

# THERMOVAC Transmitters

## TTR 100 / TTR 100 S2



The Pirani Capacitance Diaphragm Gauge is the first vacuum gauge which combines ceramic capacitance diaphragm and thermal conductivity technologies. Unlike standard heat transfer technology, the Oerlikon Leybold Vacuum TTR 100 offers superior accuracy and gas-type-independent readings between 100 mbar and 1500 mbar.

### Advantages to the User

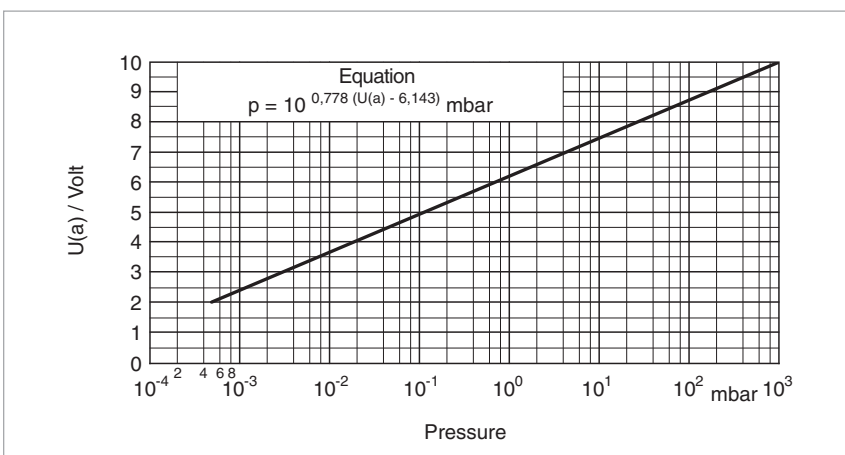
- Wide measurement range from  $5 \times 10^{-4}$  to 1500 mbar
- Gas-type-independent pressure measurement between 100 mbar and 1500 mbar
- Available with up to two integrated relays (TTR 100 S2)
- Mounts in any orientation
- 0 to 10.3 V analog output for easy system integration
- Compact design
- Flow independent
- Rapid cycling
- Follows true pressure in pump and vent

### Typical Applications

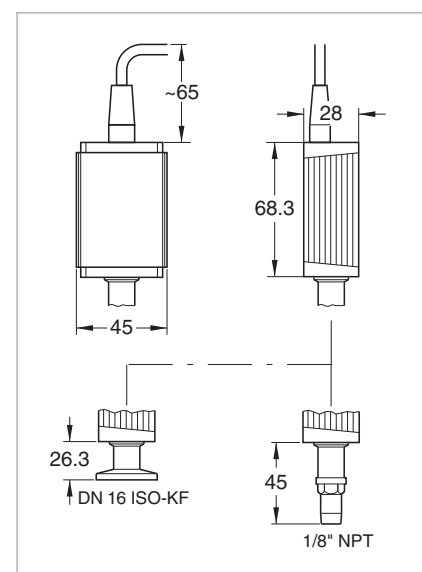
- Loadlock control
- Forevacuum pressure monitoring
- Safety circuits in vacuum systems
- General measurement and control in the medium and rough vacuum range
- Control of high vacuum ionization gauges

### Option

Dust and other particles may cause increasing measurement errors and reduced lifetime. Therefore we recommend the installation of a fine filter in critical applications. Fine filters are listed in section "General", para. "Connection Accessories for Small Flanges".



Characteristic of the THERMOVAC Transmitters



Dimensional drawing for the TTR 100

## Technical Data

## THERMOVAC Transmitter

### TTR 100 / TTR 100 S2

Measurement principle	Thermal conductance according to Pirani combined with capacitance diaphragm	
Measurement range (air, O <sub>2</sub> , CO, N <sub>2</sub> )	mbar (Torr)	5 x 10 <sup>-4</sup> to 1500 (3.8 x 10 <sup>-4</sup> to 1125)
Accuracy		
1 x 10 <sup>-3</sup> to 50 mbar		± 15% of reading
50 to 950 mbar		± 5% of reading
ATM (atmospheric pressure)		± 2.5% of reading
Repeatability		± 2% of reading
Trigger (only TTR 100 S2)		2
Setting range with potentiometer		1.5 x 10 <sup>-3</sup> to 1400 mbar
Relay contacts		N.O. / potential free
closed		at low pressure (lamp lit)
open		at high pressure or no supply (lamp off)
Hysteresis		10% of threshold
Contact rating		30 V DC / 1 A
Relay status		active: LED, green
Output signal analog		0 to 10.3 V
Measurement range		+1.9 to +10.23 V
Voltage vs. pressure		1.286 V / decade, logarithmic
Output impedance		2 x 4.7 Ohm, short circuit-proof
Minimum load impedance		10 kOhm
Response time		10 ms
Power supply		
Voltage (ripple ≤ 1 V <sub>pp</sub> )		+15 to +30 V DC
Consumption, max.		2.5 W
Fuse to be connected		1 AT (time delay)
Electrical connection		FCC-68, 8 way with shield
Cable length, max.	m	100
Materials exposed to vacuum (process media)		
Vacuum connection		stainless steel
Pirani filament		tungsten
Capacitance sensor cell		Al <sub>2</sub> O <sub>3</sub>
Feedthrough		glass
Other materials		Ni, Cu, NiFe, SnAg, AgPd
Internal volume		
DN 16 ISO-KF	cm <sup>3</sup>	6
1/8" NPT	cm <sup>3</sup>	8
Over-pressure rating, abs.	bar	5
Temperature		
Operation (ambient)	°C	+10 to +50
Storage	°C	-20 to +65
Bakeout at flange, max.	°C	+80
Filament temperature	°C	< 160
Relative humidity		< 80% at temperatures < +31 °C, decreasing to 50% at +40 °C
Mounting orientation any		any
Use		Indoors only, altitudes up to 2000 m NN
Protection class	IP	40
Weight		
DN 16 ISO-KF	kg (lbs)	0.09 (0.20)
1/8" NPT	kg (lbs)	0.09 (0.20)

## Ordering Information

## THERMOVAC Transmitter TTR 100 / TTR 100 S2

Without switching threshold TTR 100, DN 16 KF TTR 100, 1/8" NPT	<b>Part No. 230 026</b> <b>Part No. 230 028</b>
With switching threshold TTR 100 S2, DN 16 KF TTR 100 S2, 1/8" NPT	<b>Part No. 230 027</b> <b>Part No. 230 029</b>
Calibration	see section "Miscellaneous", para. "Oerlikon Leybold Vacuum Calibration Service"
Connection cable, FCC 68 on both ends, 8 way, shielded 5 m 10 m 15 m 20 m 30 m 40 m 50 m 75 m 100 m	<b>Type A</b> <b>Part No. 124 26</b> <b>Part No. 230 012</b> <b>Part No. 124 27</b> <b>Part No. 124 28</b> <b>Part No. 124 29</b> <b>Part No. 124 30</b> <b>Part No. 124 31</b> <b>Part No. 124 32</b> <b>Part No. 124 33</b>
Accessories	The installation of a spiral tube is recommended in connection with applications involving contamination (oil vapors or dusts)

### Note

- Measurement errors caused by the increased conductance of the component need to be taken into account
- Low vibration mounting must be ensured
- The sensor must be connected at the upper end