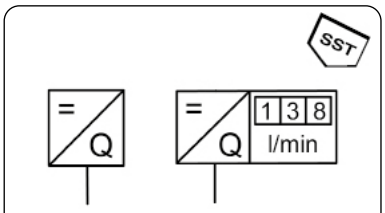
Technical features

Benefits:

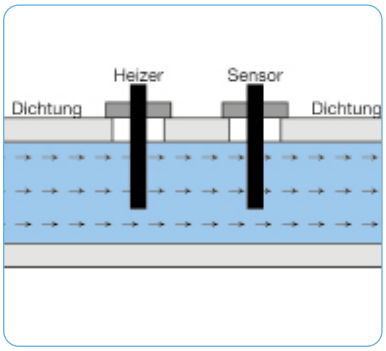
- suitable for nearly all gases and gas mixtures
- compact robust design with protection class IP65
- no moving parts
- short response time
- low sensitivity to dirt and humidity
- optionally available with multifunctional TFT display



10…200 ml/min/5000 l/min compressed air or gases

General technical features

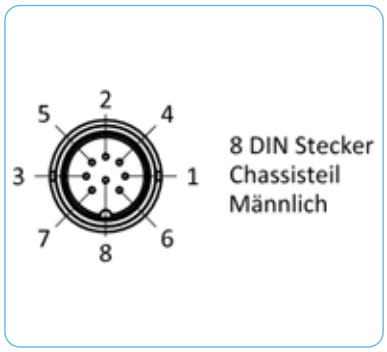
Mounting position	horizontal
Protection class	IP65 (with and without display)
Temperature range	0 °C to 50 °C / 32 °F to 122 °F
Material	Body: aluminium, optionally stainless steel 316L Elastomer: Viton®, optionally EPDM or Kalrez® Sensor: stainless steel 316L strainer: stainless steel Flow straightener: stainless steel



functional principle

Pneumatic features

Media	compressed air as well as virtually all gases and mixtures of gases*1
Operating pressure	max. 10 bar device body made of aluminium max. 20 bar device body made of stainless steel
Differential pressure	device-dependent
Mass flow rate	up to 10.000 l/min on request



PVM and PVR connection plan

Electrical features

Supply voltage	+15 … 24 vDC ±10%
Current consumption	**PVM:** approx. 75 mA at 0 % flow, approx. 125 mA at 100 % flow **PVR:** approx. 325 mA at 0 % flow, approx. 375 mA at 100 % flow add 30 mA for display, if applicable
Signal ranges	0…10 V DC / 0…5 V DC, wahlweise 0…20 mA / 4…20 mA
Impedance	> 10 kΩ at voltage signal, < 375 Ω at current signal
Connection	round connector 8-pin DIN (male)- and RS232 output
EMC	according to CE

Accuracy

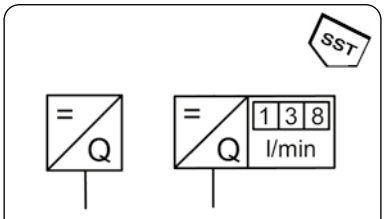
Linearity / Hysteresis	1% v.M. zzgl 0,5% v.E.
Repeatability	< ± 0.2 % v.E.
Pressure sensitivity	> ± 0.3% FS/bar typ. (air)
Temperature sensitivity	± 0.2 % / °C v.I. (air)
Mounting sensitivity	< 0.2 % at 90° deviation from horizontal at 1 bar typical (air)
Operating time	0.9 s bei 63% of the range
Tightness	< 2 x 10^{-8} mbar l/s He

model / gas	PVM/PVR34 – PVM/ PVR38	PVM/PVR 31 & PVM/ PVR32
air/nitrogen	1.00	1.00
argon	2.02	1.50
CO_2	1.13	0.86
helium	on request	on request
hydrogen	on request	on request
NH_3	0.74	0.82
N_2O	1.08	0.83
C_2H_2	0.68	0.66
C_3H_6	0.62	0.58
C_3H_8	0.51	0.43
CH_4	0.61	0.77
CO	1.04	1.01
C_2H_4	0.75	0.7
NO	1.01	1.00
HCL	1.53	1.12

conversion factors for max. flow rate for other gases

MASS FLOW METER, BASED ON CTA PRINCIPLE — PVM

Description	Mass flow meter directly measuring flow according to constant temperature anemometer principle.
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 **Operating press.** max. 10 bar **Differential press.** device dependent
Material	Body: aluminium, optionally SST 316L Elastomer: Viton®, optionally EPDM or Kalrez® Sensor: stainless steel 316L strainer: stainless steel



10 … 200 ml/min / 5000 l/min
compressed air or gases

Dimensions A mm	B mm	C mm	Operating pressure max. bar	Connection thread G	Flow rate ml/min*1 / l/min*1	Order number	E*
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	117	15	10	G¼	10 … 200 ml/min	**PVM31-22**	
					25 … 500 ml/min	**PVM31-52**	
					50 … 1 000 ml/min	**PVM31-13**	
95	117	15	10	G¼	0.10 … 2 l/min	**PVM31-23**	
					0.35 … 5 l/min	**PVM32-53**	
95	114	15	10	G¼	1 … 10 l/min	**PVM34-14**	
					1 … 20 l/min	**PVM34-24**	
					1 … 50 l/min	**PVM34-54**	
95	122	16	10	G½	0.4 … 20 l/min	**PVM36-24**	
					4 … 200 l/min	**PVM36-25**	
117	136	25	10	G½	2 … 100 l/min	**PVM37-15**	
					20 … 400 l/min	**PVM37-45**	
					20 … 1 000 l/min	**PVM37-16**	
143	164	37,5	10	G1	10 … 500 l/min	**PVM38-55**	
					100 … 2 000 l/min	**PVM38-26**	
					100 … 4 000 l/min	**PVM38-46**	
					150 … 5 000 l/min	**PVM38-56**	

PVM31

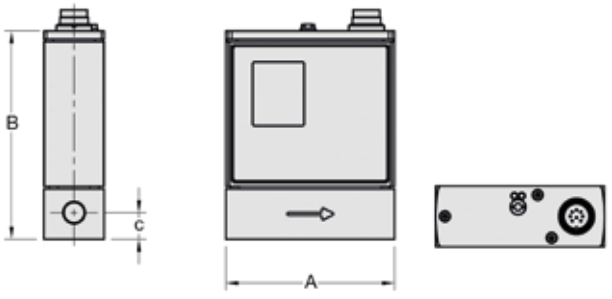
PVM37/38

Special options, add the appropriate letter oder number

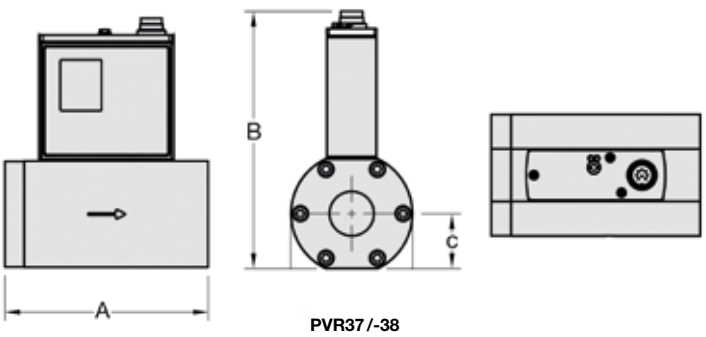
deviating volume flow rate								PVM . . - **XX**
special calibration	range or gas to be indicated on order							PVM . . - . . **Y**
monitor signal	0-10 V							PVM . . - . . **U**
stainless steel body	316L, P_1 max. 20 bar							PVM . . - . . **S**
EPDM elastomer								PVM . . - . . **E**
Kalrez elastomer								PVM . . - . . **K**
free of oil and grease	for oxygen and different gases							PVM . . - . . **L**
carbon dioxide	CO_2:	**03**	**argon**	Ar:	**05**	**nitrogen**	N_2:	PVM . . - . . . **07**
helium	He:	**09**	**hydrogen**	H_2:	**11**	**methane**	CH_4:	PVM . . - . . . **13**
oxygen	O_2:	**15**	**propane**	C_3H_8:	**16**	**nitrous oxide**	N_2O:	PVM . . - . . . **17**

Accessories, enclosed

coupling socket	M16x1, 8-pin	straight	**KM16-A8-0**



PVM31/32/34/36



PVR37/-38

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

*2 only possible with PVM 31 (max. 1 l/min) and PVM 32 (max. 5 l/min).

*3 **Note: indicate media, supply and outlet pressure, temperature on order**

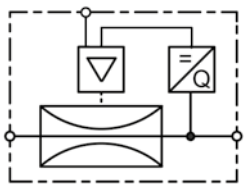
PDF CAD
www.aircom.net

* Product group

Order example: PVM31-22

PROPORTIONAL MASS FLOW CONTROLLER, BASED ON CTA PRINCIPLE PVR

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	PVR31/32/34/36: mass flow meter and meter in the same housing PVR 37: mass flow meter and meter together at the measuring bob PVR38: 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.** device dependent
Material	Body: aluminium, optionally SST 316L Elastomer: Viton®, optionally EPDM or Kalrez® Sensor: stainless steel 316L strainer: stainless steel



10 … 200 ml/min / 5000 l/min compressed air or gases

PVR31

PVR37

Mass flow regulator

4-20 mA input and output signal, supply voltage 24 V DC, w/o display, with coupling socket, for compressed air

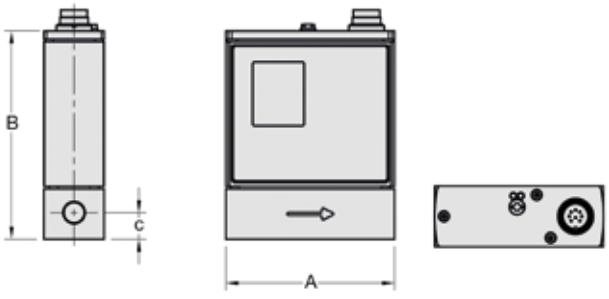
Dimensions A mm	B mm	C mm	K_v-value (m^3/h)	Operating pressure max. bar	Connection thread G	Mass flow ml/min*1 / l/min*1	Order number PVR*3
95	117	15	0.066	10	G¼	10 … 200 ml/min	**PVR31-22**
						100 … 500 ml/min	**PVR31-52**
						100 … 1000 ml/min	**PVR31-13**
						100 … 2000 ml/min	**PVR31-23**
95	117	15	0.066	10	G¼	0.05 … 1 l/min	**PVR32-13**
						0.35 … 5 l/min	**PVR32-53**
						0.50 … 7 l/min	**PVR32-14**
95	114	15	0.066	10	G¼	0.50 … 10 l/min	**PVR34-14**
						1.00 … 20 l/min	**PVR34-24**
						2.50 … 50 l/min	**PVR34-54**
95	122	16	0.17	10	G½	1 … 20 l/min	**PVR36-24**
						4 … 50 l/min	**PVR36-54**
						5 … 200 l/min	**PVR36-25**
145	136	25	0.35	10	G½	5 … 100 l/min	**PVR37-15**
						10 … 200 l/min	**PVR37-25**
						20 … 400 l/min	**PVR37-45**
on request			1.5	10	G1	10 … 500 l/min	**PVR38-55**
						100 … 1000 l/min	**PVR38-16**
						100 … 2000 l/min	**PVR38-26**
						100 … 5000 l/min	**PVR38-56**

Special options, add the appropriate letter oder number

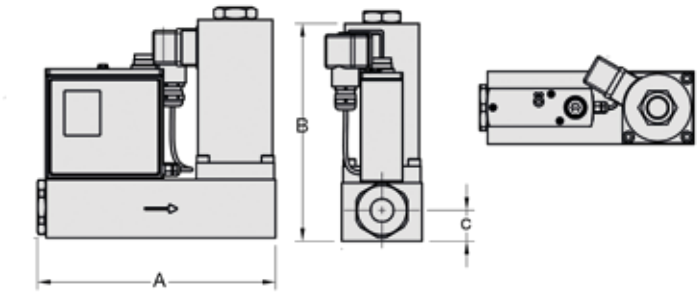
deviating volume flow rate								PVM . . - **XX**
special calibration	range or gas to be indicated on order							PVR . . - . . **Y**
setpoint /monitor signal	0-10 V							PVR . . - . . **U**
stainless steel body	316L, P_1 max. 20 bar							PVR . . - . . **S**
EPDM elastomer								PVR . . - . . **E**
Kalrez® elastomer								PVR . . - . . **K**
free of oil and grease	for oxygen and different gases							PVR . . - . . **L**
carbon dioxide	CO_2:	**03**	**argon**	Ar:	**05**	**nitrogen**	N_2:	PVR . . - . . . **07**
helium*2	He:	**09**	**hydrogen*2**	H_2:	**11**	**methane**	CH_4:	PVR . . - . . . **13**
oxygen	O_2:	**15**	**propane**	C_3H_8:	**16**	**nitrous oxide**	N_2O:	PVR . . - . . . **17**

Accessories, enclosed

coupling socket	M16x1, 8-pin	straight	**KM16-A8-0**



PVR31 / 32 / 34 / 36



PVR37 / -38

*1 valid for compressed air at Δp= 5 bar and open outlet. For other gases please apply conversion factor.
*2 only possible with PVR 31 (max. 1 l/min) and PVR 32 (max. 5 l/min).

*3 **Note: indicate media, supply and outlet pressure, temperature on order**

PDF CAD
www.aircom.net

* Product group

Order example: PVR31-22