

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

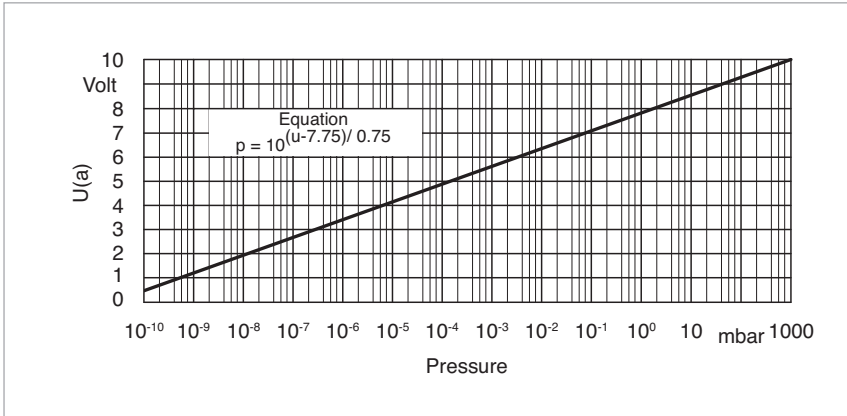
Typical Applications

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

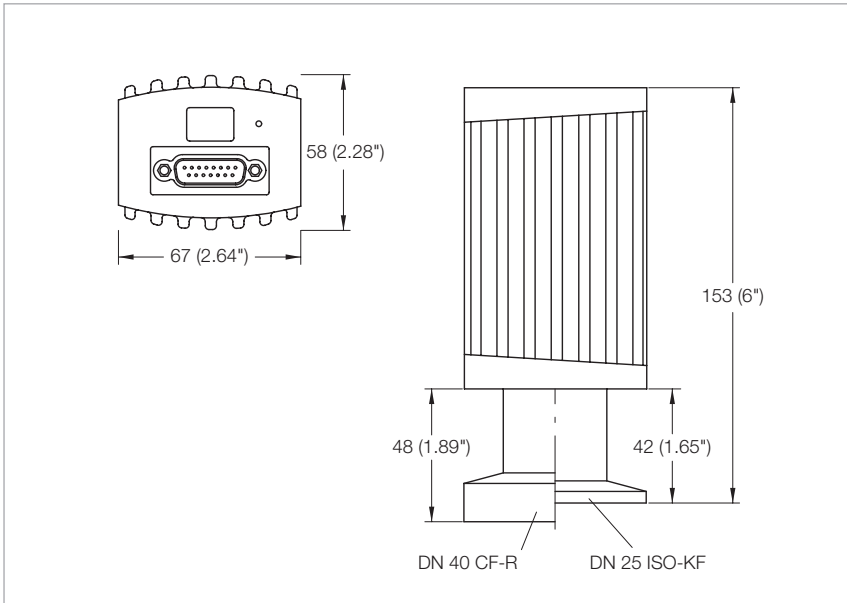
Sensor

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

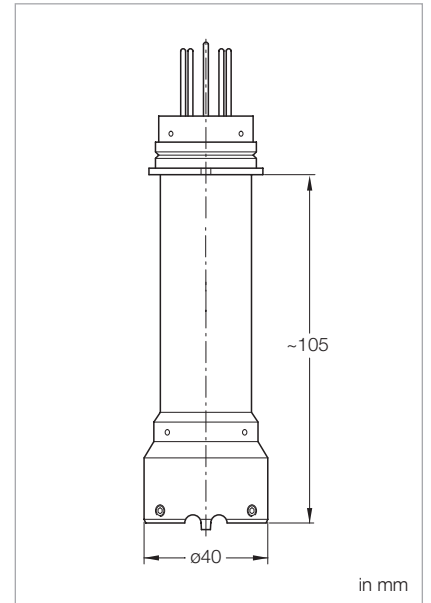
When using the bake out extension, measurements will be possible also at flange temperatures up to 150 °C.



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	V DC	20 to 28 V DC, typ. 24 V DC
Power consumption, max.	W	16
Storage / nominal temperature range	°C	-20 bis +70 / 0 bis +50
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⁾
Materials in contact with the medium		Cu, W, Glass, NiFe, Mo, Stainless steel, Aluminum, Iridium, Yttrium, NiCr
Dead volume, approx.	cm ³	24 at DN 25 ISO-KF 34 at DN 40 CF
Overpressure rating (abs.)	bar	2
Signal output (R _a ≥ 10 kΩ)		
Measurement signal		0 bis 10 V; 0.774 to 10 V; 0.75 V decade
Error signal		< 0.5 V
Protection class	IP	30
Interface (standard / optional)		RS 232 C / Profibus
Electrical connection		15-way Sub-D male connector / pin contacts
Cable length, max.	m	100 / 30 bei 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	-
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
Bake out extension (100 mm, approx.)		127 06
Baffle, DN 25 ISO-KF, with Installation baffle for CF/ISO-KF varian		121 07
Replacement sensor		
IE 90, DN 25 ISO-KF ¹⁾		E 121 02
IE 90, DN 40 CF-R ¹⁾		E 121 03
Calibration	see chapter "Miscellaneous", para. "Leybold Calibration Service"	
Connection cable	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

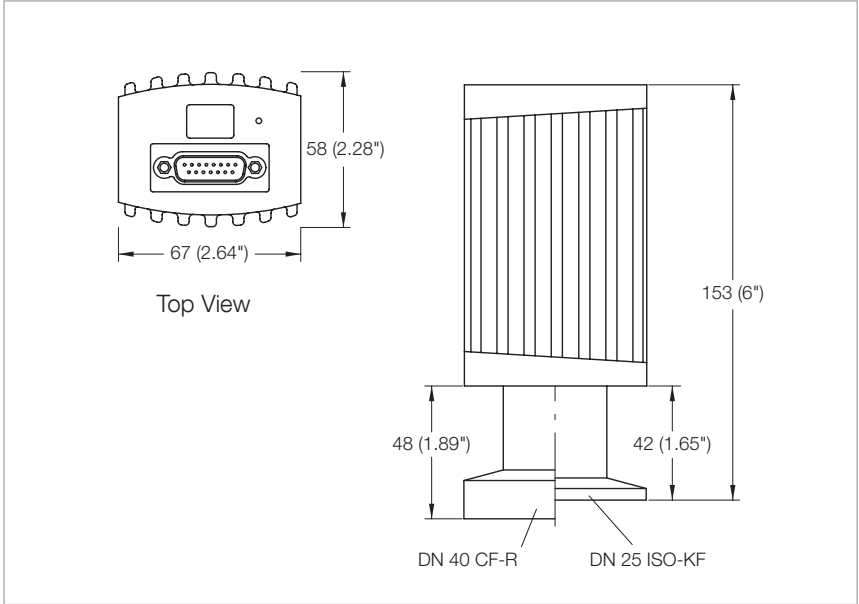
- Analytical engineering
- Sputtering and coating technology
- Vacuum furnaces
- Multipurpose pressure measurement in the medium and high vacuum range

Options

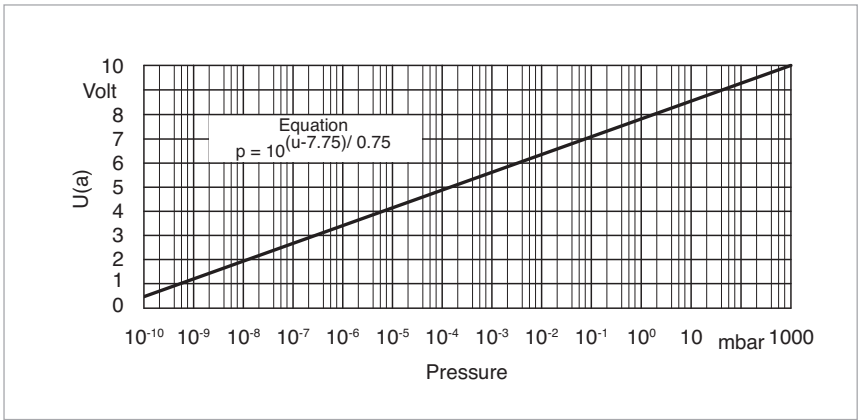
Upon request, the ITR 200 S can be supplied with an integrated display or a Profibus interface.

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	V DC	20 to 28 V DC, typ. 24 V DC
Power consumption, max.	W	20
Storage / nominal temperature range	°C	-20 bis +70 / 0 bis +50
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⁾
Materials in contact with the medium		Cu, W, Glass, NiFe, Mo, Stainless steel, Aluminum, Iridium, Yttrium, NiCr
Dead volume, approx.	cm ³	24 at DN 25 ISO-KF 34 at DN 40 CF
Overpressure rating (abs.)	bar	2
Signal output (R _a ≥ 10 kΩ)		
Measurement signal		0 bis 10 V; 0.774 to 10 V; 0.75 V decade
Error signal		< 0.5 V
Protection class	IP	30
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 bei 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.	Part No.
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
Baffle, DN 25 ISO-KF, with Installation baffle for CF/ISO-KF varian		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"	
Connection cable	see chapter "Products", para. "Connection Cable for Active Sensors"	

¹⁾ SL = long version (bake out version)

²⁾ Including hex. socket screw key