IONIVAC Transmitter ITR 90

The ITR 90 is a optimized combination transmitter. The combination of a hot cathode ionisation sensor according to Bayard-Alpert and a Pirani sensor permits vacuum pressure measurements of nonignitable gases and gas mixtures in the pressure range from 5 x 10^{-10} to 1000 mbar.

The ITR 90 can be ordered with integrated display or Profibus interface.

Advantages to the User

- Continuous pressure measurements from 10^{-10} mbar to atmospheric pressure
- High degree of reproducibility within the typical range for process pressures of 10^{-2} to 10^{-8} mbar
- Controlled switching on and off sequencing through the integrated double Pirani optimized the service life of the yttrium coated iridium cathodes
- Compact design
- Enclosed, rugged electrode geometry in a rugged metal housing
- Efficient degassing by electron bombardment
- Simple fitting of the sensor
- Extension for higher bake out temperatures during the measurements
- One signal covering 13 decades
- One flange joint for 13 decade
- ITR 90 model with built-in display for stand-alone operation without additional display components
- RS 232 C interface

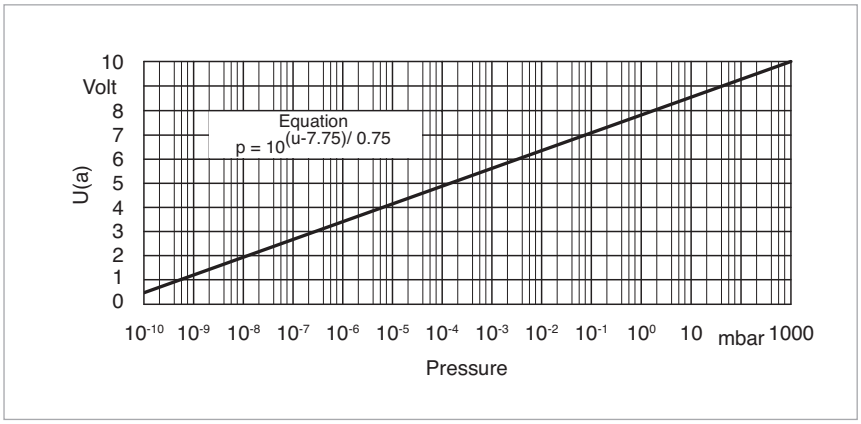
Typical Applications

- Analytical
- Evaporation and coating
- Vacuum furnaces
- General purpose pressure measurements in the fine and high vacuum ranges

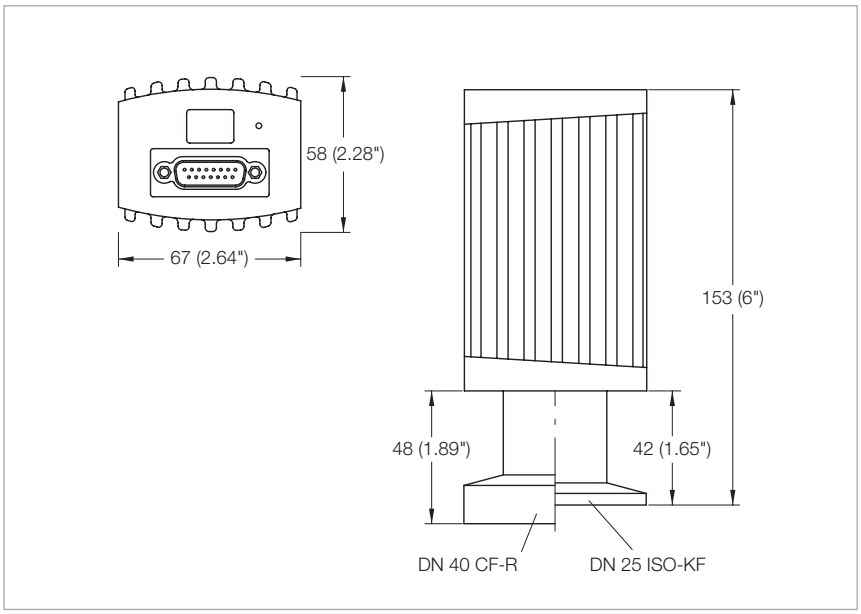
Sensor

The sensor of the ITR 90 contains a dual filament Pirani system as well as a Bayard-Alpert measurement system.

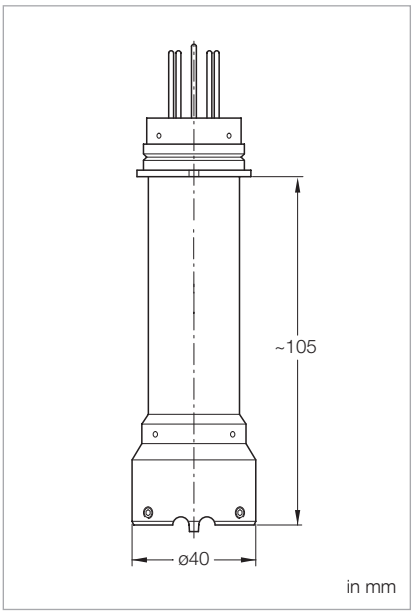
When using the bake out extension, measurements will be possible also at flange temperatures up to 150 °C.



Characteristic of the ITR 90



Dimensional drawing for the ITR 90; dimensions in mm, in brackets ( ) are in inch
(Image with integrated display; Profibus interface differing)



Dimensional drawing for the bake out extension

Technical Data

IONIVAC-Transmitter

ITR 90

Measurement range mbar (Torr)	5 x 10^{-10} to 1000 (3.75 x 10^{-10} to 750)
Measurement uncertainty, 10^{-1} – 1000 mbar **Measurement uncertainty, 10^{-8} – 10^{-2} mbar** **Reproducibility, 10^{-8} – 10^{-2} mbar**	≥ 15% of the meas. value 15% of the meas. value 5% of the meas. value
Principles of measurement	Hot cathode ionization according to Bayard-Alpert combined with thermal conductivity according to Pirani
Degas	Electron bombardment 3 minutes, max.
Supply voltage	20 to 28 V DC, typ. 24 V DC16
Power consumption, max. W	16
Storage / nominal temperature range °C	-20 to +70 / 0 to +50
Protection class	IP 30
Weight, approx. **ITR 90, DN 25 ISO-KF kg (lbs)** **ITR 90, DN 40 CF kg (lbs)**	 0.285 (0.64) 0.550 (1.24)
Sensor	Fully sealed, exchangeable
Degassing temperature, max. °C	150 [1]
Dead volume, approx. cm^3	24 at DN 25 ISO-KF 34 at DN 40 CF
Materials in contact with the medium	Cu, W, Glass, NiFe, Mo, Stainless steel, Aluminum, Iridium, Yttrium, NiCr
Overpressure rating (abs.) bar	2
Signal output (R_a ≥ 10 kΩ) **Measurement signal** **Error signal**	 0 – 10 V, 0.774 – 10 V, 0.75 V pro decade < 0,5 V
Interface (standard / optional)	RS 232 C / ProfiBus
Electrical connection	15-way Sub-D male connector / pin contacts
Cable length, max. m	100 / 30 at RS 232 C

[1] Flange temperature when using the bake out extension

Ordering Information

IONIVAC-Transmitter ITR 90

	without Display	with Display
	Part No.	**Part No.**
ITR 90, DN 25 ISO-KF	**120 90**	**120 91**
ITR 90, DN 25 ISO-KF, Profibus interface	**230 030**	**–**
ITR 90, DN 40 CF-R, rotatable CF flange	**120 92**	**120 94**
ITR 90, DN 40 CF-R, rotatable CF flange Profibus interface	**230 031**	**–**
Power supply for IONIVAC transmitter 100 – 240 V AC / 24 V DC incl. 5 m connection cable and 5 m RS 232 C cable	**121 06**	**121 06**
Bake out extension (100 mm, approx.)	**127 06**	**127 06**
Baffle, DN 25 ISO-KF, with Installation baffle for CF/ISO-KF variant	**121 07**	**121 07**
Replacement sensor		
IE 90, DN 25 ISO-KF [1]	**E 121 02**	**E 121 02**
IE 90, DN 40 CF-R [1]	**E 121 03**	**E 121 03**
Calibration	see chapter “Miscellaneous”, para. “Leybold Calibration Service”	see chapter “Miscellaneous”, para. “Leybold Calibration Service”
Connection cable	see chapter “Products”, para. “Connection Cable for Active Sensors”	see chapter “Products”, para. “Connection Cable for Active Sensors”

[1] Including hex. socket screw key