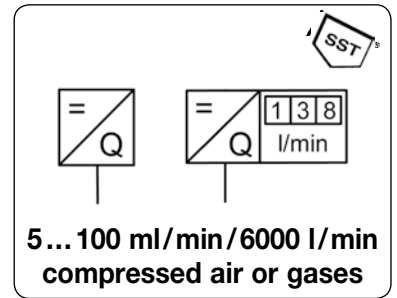


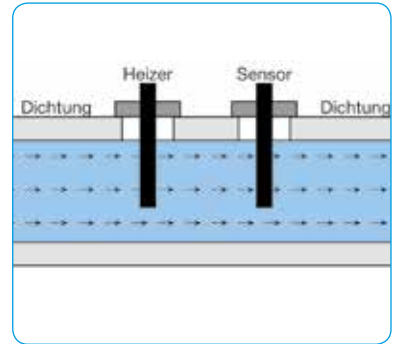
Technical features

- Benefits:
- suitable for nearly all gases and gas mixtures
 - no moving parts
 - short response time
 - unaffected of mounting position
 - optionally with unit counter and / or flow meter
 - maintenance-free
 - low pressure drop



General technical features

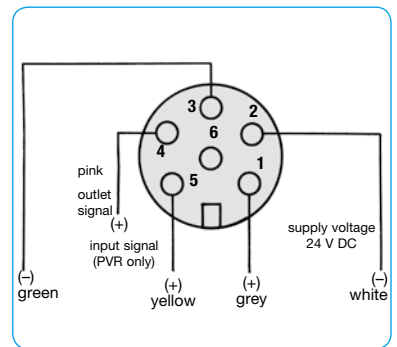
Mounting position	any
Protection class	IP 40
Temperature range	0 °C to 50 °C / 32 °F to 122 °F
Material	Body: aluminium, optionally stainless steel 316L Elastomer: FKM, optionally EPDM or Kalrez Sensor: stainless steel 316L Filter/strainer: stainless steel



functional principle

Pneumatic features

Media	compressed air as well as virtually all gases and mixtures of gases
Operating pressure	max. 10 bar
Differential pressure	max. 5 bar
Mass flow rate	0 ... 100 ml/min / 2000 l/min, for PVR 0 ... 100 ml/min / 6000 l/min, for PVM



PVM and PVR connecting plan

Electrical features

Supply voltage	24 V DC + 10%
Current consumption	max. 75 mA for PVM 11, all other devices max. 250 mA
Signal ranges	4-20 mA, optionally 0 ... 5 V DC
Impedance	> 10 kΩ at voltage signal, < 375 Ω at current signal
Connection	round connector M16x1, 6-pin
EMC	according to CE
Note	at < 100 mbar inlet path is required (PVM only)

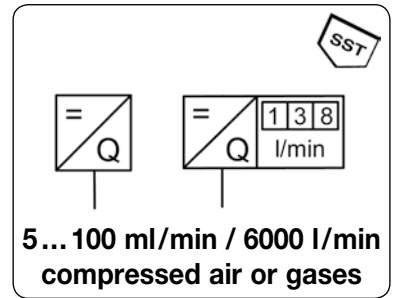
Accuracy

Linearity / Hysteresis	> ± 3 % FS
Repeatability	> ± 0.5% FS
Pressure sensitivity	> ± 0.3% FS/bar typ. (air)
Temperature sensitivity	< ± 0.3% / °C (air)
Mounting sensitivity	< 0.3% FS at 90°
Operating time	25 s at 100% of the range
Tightness	< 2 x 10 ⁻⁸ mbar l/s He

model	PVM23 - PVM27	PVM11
gas		
air	1.00	1.00
argon	2.01	1.40
CO ₂	1.20	0.74
helium	/	1.41
hydrogen	/	1.01
NH ₃	0.80	0.77
N ₂ O ₂	1.00	1.00
C ₂ H ₂	0.75	0.61
C ₃ H ₆	/	0.34
C ₃ H ₈	0.63	0.34
CH ₄	0.67	0.76
CO	1.04	1.00
C ₂ H ₄	0.89	0.60
NO	1.02	0.97
HCL	1.58	0.99

conversion factors for max. flow rate for other gases

Description	Mass flow meter directly measuring flow according to constant temperature anemometer principle. PVM 11 measures via a bypass, the other types measure the flow directly.
Features	Low pressure drop and immunity against dirt and humidity. Measurement unaffected by pressure and temperature changes. No moving parts, installation in virtually any position.
Principle	Two stainless steel probes - a heater and temperature probe - protrude inside the bore. A constant difference in temperature is created. The energy required is proportional to flow.
Media	compressed air, air as well as virtually all gases and gas mixtures
Compensation	Neither temperature nor pressure have to be compensated. There are no moving parts within the flow meter, therefore it is virtually wear-free.
Pressure drop	Low pressure drop because solely two stainless steel probes protrude inside the smooth, round measurement cell. The use of screw connections with a nominal size as big as possible is suggested.
Temperature range	0 °C to 50 °C / 32 °F to 122 °F
Material	Body: aluminium, optionally SST 316L Sensor: stainless steel 316L
	Operating press. max. 10 bar Differential press. max. 5 bar Elastomer: FKM, optionally EPDM or Kalrez Filter/strainer: stainless steel



Dimensions			Operating pressure max. bar	Connection thread G	Flow rate ml/min*1 / l/min*1	Order number
A	B	C				

Mass flow meter				4-20 mA output signal, supply voltage 24 V DC, w/o display, with coupling socket, for compressed air		PVM*2	
95	94.5	15	10	G¼	5 ... 100 ml/min 10 ... 200 ml/min 25 ... 500 ml/min 50 ... 1000 ml/min	PVM11-12 PVM11-22 PVM11-52 PVM11-13	
95	94.5	15	10	G¼	0.10 ... 2 l/min 0.25 ... 5 l/min 0.50 ... 10 l/min	PVM11-23 PVM11-53 PVM11-14	
95	94.5	15	10	G¼	1 ... 20 l/min 2 ... 50 l/min 5 ... 100 l/min	PVM23-24 PVM23-54 PVM23-15	
95	98.5	15	10	G½	5 ... 100 l/min 10 ... 200 l/min 20 ... 400 l/min	PVM25-15 PVM25-25 PVM25-45	
116	123	25	10	G½	20 ... 400 l/min 50 ... 1000 l/min 100 ... 2000 l/min	PVM27-45 PVM27-16 PVM27-26	
130	143	35	10	G1	150 ... 2000 l/min 200 ... 4000 l/min 250 ... 5000 l/min	PVM28-26 PVM28-46 PVM28-56	



PVM23



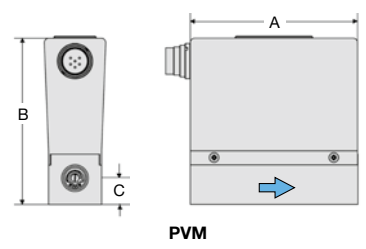
PVM27

Special options, add the appropriate letter order number

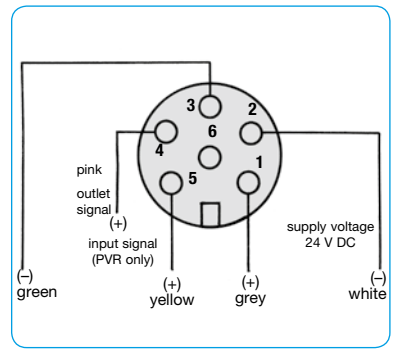
special calibration	range or gas to be indicated on order	PVM Y
monitor signal	0-5 V, load resistance > 10 kΩ	PVM U
stainless steel body	316L	PVM S
		PVM S
EPDM elastomer		PVM E
Kalrez elastomer		PVM K
free of oil and grease	for oxygen and different gases	PVM L
carbon dioxide CO₂	03	argon Ar: 05
helium He	09	hydrogen H ₂ : 11
nitrogen N₂		methane CH ₄ : 13
oxygen O₂	15	propane C ₃ H ₈ : 16
		nitrous oxide N ₂ O: 17
		PVM 07
		PVM 13
		PVM 17

Accessories, enclosed

coupling socket	M16x1, 6-pin with 3 m Kabel	straight	KM16-A6-3
other cable length	5 m or 10 m available		



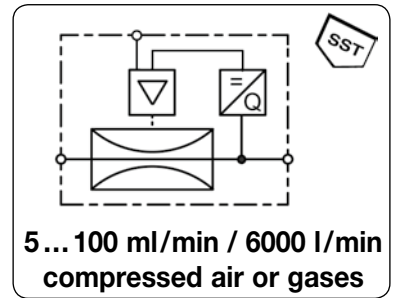
PVM



connecting plan

*1 valid for compressed air at Δp= 5 bar and open outlet. For other gases please apply conversion factor

Description	Mass flow meter directly measuring flow according to constant temperature anemometer principle. The measured setpoint is compared with the nominal value. The valve will be readjusted accordingly.				
Mechanical Construction	PVR11/12/23: mass flow meter and meter in the same housing PVR 25: mass flow meter and meter together at the measuring bob PVR27: mass flow meter and meter as single components are bolted together				
Media	compressed air, air as well as virtually all gases and gas mixtures				
Compensation	Neither temperature nor pressure have to be compensated. There are no moving parts within the flow meter, therefore it is virtually wear-free.				
Pressure drop	Low pressure drop because solely two stainless steel probes protrude inside the smooth, round measurement cell. The use of screw connections with a nominal size as big as possible is suggested.				
Temperature range	0 °C to 50 °C / 32 °F to 122 °F Operating press. max. 10 bar Differential press. max. 5 bar				
Material	Body: aluminium, optionally SST 316L Elastomer: FKM, optionally EPDM or Kalrez Sensor: stainless steel 316L Filter/strainer: stainless steel				



Dimensions			K _v -value (m³/h)	Operating pressure max. bar	Connection thread G	Mass flow ml/min*1 / l/min*1	Order number
A	B	C					

Mass flow regulator							4-20 mA input and output signal, supply voltage 24 V DC, w/o display, with coupling socket, for compressed air	PVR*3
95	94.5	15	0.066	10	G¼	5 ... 100 ml/min 10 ... 200 ml/min 25 ... 500 ml/min 50 ... 1000 ml/min	PVR11-12 PVR11-22 PVR11-52 PVR11-13	
95	94.5	15	0.066	10	G¼	0.10 ... 2 l/min 0.25 ... 5 l/min 0.50 ... 10 l/min	PVR11-23 PVR11-53 PVR11-14	
95	97	15	0.066	10	G¼*2	0.50 ... 10 l/min 1.00 ... 20 l/min 2.50 ... 50 l/min	PVR12-14 PVR12-24 PVR12-54	
95	94.5	15	0.066	10	G¼	1 ... 20 l/min 2 ... 50 l/min 5 ... 100 l/min	PVR23-24 PVR23-54 PVR23-15	
145	132	16	0.30	10	G½	5 ... 100 l/min 10 ... 200 l/min 20 ... 400 l/min	PVR25-15 PVR25-25 PVR25-45	
257	163	25	1.0	10	G½	25 ... 400 l/min 50 ... 1000 l/min 100 ... 2000 l/min	PVR27-45 PVR27-16 PVR27-26	

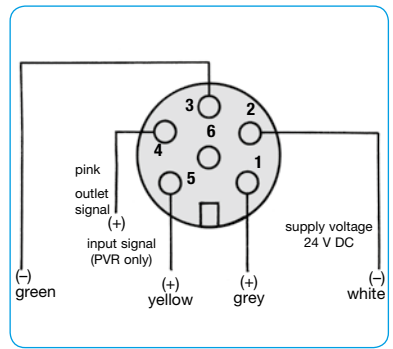
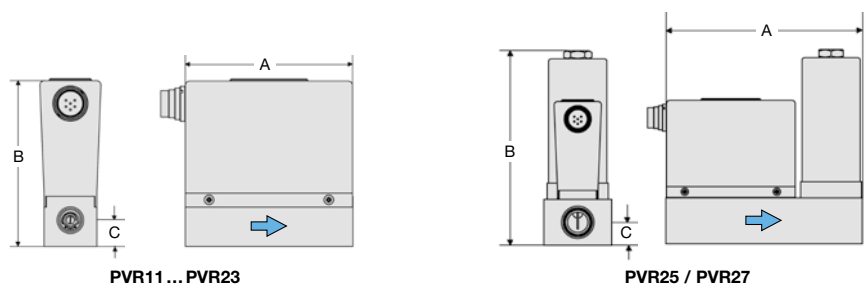


Special options, add the appropriate letter order number

special calibration	range or gas to be indicated on order	PVRY
setpoint /monitor signal	0-5 V, load resistance > 10 kΩ	PVRU
stainless steel body	316L	PVRS
EPDM elastomer		PVRE
Kalrez elastomer		PVRK
free of oil and grease	for oxygen and different gases	PVRL
potentiometer in cover	for flow regulation, height +40 mm	PVRX67
carbon dioxide CO ₂ :	03	argon Ar: 05
helium He:	09	nitrogen N ₂ : 07
oxygen O ₂ :	15	hydrogen H ₂ : 11
		methane CH ₄ : 13
		propane C ₃ H ₈ : 16
		nitrous oxide N ₂ O: 17

Accessories, enclosed

coupling socket M16x1, 6-pin with 3 m Kabel straight **KM16-A6-3**
other cable length 5 m or 10 m available



*1 valid for compressed air at Δp= 5 bar and open outlet. For other gases please apply conversion factor.
*2 connection thread G½ on the input side