

IONIVAC Transmitter ITR 90



The ITR 90 is an 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 5×10^{-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

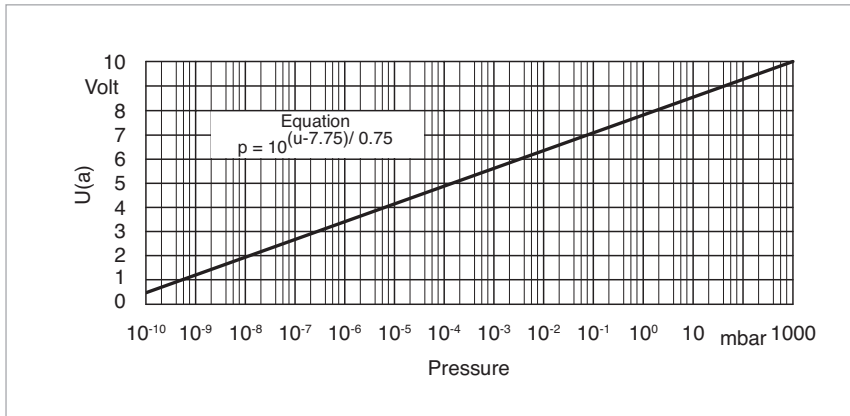
Typical Applications

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

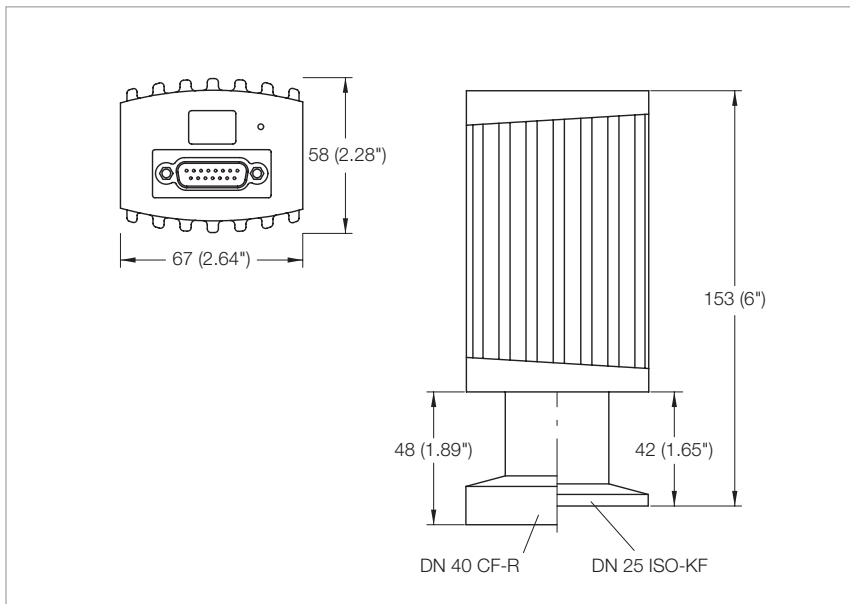
Sensor

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

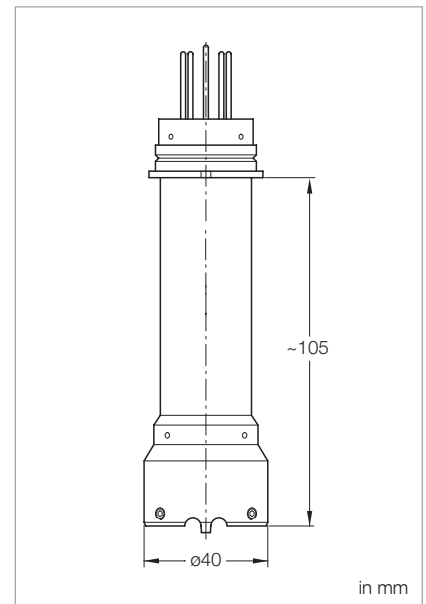
When using the bake out extension, measurements will be possible also at flange temperatures up to 150 °C.



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		≥ 15% of the meas. value
Measurement uncertainty, 10 ⁻⁸ – 10 ⁻² mbar		15% of the meas. value
Reproducibility, 10 ⁻⁸ – 10 ⁻² mbar		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)	0.285 (0.64)
ITR 90, DN 40 CF	kg (lbs)	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 _s ≥ 10 kΩ)		
Measurement signal		0 – 10 V, 0.774 – 10 V, 0.75 V pro decade
Error signal		< 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

IONIVAC Transmitter ITR 200 S



The ITR 200 S is an optimized dual cathode combination transmitter on the basis of the well proven ITR 90. The combination of a hot cathode ionization sensor according to Bayard-Alpert and a Pirani sensor allows vacuum pressure measurements of non-ignitable gases and gas mixtures in the pressure range from 5×10^{-10} to 1000 mbar.

Upon request, the pressure can be displayed on an integrated display.

Advantages to the User

- Service life increase and increased operational reliability through integration of a second hot cathode
- Full coverage of the pressure range from 5×10^{-10} mbar to atmospheric pressure
- High repeatability within the typical process pressure range of 10^{-2} to 10^{-8} mbar
- Controlled switching on and switching off through the integrated dual Pirani optimized the service life of the yttrium-coated iridium cathodes
- Compact design
- Enclosed, stable electrode geometry in rugged metal casing
- Efficient degassing through electron bombardment
- Simple to install
- ITR 200 S version with built-in display allows for stand-alone operation without the necessity for additional displays
- RS 232 C interface

Typical Applications

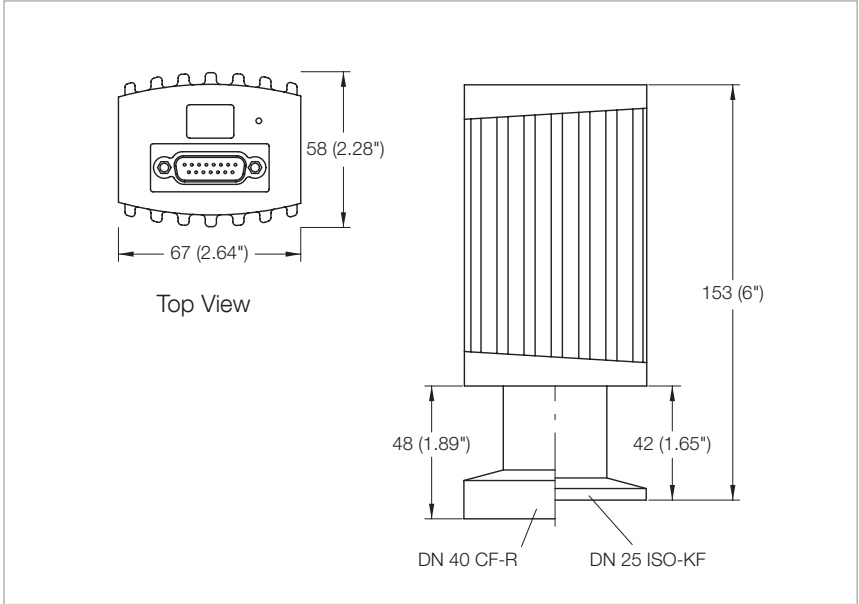
- Analytical engineering
- Sputtering and coating technology
- Vacuum furnaces
- Multipurpose pressure measurement in the medium and high vacuum range

Options

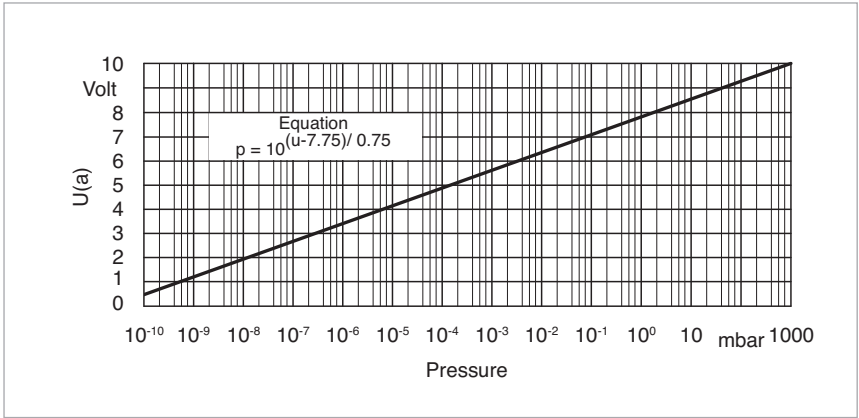
Upon request, the ITR 200 S can be supplied with an integrated display or a Profibus interface.

Sensor

The sensor of the ITR 200 S includes besides the Pirani system a dual cathode measurement system according to Bayard-Alpert. If one of the hot cathodes should burn out during operation, then the second cathode is automatically switched on. Moreover, each sensor contains a memory chip with the relevant system data. Thus after having exchanged a sensor, an automatic alignment is performed between sensor and operating electronics (plug and play).



Dimensional drawing for the ITR 200 S; dimensions in mm, in brackets () are in inch
 (Image with integrated display; Profibus interface differing)



Characteristic of the ITR 200 S

Technical Data

IONIVAC-Transmitter

ITR 200 S

Measurement range	mbar (Torr)	5 x 10 ⁻¹⁰ to 1000 (3.75 x 10 ⁻¹⁰ to 750)
Measurement uncertainty, 10 ⁻¹ – 1000 mbar		≥ 15% of the meas. value
Measurement uncertainty, 10 ⁻⁸ – 10 ⁻² mbar		15% of the meas. value
Reproducibility, 10 ⁻⁸ – 10 ⁻² mbar		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 DC
Power consumption, max.	W	20
Storage / nominal temperature range	°C	-20 to +70 / 0 to +50
Protection class		IP 30
Weight, approx.		
ITR 200 S, DN 25 ISO-KF	kg (lbs)	0.50 (1.10)
ITR 200 S, DN 40 CF	kg (lbs)	0.75 (1.65)
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, Iridium, Yttrium, NiCr
Overpressure rating (abs.)	bar	2
Signal output (R _a ≥ 10 kΩ)		
Measurement signal		0 – 10 V, 0.774 – 10 V, 0.75 V pro decade
Error signal		< 0,5 V
Interface (standard / optional)		RS 232 C / Profibus
Switching function		
Standard		1 normally open contact
Profibus		2 normally open contacts
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 200 S without Display with Display

	Part No.	Kat.-Nr
ITR 200 S, DN 25 ISO-KF 1 switching function	230 250	230 251
ITR 200 SP, DN 25 ISO-KF, Profibus interface, 2 switching functions	230 252	-
ITR 200 S, DN 40 CF-R, rotatable CF flange 1 switching function	230 254	230 255
ITR 200 SP, DN 40 CF-R, rotatable CF flange Profibus interface, 2 switching functions	230 256	-
Options		
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
Baffle, DN 25 ISO-KF, with Installation baffle for CF/ISO-KF variant	121 07	121 07
Replacement sensor		
IE 200, DN 25 ISO-KF ²⁾	240 020	240 020
IE 200, DN 40 CF-R ²⁾	240 021	240 021
IE 200 SL ¹⁾ , DN 40 CF-R ²⁾	-	240 022
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⁾ SL = long version (bake out version)		
²⁾ Including hex. socket screw key		