

## Proportional pressure regulators VPPE/VPPE with display

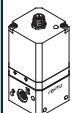


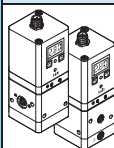


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# Proportional pressure regulators VPPE/VPPE with display

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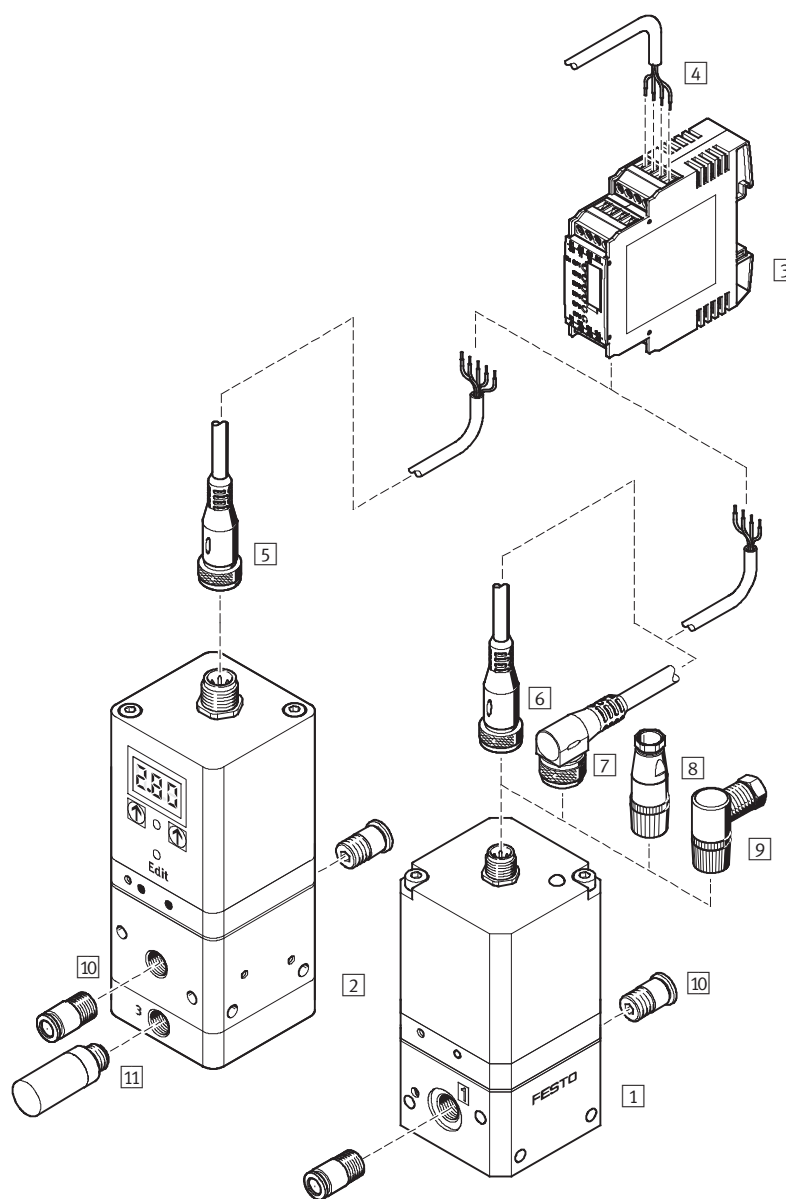
Product range overview

Function	Version	Pneumatic connection 1	Nominal size for air supply/ exhaust [mm]	Pressure regulation range [bar]	Setpoint input		→ Page/Internet
					Voltage type 0 ... 10 V	Current type 4 ... 20 mA	
Pressure regulators							
		G1/8	5/2.5	0.15 ... 6			5
		G1/8	5/2.5	0.02 ... 2			8
				0.06 ... 6			
0.1 ... 10							

# Proportional pressure regulators VPPE/VPPE with display

Peripherals overview

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Accessories			
	Type	Brief description	→ Page/Internet
1	Proportional pressure regulator	VPPE	–
2	Proportional pressure regulator with display	VPPE...E1	–
3	Setpoint module	MPZ	For generating 6+1 analogue voltage signals
4	Digital input/output	–	For actuating the setpoint module
5	Plug socket with cable	SIM-M12-5GD-...-PU	With straight plug socket for actuating the VPPE...E1
6	Plug socket with cable	SIM-M12-4GD-5PU	With straight plug socket for actuating the VPPE
7	Plug socket with cable	SIM-M12-4WD-5PU	With angled plug socket for actuating the VPPE
8	Plug socket	SIE-GD	Straight plug socket for actuating the VPPE
9	Plug socket	SIE-WD-TR	Angled plug socket for actuating the VPPE
10	Push-in fitting	QS	For compressed air tubing with standard O.D.
11	Silencer	U	For fitting in exhaust ports

# Proportional pressure regulators VPPE

Type codes


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		VPPE	–	3	–	1/8	–	6	–	010
<b>Type</b>										
VPPE	Proportional pressure regulator with switching valve head									
<b>Valve function</b>										
3	3-way pressure regulator									
<b>Pneumatic connection</b>										
1/8	Female thread G1/8									
<b>Pressure regulation range</b>										
6	0.15 ... 6 bar									
<b>Analogue setpoint input</b>										
010	0 ... 10 V									


# Proportional pressure regulators VPPE

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## Technical data

-  - Flow rate  
1,000 l/min

-  - Voltage  
21.6 ... 26.4 V DC

-  - Pressure regulation range  
0.15 ... 6 bar

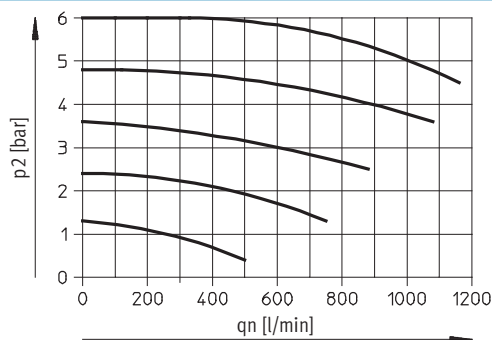
### Variants

- Setpoint input as analogue voltage signal 0 ... 10 V




General technical data			
Pneumatic connection 1 and 2			G1/8
Design			Pilot actuated 3-way proportional pressure regulator
Sealing principle			Soft
Actuation type			Electrical
Type of control			Pilot actuated via 2/2-way valves
Type of mounting			Via through-hole
Mounting position			Any, preferably vertical
Nominal size	Air supply	[mm]	5
	Exhaust	[mm]	2.5
Standard nominal flow rate		[l/min]	→ Graph
Product weight		[g]	445

### Flow rate qn as a function of output pressure p2



Electrical data	
Electrical connection	Plug, round design, 4-pin, M12x1
Operating voltage range	[V DC] 24 ±10% = 21.6 ... 26.4
Power supply indicator	LED
Residual ripple	10%
Max. electrical power consumption	[W] 3.6
Setpoint input signal	[V DC] 0 ... 10
Protection against short circuit	For all electrical connections
Reverse polarity protection	For all electrical connections
Protection class	IP65
CE mark (see declaration of conformity)	To EU EMC Directive

-  - Note  
Output pressure is maintained unregulated if the power supply cable is interrupted.

# Proportional pressure regulators VPPE

Technical data

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Operating and environmental conditions		
Operating medium		Filtered, unlubricated compressed air, grade of filtration 40 µm Neutral gases
Supply pressure 1	[bar]	7 ... 8
Pressure regulation range	[bar]	0.15 ... 6
Max. pressure hysteresis	[bar]	0.15
Ambient temperature	[°C]	10 ... 50
Temperature of medium	[°C]	10 ... 50
Corrosion resistance class CRC		2 <sup>1)</sup>

- 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

Information on materials	
Housing	Wrought aluminium alloy
Seals	NBR

### Dimensions

1 Earthing hole

[Download CAD data → www.festo.com](http://www.festo.com)

Type												
VPPE-3-1/8-6-010	B1	B2	∅ D1	D2	EE	H1	H2	H3	H4	H5	H6	
	50	32	4.5	M12x1	G3/8	114	102	23	13	28	8	

### M12x1 – Pin allocation for VPPE

1 Power supply  
21.6 ... 26.4 V DC

2 Setpoint (-)

3 GND (-)

4 Setpoint (+) 0 ... 10 V DC

Ordering data			
Pneumatic connection	Pressure regulation range [bar]	Part No.	Type
G3/8	0 ... 6	539639	VPPE-3-1/8-6-010

# Proportional pressure regulators VPPE with display

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Type codes

		VPPE	–	3	–	1	–	1/8	–	6	–	010	–	E1	T
<b>Type</b>															
VPPE	Proportional pressure regulator with switching valve head														
<b>Valve function</b>															
3	3-way pressure regulator														
<b>Valve function</b>															
1	Closed in basic position														
<b>Pneumatic connection</b>															
1/8	Female thread G1/8														
<b>Pressure regulation range</b>															
2	0.02 ... 2 bar														
6	0.06 ... 6 bar														
10	0.1 ... 10 bar														
<b>Analogue setpoint input</b>															
010	0 ... 10 V														
420	4 ... 20 mA														
<b>Operator unit</b>															
E1	Segmented LED display														
<b>Operator unit</b>															
–	In-line valve														
T	Common supply manifold assembly														

# Proportional pressure regulators VPPE with display

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Technical data

-  Flow rate  
310 ... 1,250 l/min
-  Voltage  
21.6 ... 26.4 V DC
-  Pressure regulation range  
0.02 ... 2 bar  
0.06 ... 6 bar  
0.1 ... 10 bar

## Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA
- Assembly as in-line valve or on common supply manifold (manifold on request)
- 3-digit LED display

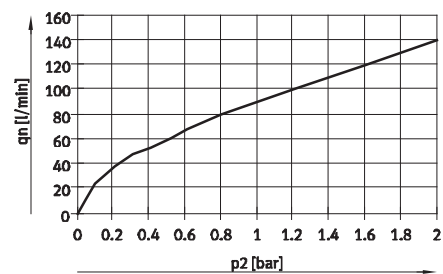
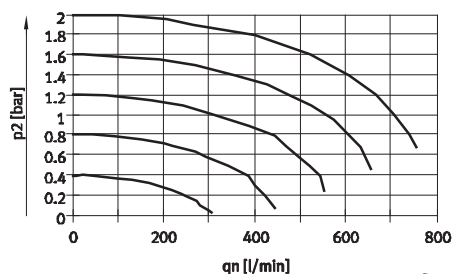


General technical data			
Pneumatic connection 1 and 2			G1/8
Design and valve function			Pilot actuated 3-way proportional pressure regulator
Sealing principle			Soft
Actuation type			Electrical
Reset method			Mechanical spring
Type of control			Pilot actuated via 2/2-way valves
Type of mounting			Via through-hole
Mounting position			Any
Nominal size	Air supply	[mm]	5
	Exhaust	[mm]	2.5
Standard nominal flow rate			→ Graphs
Product weight			390

## Flow rate $q_n$ as a function of output pressure $p_2$

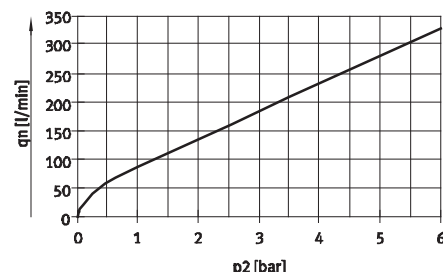
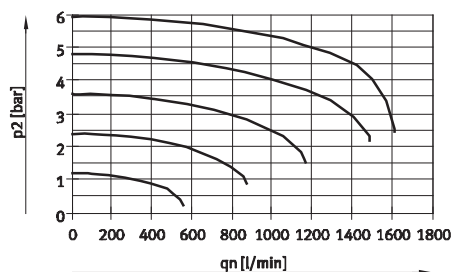
VPPE-3-1-1/8-2- ...  $q_n 1 \rightarrow 2$

$q_n 2 \rightarrow 3$



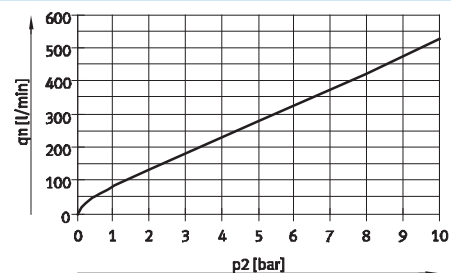
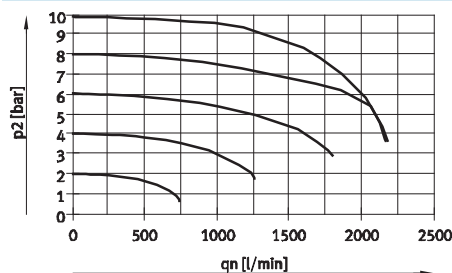
VPPE-3-1-1/8-6- ...  $q_n 1 \rightarrow 2$

$q_n 2 \rightarrow 3$



VPPE-3-1-1/8-10- ...  $q_n 1 \rightarrow 2$

$q_n 2 \rightarrow 3$





# Proportional pressure regulators VPPE with display

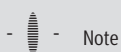
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Technical data

Electrical data			
Electrical connection		Plug, round design, 5-pin, M12x1	
Operating voltage range		[V DC]	24 ±10% = 21.6 ... 26.4
Power supply indicator		LED	
Residual ripple		10%	
Max. electrical power consumption		[W]	4.2
Setpoint input and analogue output signal	Voltage	[V DC]	0 ... 10
	Current	[mA]	4 ... 20
Protection against short circuit		For all electrical connections	
Switching output		PNP	
Reverse polarity protection		For all electrical connections	
Protection class		IP65	
CE mark (see declaration of conformity)		To EU EMC Directive	

Operating and environmental conditions				
Pressure regulation range	[bar]	0.02 ... 2	0.06 ... 6	0.1 ... 10
Operating medium		Filtered, unlubricated compressed air, grade of filtration 40 µm Neutral gases		
Supply pressure 1	[bar]	3 ... 4	6 <sup>2)</sup> ... 8	6 <sup>2)</sup> ... 11
Max. pressure hysteresis	[mbar]	20	30	50
FS (full scale) linearity error	[%]	± 1		
FS (full scale) repetition accuracy	[%]	0.5		
Temperature coefficient	[%/K]	0.04/1		
Duty cycle	[%]	100		
Ambient temperature	[°C]	0 ... 60		
Temperature of medium	[°C]	10 ... 50		
Corrosion resistance class	[CRC]	2 <sup>1)</sup>		

- 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
- 2) Supply pressure 1 should always be 1 bar greater than the maximum regulated output pressure



Note

Output pressure is maintained unregulated if the power supply cable is interrupted.

Information on materials	
Housing	Anodised wrought aluminium alloy
Note on materials	RoHS-compliant

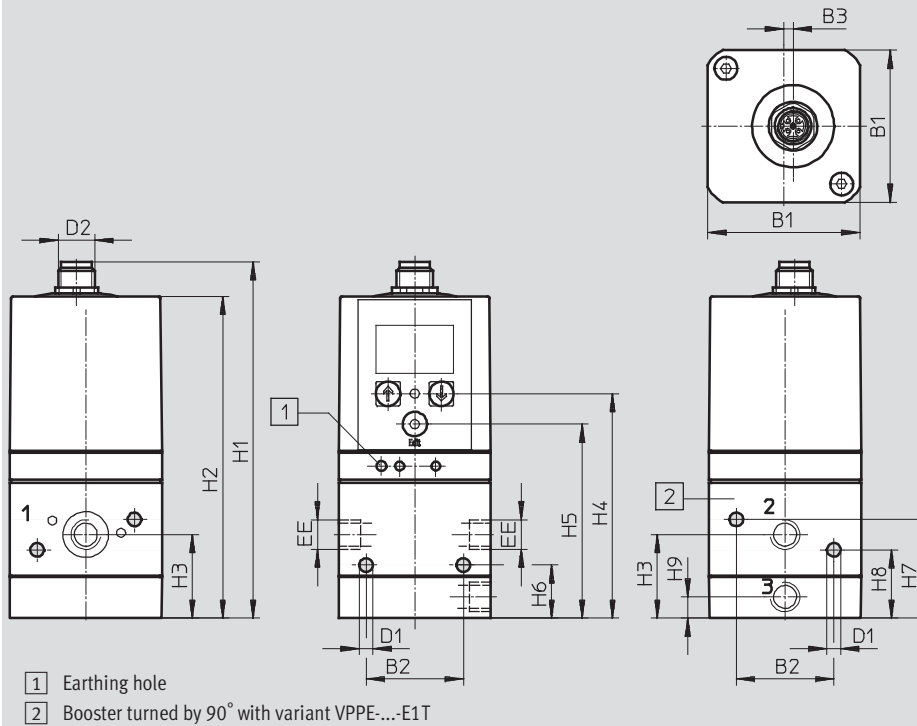
# Proportional pressure regulators VPPE with display

Technical data

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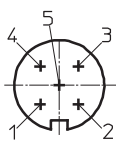
## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)



Type												
VPPE-3-1/8- ... E1 ...	B1	B2	B3	Ø D1	D2	EE	H1	H2	H3	H4	H5	H6
	50	32	3.05	4.5	M12x1	G1/8	117.2	105.8	27.5	73.8	63.8	17.5
	H7	H8	H9									
	32.5	22.5	7									

## M12x1 – Pin allocation for VPPE with display





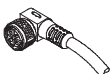


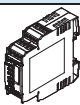
- 1 Power supply  
21.6 ... 26.4 V DC
- 2 Setpoint (-)
- 3 GND (-)
- 4 Setpoint (+) 0 ... 10 V DC/  
4 ... 20 mA
- 5 Actual value output or switching output (can be chosen via the control panel)

Ordering data				
Pneumatic connection	Pressure regulation range [bar]	Voltage type 0 ... 10 V		Current type 4 ... 20 mA
		Part No.	Type	Part No. Type
G1/8	0.02 ... 2	557771	VPPE-3-1-1/8-2-010-E1	557774 VPPE-3-1-1/8-2-420-E1
		557777	VPPE-3-1-1/8-2-010-E1T	557779 VPPE-3-1-1/8-2-420-E1T
	0.06 ... 6	557772	VPPE-3-1-1/8-6-010-E1	557775 VPPE-3-1-1/8-6-420-E1
		567539	VPPE-3-1-1/8-6-010-E1T	567540 VPPE-3-1-1/8-6-420-E1T
	0.1 ... 10	557773	VPPE-3-1-1/8-10-010-E1	557776 VPPE-3-1-1/8-10-420-E1
		557778	VPPE-3-1-1/8-10-010-E1T	557780 VPPE-3-1-1/8-10-420-E1T

## Proportional pressure regulators VPPE/VPPE with display

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Accessories

Ordering data				
	Description	Cable length [m]	Part No.	Type
Plug socket with cable for VPPE with display		Technical data → Internet: sim-m12-5gd		
	Straight, 5-pin, M12x1	2.5	175715	SIM-M12-5GD-2,5-PU
		5	175716	SIM-M12-5GD-5-PU
Plug socket with cable		Technical data → Internet: sim-m12-4gd		
	Straight, 4-pin, M12x1	5	164259	SIM-M12-4GD-5-PU
Plug socket with cable		Technical data → Internet: sim-m12-4wd		
	Angled, 4-pin, M12x1	5	164258	SIM-M12-4WD-5-PU
Plug socket		Technical data → Internet: sie-gd		
	Straight, 4-pin, M12x1	–	18494	SIE-GD
Plug socket		Technical data → Internet: sie-wd		
	Angled, 4-pin, M12x1	–	12956	SIE-WD-TR
Setpoint module		Technical data → Internet: mpz		
	Setpoint module for generating 6 + 1 analogue voltage signals	–	546224	MPZ-1-24DC-SGH-6-SW

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