PENNINGVAC Transmitters PTR 225 N, PTR 237 N

PENNINGVAC Transmitter PTR 225 N analog (left), PTR 225 N digital (middle), PTR 237 N analog (right)

The PENNINGVAC Transmitters are based on the cold cathode measurement principle. The compact design and broad measuring range of the PTR 225 N, makes it well suited for easy system integration and process control from medium to high vacuum pressure. Options include various serial interfaces and programmable setpoint relays, making it an ideal transmitter for control systems.

Advantages to the User

- Good performance to price ratio
- Available with up to three setpoints
- Ease of serviceability by modular design of the cold cathode
- High reproducibility and high accuracy
- Available with display for pressure units, set point parameters and operation status
- LED ring to indicate status of the sensor
- Measurement signal insensitive to mounting position
- Optional Computer interfaces: EtherCAT and RS 232

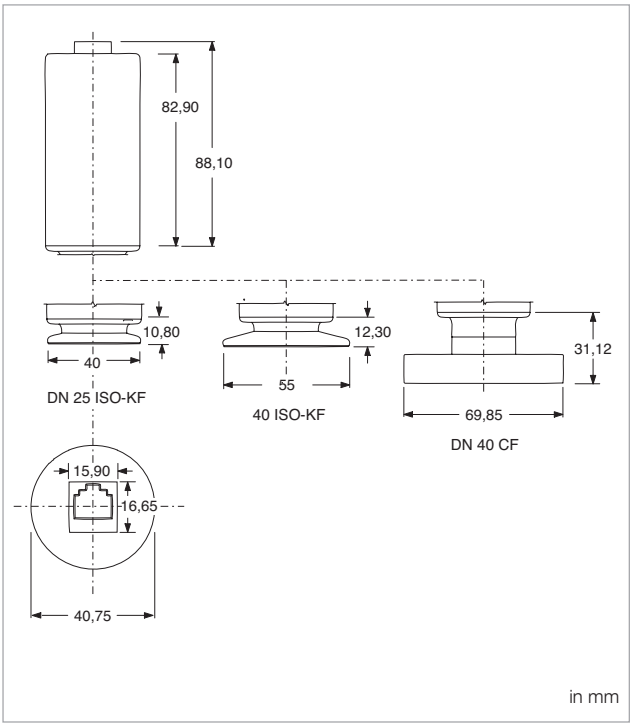
Typical Applications

- Analytical Instrumentation
- Scanning electron microscopes
- Evaporation and sputtering systems
- High vacuum systems
- Coating systems
- Vacuum furnaces
- Cryo processes
- Systems control in the medium and high vacuum range

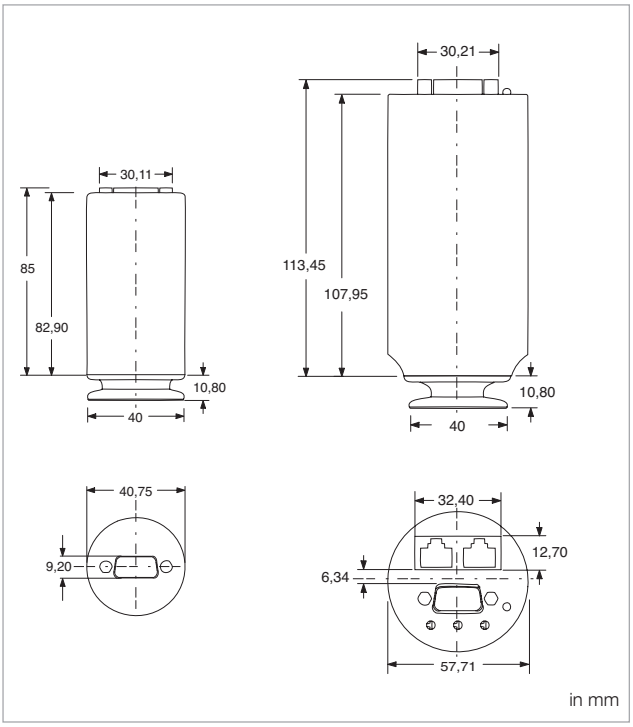
Option

For protection the PTR sensors against contamination, radiation and other disturbing factors the installation of a baffle is recommended.

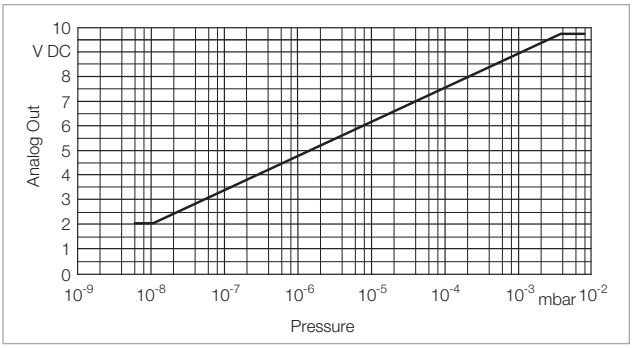
Baffle DN 25 ISO-KF, with centering ring,
Part No. 230 078



Dimensional drawing for the PENNINGVAC transmitters
PTR 225 N and PTR 237 N



Dimensional drawing for the PENNINGVAC transmitters
PTR 225 N, RS 232 (left) and PTR 225 N, EtherCAT (right)



Characteristic of the PENNINGVAC transmitters PTR 225 S/237

Technical Data

		PENNINGVAC Transmitter PTR 225 N / PTR 237 N
Measurement range	mbar (Torr)	1.0×10^{-8} to 5×10^{-3} (0.75×10^{-8} to 3.75×10^{-3}) 1.0×10^{-8} to 6.7×10^{-3} (0.75×10^{-8} to 5.0×10^{-3}) [RS 232/EtherCAT]
Measurement uncertainty of reading [1] Cold cathode	 mbar	 1×10^{-8} to 1×10^{-3} ±30 %
Repeatability of reading [1]	mbar	1×10^{-8} to 1×10^{-3} ±30 %
Sensor Measurement principle		Cold cathode Cold cathode ionization
Supply voltage	V DC	9 – 30
Power consumption	W	< 2
Electrical connection		FCC 68 / RJ 45, RS 232
Analog output Resolution Impedance Update rate	 V DC bit Ω Hz	$V_{out} = 1.33 \times \log 10 (P_{mbar}) + 12.66$ 2.0 to 9.6 16 100 16
Interfaces		FCC 68 / RJ 45
Set point Relay range Relay Relay contact rating Relay contact resistance Relay contact endurance, min. 1.0 A at 30 V DC load 0.2 A at 30 V DC load	 mbar (Torr) mΩ 	 1×10^{-8} to 5×10^{-3} (0.75×10^{-8} to 3.75×10^{-3}) 2 [RS 232] 1 A at 30 V AC / DC, resistive load 100 100 000 2 000 000
Status indicators		LED-ring (360°)
Max. cable lenght	m	100
Overpressure limit	bar	6
Operating temperature range [2]	°C (°F)	0 to 60 (32 to 140)
Storage temperature range	°C (°F)	-20 to +65 (-4 to 149)
Max. bakeout temperature (power off)	°C (°F)	85 (185)
Max. rel. humidity	% n.c.	0 – 95
Installation orientation		Any
Materials exposed to vacuum		304 stainless steel, 403 stainless steel, Ceramic (Al_2O_3), Viton®, Titanium
Dead volume (DN 25 ISO-KF), approx.	cm^3	25.6
Weight (DN 25 ISO-KF)	g	318
Protection class	IP	40
CE certification		EMC Directive 2014/30/EC
Controller type		DISPLAY ONE / TWO / THREE and GRAPHIX ONE / TWO / THREE

[1] Accuracy and repeatability are typical values measured with Nitrogen gas at ambient temperature after zero adjustment

[2] There may be minimal deviation tolerances in the range of 40 – 60 °C

Ordering Information

PENNINGVAC Transmitter PTR 225 N / PTR 237 N

	Part No.
PTR 225 N	
DN 25 ISO-KF, FCC 68 / RJ 45	**15734V02**
DN 25 ISO-KF, 3 SP, RS 232	**89642V02**
DN 25 ISO-KF, EtherCAT	**230703V02**
PTR 237 N	
DN 40 CF, FCC 68 / RJ 45	**15736V02**
Replacement cathode plate	
for PTR 90 N / PTR 225 N (up to serial no. 17022777352)	**EK16291V02**
for PTR 90 N / PTR 225 N (from serial no. 17022777353)	**EK16292V02**
Replacement anode ring	
for PTR 90 N / PTR 225 N (up to serial no. 17022777352)	**20028711V02**
for PTR 90 N / PTR 225 N (from serial no. 17022777353)	**E200287112V02**
Baffle, with centering ring (FPM (FKM))	
DN 25 ISO-KF	**230 078**
Calibration	see chapter “Miscellaneous”, para. “Leybold Calibration Service”
Operating Units	
DISPLAY TWO	**230 024**
DISPLAY THREE	**230 025**
GRAPHIX ONE	**230680V01**
GRAPHIX TWO	**230681V01**
GRAPHIX THREE	**230682V01**
Connection cable, FCC 68 on both ends [1]	**Type A**
5 m	**124 26**
10 m	**230 012**
15 m	**124 27**
20 m	**124 28**
30 m	**124 29**
50 m	**124 31**
75 m	**124 32**
100 m	**124 33**
Connection cable, RS 232 [1]	**Type G**
5 m	**230550V01**
10 m	**230551V01**
15 m	**230552V01**
20 m	**230553V01**
RS232 / USB Converter for setpoint definition of RS232 gauges	**230399V02**

[1] See chapter “Connection cables for Active Sensors”