128x160 pixels	–	128x160 pixels
Nominal size, supply	5 mm					
Pneumatic connection, port 1	G1/8					
Pneumatic connection, port 2	G1/8					
Pneumatic connection, port 3	G1/8					
Standard nominal flow rate (standardised to DIN 1343)	1,630 l/min	150 l/min	–	1,400 l/min	375 l/min	900 l/min
Standard nominal flow rate 2-3	850 l/min	20 l/min		750 l/min	210 l/min	480 l/min
Sealing principle	Soft					
Flow direction	Non-reversible					
Type of actuation	Electric					
Type of piloting	Direct					
Type of mounting	Via through-hole for M4 screw, With H-rail					
Mounting position	optional					
Degree of protection	IP65					
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress					
Product weight	370 g		365 g	365 ... 370 g	365 g	365 ... 370 g
Max. tightening torque for fitting	8.5 Nm					
Instructions on use	The product is suitable for industrial purposes only. Measures to eliminate radio interference may be required in residential areas.					

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

Datasheet

Electrical data		
Signal range analogue output	0 - 10 V	4 - 20 mA
Short type code	VPPI	
Operational voltage range DC	21.6 ... 27.6 V	
Nominal operating voltage DC	24 V	
Nominal current	0.15 A	
Max. current consumption	525 mA	
Max. electrical power consumption	14.5 W	
Reverse polarity protection	For all electrical connections	
Short circuit current rating	For all electrical connections	
Max. cable length	30 m	
Electrical connection 1	–	
Electrical connection 1, function	Actual value output, Setpoint input, Power supply	
Electrical connection 1, connection type	Plugs	
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101	
Electrical connection 1, number of connections/cores	5	
Electrical connection 1, tightening torque	1.5 Nm	
Setpoint value input	0 - 10 V, PWM, Digital	4 - 20 mA
Input resistance	100 kOhm	0.3 kOhm
Switching output	Push-pull	–
Max. output current	25 mA	–
Max. load resistance current output	–	500 Ohm
Max. load current of the voltage output	–	
Total accuracy	1.1%FS	

Datasheet

Operating and environmental conditions

Pressure regulation range	-0.1 ... 0 MPa	-0.1 ... 0.1 MPa	0 ... 1 MPa	0 ... 0.2 MPa	0 ... 1.2 MPa	0 ... 0.6 MPa
Pressure regulation range	-1 ... 0 bar	16 bar	0 ... 10 bar	0 ... 2 bar	0 ... 12 bar	0 ... 6 bar
Inlet pressure 1	0 ... 6 bar	16 bar	0 ... 13 bar	0 ... 6 bar	0 ... 13 bar	
Inlet pressure 1	0 ... 0.6 MPa		0 ... 1.3 MPa	0 ... 0.6 MPa	0 ... 1.3 MPa	
Burst pressure	40 bar					
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4], Inert gases					
Note on operating and pilot medium	Lubricated operation not possible					
Media temperature	0 ... 50°C					
Ambient temperature	0 ... 50°C					
Storage temperature	-20 ... 70°C					
Climatic category	3K3 as per EN 60721					
Relative air humidity	0 - 85%, Non-condensing					
Nominal altitude of use	< 3000 m NHN					
Sound power level	62.5 dB(A)					
Sound power level at a distance of 1 m	51.9 dB(A)					
Linearity	0.9 %FS					
Hysteresis	0.4 %FS					
Reproducibility	0.4 %FS					
Total accuracy	1.1%FS					
Temperature cooefficient	0.02 %/K					
Total leakage	5 l/h					
Approval	FCC, MIC, c UL us listed (OL)	RCM trademark, c UL us listed (OL)	FCC, MIC, RCM trade-mark, c UL us listed (OL)	FCC, MIC, c UL us listed (OL)	RCM trademark, c UL us listed (OL)	FCC, MIC, RCM trade-mark, c UL us listed (OL)
Certificate issuing authority	UL E322346					
Pollution degree	2					
Cleanroom class	Class 4 according to ISO 14644-1					
KC mark	–	KC-EMV		–	KC-EMV	
CE mark (see declaration of conformity) ¹⁾	To EU EMC Directive EU-radio equipment-directive (RED) In accordance with EU RoHS Directive	To EU EMC Directive In accordance with EU RoHS Directive	To EU EMC Directive EU-radio equipment-directive (RED) In accordance with EU RoHS Directive		To EU EMC Directive In accordance with EU RoHS Directive	To EU EMC Directive EU-radio equipment-directive (RED) In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity) ²⁾	To UK instructions for EMC To UK RoHS instructions					
Suitable for use with food ³⁾	See supplementary material information					
Vibration resistance	Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6					
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27					

1) For information about the area of use, see the EC 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.

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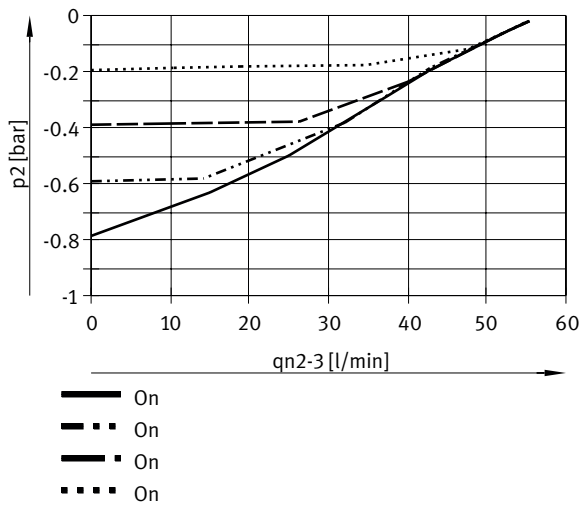
3) More information www.festo.com/catalogue/... → Support/Downloads.

Materials

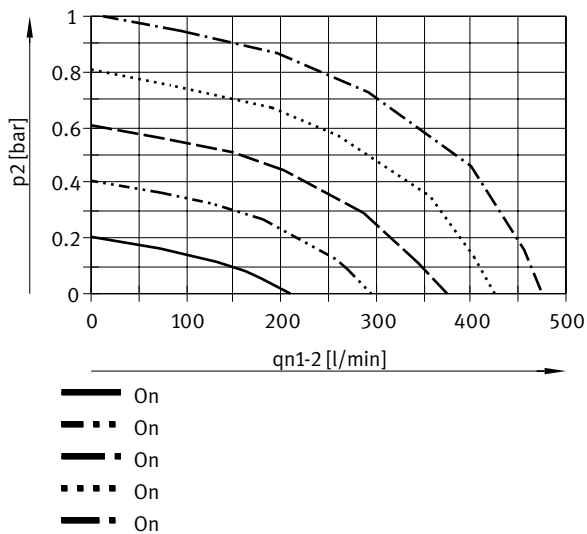
Note on materials	RoHS-compliant
Material housing	PA-reinforced
Material seals	HNBR, PTFE

Datasheet

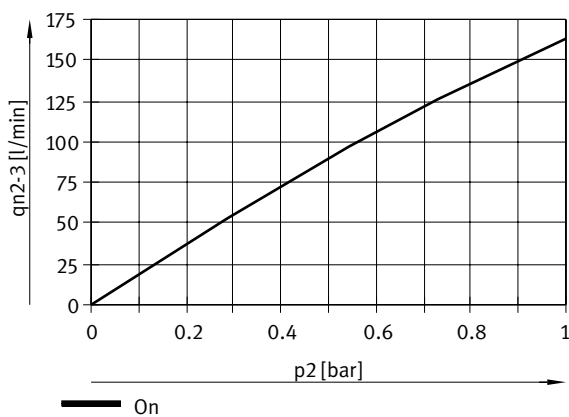
Flow rate q_n for valves with pressure regulation range -1... 0 bar and for valves with pressure control range -1... +1 bar, flow direction 2 > 3; depending on the output pressure p_2



Flow rate q_n for valves with pressure regulation range -1... +1 bar, flow direction 1 > 2; depending on output pressure p_2

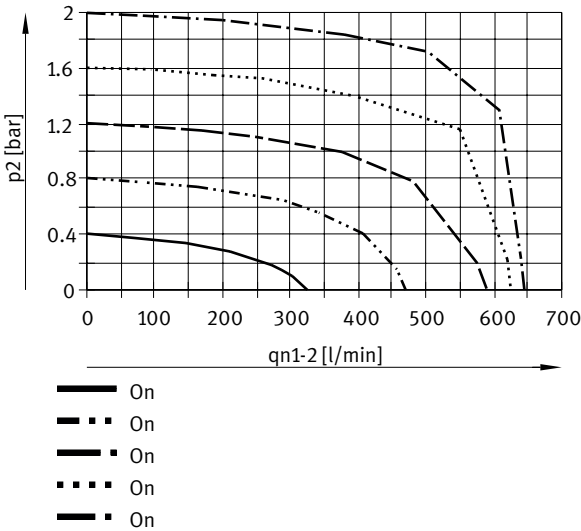


Flow rate q_n for valves with pressure regulation range -1... +1 bar, flow direction 2 > 3; depending on output pressure p_2

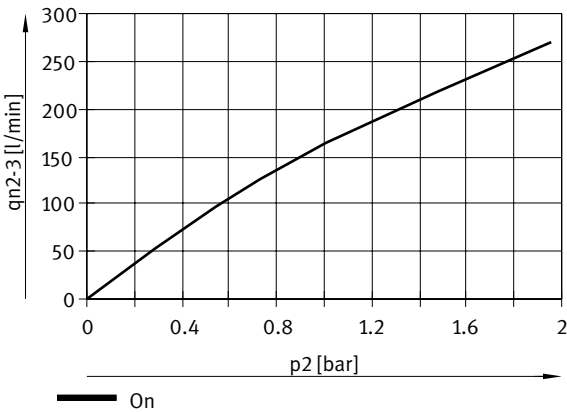


Datasheet

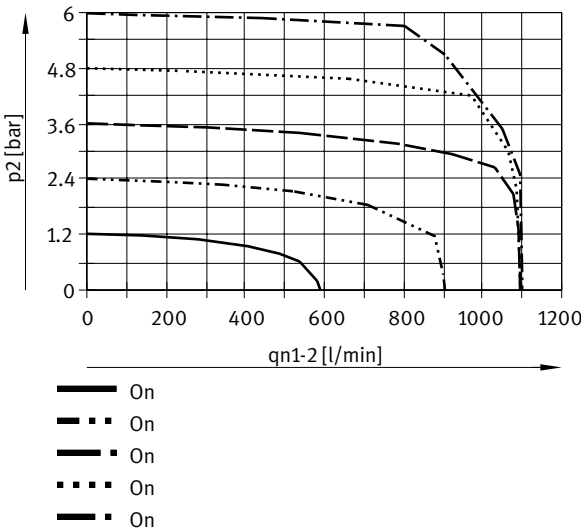
Flow rate q_n for valves with pressure regulation range 0... 2 bar, flow direction 1 > 2; depending on output pressure p_2



Flow rate q_n for valves with pressure regulation range 0... 2 bar, flow direction 2 > 3; depending on output pressure p_2



Flow rate q_n for valves with pressure regulation range 0... 6 bar, flow direction 1 > 2; depending on output pressure p_2

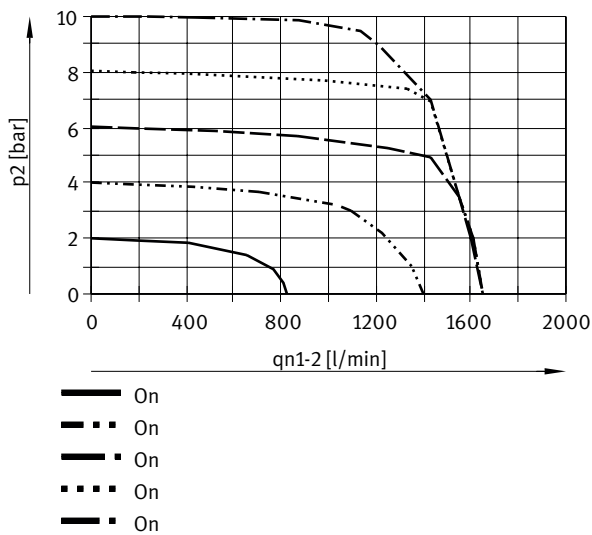


Datasheet

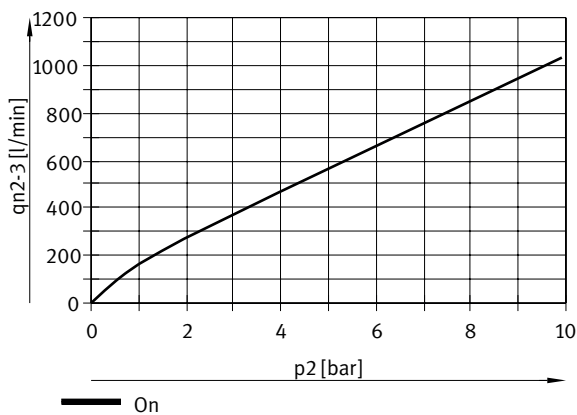
Flow rate q_n for valves with pressure regulation range 0... 6 bar, flow direction 2 > 3; depending on output pressure p_2



Flow rate q_n for valves with pressure regulation range 0... 10 bar, flow direction 1 > 2; depending on output pressure p_2

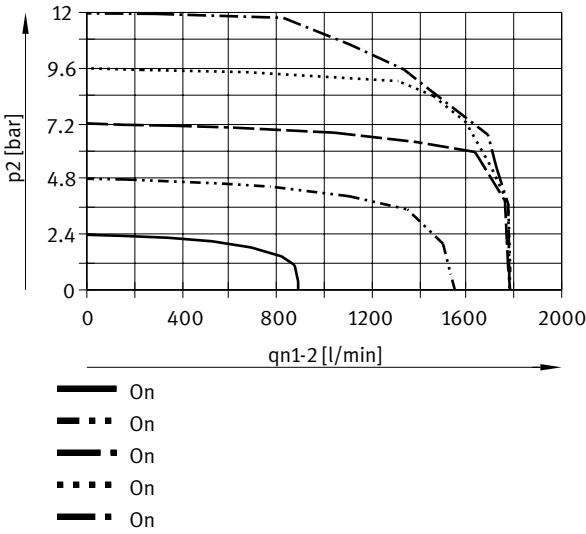


Flow rate q_n for valves with pressure regulation range 0... 10 bar, flow direction 2 > 3; depending on output pressure p_2

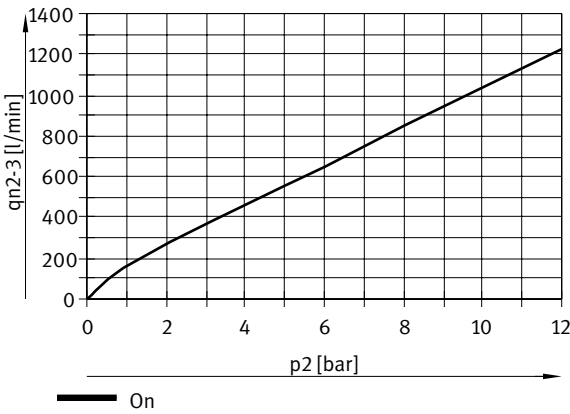


Datasheet

Flow rate q_n for valves with pressure regulation range 0... 12 bar, flow direction 1 > 2; depending on output pressure p_2

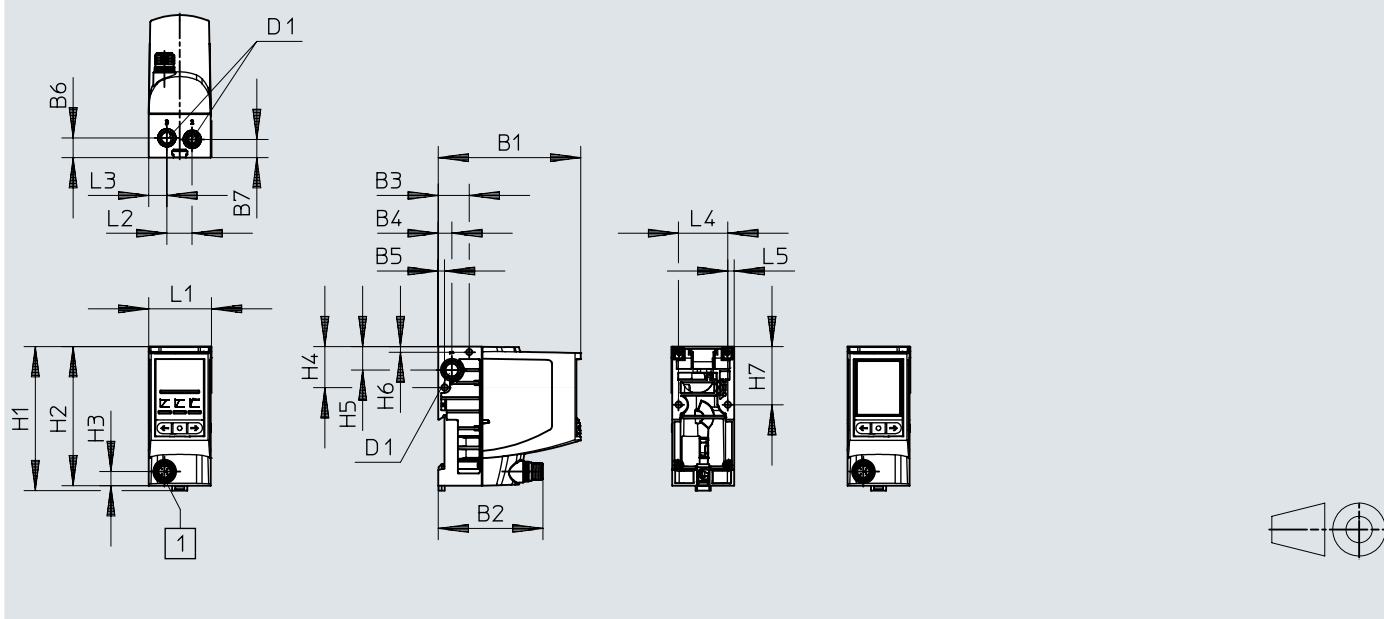


Flow rate q_n for valves with pressure regulation range 0... 12 bar, flow direction 2 > 3; depending on output pressure p_2



Dimensions

Dimensions – VPPI

[Download CAD data](#) www.festo.com


	B1	B2	B3	B4	B5	B6	B7	D1	H1	H2	H3	H4	H5	H6	H7
VPPI	94,3	69,3	20,5	9	4,2	13	12	G1/8	95,3	92	9,3	27,1	15,5	3,7	38,5

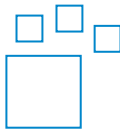
	L1	L2	L3	L4	L5
VPPI	41,2	16,7	12	32,6	4,2

Ordering data

Ordering data, proportional-pressure regulator without display						
	Pressure regulation range	Pressure regulation range	Setpoint input for individual valves	Product weight	Part no.	Type
	0 ... 0.6 MPa	0 ... 6 bar	0 ... 10 V	365 g	8104664	VPPI-5L-3-G18-0L6H-V1-S1
	0 ... 1 MPa	0 ... 10 bar			8104668	VPPI-5L-3-G18-0L10H-V1-S1

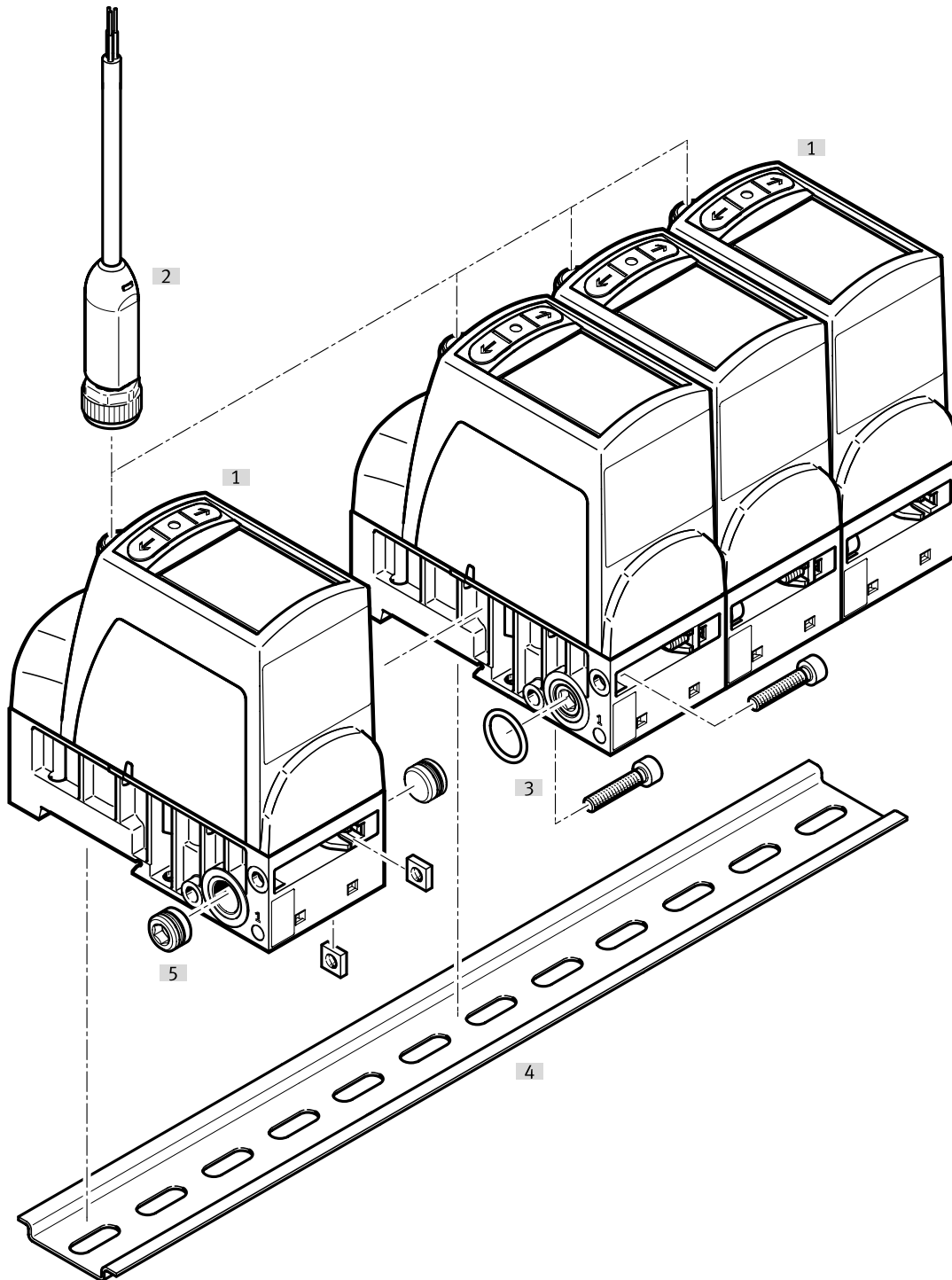
Ordering data, proportional-pressure regulator without display, with Bluetooth						
	Pressure regulation range	Pressure regulation range	Setpoint input for individual valves	Product weight	Part no.	Type
	-0.1 ... 0 MPa	-1 ... 0 bar	0 ... 10 V	365 g	8153298	VPPI-5L-3-G18-1V0H-V1-S1BT
	0 ... 0.2 MPa	0 ... 2 bar			8153295	VPPI-5L-3-G18-0L2H-V1-S1BT
	0 ... 0.6 MPa	0 ... 6 bar			8153296	VPPI-5L-3-G18-0L6H-V1-S1BT
	0 ... 1 MPa	0 ... 10 bar			8153297	VPPI-5L-3-G18-0L10H-V1-S1BT

Ordering data, proportional pressure regulator with display						
	Pressure regulation range	Pressure regulation range	Setpoint input for individual valves	Product weight	Part no.	Type
	-0.1 ... 0.1 MPa	16 bar	0 ... 10 V	370 g	8104673	VPPI-5L-3-G18-1V1H-V1-S1D
	0 ... 0.6 MPa	0 ... 6 bar	4 ... 20 mA		8104667	VPPI-5L-3-G18-0L6H-A4-S1D
			0 ... 10 V		★ 8104665	VPPI-5L-3-G18-0L6H-V1-S1D
	0 ... 1 MPa	0 ... 10 bar	4 ... 20 mA		8104670	VPPI-5L-3-G18-0L10H-A4-S1D
			0 ... 10 V		★ 8104669	VPPI-5L-3-G18-0L10H-V1-S1D
	0 ... 1.2 MPa	0 ... 12 bar			8104672	VPPI-5L-3-G18-0L12H-V1-S1D

Ordering information – Modular product system						
	Pressure regulation range	Pressure regulation range	Operator unit/interface	Setpoint input for individual valves	Part no.	Type
	-0.1 ... 1.2 MPa	-1 ... 12 bar	None, Display, Bluetooth	4 ... 20 mA 0 ... 10 V	8074287	VPPI-

Peripherals

Peripherals overview



Accessories		→ Link
Type/order code	Description	
[1] Proportional pressure regulator	VPPI	—
[2] Connecting cable	NEBA-M12...	14
[3] Connecting kit	VAME-P18-K-P5	14
[4] DIN mounting rail	NRH-35-2000	15
[5] Blanking plug	B	14

Accessories

Connecting cable, straight						
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	Straight	M12x1, A-coded to EN 61076-2-101	2.5 m	★ 8078242	NEBA-M12G5-U-2.5-N-LE5
				5 m	★ 8078243	NEBA-M12G5-U-5-N-LE5

Connecting cable, angled						
	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	Angled	M12x1, A-coded to EN 61076-2-101	2.5 m	8078251	NEBA-M12W5-U-2.5-N-LE5
				5 m	8078252	NEBA-M12W5-U-5-N-LE5

Inscription label holder				Part no.	Type
	Size of pack				
	10			561115	VMPAL-ST-AP-20

Inscription label				Part no.	Type
	Short type code				
	IBS			18576	IBS-6X10

Connecting kit, for linking several proportional-pressure regulators with a common pressure supply				Part no.	Type
	Size of pack				
	5			8108270	VAME-P18-K-P5

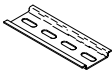
Blanking plug				
	Pneumatic connection, port 1	Size of pack	Part no.	Type
	Male thread G1/8	10	★ 3568	B-1/8
		100	534213	B-1/8-100

Plug screw, for duct 1 of the valve for pressure zone separation				Part no.	Type
	Size of pack				
	5			8108292	VAME-P18-BP-G18-P5
	10			8108271	VAME-P18-BP-G18-P10

Silencer, for noise reduction at the exhaust ports				
	Size of pack	Pneumatic connection	Part no.	Type
		G1/8	★ 2307	U-1/8

Accessories

Silencer, for noise reduction at the exhaust ports				
	Size of pack	Pneumatic connection	Part no.	Type
	1	G1/8	★ 161419	UC-1/8
	50		534222	U-1/8-50
			★ 534219	UC-1/8-50

DIN mounting rail, top-hat rail to EN 60715			
	Short type code	Part no.	Type
	NRH	35430	NRH-35-2000