

DESCRIPTION

The PVC6800 series MEMS composite vacuum transmitter measures from 1.5 atm to medium-low vacuum. The series offers high accuracy, a wide measurement range, and excellent long-term stability and durability at a low cost, making it highly competitive compared to other Pirani vacuum gauges on the market.

The sensing element is based on Posifa's second-generation MEMS thermal conductivity chip design, made using advanced microfabrication techniques to provide superior precision and consistency. The chip measures thermal conductivity and includes an integrated temperature measurement circuit, ensuring high sensitivity and repeatability. Thanks to its low operating temperature, the PVC6800 series is more resistant to contamination compared to filament-based Pirani gauges.

A key feature of the PVC6800 series is the addition of a pressure sensor that ensures accuracy as high as 2.5 % from 1.5 atm to 0.1 atm. The device provides a 0 V to 10 V voltage signal through an FCC-68/RJ45 connector. This voltage signal is compatible with other vacuum gauges on the market, allowing for a "plug-and-play" replacement. When switching from another brand to the PVC6800 series, customers do not need to adjust their systems or change hardware interfaces, as the output curve remains familiar.

The PVC6800 series can also output other standard industrial signals on request, such as 4 mA to 20mA, RS485, RS232, etc.



FEATURES

- Measurement range: 10^{-3} Torr to 1,125 Torr (1.3×10^{-3} mbar to 1,500 mbar)
- High accuracy and repeatability
- Adjustable output curve for plug-and-play capability
- More resistant to contamination due to low operating temperature
- Temperature-compensated

APPLICATIONS

- Freeze dryers
- Lithium battery ovens
- Helium mass spectrometers
- Helium leak detectors
- Vacuum laminating machines
- Vacuum experiment equipment
- Vacuum systems in sampling chambers

EXTREME OPERATING CONDITIONS

- Operating temperature: -40 °C to 85 °C
- Storage temperature: -40 °C to 90 °C
- Overpressure: 27.5 bar

TECHNICAL SPECIFICATIONS TABLE

Test Conditions: 24VDC power supply, Ta = 25 °C.					
PARAMETER	MIN	TYP	MAX	UNIT	CONDITION
Measurement Principle	Pirani principle				
Measurement Range ¹	1		1,125,000	Micron	Air, nitrogen, oxygen, CO
	1.3x10 ⁻³		1500	mbar	
Output Voltage	0		10.23	V	
Output Curve	0.61V to 10.23V or 1.2V to 8.68V				
Accuracy		30%		Reading	5 micron ~ 15 micron 5x (10 ⁻³ mbar to 0.02 mbar)
		±15%		Reading	15 micron ~ 100,000 micron (0.02 mbar to 133 mbar)
		±2.5%		Reading	100,000 micron ~ 1,125,000 micron (133 mbar to 1500 mbar)
Resolution		1%		Reading	
Repeatability		2%		Reading	
Response Time		1		s	
Power Supply Voltage	12	24	30	VDC	
Operating Current		22		mA	
Identification Resistance	71.5			kΩ	Set at factory
Operating Temperature	-40		85	°C	
Storage Temperature	-40		90	°C	
Probe Materials	316F stainless steel, FR4, glass, nickel, silicon, copper				

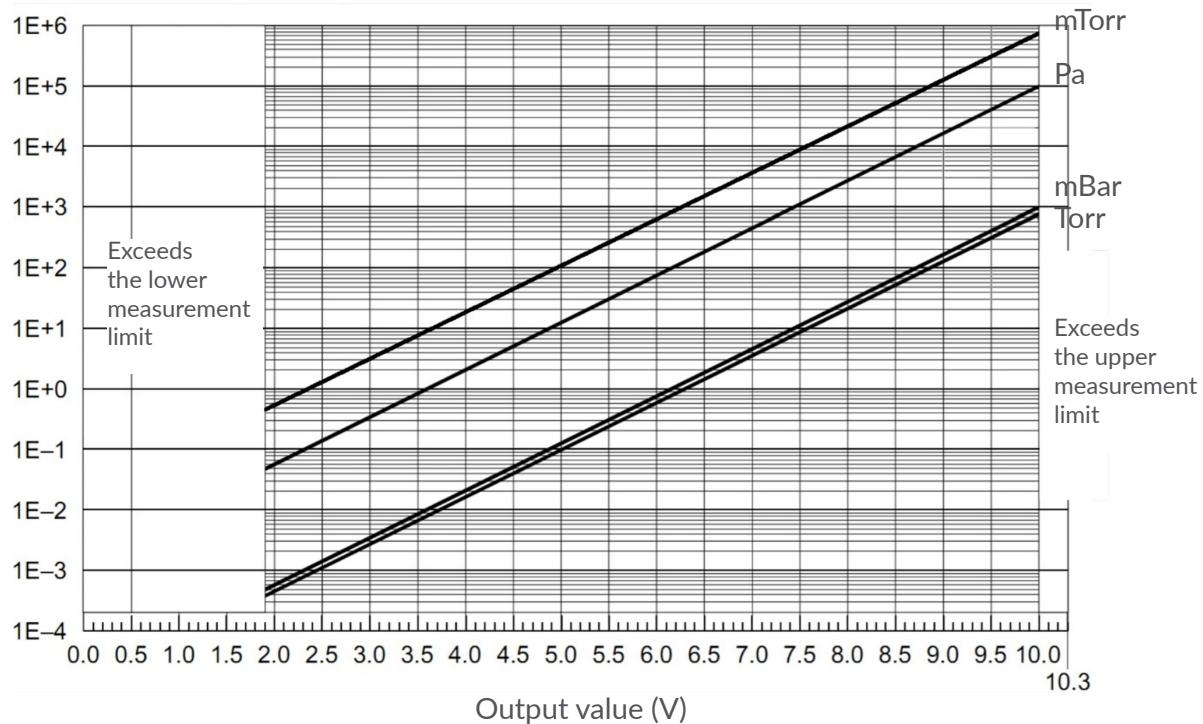
1: Calibrated for air environments, supports use in nitrogen, oxygen, and carbon monoxide environments. For other gas environments, please contact Posifa for customization.

2: To replace 3PCx-0xx-xxx0 or 3PCx-0xx-xxx1, please specify in advance when placing your order.

3: 1 Micron = 1mTorr = 0.13Pa = 1.3 x 10⁻³mbar.

OUTPUT CURVE (TYPICAL CURVE)

Vacuum Level (Pa)



CONVERSION RELATIONSHIP

PVC6816-0 (0.61~10.23V) Curve formula

$$P = 10^{\frac{U-c}{1.286}}$$

U	P	c
V	mbar	6.143
V	Torr	6.304
V	Pa	3.572

PVC6816-1 (1.2~8.68V) Curve formula

$$P = 10^{U-c}$$

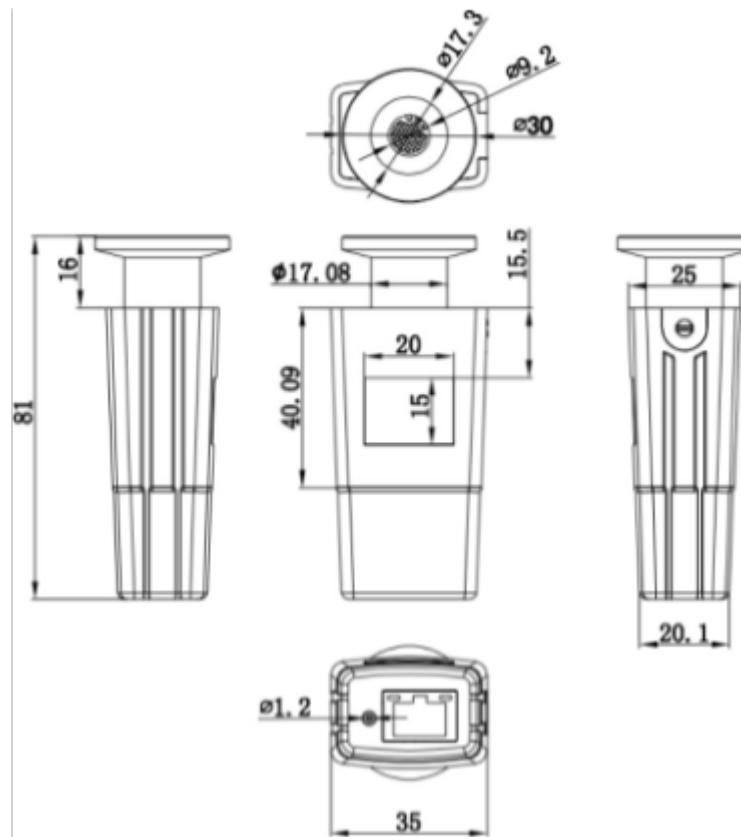
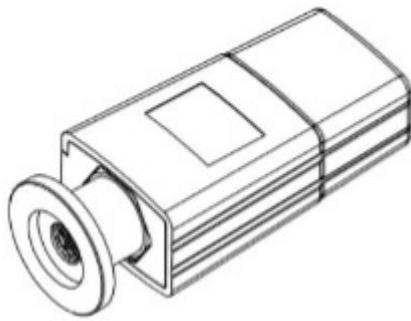
U	P	c
V	mbar	6.143
V	Torr	6.304
V	Pa	3.572

U – Voltage output

P – Different vacuum units

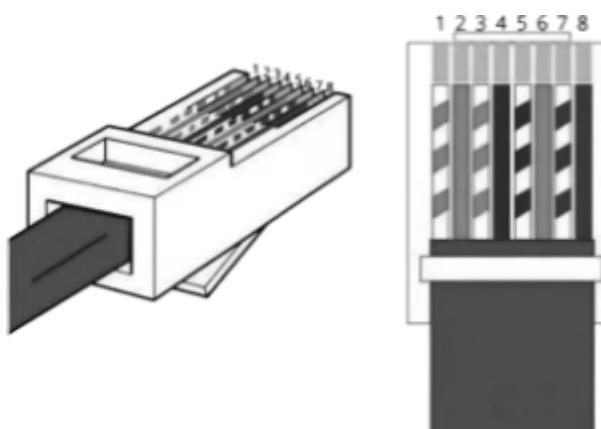
c – Constant for different vacuum units

PACKAGE DIMENSIONS



PIN DEFINITION

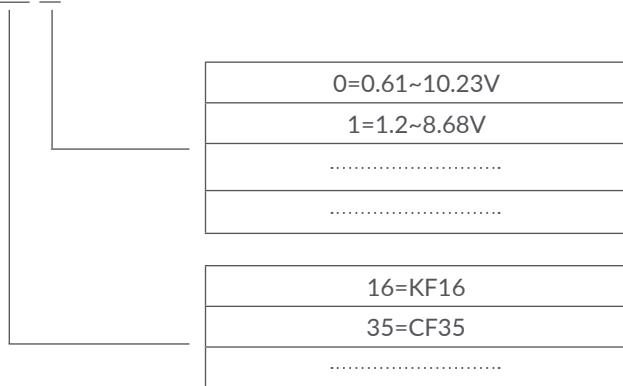
Pin1	Power supply (+) (12~30VDC)
Pin2	Power supply (-)
Pin3	Output Signal (+)
Pin4	Identification
Pin5	Output Signal (-)
Pin6	NC
Pin7	NC
Pin8	NC



ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PVC6816-0	DN 16 ISO-KF, nominal tube resistance 27 kΩ, compatible with PCG550 and TTR91
PVC6816-M	DN 16 ISO-KF, nominal tube resistance 36 kΩ, compatible with APG100-XM
PVC6816-L	DN 16 ISO-KF, nominal tube resistance 43 kΩ, compatible with APG100-XLC
PVC6816-1	DN 16 ISO-KF, nominal tube resistance 71.5 kΩ, compatible with 925 and PCG550

PVC68 XX-X



CROSS-REFERENCE GUIDE

INDUSTRY PART NUMBER	POSIFA PART NUMBER
PCG550 3PCx-0xx-xxx0	PVC6816-0
TTR 91 230035	PVC6816-0
APG100-XM NW16	PVC6816-M
APG100-XLC NW16	PVC6816-L
925	PVC6816-M
PCG550 3PCx-0xx-xxx1	PVC6816-1

NOTE:

Please contact Posifa and its distributors for more product information and datasheets.