

Vacuum Gauges

Vacuum Measurement Transmitter Operating Instruments.

Technical Information 179.90.02



Display and Center Line

Transmitter Display and Operating Instruments.

Frequently additional display and operating instruments are needed for the purpose of integration within system controllers to provide the transmitters with the necessary supply voltage or to locally display the measured values.

For such applications Oerlikon Leybold Vacuum offers different instruments each designed for a specific range of applications:

- DISPLAY line
- CENTER line

These instruments supply the operating voltage and may be operated either as a benchtop instrument or within 19-in. racks.



Cost-effective, compact single channel display instrument for the transmitters of the THERMOVAC line. Indication either in mbar, Torr, Micron or Pascal.

DISPLAY ONE

- 2 digit display for the mantissa in the range from $5 \cdot 10^{-4}$ to $1 \cdot 10^3$ mbar
- 0 - 10 Volt chart recorder output accessible through plug-in screw terminals
- The switching threshold for the transmitters is looped through via connectors
- The setup values for the transmitter switching thresholds can be displayed by a single key press

Connectable sensors

- THERMOVAC
TTR 211, TTR 216 S, TTR 90,
TTR 90 S, TTR 91, TTR 91 S,
TTR 96 S

DISPLAY TWO / THREE

Multichannel operating and display instrument for the transmitters of the THERMOVAC and PENNINGVAC lines. All channels are displayed simultaneously.

- Display range from $1 \cdot 10^{-9}$ to 2000 mbar
- Adjustable switching thresholds with variable hysteresis, floating change-over contacts and visual indication of the switching status through the display
- The entry of a gas correction factor for PENNINGVAC sensors is possible
- Separate chart recorder outputs 0 to 10 V per measurement channel

Connectable sensors

- THERMOVAC
TTR 211, TTR 216 S, TTR 90,
TTR 90 S, TTR 91, TTR 91 S,
TTR 96 S, TTR 100, TTR 211S
- PENNINGVAC
PTR 90, PTR 225, PTR 237

Multipurpose single, respectively multi-channel operating instruments for active sensors from the CERA VAC, IONIVAC, THERMOVAC, and PENNINGVAC lines.

CENTER ONE CENTER TWO CENTER THREE

- Display range from $1 \cdot 10^{-10}$ to 1500 mbar
- Depending on the pressure range, automatic switching to exponential indication of the measured values
- Indication either in mbar, Torr, Micron or Pascal
- Adjustable switching threshold with variable hysteresis, floating change-over contact and visual indication of the switching status on the display
- Zero correction of the display and for the chart recorder output upon a single key press when using CERA VAC transmitters
- Possibility of entering gas type correction factors
- Separate 0 - 10 Volt chart recorder output per measurement channel
- RS 232 C interface with adjustable baud rate
- Relay output indicating malfunctions

Additional features of the Center Two and Center Three

- 0 - 10 Volt chart recorder output programmable across several measurement channels

Connectable sensors

- THERMOVAC
TTR 211, TTR 216 S, TTR 90,
TTR 90 S, TTR 91, TTR 91 S,
TTR 96 S, TTR 100
- PENNINGVAC
PTR 90, PTR 225, PTR 237
- CERA VAC
CTR 91, CTR 100
- IONIVAC
ITR 90, ITR 200

Transmitter

Precision Vacuum Measurement.

Oerlikon Leybold Vacuum transmitters for vacuum pressure measurement were specially developed for system integration and are suited for all applications where the following criteria apply:

- Direct data transfer to PLC/computer through analog interface
- Longer transmission distances between measurement location and processing station
- Several measurement location which need to be monitored constantly
- Increased requirements regarding electromagnetic compatibility (EMC)
- Simple cost and space saving installation

CERAVAC Transmitter CTR 100, CTR 91

The CERAVAC transmitters offer excellent measurement accuracy and reproducibility owing to their diaphragm made of a pure aluminium oxide ceramic material.

These transmitters are suited for multi-purpose pressure measurements in the medium and rough vacuum range even for corrosive process gases.

Measurement principle

- Ceramic capacitance gauge

Measurement/Display range

- 1 Torr / $1 \cdot 10^{-4}$ - 1 Torr
- 10 Torr / $1 \cdot 10^{-3}$ - 10 Torr
- 100 Torr / 0.01 - 100 Torr
- 1000 Torr / 0.1 - 1000 Torr

IONIVAC Transmitter ITR 90, ITR 200

The IONIVAC ITR 90 permits – as a combined hot cathode ionization sensor with a Pirani sensor – vacuum measurements of non-ignitable gases and gas mixtures within a wide measurement range.

If required, the dual cathode ITR 200 is available with an integrated display, ProfiBus or DeviceNet.



PTR 225, TTR 91, CTR 91, ITR 200, CTR 100, PTR 90 (from the left)

Measurement principle

- Hot cathode Bayard-Alpert ionization vacuum gauge combined with a Pirani thermal conductivity gauge

Measurement/Display range

- $5 \cdot 10^{-10}$ bis 1000 mbar

THERMOVAC Transmitter TTR 91/91 S, TTR 96 S

Operation of the THERMOVAC transmitters is based on the Pirani thermal conductivity principle.

The THERMOVAC TTR 91 S and TTR 96 S are equipped with an integrated relay.

Measurement principle

- Thermal conductivity after Pirani

Measurement/Display range

- $5 \cdot 10^{-4}$ to 1000 mbar

TTR 100/100 S2

As a combined Pirani/capacitive vacuum sensor, the THERMOVAC TTR 100 offers superior gas type independent accuracy and pressure measurement in the range of 100-1500 mbar.

The TTR 100 S2 is equipped with two integrated relays.

Measurement principle

- Pirani thermal conductivity combined with capacitive pressure measurement

Measurement/Display range

- $5 \cdot 10^{-4}$ to 1500 mbar

PENNINGVAC Transmitter PTR 225/225 S, PTR 237

The PENNINGVAC transmitters are equipped with a rugged cold cathode sensor for integration within programmable systems. They offer high reproducibility combined with a low contamination tendency even during argon operation.

Measurement principle

- Penning cold cathode ionization

Measurement/Display range

- $1 \cdot 10^{-9}$ to $1 \cdot 10^{-2}$ mbar

PTR 90

The PENNINGVAC PTR 90 sensor combines the cold cathode ionization principle with the Pirani principle. The PTR 90 can be operated with the new generation of Oerlikon Leybold Vacuum display and measuring instruments. Older units will possibly require a software modification. Please contact us.

Measurement principle

- Cold cathode inverted magnetron method combined with thermal conductivity after Pirani

Measurement/Display range

- $5 \cdot 10^{-9}$ to 1000 mbar

Display and Operating Units.

IM 540

Precise UHV measurement



The 3-channel display and operating unit IONIVAC IM 540 offers, by combination of up to 4 different principles of measurement – Pirani, capacitive, Bayard-Alpert and Extractor–, complete coverage and control of the vacuum pressure in the range between 10^{-12} mbar and atmospheric pressure.

Connectable sensors

- Bayard-Alpert sensor IE 414
- Extractor sensor IE 514 in combination with THERMOVAC TTR 211, TTR 216 S, TTR 90, TTR 91 and TTR 96 S CERAVAC CTR 90, CTR 91 and CTR 100

Display and Operating Instruments

for active sensors of the lines

	CTR	ITR	TTR	PTR
Single, resp. multichannel display and operating instruments				
DISPLAY ONE	–	–	✓	–
DISPLAY TWO	–	–	✓	✓
DISPLAY THREE	–	–	✓	✓
CENTER ONE	✓	✓	✓	✓
CENTER TWO	✓	✓	✓	✓
CENTER THREE	✓	✓	✓	✓
IM 540	✓	–	✓	–

Types of Connection Cables

Display and Operating Instrument	DISPLAY ONE	DISPLAY TWO DISPLAY THREE	CENTER ONE CENTER TWO CENTER THREE	IM 540
THERMOVAC transmitter	Type A	Type A	Type A	Type A
PENNINGVAC transmitter	—	Type A	Type A	—
CERAVAC transmitter	—	—	Type B	Type B
IONIVAC transmitter	—	—	Type C	—

Type A: BBoth ends FCC 68 (RJ45), 8-way shielded

Type B: Sub-D 15-way female to FCC 68 (RJ45), 8-way shielded

Type C: Sub-D 15-way female to Sub-D 15-way male, shielded

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