

Measurement equipment

Vacuum gauges for all vacuum areas and applications



Contents

Measurement equipment	
Introduction	8
Overview of series and applications	9
Features at a glance	10
DigiLine	14
Piezo resistive transmitter CPT	16
Piezo/Pirani transmitter RPT	18
Pirani transmitter PPT	20
Pirani/cold catheter transmitter MPT	22
Pirani/Bayard Alpert transmitter HPT	24
Controller DPG	28
ActiveLine	30
Piezo transmitter APR	32
Capacitive transmitter CMR, temperature compensated, hPa	36
Capacitive transmitter CMR, temperature regulated, hPa	38
Capacitive transmitter CCR, temperature compensated, Torr	40
Capacitive transmitter CCR, temperature regulated, Torr	42
Pirani/capacitive transmitter PCR	44
Pirani transmitter TPR	46
Cold cathode transmitter IKR	50
Pirani/cold catheter transmitter PKR	54
Hot cathode transmitter IMR	56
Pirani/Bayard Alpert transmitter PBR	58
SingleGauge measuring equipment	60
DualGauge measuring equipment	61
Pirani and Pirani/Piezo hand measuring equipment TPG	62
Controllers TPG	64
Software for ActiveLine	67
ModulLine	68
Pirani vacuum gauges TPR	70
Cold cathode vacuum gauges IKR	72
Vacuum gauge accessories	74
Measurement boards	76
Interface and relay board	79
TPG 300 basic unit	80
TPG 300 complete measurement units	82





Measurement equipment

Vacuum gauges for all vacuum areas and applications

Many vacuum applications operate only in a specific pressure range. Analog and digital total vacuum or pressure measurement instruments are used to measure and control the total pressure in a vacuum system. Pfeiffer Vacuum offers three different lines of total pressure gauges.

The criteria for selecting a vacuum gauge are based upon various conditions:

- The pressure range to be detected
- Gas composition (inert or corrosive)
- Required accuracy and repeatability
- Ambient conditions such as ionizing radiation

Each series separately covers the entire pressure range. Pfeiffer Vacuum provides you with the best solution for your total pressure measurement tasks based on the relevant application.

DigiLine

- Total pressure vacuum gauge with digital signal outlet

ActiveLine

- Total pressure vacuum gauge with analog signal outlet

ModulLine

- Total pressure measurement in areas with ionizing radiation



■ = recommended



Features at a glance

	Vacuum hPa	Pressure range																Page
		Ultra-high				High				Medium			Rough					
		10 ⁻¹¹	10 ⁻¹⁰	10 ⁻⁹	10 ⁻⁸	10 ⁻⁷	10 ⁻⁶	10 ⁻⁵	10 ⁻⁴	10 ⁻³	10 ⁻²	10 ⁻¹	10 ⁰	10 ¹	10 ²	10 ³	10 ⁴	
Gauges	Model																	
DigiLine																		
Piezo resistive transmitter	CPT 200																	16
Piezo/Pirani transmitter RP	RPT 200																	18
Pirani transmitter	PPT 200																	20
Pirani/Cold cathode transmitter	MPT 200																	22
Pirani/Bayard Alpert transmitter	HPT 200																	24
ActiveLine																		
Piezo transmitter	APR 250																	32
	APR 260																	32
	APR 262																	32
	APR 265																	32
	APR 266																	32
	APR 267																	32
Capacitive transmitter Temperature compensated	CMR 361																	36
	CMR 362																	36
	CMR 363																	36
	CMR 364																	36
	CMR 365																	36
Capacitive transmitter Temperature controlled	CMR 371																	38
	CMR 372																	38
	CMR 373																	38
	CMR 374																	38
	CMR 375																	38
Pirani/Capacitive transmitter	PCR 280																	44
Pirani transmitter	TPR 280																	46
	TPR 281																	48
Cold cathode transmitter	IKR 251																	50
	IKR 261																	50
	IKR 270																	52
Pirani/Cold cathode transmitter	PKR 251																	54
	PKR 261																	54
Hot cathode transmitter	IMR 265																	56
Pirani/Bayard Alpert transmitter	PBR 260																	58
ModulLine																		
Pirani vacuum gauge	TPR 010																	70
	TPR 017																	70
	TPR 018																	70
Cold cathode transmitter	IKR 050																	72
	IKR 060																	72
	IKR 070																	72

Depending on the measuring principle the measurement precision will decline at the area limits.





Customer benefits

- Easy integration
- Flexible use
- Low installation effort
- Secure data transmission
- Proven long life





Innovative vacuum measurement for the digital age



DigiLine

The DigiLine series is designed for industrial and research applications that need wiring that is easy to install and reliable. The series covers the entire technically relevant vacuum range with measuring principles encompassing Piezo, Pirani, and hot and cold cathode vacuum gauges. All transmitters have an RS-485 interface which can be used to connect up to 16 measuring points to a controller. An additional voltage outlet that is proportional to the pressure and two switch-points as well as Profibus and DeviceNet interfaces are available as options. Protection class IP 54 and DIN M12 connector assemblies qualify these vacuum gauges for usage in heavy-duty environments.

Customer benefits

- Pressure range $5 \cdot 10^{-10}$ to 2,000 hPa covers the entire vacuum range.
- Digital outlet signal for error-free data transmission
- Transmission of numerical pressure values saves characteristics and recalculations
- Protection class IP 54 and DIN M12 connector assemblies for reliable operation in heavy-duty environments.
- Remote control for easy adjustment.
- Optional Profibus and DeviceNet fieldbus interfaces meeting industrial standards

Typical applications

- Hard disk coating
- PVD coating
- Solar cell production
- Space simulation
- Vacuum drying / Heat treatment
- Electron beam welding
- Surface coating
- Fusion technology



Space simulation



Vacuum drying



Solar cell production

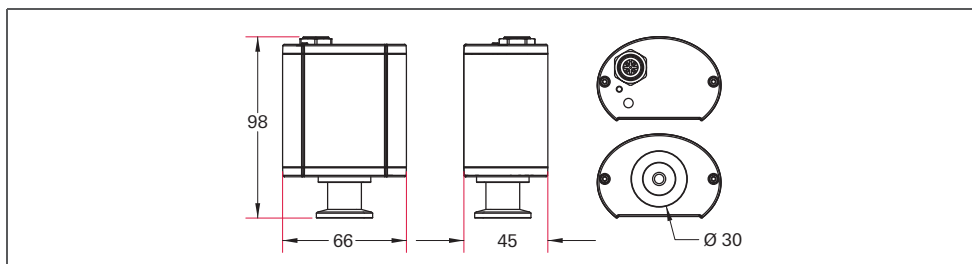


Piezo-resistive Gauge CPT 200 (1 – 2000 hPa)



- 1 to 2000 hPa
- Robust sensor
- Gas type independent measurement
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



Technical data	CPT 200, DN 16 ISO-KF, RS-485	CPT 200, DN 16 ISO-KF, RS-485, analog	CPT 200, DN 16 ISO-KF, RS-485, Profibus	CPT 200, DN 16 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Seal	FPM	FPM	FPM	FPM
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Full scale	2000	2000	2000	2000
Accuracy	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.
Weight	190 g	190 g	190 g	190 g
Materials in contact with media	Ceramic, stainless steel, FPM	Ceramic, stainless steel, FPM	Ceramic, stainless steel, FPM	Ceramic, stainless steel, FPM
Measurement range max.	2000 hPa	2000 hPa	2000 hPa	2000 hPa
Measurement range min.	1 hPa	1 hPa	1 hPa	1 hPa
Sensor cable length max.	1000 m	100 m	100 m	100 m
Method of measurement	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 ; M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	70 °C	70 °C	70 °C	70 °C
Temperature: Operating	5-60 °C	5-60 °C	5-60 °C	5-60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	1.5 W	2.2 W	3.0 W	2.0 W

Order number				
CPT 200, DN 16 ISO-KF	PT R36 130	PT R36 131	PT R36 132	PT R36 133

Accessories				
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T
Fine filter, pore size 4 µm, DN 16 ISO-KF	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T

Further accessories see controller DPG 202

Technical data	CPT 200, G 1/4", RS-485	CPT 200, G 1/4", RS-485, analog	CPT 200, G 1/4", RS-485, Profibus	CPT 200, G 1/4", RS-485, DeviceNet
Flange (in)	G 1/4"	G 1/4"	G 1/4"	G 1/4"
Seal	FPM	FPM	FPM	FPM
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Full scale	2000	2000	2000	2000
Accuracy	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.	1-1200 hPa: ± 0.1 % F.S.; >1200 hPa: ± 1 % F.S.
Weight	190 g	190 g	190 g	190 g
Materials in contact with media	Ceramic, stainless steel, FPM		Ceramic, stainless steel, FPM	Ceramic, stainless steel, FPM
Measurement range max.	2000 hPa		2000 hPa	2000 hPa
Measurement range min.	1 hPa		1 hPa	1 hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)	Diaphragm, piezoresistive (gas type independent)
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 ; M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	70 °C	70 °C	70 °C	70 °C
Temperature: Operating	5-60 °C	5-60 °C	5-60 °C	5-60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	1.5 W	2.2 W	3.0 W	2.0 W

Order number				
CPT 200 , G 1/4"	PT R36 210	PT R36 211	PT R36 212	PT R36 213

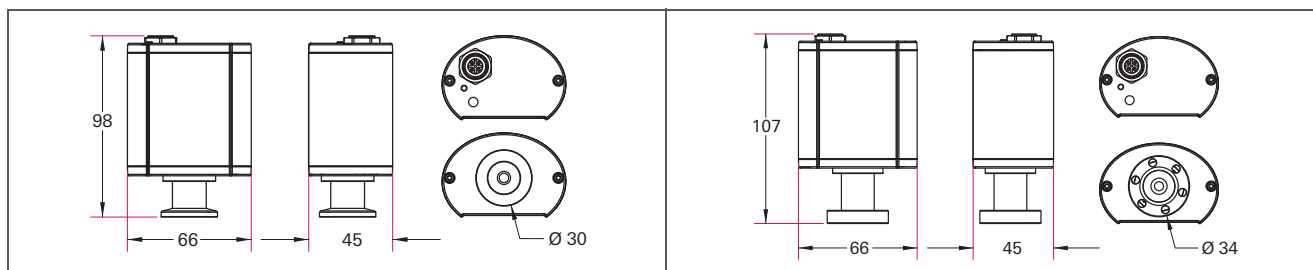
Further accessories see controller DPG 202



Piezo/Pirani Gauge RPT 200 ($1 \cdot 10^{-4}$ – 1200 hPa)

- $1 \cdot 10^{-4}$ to 1200 hPa
- Combination of two sensors
- High accuracy up to atmospheric pressure
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



RPT 200, DN 16 ISO-KF

RPT 200, DN 16 CF-F

Technical data	RPT 200, DN 16 ISO-KF, RS-485	RPT 200, DN 16 ISO-KF, RS-485, analog	RPT 200, DN 16 ISO-KF, RS-485, Profibus	RPT 200, DN 16 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Full scale	1200	1200	1200	1200
Accuracy	$< 2 \cdot 10^{-3}$ factor 2; $2 \cdot 10^{-3}$ - 10 hPa: $\pm 10\%$; 10-1200 hPa: $\pm 0.3\%$ F.S.	$< 2 \cdot 10^{-3}$ factor 2; $2 \cdot 10^{-3}$ - 10 hPa: $\pm 10\%$; 10-1200 hPa: $\pm 0.3\%$ F.S.	$< 2 \cdot 10^{-3}$ factor 2; $2 \cdot 10^{-3}$ - 10 hPa: $\pm 10\%$; 10-1200 hPa: $\pm 0.3\%$ F.S.	$< 2 \cdot 10^{-3}$ factor 2; $2 \cdot 10^{-3}$ - 10 hPa: $\pm 10\%$; 10-1200 hPa: $\pm 0.3\%$ F.S.
Weight	195 g	195 g	195 g	195 g
Materials in contact with media	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass
Measurement range max.	1200 hPa	1200 hPa	1200 hPa	1200 hPa
Measurement range min.	$1 \cdot 10^{-4}$ hPa	$1 \cdot 10^{-4}$ hPa	$1 \cdot 10^{-4}$ hPa	$1 \cdot 10^{-4}$ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Piezo/Pirani	Piezo/Pirani	Piezo/Pirani	Piezo/Pirani
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 ; M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	125 °C	125 °C	125 °C	125 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	2.5 W	3.2 W	4.0 W	2.9 W
Repeatability: % of measurement	10-1200 hPa: $\pm 0.1\%$ F.S.; $1 \cdot 10^{-3}$ - 1 hPa: $\pm 1\%$	10-1200 hPa: $\pm 0.1\%$ F.S.; $1 \cdot 10^{-3}$ - 1 hPa: $\pm 1\%$	10-1200 hPa: $\pm 0.1\%$ F.S.; $1 \cdot 10^{-3}$ - 1 hPa: $\pm 1\%$	10-1200 hPa: $\pm 0.1\%$ F.S.; $1 \cdot 10^{-3}$ - 1 hPa: $\pm 1\%$

Order number				
RPT 200, DN 16 ISO-KF	PT R37 130	PT R37 131	PT R37 132	PT R37 133

Accessories				
Centering ring with poral filter, Pore size: 20 μ m, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T
Fine filter, pore size 4 μ m, DN 16 ISO-KF	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T

Further accessories see controller DPG 202

Technical data	RPT 200, DN 16 CF-F, RS-485	RPT 200, DN 16 CF-F, RS-485, analog	RPT 200, DN 16 CF-F, RS-485, Profibus	RPT 200, DN 16 CF-F, RS-485, DeviceNet
Flange (in)	DN 16 CF-F	DN 16 CF-F	DN 16 CF-F	DN 16 CF-F
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Full scale	1200	1200	1200	1200
Accuracy	< 2 · 10 ⁻³ factor 2; 2 · 10 ⁻³ - 10 hPa: ± 10 %; 10-1200 hPa: ± 0.3 % F.S.	< 2 · 10 ⁻³ factor 2; 2 · 10 ⁻³ - 10 hPa: ± 10 %; 10-1200 hPa: ± 0.3 % F.S.	< 2 · 10 ⁻³ factor 2; 2 · 10 ⁻³ - 10 hPa: ± 10 %; 10-1200 hPa: ± 0.3 % F.S.	< 2 · 10 ⁻³ factor 2; 2 · 10 ⁻³ - 10 hPa: ± 10 %; 10-1200 hPa: ± 0.3 % F.S.
Weight	225 g	225 g	225 g	225 g
Materials in contact with media	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass	Stainless steel, Tungsten, gold, silicon oxide, glass
Measurement range max.	1200 hPa	1200 hPa	1200 hPa	1200 hPa
Measurement range min.	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Piezo/Pirani	Piezo/Pirani	Piezo/Pirani	Piezo/Pirani
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 , M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	125 °C	125 °C	125 °C	125 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	2.5 W	3.2 W	4.0 W	2.9 W
Repeatability: % of measurement	10-1200 hPa: ± 0.1% F.S.; 1 · 10 ⁻³ - 1 hPa: ± 1 %	10-1200 hPa: ± 0.1% F.S.; 1 · 10 ⁻³ - 1 hPa: ± 1 %	10-1200 hPa: ± 0.1% F.S.; 1 · 10 ⁻³ - 1 hPa: ± 1 %	10-1200 hPa: ± 0.1% F.S.; 1 · 10 ⁻³ - 1 hPa: ± 1 %

Order number				
RPT 200, DN 16 CF-F	PT R37 310	PT R37 311	PT R37 312	PT R37 313

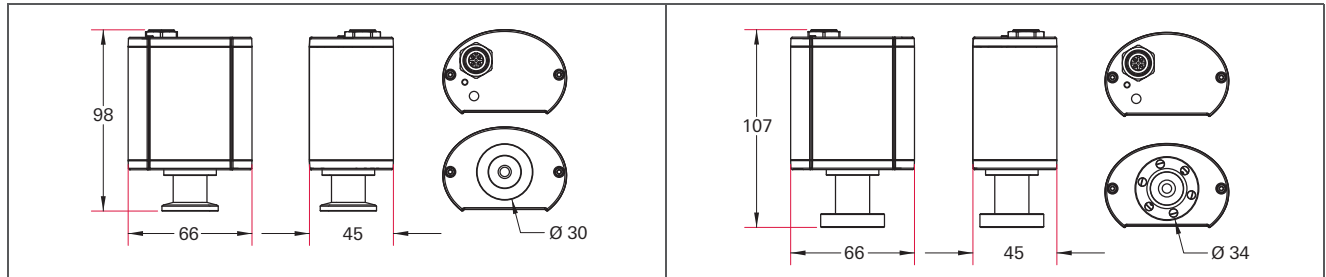
Further accessories see controller DPG 202



Pirani Gauge PPT 200 (1 · 10⁻⁴ – 1000 hPa)

- 1 · 10⁻⁴ to 1000 hPa
- High protection level for industrial applications
- Pulsed sensor for improved accuracy
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



PPT 200, DN 16 ISO-KF

PPT 200, DN 16 CF-F

Technical data	PPT 200, DN 16 ISO-KF, RS-485	PPT 200, DN 16 ISO-KF, RS-485, analog	PPT 200, DN 16 ISO-KF, RS-485, Profibus	PPT 200, DN 16 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Accuracy: % of measurement	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %
Weight	190 g	190 g	190 g	190 g
Materials in contact with media	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani	Pirani	Pirani	Pirani
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 ; M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	125 °C	125 °C	125 °C	125 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40...+65 °C	-40...+70 °C	-40...+70 °C	-40...+70 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	2.5 W	3.2 W	4.0 W	2.9 W
Repeatability: % of measurement	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %

Order number				
PPT 200, DN 16 ISO-KF	PT R38 130	PT R38 131	PT R38 132	PT R38 133

Accessories				
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T	PF 117 216 -T
Fine filter, pore size 4 µm, DN 16 ISO-KF	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T	PT 120 132 -T

Further accessories see controller DPG 202

Technical data	PPT 200, DN 16 CF-F, RS-485	PPT 200, DN 16 CF-F, RS-485, analog	PPT 200, DN 16 CF-F, RS-485, Profibus	PPT 200, DN 16 CF-F, RS-485, DeviceNet
Flange (in)	DN 16 CF-F	DN 16 CF-F	DN 16 CF-F	DN 16 CF-F
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Accuracy: % of measurement	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %	< 2 · 10 ⁻³ hPa: < factor 2, 2 · 10 ⁻³ - 20 hPa: ± 10 %, 20 - 1000 hPa: ± 30 %
Weight	220 g	220 g	220 g	220 g
Materials in contact with media	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass	Tungsten, stainless steel, glass
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁴ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani	Pirani	Pirani	Pirani
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 ; M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout	125 °C	125 °C	125 °C	125 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40...+70 °C	-40...+70 °C	-40...+70 °C	-40...+70 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	2.5 W	3.2 W	4.0 W	2.9 W
Repeatability: % of measurement	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %	2 · 10 ⁻³ - 10 hPa: ± 2 %

Order number				
PPT 200, DN 16 CF-F	PT R38 310	PT R38 311	PT R38 312	PT R38 313

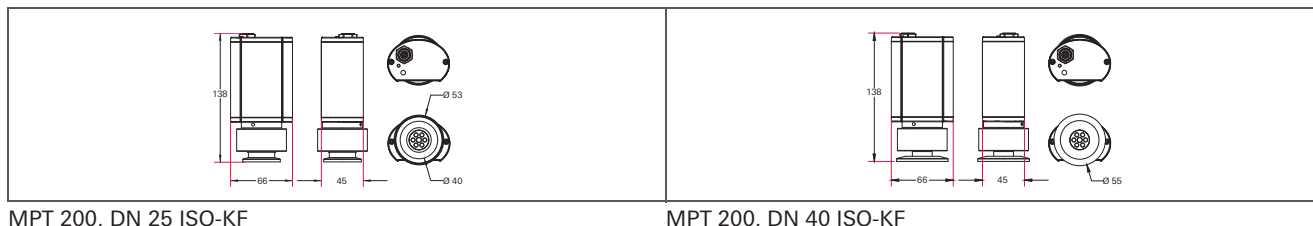
Further accessories see controller DPG 202



Pirani/Cold Cathode Gauge MPT 200 (5 · 10⁻⁹ – 1000 hPa)

- 5 · 10⁻⁹ to 1000 hPa
- Insensitive to gas inrush
- Customizable to vacuum application
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



MPT 200, DN 25 ISO-KF

MPT 200, DN 40 ISO-KF

Technical data	MPT 200, DN 25 ISO-KF, RS-485	MPT 200, DN 25 ISO-KF, RS-485, analog	MPT 200, DN 25 ISO-KF, RS-485, Profibus	MPT 200, DN 25 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 25 ISO-KF	DN 25 ISO-KF	DN 25 ISO-KF	DN 25 ISO-KF
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Accuracy: % of measurement	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %, 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %, 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %, 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %, 100-1000 hPa: ± 50 %
Weight	555 g	555 g	555 g	555 g
Materials in contact with media	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	RS-485, D-Sub-socket, 9-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Cold cathode sensor control	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface
Temperature: Bakeout (electronics removed)	180 °C	180 °C	180 °C	180 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	3.0 W	3.7 W	4.5 W	3.4 W
Volume	9.5 cm ³	9.5 cm ³	9.5 cm ³	9.5 cm ³
Repeatability: % of measurement	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %

Order number				
MPT 200, DN 25 ISO-KF	PT R40 140	PT R40 141	PT R40 142	PT R40 143

Further accessories see controller DPG 202

Technical data	MPT 200, DN 40 ISO-KF, RS-485	MPT 200, DN 40 ISO-KF, RS-485, analog	MPT 200, DN 40 ISO-KF, RS-485, Profibus	MPT 200, DN 40 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF	DN 40 ISO-KF	DN 40 ISO-KF
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Accuracy: % of measurement	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %
Weight	580 g	580 g	580 g	580 g
Materials in contact with media	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	RS-485, D-Sub-socket, 9-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Cold cathode sensor control	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface
Temperature: Bakeout (electronics removed)	180 °C	180 °C	180 °C	180 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	3.0 W	3.7 W	4.5 W	3.4 W
Volume	9.5 cm ³	9.5 cm ³	9.5 cm ³	9.5 cm ³
Repeatability: % of measurement	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %

Order number				
MPT 200, DN 40 ISO-KF	PT R40 150	PT R40 151	PT R40 152	PT R40 153

Further accessories see controller DPG 202

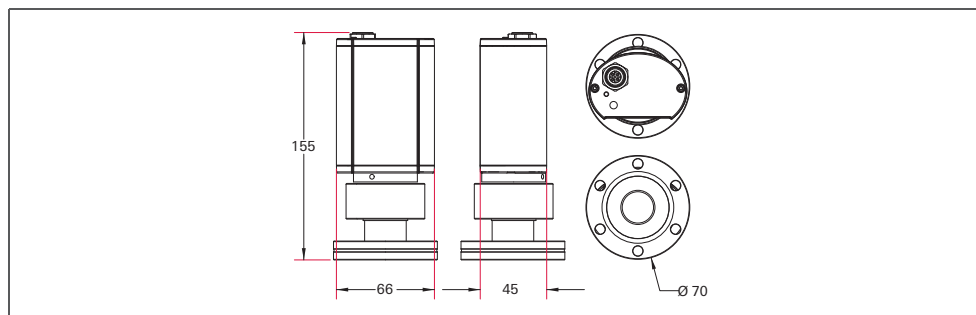


Pirani/Cold Cathode Gauge MPT 200 ($5 \cdot 10^{-9}$ – 1000 hPa)



- $5 \cdot 10^{-9}$ to 1000 hPa
- Insensitive to gas inrush
- Customizable to vacuum application
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



MPT 200, DN 40 CF-F



Technical data	MPT 200, DN 40 CF-F, RS-485	MPT 200, DN 40 CF-F, RS-485, analog	MPT 200, DN 40 CF-F, RS-485, Profibus	MPT 200, DN 40 CF-F, RS-485, DeviceNet
Flange (in)	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Accuracy: % of measurement	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %	1 · 10 ⁻⁸ - 2 · 10 ⁻³ hPa: ± 25 %, 2 · 10 ⁻³ - 10 hPa: ± 10 %, 10-100 hPa: ± 30 %; 100-1000 hPa: ± 50 %
Weight	850 g	850 g	850 g	850 g
Materials in contact with media	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass	Tungsten, stainless steel, nickel, molybdenum, glass
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode	Pirani/Cold cathode
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	RS-485, D-Sub-socket, 9-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Cold cathode sensor control	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface	Cold cathode sensor can be switched on and off via interface
Temperature: Bakeout (electronics removed)	180 °C	180 °C	180 °C	180 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	3.0 W	3.7 W	4.5 W	3.4 W
Volume	9.5 cm ³	9.5 cm ³	9.5 cm ³	9.5 cm ³
Repeatability: % of measurement	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 7 %; 1 · 10 ⁻² - 10 hPa: ± 2 %

Order number				
MPT 200, DN 40 CF-F	PT R40 350	PT R40 351	PT R40 352	PT R40 353

Further accessories see controller DPG 202

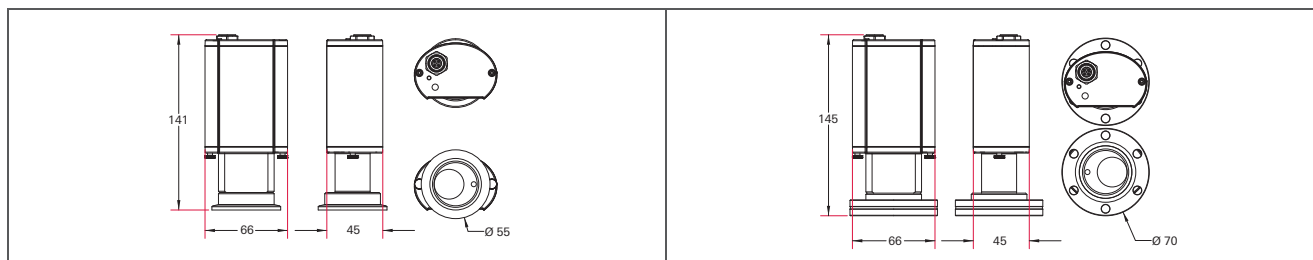


Pirani/Bayard-Alpert Gauge HPT 200 (5 · 10⁻¹⁰ – 1000 hPa)



- 5 · 10⁻¹⁰ to 1000 hPa
- High security by two filaments
- High accuracy
- Profibus DP Interface (optional)
- DeviceNet Interface (optional)
- Analog output and set points (optional)

Dimensions (in mm)



HPT 200, DN 40 ISO-KF

HPT 200, DN 40 CF-F

Technical data	HPT 200, DN 40 ISO-KF, RS-485	HPT 200, DN 40 ISO-KF, RS-485, analog	HPT 200, DN 40 ISO-KF, RS-485, Profibus	HPT 200, DN 40 ISO-KF, RS-485, DeviceNet
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF	DN 40 ISO-KF	DN 40 ISO-KF
Number of filaments	2	2	2	2
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Filament	Iridium yttriated, twice	Iridium yttriated, twice	Iridium yttriated, twice	Iridium yttriated, twice
Accuracy: % of measurement	1 · 10 ⁻⁸ - 1 hPa: ± 10 %, 20-1000 hPa: ± 30 %	1 · 10 ⁻⁸ - 1 hPa: ± 10 %, 20-1000 hPa: ± 30 %	1 · 10 ⁻⁸ - 1 hPa: ± 10 %, 20-1000 hPa: ± 30 %	1 · 10 ⁻⁸ - 1 hPa: ± 10 %, 20-1000 hPa: ± 30 %
Weight	475 g	475 g	475 g	475 g
Materials in contact with media	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻¹⁰ hPa	5 · 10 ⁻¹⁰ hPa	5 · 10 ⁻¹⁰ hPa	5 · 10 ⁻¹⁰ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	Digital RS-485 , M12, 5-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout (electronics removed)	180 °C	180 °C	180 °C	180 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40 +65 °C	-40 +65 °C	-40 +65 °C	-40 +65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	8.0 W	8.7 W	9.5 W	8.4 W
Repeatability: % of measurement	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 5%; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 5%; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 5%; 1 · 10 ⁻² - 10 hPa: ± 2 %	1 · 10 ⁻⁸ - 1 · 10 ⁻² hPa: ± 5%; 1 · 10 ⁻² - 10 hPa: ± 2 %

Order number				
HPT 200, DN 40 ISO-KF	PT R39 150	PT R39 151	PT R39 152	PT R39 153

Further accessories see controller DPG 202

Technical data	HPT 200, DN 40 CF-F, RS-485	HPT 200, , DN 40 CF-F, RS-485, analog	HPT 200, DN 40 CF-F, RS-485, Profibus	HPT 200, DN 40 CF-F, RS-485, DeviceNet
Flange (in)	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F
Number of filaments	2	2	2	2
Seal	Metal	Metal	Metal	Metal
Pressure max.	400 kPa	400 kPa	400 kPa	400 kPa
Filament	Iridium yttriated, twice	Iridium yttriated, twice	Iridium yttriated, twice	Iridium yttriated, twice
Accuracy: % of measurement	$1 \cdot 10^{-8}$ - 1 hPa: $\pm 10\%$, 20-1000 hPa: $\pm 30\%$	$1 \cdot 10^{-8}$ - 1 hPa: $\pm 10\%$, 20-1000 hPa: $\pm 30\%$	$1 \cdot 10^{-8}$ - 1 hPa: $\pm 10\%$, 20-1000 hPa: $\pm 30\%$	$1 \cdot 10^{-8}$ - 1 hPa: $\pm 10\%$, 20-1000 hPa: $\pm 30\%$
Weight	670 g	670 g	670 g	670 g
Materials in contact with media	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics	Tungsten, stainless steel, nickel, glass, ceramics
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-10}$ hPa	$5 \cdot 10^{-10}$ hPa	$5 \cdot 10^{-10}$ hPa	$5 \cdot 10^{-10}$ hPa
Sensor cable length max.	100 m	100 m	100 m	100 m
Method of measurement	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert	Pirani/Bayard-Alpert
Measuring cycle	10 ms	10 ms	10 ms	10 ms
Interface: Connection	RS-485, D-Sub-socket, 9-pole	Digital RS-485 ; M12, 5-pole; Analog 0-10 V; 2 SP; M12, 8-pole	Digital RS-485 , M12, 5-pole, Profibus DP, M12, 5-pole	Digital RS-485 , M12, 5-pole, DeviceNet, M12, 5-pole
Protection category	IP 54	IP 54	IP 54	IP 54
Temperature: Bakeout (electronics removed)	180 °C	180 °C	180 °C	180 °C
Temperature: Operating	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C	+5 - +60 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	24 V DC	24 V DC	24 V DC	24 V DC
Supply: Power consumption max.	8.0 W	8.7 W	9.5 W	8.4 W
Repeatability: % of measurement	$1 \cdot 10^{-8}$ - $1 \cdot 10^{-2}$ hPa: $\pm 5\%$; $1 \cdot 10^{-2}$ - 10 hPa: $\pm 2\%$	$1 \cdot 10^{-8}$ - $1 \cdot 10^{-2}$ hPa: $\pm 5\%$; $1 \cdot 10^{-2}$ - 10 hPa: $\pm 2\%$	$1 \cdot 10^{-8}$ - $1 \cdot 10^{-2}$ hPa: $\pm 5\%$; $1 \cdot 10^{-2}$ - 10 hPa: $\pm 2\%$	$1 \cdot 10^{-8}$ - $1 \cdot 10^{-2}$ hPa: $\pm 5\%$; $1 \cdot 10^{-2}$ - 10 hPa: $\pm 2\%$

Order number				
HPT 200, DN 40 CF-F	PT R39 350	PTR 39 351	PT R39 352	PT R39 353

Further accessories see controller DPG 202

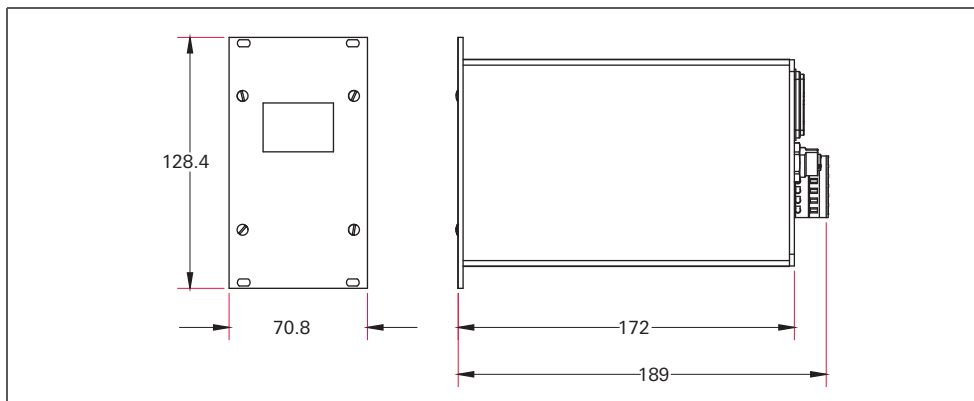


DPG 202, controller



- Simple operation
- For 2 transmitter
- Intuitive calibration
- 2 two-way contacts

Dimensions (in mm)

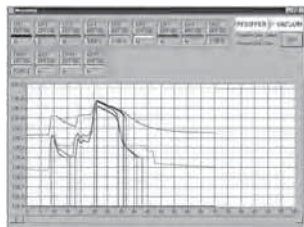


Technical data	DPG 202, controller for 2 transmitter
Dimensions w x h x d	(19"-rack, 14TE/3HE) ; 71 x 128 x 178 mm
Connections for gauge	DIN M12
Display	LCD-Graphic display, backlit
Display rate	2 Hz
Weight	0.75 kg
Power consumption	max. 25 (gauges included) W
Unit of measure	mbar, bar, Pa, hPa, mTorr, Torr
Measurement rate	25 Hz
Mains requirement: frequency (range)	50/60 Hz
Mains requirement: voltage (range)	95-265 V AC
Set point: Voltage max.	250 V AC, 4 A ; 45 V DC, 2 A
Set point: Changeover contact, potential-free	2 pieces
Protection category	IP 20
Fuse	0.8 A T
Temperature: Operating	5-50 °C
Temperature: Storage	-20-+60 °C

Order number	
DPG 202, controller	PT G12 020



Software DokuStar



- System requirements:
- Software: Windows XP, Windows Vista, Windows 7 (requires administrator rights)
- Hardware: Pentium-PC (1000 MHz or more), 256 MB RAM (512 MB recommended), 150 MB free hard drive space, Super VGA monitor (with 1024x768 resolution), small letter adjustment), 24 Bit True Color, free COM or USB port, mouse
- Visualization and data storage

Technical data	Software DokuStar	Software DokuStar Plus
For	DPS 101, DPS 109 and DPG 202	DPG / DPS 109 and direct connection
Measuring channel	up to 2	up to 16
PC min.	Pentium 160 MHz	Pentium 160 MHz
RAM	64 MB	64 MB
Interface	RS-232 or USB	RS-232 or USB
Interfaces	RS-232 or USB	RS-232 or USB
Memory	15 MB free HD memory	15 MB free HD memory

Order number		
Software DokuStar	PT 882 500	PT 882 501

Further accessories

Power cords	Order number
Mains cable, US plug, 2.5 m	P4 564 309 YX
Mains cable, U.K. plug, 2.5 m	P4 564 309 Y1
Mains cable, Swiss plug, 2.5 m	P4 564 309 YR
Mains cable, Euro-style safety plug, 2.5 m	P4 564 309 YU

Interface cable	Order number
Interface cable, M12 m/M12 m, 0.7 m	PM 061 281 -T
Interface cable, M12 m/M12 m, 1.0 m	PM 061 282 -T
Interface cable, M12 m straight / M12 m straight, 3.0 m	PM 061 283 -T
Interface cable, M12 m/M12 m, 5.0 m	PM 061 284 -T
Interface cable, M12 m/M12 m, 10 m	PM 061 285 -T
Interface cable, M12 m/M12 m, 15 m	PM 061 286 -T
Interface cable, M12 m/M12 m, 20 m	PM 061 287 -T
Interface cable, M12 m/M12 m, 50 m	PM 061 289 -T

Further accessories	Order number
Connector M12 to RS-485	PM 061 270 -X
Plug-in bus termination for RS-485, M12 5-pole	PT 348 105-T
Y-Connector M12 to RS-485	P 4723 010
USB converter to RS-485 interface	PM 061 207 -T
Adapter M12/M12 (only RS-485, no power)	PM 348 132 -T
Gauge adapting cable RS-485, D-Sub 9-pole/M12 5-pole	PT 348 131 -T
Connection cable, RS-485, M12/D-sub 9-pole, 3.0 m	PT 348 223 -T



 ActiveLine

A wide range of proven vacuum transmitters to cover all applications



ActiveLine

The ActiveLine series offers a wide range of vacuum gauges that work on a variety of measuring principles and have a classic analog outlet. The series thus covers the technically relevant vacuum range from ultra-high vacuum to overpressure. The outlet voltage of the transmitter, that is proportional to the pressure, can be displayed as pressure on the three controllers or read into controllers through analog inputs for further processing.

The series includes high precision capacitance vacuum gauges in SI units (CMR) for process monitoring and control as well as corresponding Torr types (CCR) for direct use in semiconductor processes without controllers.

Customer benefits

- Covers the entire vacuum range
- Suitable for all requirement profiles
- Space saving installation due to compact design
- Optimum cost-benefit ratio
- Universally usable due to integrated electronic drive unit
- Easy self-diagnosis
- Avoids installation errors through controllers with automatic transmitter recognition
- Easy wiring for all transmitters through uniform standard cables

Typical applications

- Research facilities
- Analysis equipment
- Research and production coating facilities
- Leak detection systems
- Semiconductor development and production
- Photovoltaics
- Industrial vacuum process systems



Semiconductor development and production



Coating



Research facilities

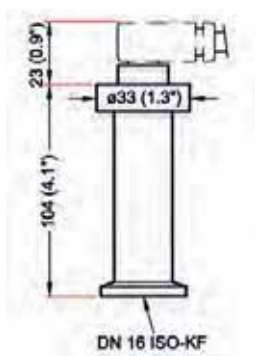


Piezo transmitters APR ($1 \cdot 10^{-1}$ - 55000 hPa)

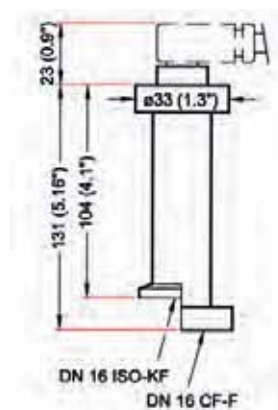


- Measurement range from 0.1 hPa to 1100 hPa
- Pressure measurement independent of type of gas
- Corrosion- resistant
- Maximum pressure applies to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



APR 250, DN 16 ISO-KF



APR 260, DN 16 ISO-KF



Technical data	APR 250, DN 16 ISO-KF, 2 % F.S.	APR 260, DN 16 ISO-KF, 1 % F.S.	APR 260, DN 16 CF-F, 1 % F.S.
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 CF-F
Output signal: Sensor error below	≤ 0.4 V	≤ 0.4 V	≤ 0.4 V
Output signal: Pressure range	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V
Output signal: Minimum load	10 kΩ	10 kΩ	10 kΩ
Bakeout temperature	80 °C	80 °C	80 °C
Pressure max.	300 kPa	300 kPa	300 kPa
Stability of sensitivity	≤ 0.5 %/year	≤ 0.2 %/year	≤ 0.2 %/year
Accuracy	2 % F.S.	1 % F.S.	1 % F.S.
Weight	120 g	120 g	150 g
Linearity and hysteresis	≤ 0.5 % F.S.	≤ 0.2 % F.S.	≤ 0.2 % F.S.
Measurement range max.	1100 hPa	1100 hPa	1100 hPa
Measurement range min.	1 · 10 ⁻¹ hPa	1 · 10 ⁻¹ hPa	1 · 10 ⁻¹ hPa
Sensor cable length	50 m	50 m	50 m
Zero stability	≤ 0.5 % F.S./year	≤ 0.3 % F.S./year	≤ 0.3 % F.S./year
Protection category	IP 65	IP 65	
Temperature: Operating	10-80 °C	10-80 °C	10-80 °C
Temperature: Storage	-40-+80 °C	-40-+80 °C	-40-+80 °C
Thermal sensitivity drift	≤ 0.5 %	≤ 0.5 %	≤ 0.5 %
Thermal zero drift	≤ 0.5 % F.S.	≤ 0.2 % F.S.	≤ 0.2 % F.S.
Supply: Voltage	13-30 V DC	13-30 V DC	13-30 V DC
Supply: Power consumption max.	≤ 0.2 W	≤ 0.2 W	≤ 0.2 W
Volume	2 cm ³	2 cm ³	6 cm ³
Material	Stainless steel	Stainless steel	Stainless steel

Order number			
Piezo Gauges APR 250/260 (1 · 10 ⁻¹ - 1100 hPa)	P 5215 102 TF	P 5215 112 TF	P 5215 114 TF

Accessories			
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA

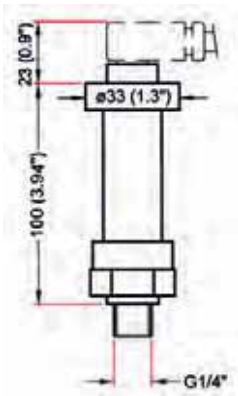


Piezo transmitters APR ($1 \cdot 10^{-1}$ - 55000 hPa)

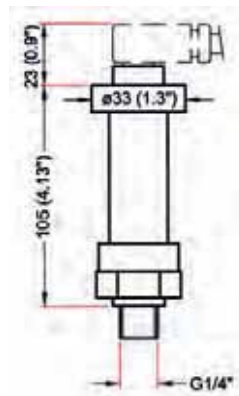


- Pressure measurement independent of type of gas
- Corrosion-resistant
- Maximum pressure applies to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



APR 262, G1/4"
APR 265, G1/4"
APR 266, G1/4"



APR 267, G1/4"



Technical data	APR 262, G1/4", 2200 hPa	APR 265, G1/4", 5500 hPa	APR 266, G1/4", 11000 hPa	APR 267, G1/4", 55000 hPa
Flange (in)	G 1/4"	G 1/4"	G 1/4"	G 1/4"
Output signal: Sensor error below	≤ 0.4 V	≤ 0.4 V	≤ 0.4 V	≤ 0.4 V
Output signal: Pressure range	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V
Output signal: Minimum load	10 kΩ	10 kΩ	10 kΩ	10 kΩ
Bakeout temperature	80 °C	80 °C	80 °C	80 °C
Pressure max.	400 kPa	750 kPa	1500 kPa	7500 kPa
Stability of sensitivity	≤ 0.2 %/year	0.2 %/year	0.2 %/year	≤ 0.2 %/year
Accuracy	2 % F.S.	2 % F.S.	2 % F.S.	2 % F.S.
Weight	120 g	120 g	120 g	120 g
Linearity and hysteresis	≤ 0.5 % F.S.	0.5 % F.S.	0.5 % F.S.	≤ 0.5 % F.S.
Measurement range max.	2200 hPa	5500 hPa	11000 hPa	55000 hPa
Measurement range min.	$2 \cdot 10^{-1}$ hPa	0.5 hPa	1 hPa	5 hPa
Sensor cable length	50 m	50 m	50 m	50 m
Zero stability	≤ 0.5 % F.S./year	0.5 % F.S./year	0.5 % F.S./year	≤ 0.5 % F.S./year
Protection category	IP 65	IP 65	IP 65	IP 65
Temperature: Operating	10-80 °C	10-80 °C	10-80 °C	10-80 °C
Temperature: Storage	-40-+80 °C	-40-+70 °C	-40-+80 °C	-40-+80 °C
Thermal sensitivity drift	≤ 0.5 %	0.5 %	0.5 %	≤ 0.5 %
Thermal zero drift	≤ 0.5 % F.S.	0.5 % F.S.	0.5 % F.S.	≤ 0.5 % F.S.
Supply: Voltage	13-30 V DC	13-30 V DC	13-30 V DC	13-30 V DC
Supply: Power consumption max.	≤ 0.2 W	≤ 0.2 W	0.2 W	≤ 0.2 W
Volume	0.5 cm ³	0.5 cm ³	0.5 cm ³	0.5 cm ³
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel

Order number				
Piezo Gauges APR 262/265/266/267 ($2 \cdot 10^{-1}$ - 55000 hPa)	P 5215 120 TF	P 5215 126 TF	P 5215 132 TF	P5 215 138 TF

Accessories				
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA

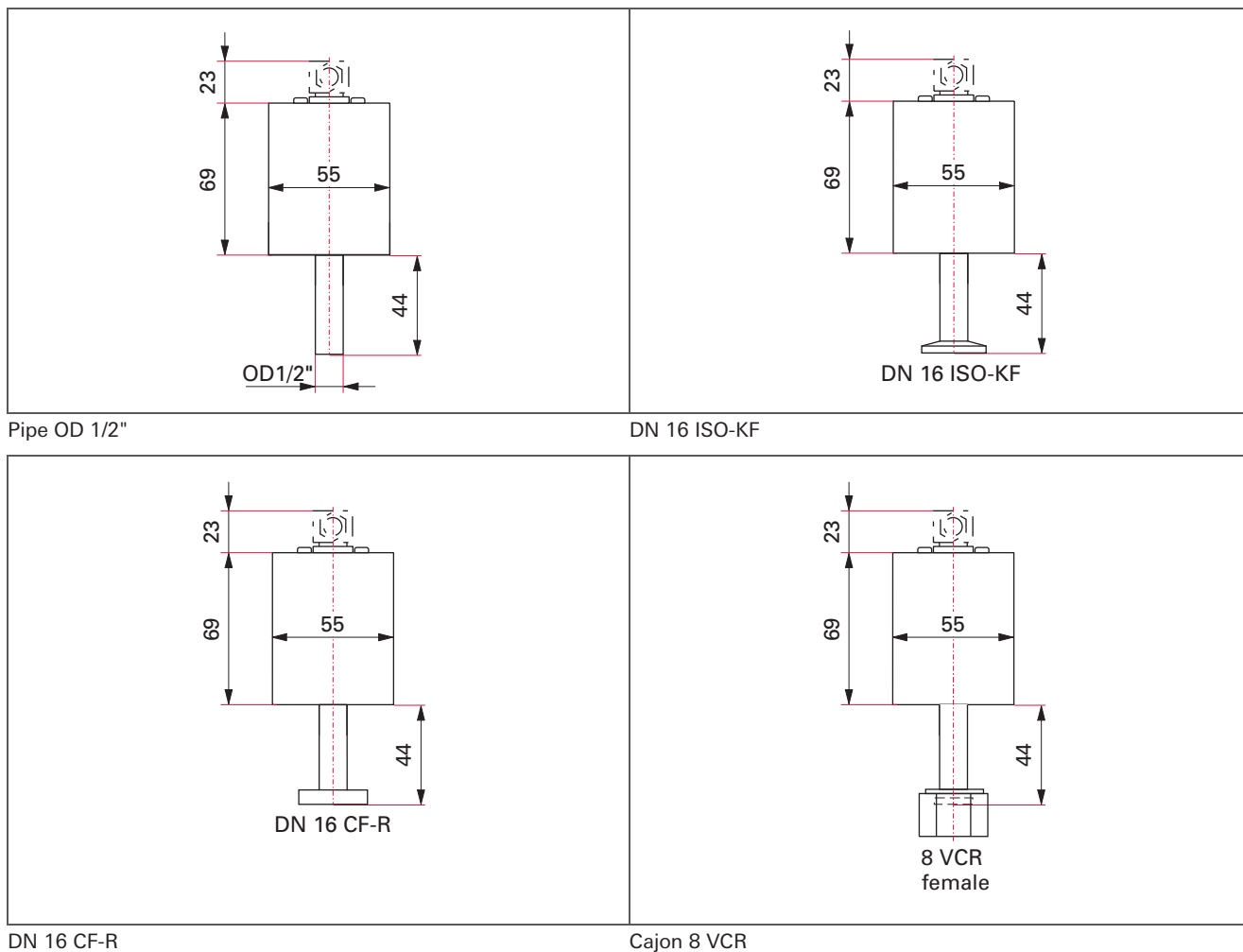


Capacitance transmitters CMR ($1 \cdot 10^{-5}$ - 1100 hPa) temperature compensated



- Sensor in ceramic technology
- No memory effects
- Materials employed have identical temperature coefficients
- Excellent temperature compensation
- Resistant to corrosive gases
- Excellent zero stability

Dimensions (in mm)



Technical data	CMR 361, 1000 hPa F.S.	CMR 362, 100 hPa F.S.	CMR 363, 10 hPa F.S.	CMR 364, 1 hPa F.S.	CMR 365, 0.1 hPa F.S.
Resolution	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.
Output signal: Sensor error above	> 9.8 V	> 9.8 V	> 9.8 V	> 9.8 V	> 9.8 V
Output signal: Sensor error below	< 0.4 V	< 0.4 V	< 0.4 V	< 0.4 V	< 0.4 V
Output signal: Pressure range	1 - 9.8 V	1 - 9.8 V	1 - 9.8 V	1 - 9.8 V	1 - 9.8 V
Output signal: Minimum load	10 kΩ	10 kΩ	10 kΩ	10 kΩ	10 kΩ
Bakeout temperature max. at the flange	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C
Pressure max.	3 bar	2 bar	2 bar	2 bar	1.3 bar
Accuracy	0.2 % of reading	0.2 % of reading	0.2 % of reading	0.2 % of reading	0.5 % of reading
Membrane and measuring chamber	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)
Measurement range max.	1100 hPa	110 hPa	11 hPa	1.1 hPa	0.11 hPa
Measurement range min.	1 · 10 ⁻¹ hPa	1 · 10 ⁻² hPa	1 · 10 ⁻³ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁵ hPa
Sensor cable length	≤ 120 m	≤ 120 m	≤ 120 m	≤ 120 m	120 m
Response time	30 ms	30 ms	30 ms	30 ms	130 ms
Pipe and flange	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Protection category	IP 30	IP 30	IP 30	IP 30	IP 30
Temperature: Operating	5-50 °C	5-50 °C	5-50 °C	5-50 °C	5-50 °C
Temperature effect: on span	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.03 % of reading/°C
Temperature effect: on zero	0.005 % F.S./°C	0.005 % F.S./°C	0.005 % F.S./°C	0.015 % F.S./°C	0.02 % F.S./°C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC
Supply: Power consumption max.	≤ 1 W	≤ 1 W	≤ 1 W	≤ 1 W	≤ 1 W
Volume	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³

	CMR 361, 1000 hPa F.S.	CMR 362, 100 hPa F.S.	CMR 363, 10 hPa F.S.	CMR 364, 1 hPa F.S.	CMR 365, 0.1 hPa F.S.
Flange (in)	Pipe OD 1/2"	Pipe OD 1/2"	Pipe OD 1/2"	Pipe OD 1/2"	Pipe OD 1/2"
Weight	≤ 310 g	≤ 310 g	≤ 310 g	≤ 310 g	≤ 310 g
Order number	PT R24 600	PT R24 610	PT R24 620	PT R24 630	PT R24 640
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Weight	≤ 330 g	≤ 330 g	≤ 330 g	≤ 330 g	≤ 330 g
Order number	PT R24 601	PT R24 611	PT R24 621	PT R24 631	PT R24 641
Flange (in)	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R
Weight	≤ 350 g	≤ 350 g	≤ 350 g	≤ 350 g	≤ 350 g
Order number	PT R24 602	PT R24 612	PT R24 622	PT R24 632	PT R24 642
Flange (in)	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR
Weight	≤ 370 g	≤ 370 g	≤ 370 g	≤ 370 g	≤ 370 g
Order number	PT R24 603	PT R24 613	PT R24 623	PT R24 633	PT R24 643

Accessories					
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA

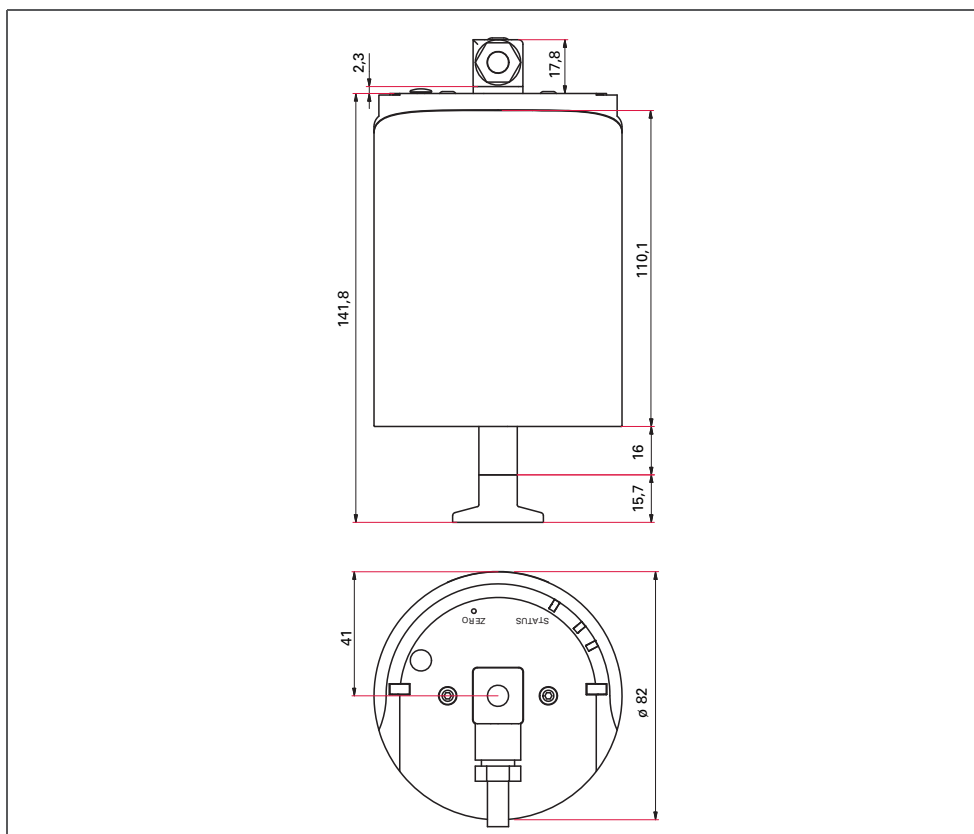


Capacitance transmitters CMR (1 · 10⁻⁵ - 1100 hPa) temperature regulated



- Sensor in ceramic technology
- No memory effects
- Materials employed have identical temperature coefficients
- Excellent temperature compensation
- Resistant to corrosive gases
- Excellent zero stability
- Additional protection against pollution by sensor shield

Dimensions (in mm)



Technical data	CMR 371, 1000 hPa F.S.	CMR 372, 100 hPa F.S.	CMR 373, 10 hPa F.S.	CMR 374, 1 hPa F.S.	CMR 375, 0.1 hPa F.S.
Resolution	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.
Output signal: Sensor error above	> 9.8 V	> 9.8 V	> 9.8 V	> 9.8 V	> 9.8 V
Output signal: Sensor error below	< 0.4 V	< 0.4 V	< 0.4 V	< 0.4 V	< 0.4 V
Output signal: Pressure range	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V	1.0 - 9.8 V
Output signal: Minimum load	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ
Bakeout temperature max. at the flange	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C
Pressure max.	300 kPa	2 bar	2 bar	2 bar	1,3 bar
Accuracy: % of measurement	0.15	0.15	0.15	0.15	0.15
Weight	≤ 900 g	≤ 900 g	≤ 900 g	≤ 900 g	≤ 900 g
Membrane and measuring chamber	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)
Measurement range max.	1100 hPa	110 hPa	11 hPa	1.1 hPa	0.11 hPa
Measurement range min.	1 · 10 ⁻¹ hPa	1 · 10 ⁻² hPa	1 · 10 ⁻³ hPa	1 · 10 ⁻⁴ hPa	1 · 10 ⁻⁵ hPa
Response time	30 ms	30 ms	30 ms	30 ms	130 ms
Pipe and flange	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Protection category	IP 40	IP 40	IP 40	IP 40	IP 40
Temperature: Operating	10-40 °C	10-40 °C	10-40 °C	10-40 °C	10-40 °C
Temperature effect: on span	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C
Temperature effect: on zero	0.0025 % F.S./°C	0.0025 % F.S./°C	0.0025 % F.S./°C	0.0025 % F.S./°C	0.005 % F.S./°C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Temperature stabilization	45 °C	45 °C	45 °C	45 °C	45 °C
Supply: Voltage	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC
Supply: Power consumption max.	≤ 12 W	≤ 12 W	≤ 12 W	≤ 12 W	≤ 12 W
Volume	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³

	CMR 371, 1000 hPa F.S.	CMR 372, 100 hPa F.S.	CMR 373, 10 hPa F.S.	CMR 374, 1 hPa F.S.	CMR 375, 0.1 hPa F.S.
Flange (in)	Tube OD 1/2"	Tube AD 1/2"	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"
Order number	PT R25 100	PT R25 110	PT R25 120	PT R25 130	PT R25 140
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Order number	PT R25 101	PT R25 111	PT R25 121	PT R25 131	PT R25 141
Flange (in)	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R
Order number	PT R25 102	PT R25 112	PT R25 122	PT R25 132	PT R25 142
Flange (in)	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR
Order number	PT R25 103	PT R25 113	PT R25 123	PT R25 133	PT R25 143

Accessories					
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA



- Output signal and connector compatible with MKS Baratron.

Tube OD 1/2"	DN 16 ISO-KF
DN 16 CF-R	Cajon 8 VCR

Technical data	CCR 361, 1000 Torr F.S.	CCR 362, 100 Torr F.S.	CCR 363, 10 hPa F.S.	CCR 364, 1 Torr F.S.	CCR 365, 0.1 Torr F.S.
Resolution	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.
Output signal: Pressure range	0-10 V	0-10 V	0-10 V	0-10 V	0-10 V
Output signal: Minimum load	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ
Bakeout temperature max. at the flange	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C
Pressure max.	300 kPa	2 bar	2 bar	2 bar	130 kPa
Accuracy	0.20 % of reading	0.20 % of reading	0.20 % of reading	0.20 % of reading	0.5 % of reading
Weight	≤ 370 g	≤ 370 g	≤ 370 g	≤ 370 g	≤ 370 g
Membrane and measuring chamber	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)
Measurement range max.	1333 hPa	133 hPa	13.3 hPa	1.33 hPa	0.13 hPa
Measurement range min.	1.33 · 10 ⁻¹ hPa	1.33 · 10 ⁻² hPa	1.33 · 10 ⁻³ hPa	1.33 · 10 ⁻⁴ hPa	1 · 10 ⁻⁵ hPa
Sensor cable length	≤ 100 m (0.14 mm ² conductor)	100 m (0.14 mm ² conductor)	100 m (0.14 mm ² conductor)	100 m (0.14 mm ² conductor)	100 m (0.14 mm ² conductor)
Response time	30 ms	30 ms	30 ms	30 ms	130 ms
Pipe and flange	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Protection category	IP 30	IP 30	IP 30	IP 30	IP 30
Temperature: Operating	5-50 °C	5-50 °C	5-50 °C	5-50 °C	5-50 °C
Temperature effect: on span	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.03 % of reading/°C
Temperature effect: on zero	0.0050 % F.S./°C	0.005 % F.S./°C	0.0050 % F.S./°C	0.015 % F.S./°C	0.02 % F.S./°C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC
Supply: Power consumption max.	≤ 1 W	≤ 1 W	≤ 1 W	≤ 1 W	≤ 1 W
Volume	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³	≤ 3.6 cm ³

	CCR 361, 1000 Torr F.S.	CCR 362, 100 Torr F.S.	CCR 363, 10 hPa F.S.	CCR 364, 1 Torr F.S.	CCR 365, 0.1 Torr F.S.
Flange (in)	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"
Order number	PT R27 600	PT R27 610	PT R27 620	PT R27 630	PT R27 640
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO KF
Order number	PT R27 601	PT R27 611	PT R27 621	PT R27 631	PT R27 641
Flange (in)			DN 16 CF-R	DN 16 CF-R	DN 16 CF-R
Order number			PT R27 622	PT R27 632	PT R27 642
Flange (in)	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR
Order number	PT R27 603	PT R27 613	PT R27 623	PT R27 633	PT R27 643

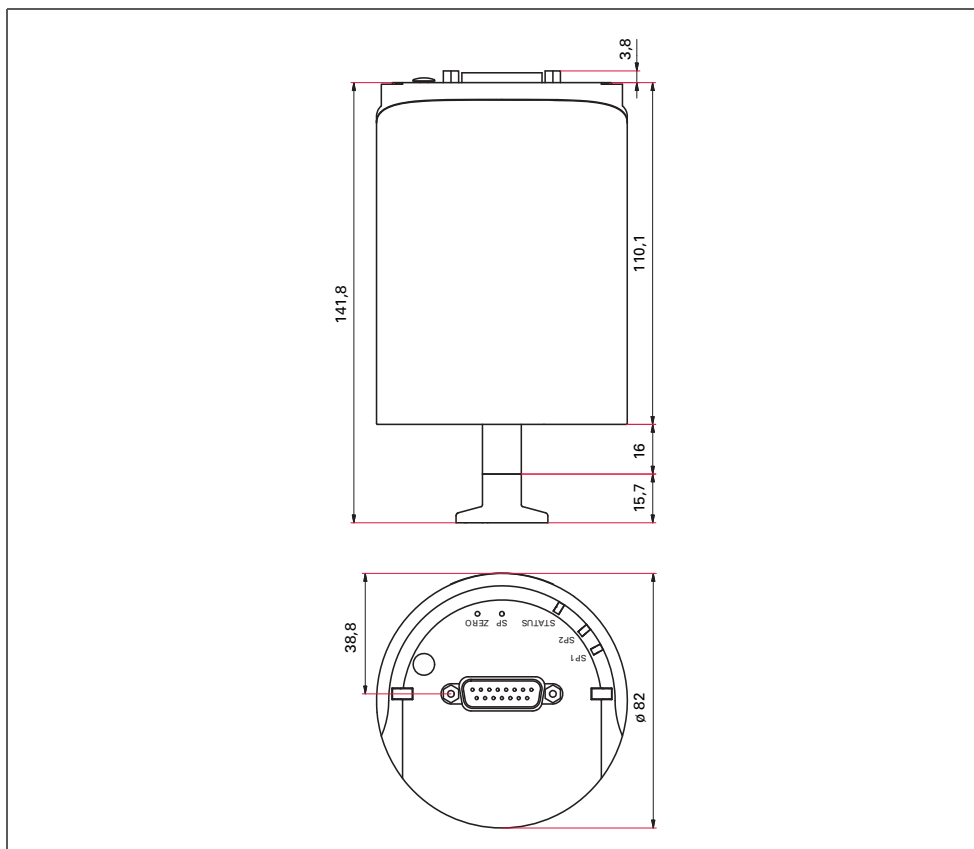


Capacitance transmitters CCR (1 · 10⁻⁵ - 1000 Torr) temperature regulated



- Pressure measurement independent of type of gas
 - Outstanding long-term and temperature stability
 - Only marginal zero drift
 - Corrosion-resistant ceramic technology
 - Additional protection against pollution by Sensorshield
 - Transmitter cannot be connected to controllers TPG 261, TPG 262 and TPG 256 A
- Output signal and connector compatible with MKS Baratron.

Dimensions (in mm)



Technical data	CCR 371, 1000 Torr F.S.	CCR 372, 100 Torr F.S.	CCR 373, 10 Torr F.S.	CCR 374, 1 Torr F.S.	CCR 375, 0.1 Torr F.S.
Resolution	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.	0.003 % F.S.
Output signal: Pressure range	0-10 V	0-10 V	0-10 V	0-10 V	0-10 V
Output signal: Minimum load	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ
Bakeout temperature max. at the flange	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C	≤ 110 °C
Pressure max.	300 kPa	200 kPa	200 kPa	2 bar	1.3 bar
Accuracy: % of measurement	0.15	0.15	0.15	0.15	0.15
Weight	≤ 900 g	≤ 900 g	≤ 900 g	≤ 900 g	≤ 900 g
Membrane and measuring chamber	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)	Ceramics (Al ₂ O ₃ ≤ 99,5 %)
Measurement range max.	1333 hPa	133 hPa	13.3 hPa	1.3 hPa	0.13 hPa
Measurement range min.	1.33 · 10 ⁻¹ hPa	1.33 · 10 ⁻² hPa	1.33 · 10 ⁻³ hPa	1,33 · 10 ⁻⁴ hPa	1.33 · 10 ⁻⁵ hPa
Response time	30 ms	30 ms	30 ms	30 ms	130 ms
Pipe and flange	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Protection category	IP 40	IP 40	IP 40	IP 40	IP 40
Temperature: Operating	10-40 °C	10-40 °C	10-40 °C	10-40 °C	10-40 °C
Temperature effect: on span	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C	0.01 % of reading/°C
Temperature effect: on zero	0.0025 % F.S./°C	0.0025 % F.S./°C	0.0025 % F.S./°C	0.0025 % F.S./°C	0.0025 % F.S./°C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC	14-30 V DC
Supply: Power consumption max.	≤ 12 W	≤ 12 W	≤ 12 W	≤ 12 W	≤ 12 W
Volume	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³	≤ 4.2 cm ³

	CCR 371, 1000 Torr F.S.	CCR 372, 100 Torr F.S.	CCR 373, 10 Torr F.S.	CCR 374, 1 Torr F.S.	CCR 375, 0.1 Torr F.S.
Flange (in)	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"	Tube OD 1/2"
Order number	PT R28 100	PT R28 110	PT R28 120	PT R28 130	PT R28 140
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF	DN 16 ISO-KF
Order number	PT R28 101	PT R28 111	PT R28 121	PT R28 131	PT R28 141
Flange (in)	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R	DN 16 CF-R
Order number	PT R28 102	PT R28 112	PT R28 122	PT R28 132	PT R28 142
Flange (in)	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR	Cajon 8 VCR
Order number	PT R28 103	PT R28 113	PT R28 123	PT R28 133	PT R28 143

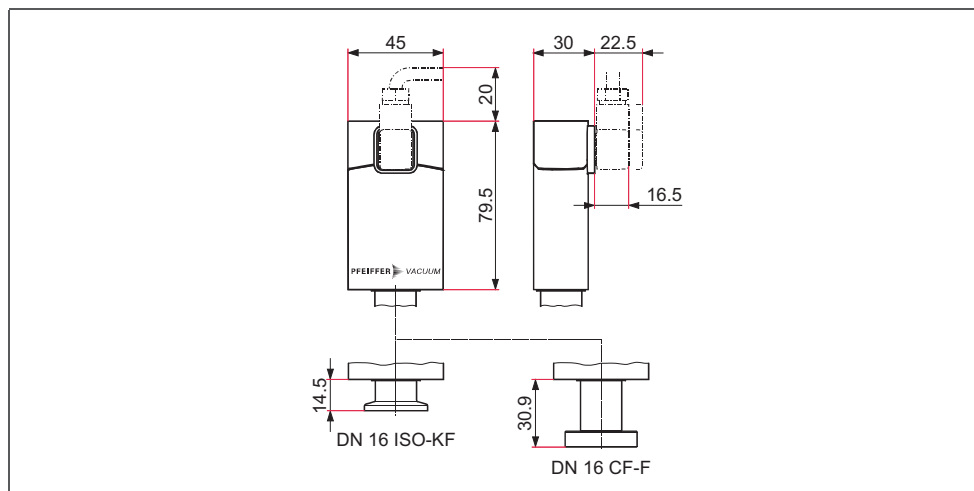


Pirani/Capacitance transmitters PCR (5 · 10⁻⁵ - 1500 hPa)



- Measurement range: 5 · 10⁻⁵ to 1500 hPa
- Bakeout temperature: 80 °C
- Output signal: 1,2 - 8,68 V logarithm of pressure
- Voltage supply: 15 - 30 V DC
- Metal-sealed, without plug

Dimensions (in mm)



Technical data	PCR 280, 80 °C, DN 16 ISO-KF	PCR 280, 80 °C, DN 16 CF-F
Flange (in)	DN 16 ISO-KF	DN 16 CF-F
Output signal: Pressure range	1.2 - 8,68 V	1.2 - 8.68 V
Output signal: Minimum load	10 kΩ	10 kΩ
Bakeout temperature	80 °C	80 °C
Seal	Metal	Metal
Pressure max.	5 bar	500 kPa
Feedthrough	Glass	Glass
Feature	Stainless steel, metal sealed	Stainless steel, metal sealed
Flange	Stainless steel	Stainless steel
Accuracy	$5 \cdot 10^{-4} - 1 \cdot 10^{-3}$ hPa: $\pm 50\%$; $1 \cdot 10^{-3} - 100$ hPa: $\pm 15\%$; 100 - 950 hPa: $\pm 5\%$; 950 - 1100 hPa: $\pm 2,5\%$	$5 \cdot 10^{-4} - 1 \cdot 10^{-3}$ hPa: $\pm 50\%$; $1 \cdot 10^{-3} - 100$ hPa: $\pm 15\%$; 100 - 950 hPa: $\pm 5\%$; 950 - 1050 hPa: $\pm 2,5\%$
Weight	120 g	120 g
Filament	Tungsten	Tungsten
Measurement range max.	1500 hPa	1500 hPa
Measurement range min.	$5 \cdot 10^{-5}$ hPa	$5 \cdot 10^{-5}$ hPa
Sensor cable length	100 m	100 m
Temperature: Operating	10-50 °C	10-50 °C
Temperature: Storage	-20-+65 °C	-20-+65 °C
Supply: Voltage	15-30 V DC	15-30 V DC
Supply: Power consumption max.	2.5 W	2.5 W
Volume	4.7 cm ³	4.7 cm ³
Repeatability: $10^{-3} - 1100$ hPa	$\pm 2\%$	$\pm 2\%$

Order number		
Pirani/capacitance gauge PCR 280 ($5 \cdot 10^{-5} - 1500$ hPa)	PT R26 855	PT R26 856

Accessories		
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA

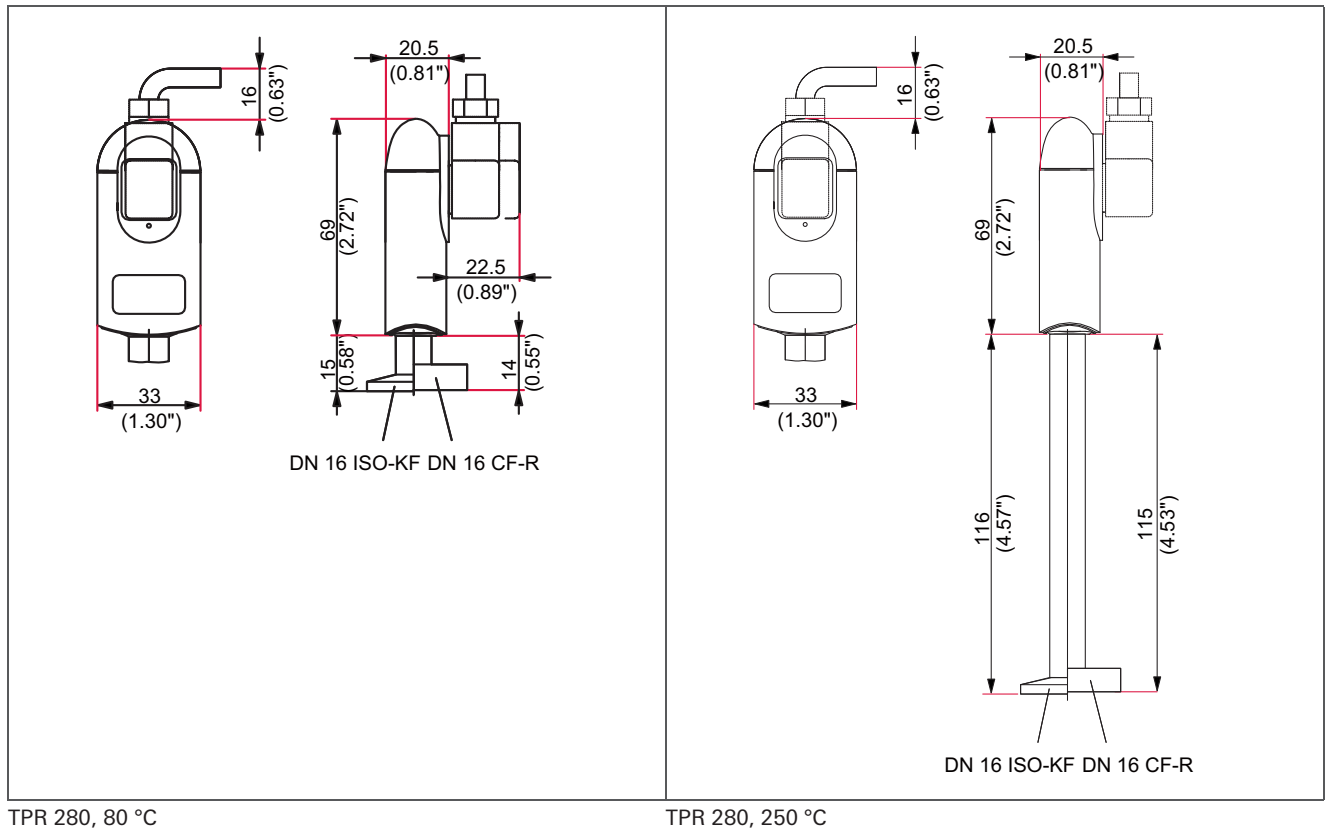


Pirani transmitter TPR (5 · 10⁻⁴ - 1000 hPa)



- Flange size: DN 16 ISO-KF
- Measurement range from 5 · 10⁻⁴ to 1000 hPa
- Compact and rugged
- Fast, stable measurement
- For general vacuum applications
- Maximum pressure refers to inert gases

Dimensions (in mm)



TPR 280, 80 °C

TPR 280, 250 °C



Technical data	TPR 280, 80 °C	TPR 280, 250 °C
Resolution	1 % of reading	1 % of reading
Output signal: Sensor error below	0.5 V	0.5 V
Output signal: Pressure range	2.2 - 8.5 V	2.2 - 8.5 V
Output signal: Minimum load	10 kΩ	10 kΩ
Bakeout temperature	80 °C	250 °C
Seal	Metal	Metal
Pressure max.	1000 kPa	1000 kPa
Feedthrough	Glass	Glass
Feature	Stainless steel, metal sealed	Stainless steel, metal sealed
Flange	Stainless steel	Stainless steel
Accuracy: 10^{-3} - 10^2 hPa	± 15 %	± 15 %
Filament	Tungsten	Tungsten
Measurement range max.	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-4}$ hPa	$5 \cdot 10^{-4}$ hPa
Sensor cable length max.	200 m	200 m
Response time	80 ms	80 ms
Protection category	IP 40	IP40
Temperature: Operating	5-60 °C	5-60 °C
Temperature: Storage	-20-+65 °C	-20-+65 °C
Supply: Voltage	14-30 V DC	14-30 V DC
Supply: Power consumption max.	≤ 1 W	1 W
Repeatability: 10^{-3} - 10^2 hPa	± 2 %	± 2 %

	TPR 280, 80 °C	TPR 280, 250 °C
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF
Weight	80 g	130 g
Volume	1.5 cm ³	10 cm ³
Order number	PT R26 950	PT R26 960
Flange (in)	DN 16 CF-R	DN 16 CF-R
Weight	100 g	140 g
Volume	1.5 cm ³	10 cm ³
Order number	PT R26 951	PT R26 961
Flange (in)	1/8" NPT	
Weight	70 g	
Volume	2 cm ³	
Order number	PT R26 952	
Flange (in)	8 VCR	
Weight	130 g	
Volume	2 cm ³	
Order number	PT R26 953	

Accessories		
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T
Mating connector	B 4707 283 MA	B 4707 283 MA
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Fine filter, pore size 4 µm, DN 16 ISO-KF	PT 120 132 -T	PT 120 132 -T

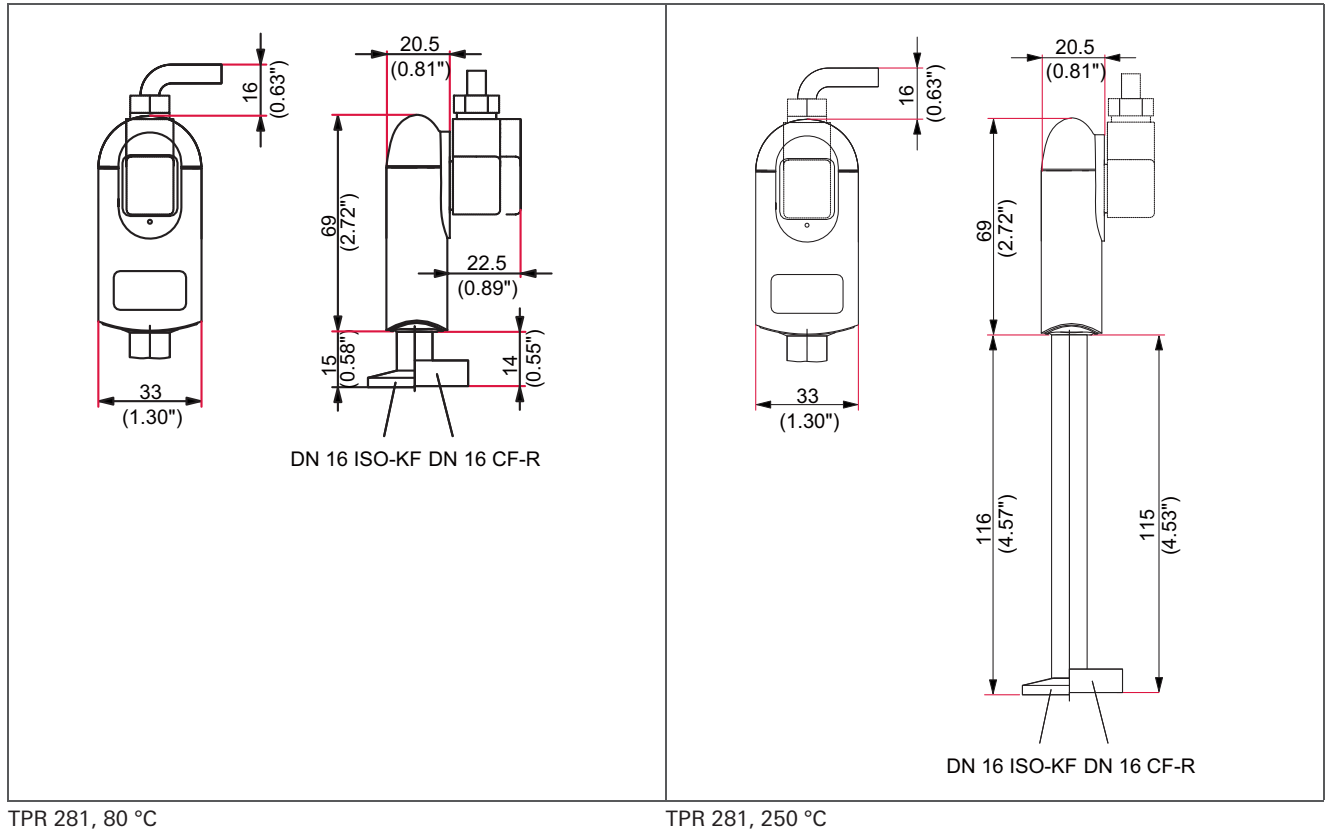


Pirani transmitter TPR (5 · 10⁻⁴ - 1000 hPa)



- Flange size: DN 16 ISO-KF
- Measurement range from 5 · 10⁻⁴ to 1000 hPa
- Compact and rugged
- Fast, stable measurement
- For corrosive media
- Maximum pressure refers to inert gases

Dimensions (in mm)



TPR 281, 80 °C

TPR 281, 250 °C



Technical data	TPR 281, 80 °C	TPR 281, 250 °C
Resolution	1 % of reading	1 % of reading
Output signal: Sensor error below	0.5 V	0.5 V
Output signal: Pressure range	2.2 - 8.5 V	2.2 - 8.5 V
Output signal: Minimum load	10 kΩ	10 kΩ
Bakeout temperature	80 °C	250 °C
Seal	Metal	Metal
Pressure max.	1000 kPa	1000 kPa
Feedthrough	Glass	Glass
Feature	For corrosive media	For corrosive media
Flange	Stainless steel	Stainless steel
Accuracy: 10^{-3} - 10^2 hPa	± 15 %	± 15 %
Filament	Nickel	Nickel
Measurement range max.	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-4}$ hPa	$5 \cdot 10^{-4}$ hPa
Sensor cable length max.	200 m	200 m
Response time	80 ms	80 ms
Protection category	IP 40	IP 40
Temperature: Operating	5-60 °C	5-60 °C
Temperature: Storage	-20-+65 °C	-20-+65 °C
Supply: Voltage	14-30 V DC	14-30 V DC
Supply: Power consumption max.	1 W	1 W
Repeatability: 10^{-3} - 10^2 hPa	± 2 %	± 2 %

	TPR 281, 80 °C	TPR 281, 250 °C
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF
Weight	80 g	130 g
Volume	1.3 cm ³	10 cm ³
Order number	PT R21 950	PT R21 960
Flange (in)	DN 16 CF-R	DN 16 CF-R
Weight	100 g	140 g
Volume	1.5 cm ³	10 cm ³
Order number	PT R21 951	PT R21 961

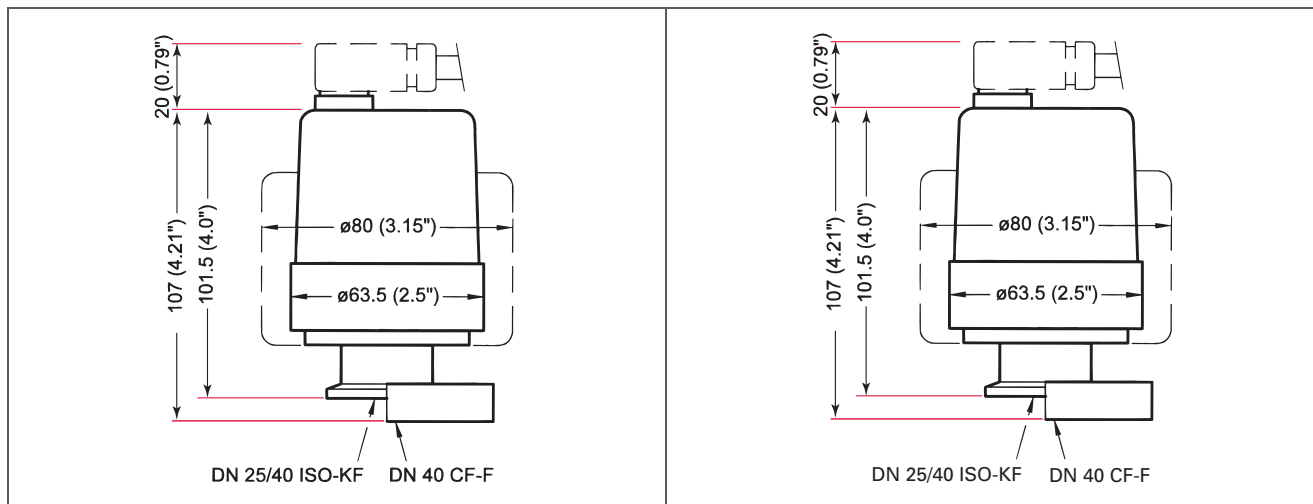
Accessories		
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T
Mating connector	B 4707 283 MA	B 4707 283 MA
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Fine filter, pore size 4 µm, DN 16 ISO-KF	PT 120 132 -T	PT 120 132 -T



Cold Cathode transmitters IKR (5 · 10⁻¹¹ - 0.01 hPa)

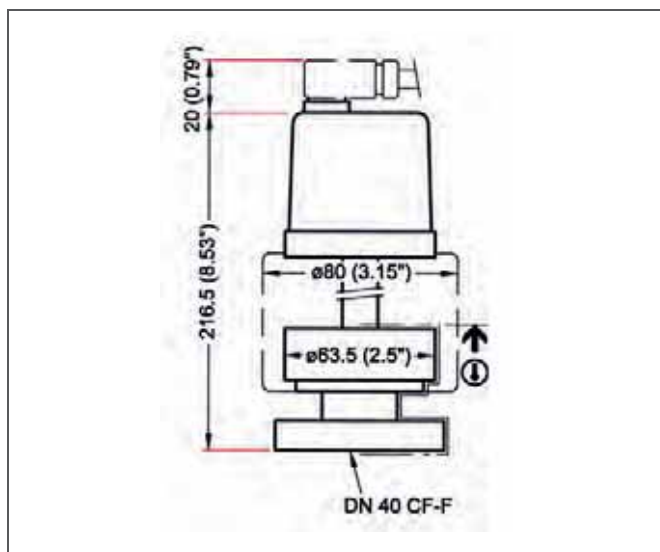
- Flange size: DN 25 ISO-KF
- Measurement range from 2 · 10⁻⁹ to 0.01 hPa
- Cold cathode (inverted magnetron)
- Rugged and dependable
- Insensitive to air ingress
- Corrosion-resistant
- Maximum pressure refers to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



IKR 251, FPM sealed

IKR 261, metal sealed



IKR 261, metal sealed, long case



Technical data	IKR 251, FPM sealed	IKR 261, metal sealed	IKR 261, metal sealed, long case
Anode	Molybdenum	Molybdenum	Molybdenum
Output signal: Sensor error below	0.5 V	0.5 V	0.5 V
Output signal: Pressure range	1.8 - 8.5 V	1.8 - 8.5 V	1.8 - 8.5 V
Output signal: Minimum load	10 k Ω	10 k Ω	10 k Ω
Bakeout temperature	150 °C, electronic removed	250 °C, electronic removed	250 °C
Seal	FPM	Ag	Ag
Pressure max.	1000 kPa	10 bar	10 bar
Feedthrough	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃
Feature	Interior FPM sealed	Metal sealed	Metal sealed
Flange	Stainless steel	Stainless steel	Stainless steel
Accuracy: 10 ⁻⁸ - 10 ⁻³ hPa	± 30 %	± 30 %	± 30 %
Measurement range max.	0.01 hPa	0.01 hPa	0.01 hPa
Measurement range min.	2 · 10 ⁻⁹ hPa	2 · 10 ⁻⁹ hPa	2 · 10 ⁻⁹ hPa
Sensor cable length	500 m	500 m	500 m
Temperature: Operating	5-55 °C	5-55 °C	5-55 °C
Temperature: Storage	-40-+65 °C	-40-+65 °C	-40-+65 °C
Supply: Voltage	15-30 V	15-30 V	15-30 V
Supply: Power consumption max.	2 W	2 W	2 W
Volume	20 cm ³	20 cm ³	20 cm ³
Repeatability: 10 ⁻⁸ - 10 ⁻³ hPa	± 5 %	± 5 %	± 5 %

	IKR 251, FPM sealed	IKR 261, metal sealed	IKR 261, metal sealed, long case
Flange (in)	DN 25 ISO-KF		
Weight	700 g		
Order number	PT R25 500		
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF	
Weight	700 g	700 g	
Order number	PT R25 501	PT R25 750	
Flange (in)	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F
Weight	950 g	950 g	1200 g
Order number	PT R25 502	PT R25 751	PT R25 761

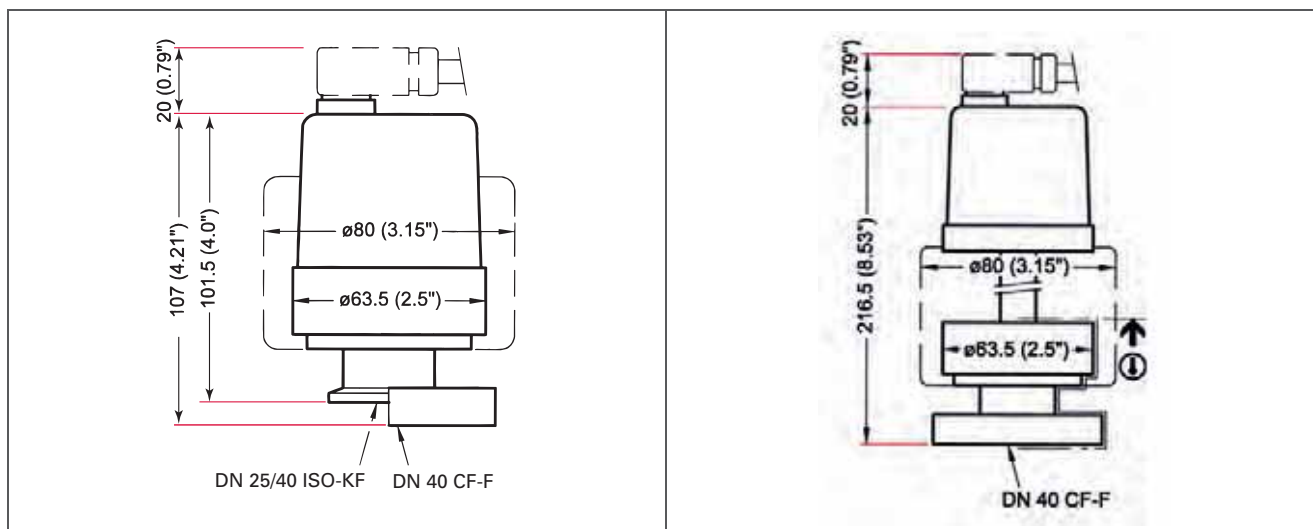
Accessories			
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA



Cold Cathode transmitters IKR (5 · 10⁻¹¹ - 0.01 hPa)

- Flange size: DN 40 CF-F
- Measurement range from 5 · 10⁻¹¹ to 0.01 hPa
- Cold cathode (inverted magnetron)
- Rugged and dependable
- Insensitive to air ingress
- Corrosion-resistant
- Maximum pressure refers to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



IKR 270, metal sealed

IKR 270, metal sealed, long case



Technical data	IKR 270, metal sealed, DN 40 CF-F	IKR 270, metal sealed, long case, DN 40 CF-F
Anode	Molybdenum	Molybdenum
Flange (in)	DN 40 CF-F	DN 40 CF-F
Output signal: Sensor error below	0.5 V	0.5 V
Output signal: Pressure range	1.8 - 8.5 V	1.8 - 8.5 V
Output signal: Minimum load	10 kΩ	10 kΩ
Bakeout temperature	250 °C, electronic removed	250 °C
Seal	Ag	Ag
Pressure max.	1000 kPa	1000 kPa
Feedthrough	Al ₂ O ₃	Al ₂ O ₃
Feature	Metal sealed	Metal sealed
Flange	Stainless steel	Stainless steel
Accuracy: 10 ⁻⁹ - 10 ⁻³ hPa	± 30 %	± 30 %
Weight	950 g	1200 g
Cable length	500 m	500 m
Measurement range max.	0.01 hPa	0.01 hPa
Measurement range min.	5 · 10 ⁻¹¹ hPa	5 · 10 ⁻¹¹ hPa
Temperature: Operating	5-55 °C	5-55 °C, in the bakeout range
Temperature: Storage	-40-+65 °C	-40-+65 °C
Supply: Voltage	15-30 V	15-30 V
Supply: Power consumption max.	2 W	2 W
Volume	20 cm ³	20 cm ³
Repeatability: 10 ⁻⁹ - 10 ⁻³ hPa	± 5 %	± 5 %

Order number		
Cold Cathode Gauges IKR 270 (5 · 10 ⁻¹¹ - 0,01 hPa)	PT R21 251	PT R21 261

Accessories		
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA

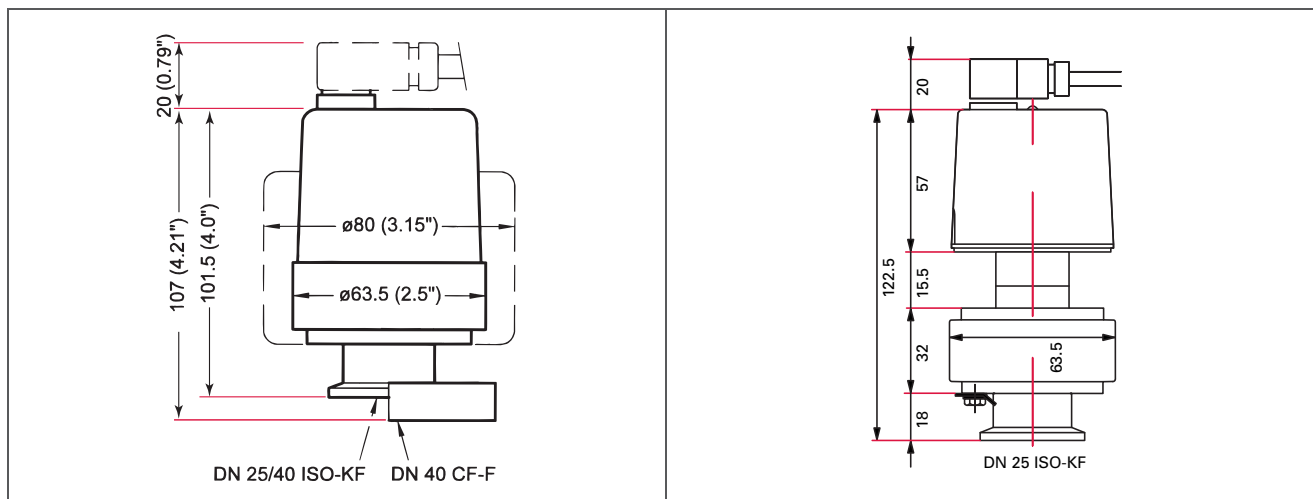


Pirani/Cold Cathode transmitters PKR (5 · 10⁻⁹ - 1000 hPa)



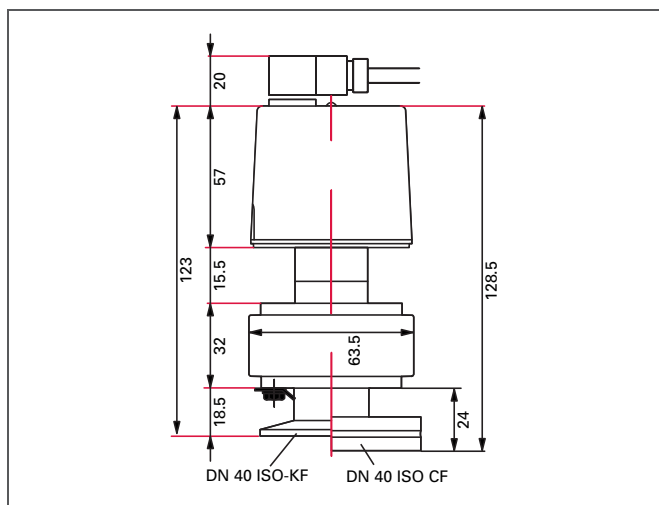
- Measurement range from 5 · 10⁻⁹ to 1000 hPa
- Two gauge heads (Pirani and cold cathode) in a single case (inverted magnetron)
- A single flange from atmospheric pressure to UHV
- Corrosion-resistant
- Maximum pressure refers to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



PKR 251, FPM sealed

PKR 261, metal sealed



PKR 261, metal sealed



Technical data	PKR 251, FPM sealed	PKR 261, metal sealed
Anode	Molybdenum	Molybdenum
Output signal: Sensor error above	9.5 V	9.5 V
Output signal: Sensor error below	0.5 V	0.5 V
Output signal: Pressure range	1.8 - 8.6 V	1.8 - 8.6 V
Output signal: Minimum load	10 kΩ	10 kΩ
Bakeout temperature	150 °C, electronic removed	150 °C, electronic removed
Seal	FPM	Ag, Cu
Pressure max.	1000 kPa	1000 kPa
Feedthrough	Al ₂ O ₃ , Glass	Al ₂ O ₃ , Glas
Feature	Interior FPM sealed	Metal sealed
Flange	Stainless steel	Stainless steel
Accuracy: 10 ⁻⁸ - 10 ² hPa	± 30 %	± 30 %
Filament	Tungsten	Tungsten
Measurement range max.	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa
Sensor cable length	300 m	300 m
Temperature: Operating	5-55 °C	5-55 °C, up to 150 °C on flange (horizontal installation)
Temperature: Storage	-40-+65 °C	-40-+65 °C
Supply: Voltage	15-30 V DC	15-30 V DC
Supply: Power consumption max.	2 W	2 W
Volume	20 cm ³	20 cm ³
Repeatability: 10 ⁻⁸ - 10 ² hPa	± 5 %	± 5 %

	PKR 251, FPM sealed	PKR 261, metal sealed
Flange (in)	DN 25 ISO-KF	DN 25 ISO-KF
Weight	700 g	700 g
Order number	PT R26 000	PT R26 250
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF
Weight	700 g	750 g
Order number	PT R26 001	PT R26 251
Flange (in)	DN 40 CF-F	DN 40 CF-F
Weight	950 g	995 g
Order number	PT R26 002	PT R26 252

Accessories		
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA

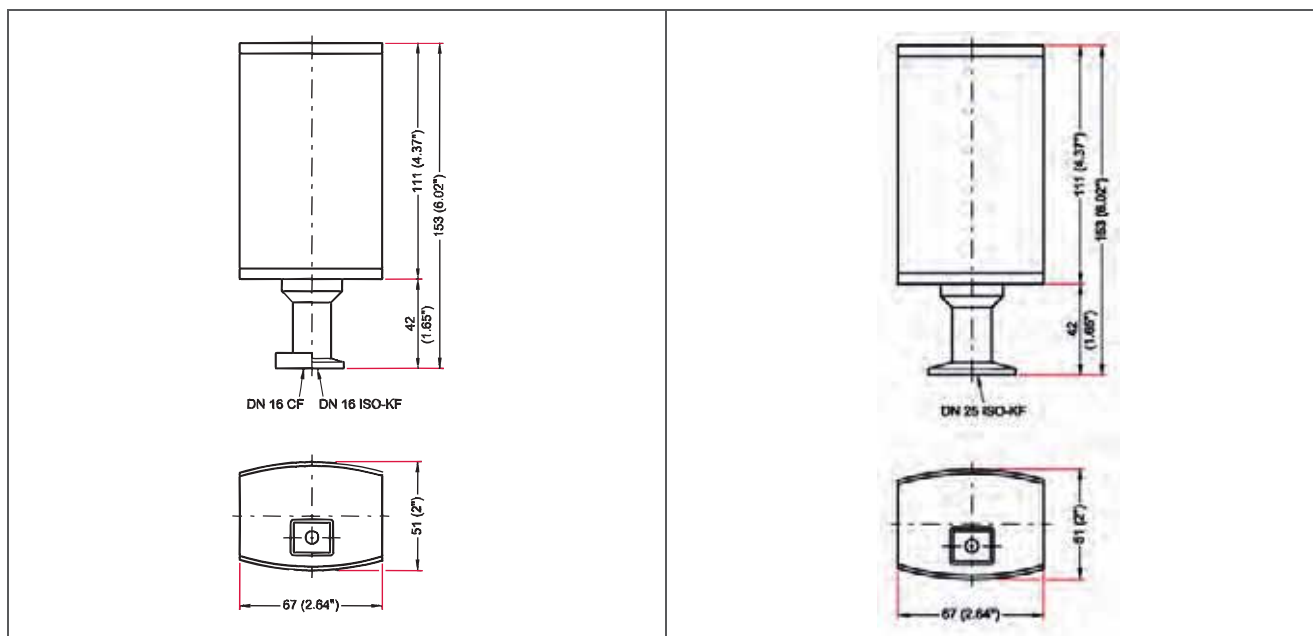


Hot Cathode transmitters IMR (2 · 10⁻⁶ - 1000 hPa)



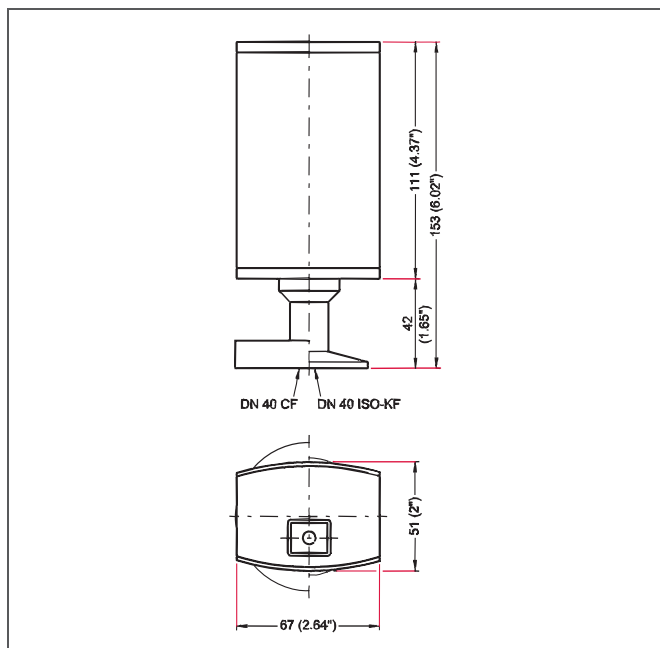
- Measurement range from 2 · 10⁻⁶ to 1000 hPa
- Two gauge heads (Pirani and hot cathode) in a single case
- Highly accurate
- Excellent reproducibility
- Automatic cathode protection
- A single flange from atmosphere to UHV
- Corrosion-resistant
- Maximum pressure refers to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



IMR 265, DN 16 CF-F

IMR 265, DN 25 ISO-KF



IMR 265, DN 40 CF-F



Technical data	IMR 265, High Pressure Hot Cathode
Output signal: Sensor error	0.5 V
Output signal: Pressure range Ioni	1.5 - 7.5 V
Output signal: Pressure range Pirani	8.5 - 9.75 V
Output signal: Minimum load	10 kΩ
Bakeout temperature	150 °C, electronic removed
Pressure max.	500 kPa
Electron collector	Stainless steel
Flange	Stainless steel
Accuracy: % of measurement	10 ⁻⁵ - 1 hPa: ± 15 %
Filament holder	Molybdenum, Platinum
Ion collector	Stainless steel
Isolator	Glass
Filament	Iridium yttriated
Measurement range max.	1000 hPa
Measurement range min.	2 · 10 ⁻⁶ hPa
Sensor cable length	100 m
Pirani measurement element	Copper, Tungsten
Temperature: Operating	0-50 °C
Temperature: Storage	-20-+70 °C
Supply: Voltage	20-30 V DC
Supply: Power consumption max.	16 W
Volume	20 cm ³
Repeatability: 10 ⁻¹ - 10 ² hPa	30 % reading
Repeatability: 10 ⁻⁵ - 10 ⁻¹ hPa	2 % reading

	IMR 265, High Pressure Hot Cathode
Flange (in)	DN 16 ISO-KF
Weight	270 g
Order number	PT R26 504
Flange (in)	DN 25 ISO-KF
Weight	285 g
Order number	PT R26 500
Flange (in)	DN 40 ISO-KF
Weight	315 g
Order number	PT R26 501
Flange (in)	DN 16 CF-F
Weight	400 g
Order number	PT R26 502
Flange (in)	DN 40 CF-F
Weight	550 g
Order number	PT R26 503

Accessories	
Sensor cable, 3 m	PT 448 250 -T
Mating connector	B 4707 283 MA

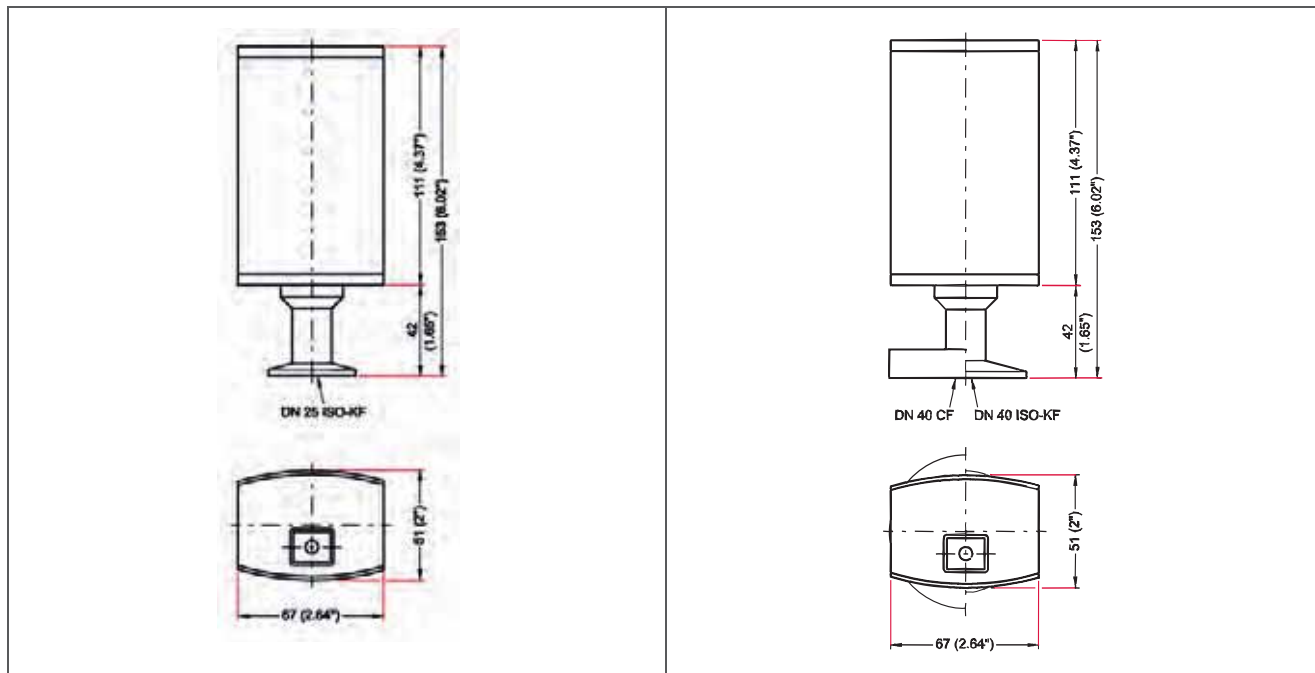


Pirani/Bayard-Alpert transmitters PBR (5 · 10⁻¹⁰ - 1000 hPa)



- Measurement range from 5 · 10⁻¹⁰ to 1000 hPa
- Two gauge heads (Pirani and BA hot cathode) in a single case
- Bayard-Alpert sensor ON/OFF automatically controlled by Pirani sensor
- Highly accurate
- A single flange from atmosphere to UHV
- Corrosion-resistant
- Maximum pressure refers to inert gases and temperatures of less than 55 °C

Dimensions (in mm)



PBR 260, DN 25 ISO-KF

PBR 260, DN 40 CF-R



Technical data	PBR 260, Pirani/Bayard- Alpert, DN 25 ISO-KF	PBR 260, Pirani/Bayard- Alpert, DN 40 ISO-KF	PBR 260, Pirani/Bayard- Alpert, DN 40 CF-R
Flange (in)	DN 25 ISO-KF	DN 40 ISO-KF	DN 40 CF-R
Output signal: Sensor error below	0.5 V	0.5 V	0.5 V
Output signal: Pressure range	0.774 - 10 V	0.774 - 10 V	0.774 - 10 V
Output signal: Minimum load	10 kΩ	10 kΩ	10 kΩ
Bakeout temperature	150 °C, electronic removed	150 °C, electronic removed	150 °C, electronic removed
Pressure max.	200 kPa	200 kPa	200 kPa
Flange	Stainless steel	Stainless steel	Stainless steel
Accuracy: 10^{-8} - 10^{-2} hPa	15 % reading	15 % reading	15 % reading
Weight	285 g	315 g	550 g
Filament	Tungsten	Tungsten	Tungsten
Filament	Iridium yttriated	Iridium yttriated	Iridium yttriated
Materials in contact with media	Cu, W, glass, NiFe, Mo, Stainless Steel, NiCr	Cu, W, glass, NiFe, Mo, Stainless steel, NiCr	Cu, W, glass, NiFe, Mo, Stainless steel, NiCr
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-10}$ hPa	$5 \cdot 10^{-10}$ hPa	$5 \cdot 10^{-10}$ hPa
Sensor cable length	100 m	100 m	100 m
Temperature: Operating	0-50 °C	0-50 °C	0-50 °C
Temperature: Storage	-20-+70 °C	-20-+70 °C	-20-+70 °C
Supply: Voltage	20-28 V DC	20-28 V DC	20-28 V DC
Supply: Power consumption max.	16 W	16 W	16 W
Volume	24 cm ³	24 cm ³	25 cm ³
Repeatability: 10^{-8} - 10^{-2} hPa	5 % reading	5 % reading	5 % reading

Order number			
Pirani/Bayard-Alpert Gauge PBR 260, ($5 \cdot 10^{-10}$ - 1000 hPa)	PT R27 000	PT R27 001	PT R27 002

Accessories			
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T	PT 448 250 -T
Mating connector	B 4707 283 MA	B 4707 283 MA	B 4707 283 MA

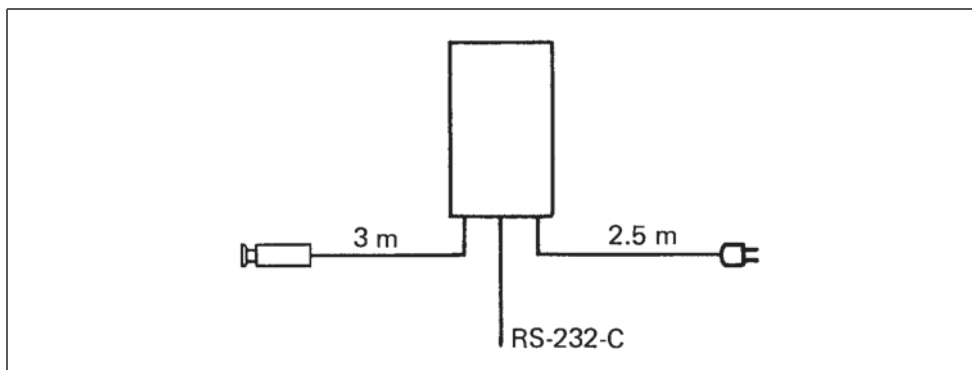


SingleGauge measurement equipment TPG 261



- SingleGauge measurement unit TPG 261
- Length: 3 m

Dimensions (in mm)



Technical data	SingleGauge measurement equipment TPG 261, 1 TPR 280, 3 m cable	SingleGauge measurement equipment TPG 261, 1 IKR 251, 3 m cable	SingleGauge measurement equipment TPG 261, 1 PKR 251, 3 m cable
Flange (in)	DN 16 ISO-KF	DN 25 ISO-KF	DN 25 ISO-KF
Connections for transmitter	1	1	1
Measurement range max.	1000 hPa	0.01 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-4}$ hPa	$2 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa
Gauge head	1 TPR 280	1 IKR 251	1 PKR 251
Mains requirement: voltage (range)	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz
Interface	RS-232-C	RS-232-C	RS-232-C

Order number			
SingleGauge measurement equipment TPG 261	PT 441 930-T	PT 441 933-T	PT 441 935 -T

Accessories			
Centering ring with poral filter, Pore size: 20 μ m, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T		

Technical data	SingleGauge measurement equipment TPG 261, 1 PKR 251, 3 m cable	SingleGauge measurement equipment TPG 261, 1 PKR 251, 3 m cable	SingleGauge measurement equipment TPG 261, 1 PBR 260, 3 m cable
Flange (in)	DN 40 ISO-KF	DN 40 CF-F	DN 25 ISO-KF
Connections for transmitter	1	1	1
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-10}$ hPa
Gauge head	1 PKR 251	1 PKR 251	1 PBR 260
Mains requirement: voltage (range)	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz
Interface	RS-232-C	RS-232-C	RS-232-C

Order number			
SingleGauge measurement equipment TPG 261	PT 441 936 -T	PT 441 937 -T	PT 441 938 -T

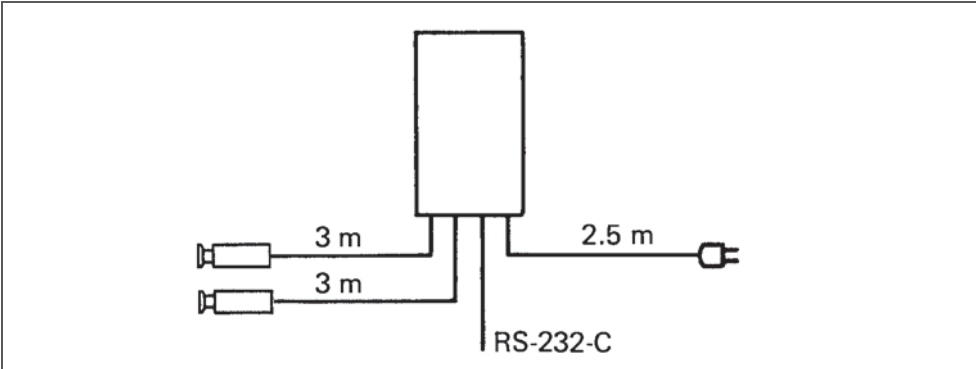


DualGauge measurement equipment TPG 262

- DualGauge measurement unit TPG 262
- Length: 3 m



Dimensions (in mm)



Technical data	DualGauge measurement equipment TPG 262, 2 TPR 280, 3 m cable	DualGauge measurement equipment TPG 262, 1 TPR 280, 1 IKR 251, 3 m cable	DualGauge measurement equipment TPG 262, 2 PKR 251, 3 m cable	DualGauge measurement equipment TPG 262, 1 TPR 280, 1 PKR 251, 3 m cable
Flange (in)	DN 16 ISO-KF	DN 16 ISO-KF/ DN 25 ISO-KF	DN 25 ISO-KF	DN 16 ISO-KF/ DN 25 ISO-KF
Connections for transmitter	2	2	2	2
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	5 · 10 ⁻⁴ hPa	2 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa	5 · 10 ⁻⁹ hPa
Gauge head	2 TPR 280	1 TPR 280, 1 IKR 251	2 PKR 251	1 TPR 280, 1 PKR 251
Mains requirement: voltage (range)	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz	90-250 V, 50/60 Hz
Interface	RS-232-C	RS-232-C	RS-232-C	RS-232-C

Order number				
DualGauge measurement equipment TPG 262	PT 441 940-T	PT 441 943-T	PT 441 945-T	PT 441 948-T

Accessories				
Centering ring with poral filter, Pore size: 20 µm, FPM/stainless steel, DN 16 ISO-KF	PF 117 216 -T	PF 117 216 -T		PF 117 216 -T



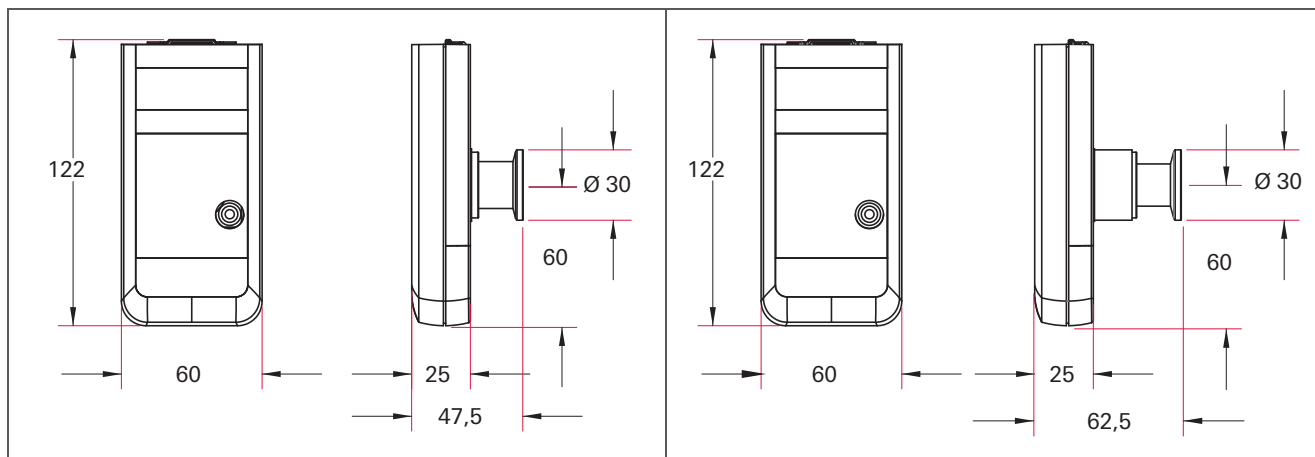
TPG 201, Pirani Handheld Vacuum Gauge

TPG 202, Piezo/Pirani Handheld Vacuum Gauge



- Battery-operated manual measurement unit
- Measurement range from $5 \cdot 10^{-4}$ to 1000 hPa
- Data logging function
- Data readout by PC
- Scope of delivery: Battery not included

Dimensions (in mm)



TPG 201, Pirani manual measurement unit

TPG 202, Pirani manual measurement unit



Technical data	TPG 201, Pirani manual measurement unit	TPG 202, Pirani manual measurement unit
Connection: Vacuum side	DN 16 ISO-KF	DN 16 ISO-KF
Battery type	9 V AIMn E bloc, 6 LR6 ; 9 V Lithium E bloc	9 V AIMn E bloc, 6 LR6 ; 9 V Lithium E bloc
Seal	Metal	Metal
Pressure max.	400 kPa	200 kPa
Accuracy 10 - 100 hPa: % of measurement	approx. 30	
Accuracy 10^{-2} - 10 hPa: % of measurement	approx. 10	
Accuracy		1200 - 1000 hPa: 0,3 % Full Scale ; $10^{-2} \cdot 10^{-3}$ of reading ; $\leq 2 \cdot 10^{-3}$ hPa : $\leq$ factor 2 of reading
Weight	0.195 kg	0.230 (battery included) kg
Materials in contact with media	Nickel, stainless steel, tungsten, glass- feedthroughs	Stainless steel, gold, nickel, tungsten, glass, FPM
Measurement range max.	1000 hPa	1200 hPa
Measurement range min.	$5 \cdot 10^{-4}$ hPa	$5 \cdot 10^{-4}$ hPa
Method of measurement	Pirani	Piezo and Pirani
Protection category	IP 40	IP 40
Temperature: Operating	5-40 °C	+5-+50 °C

Order number		
TPG 201, Pirani Handheld Vacuum Gauge	PT G28 201	PT G28 202

Accessories		
Accessories kit with AC adapter, battery, USB cable, DocuStar software	PT 350 102 -T	PT 350 102 -T

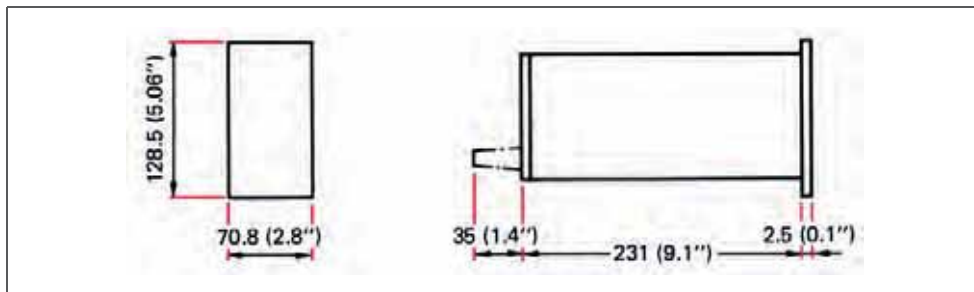


TPG 261, controller for 1 gauge



- For operation of one ActiveLine transmitter
- Simple to operate
- Easy readable display

Dimensions (in mm)



Technical data	TPG 261, controller for 1 transmitter
Connections for transmitter	1
Display rate	10 1/s
Error signal: Working contact, potential-free	1 piece
Error signal: Switching voltage max.	60 V DC
Filter time constant	1.2/0.4/0.02 s
Weight	1.1 kg
Measurement range max.	55000 hPa
Measurement range min.	$5 \cdot 10^{-11}$ hPa
Measurement rate	50 1/s
Mains requirement: frequency (range)	50/60 Hz
Mains requirement: power consumption	45 VA
Mains requirement: voltage (range)	90-250 V
Set point: Voltage max.	60 V DC
Set point: Current max.	1 A
Set point: Changeover contact, potential-free	2 pieces
Interface	RS-232-C
Protection category	IP 30
Safety	EN61010-1 / EN 50081-1 / EN50082-2 / IEC1010
Signal output: Measuring value, analog	0-10 V
Temperature: Operating	5-50 °C
Temperature: Storage	-20-+65 °C

Order number	
TPG 261, controller for 1 gauge	PT G28 030

Accessories	
Sensor cable, 1 m	PT 448 248 -T
Sensor cable, 3 m	PT 448 250 -T
Sensor cable, 6 m	PT 448 251 -T
Sensor cable, 10 m	PT 448 252 -T
Sensor cable, 15 m	PT 448 253 -T
Sensor cable, 20 m	PT 448 254 -T
Sensor cable, 25 m	PT 448 255 -T
Sensor cable, 30 m	PT 448 256 -T
Sensor cable, 35 m	PT 448 257 -T
Sensor cable, 40 m	PT 448 258 -T
Sensor cable, 45 m	PT 448 259 -T
Sensor cable, 50 m	PT 448 260 -T

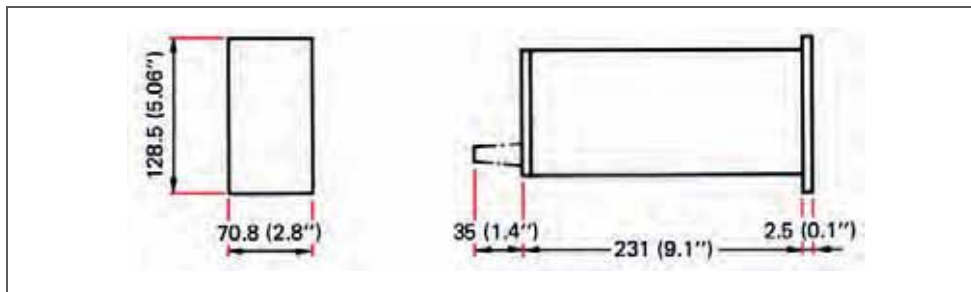


TPG 262, controller for 2 gauges



- For operation of two ActiveLine transmitters
- Simple to operate
- Easy readable display

Dimensions (in mm)



Technical data	TPG 262 controller for 2 transmitter
Connections for transmitter	2
Display rate	10 1/s
Automatic changeover: Pirani-cold cathode	$6 \cdot 10^{-3}$ hPa
Error signal: Working contact, potential-free	1 piece
Filter time constant	1.2/0.4/0.02 s
Weight	1.1 kg
Measurement range max.	55000 hPa
Measurement range min.	$5 \cdot 10^{-11}$ hPa
Measurement rate	50 1/s
Mains requirement: frequency (range)	50/60 Hz
Mains requirement: power consumption	45 VA
Mains requirement: voltage (range)	90-250 V
Set point: Voltage max.	60 V DC
Set point: Current max.	1 A
Set point: Changeover contact, potential-free	4 pieces
Interface	RS-232-C
Protection category	IP 30
Safety	EN61010-1 / EN 50081-1 / EN50082-2 / IEC1010
Signal output: Measuring value, analog	0-10 V
Temperature: Operating	5-50 °C
Temperature: Storage	-20-+65 °C

Order number	
TPG 262, controller for 2 gauges	PT G28 280

Accessories	
Sensor cable, 1 m	PT 448 248 -T
Sensor cable, 3 m	PT 448 250 -T
Sensor cable, 6 m	PT 448 251 -T
Sensor cable, 10 m	PT 448 252 -T
Sensor cable, 15 m	PT 448 253 -T
Sensor cable, 20 m	PT 448 254 -T
Sensor cable, 25 m	PT 448 255 -T
Sensor cable, 30 m	PT 448 256 -T
Sensor cable, 35 m	PT 448 257 -T
Sensor cable, 40 m	PT 448 258 -T
Sensor cable, 45 m	PT 448 259 -T
Sensor cable, 50 m	PT 448 260 -T

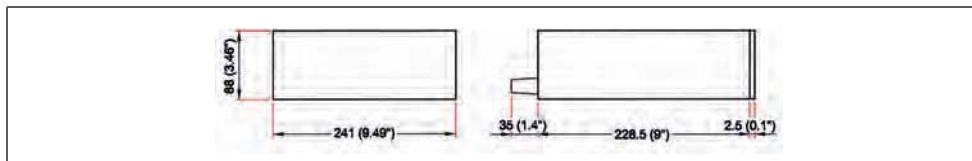


TPG 256 A, controller for 6 gauges

- For operating 6 ActiveLine transmitters



Dimensions (in mm)



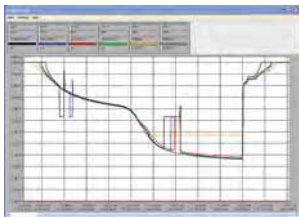
Technical data	TPG 256 A MaxiGauge controller, seriell interface	TPG 256 A MaxiGauge controller, seriell interface isolated
Connections for transmitter	6 (max. 3 IMR 265 / PBR 260 / CMR 27x)	6 (max. 3 IMR 265 / PBR 260 / CMR 27x)
Display rate	4 1/s	4.0 1/s
Error signal: Working contact, potential-free	1 piece	1 piece
Error signal: Switching voltage max.	60 V DC	60 V DC
Error signal: Switching current max.	3 A	3 A
Filter time constant	2.1/0.32/0.1 s	2.1/0.32/0.1 s
Weight	2.1 kg	2.1 kg
Measurement range max.	55000 hPa	55000 hPa
Measurement range min.	$5 \cdot 10^{-11}$ hPa	$5 \cdot 10^{-11}$ hPa
Measurement rate	100 1/s	100 1/s
Mains requirement: frequency (range)	50-60 Hz	50-60 Hz
Mains requirement: power consumption	60 VA	60 VA
Mains requirement: voltage (range)	90-250 V	90-250 V
Set point: Voltage max.	60 V DC	60 V DC
Set point: Current max.	3 A	3 A
Set point: Changeover contact, potential-free	6 pieces	6,0 pieces
Switching voltage	240 V with RI 256	240 V with RI 256
Interface	RS-232-C, RS-422	RS-232-C, RS-422, RS-422 isolated, RS-485 isolated
Protection category	IP 30	IP 30
Safety	EN61010-1 / IEC 1010, EN60950, EN 50081-1 / EN50082-1	EN61010-1 / IEC 1010, EN60950, EN 50081-1&2
Signal output: Output resistance	660 Ω	660 Ω
Signal output: Measuring value, analog	0-10 V DC	0-10 V DC
Temperature: Operating	5-40 °C	5-40 °C
Temperature: Storage	-20-+60 °C	-20-+60 °C

Order number		
TPG 256 A, controller for 6 gauges	PT G28 760	PT G28 761

Accessories		
Sensor cable, 1 m	PT 448 248 -T	PT 448 248 -T
Sensor cable, 3 m	PT 448 250 -T	PT 448 250 -T
Sensor cable, 6 m	PT 448 251 -T	PT 448 251 -T
Sensor cable, 10 m	PT 448 252 -T	PT 448 252 -T
Sensor cable, 15 m	PT 448 253 -T	PT 448 253 -T
Sensor cable, 20 m	PT 448 254 -T	PT 448 254 -T
Sensor cable, 25 m	PT 448 255 -T	PT 448 255 -T
Sensor cable, 30 m	PT 448 256 -T	PT 448 256 -T
Sensor cable, 35 m	PT 448 257 -T	PT 448 257 -T
Sensor cable, 40 m	PT 448 258 -T	PT 448 258 -T
Sensor cable, 45 m	PT 448 259 -T	PT 448 259 -T
Sensor cable, 50 m	PT 448 260 -T	PT 448 260 -T



Software for display and data logging for Active Line



- For the following controller: TPG 261, TPG 262, TPG 265 A and TPG 300
- Simple to operate
- Up to 6 channels simultaneous presentable
- Data is convertible in Excel
- System requirements:
 - Software: Windows 7, Windows XP, Windows Vista (administrator authorisation is required)
 - Hardware: Pentium-PC (1000 MHz or higher recommended), 256 MB RAM (512 MB recommended), 150 MB free hard disc storage unit, Super VGA-Monitor (with 1024 x 768 screen definition, small font adjustment), 24 Bit True Color, Free COM Port

Order number	
Software for display and data logging for Active Line	PT 882 550 -T



ModuLine

For challenging applications in research and development



ModuLine

The ModuLine series includes three Pirani TPR vacuum gauges with a measuring range of 1,000 to $8 \cdot 10^{-4}$ hPa and three IKR cold cathode vacuum gauges with a measuring range of $5 \cdot 10^{-3}$ to 10^{-11} hPa. Since these vacuum gauges do not contain any electronics, they are suitable for use in high-radiation environments. An extensive range of cables, including high-temperature cables and cables with double shielding, as well as a controller complete this measurement equipment line. The individually configurable controller can have two measuring boards for up to four vacuum gauges. Another socket is for an interface board for serial interfaces RS-232/RS-485 and relay contacts; connection to fieldbuses is possible as well.

Customer benefits

- Proven long life
- Allows for challenging applications
- Sensors and electronics can be located separately

Typical applications

- Accelerators
- UHV applications
- Applications with exposure to radiation



Accelerators



Applications with exposure to radiation



Pirani gauge heads



TPR 010

- For general applications

TPR 017

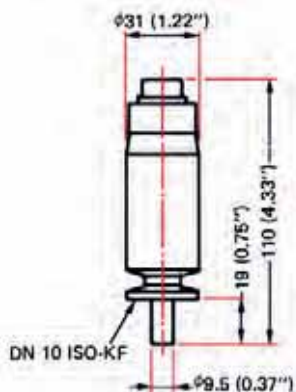
- For corrosive media

TPR 018

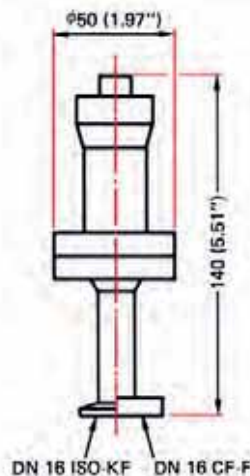
- For UHV

Limited measurement and switching accuracy above 100 and below 10^{-3} hPa

Dimensions (in mm)

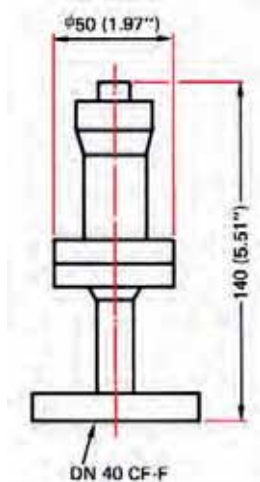


TPR 010



TPR 017

TPR 018



TPR 018, UHV



Technical data	Pirani gauge head TPR 010	Pirani gauge head TPR 017, corrosion resistant	Pirani gauge head TPR 018
Bakeout temperature	100 °C	250 °C	250 °C
Operating temperature: high temperature sensor cable		0-120 °C	0-120 °C
Operating temperature: standard sensor cable	0-70 °C	0-80 °C	0-80 °C
Weight	0.14 kg	0.6 kg	0.6 kg
Isolator	FPM	Al ₂ O ₃	Al ₂ O ₃
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	8 · 10 ⁻⁴ hPa	8 · 10 ⁻⁴ hPa	8 · 10 ⁻⁴ hPa
Filament/holder	T/Ni	Ni/Ni	T/Ni
Chamber wall, inside	AlSiMg	Stainless steel	Stainless steel
Protective filter	Sintered bronze		
Radiation resistance		1 · 10 ⁴ Gy	1 · 10 ⁴ Gy

	Pirani gauge head TPR 010	Pirani gauge head TPR 017, corrosion resistant	Pirani gauge head TPR 018
Flange (in)	DN 10 ISO-KF		
Order number	PT R02 270		
Flange (in)		DN 16 ISO-KF	DN 16 ISO-KF
Order number		PT R13 270	PT R15 010
Flange (in)		DN 16 CF-F	DN 16 CF-F
Order number		PT R13 271	PT R15 011
Flange (in)			DN 40 CF-F
Order number			PT R15 014

Accessories			
Sensor cable, TPR 010, 3.0 m, 80 °C	PT 548 402-T		
Sensor cable, TPR 010, 6.0 m, 80 °C	PT 548 403-T		
Sensor cable, TPR 017/018, 3.0 m, 80 °C		PT 548 308-T	PT 548 308-T
Sensor cable, TPR 017/018, 6.0 m, 80 °C		PT 548 309-T	PT 548 309-T
Extension for sensor cable, TPR 010/017/018, 30 m, 80 °C			PT 548 470-T



Cold cathode gauge heads

**IKR 050 coaxial**

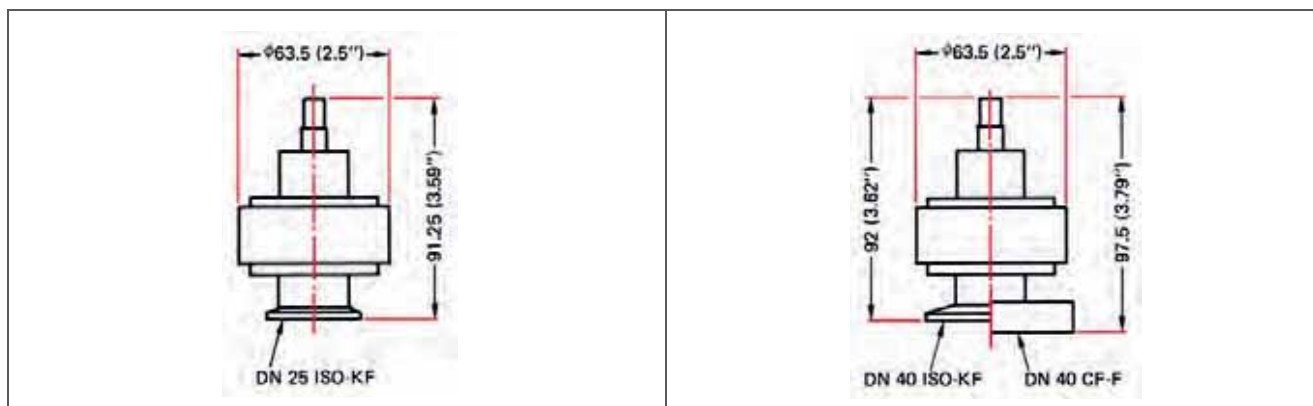
- For general applications

IKR 060 coaxial

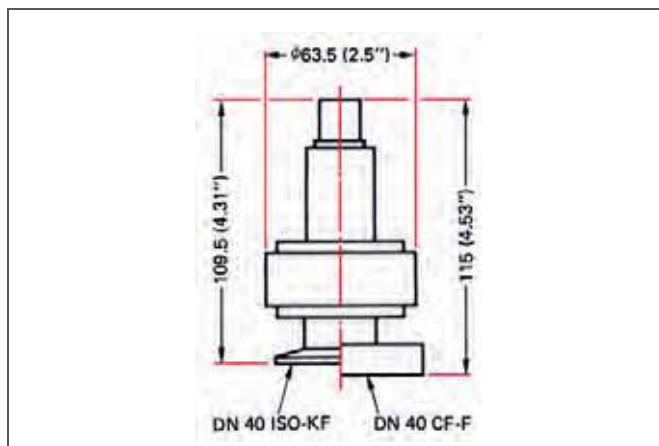
- For UHV
- Radiation-resistant

IKR 070 coaxial

- For UHV
- Radiation-resistant

Dimensions (in mm)

IKR 050 coaxial

IKR 050, coaxial
IKR 060

IKR 070 coaxial



Technical data	Cold cathode gauge head IKR 050, coaxial, FPM seal	Cold cathode gauge head IKR 060, coaxial, metal seal	Cold cathode gauge head IKR 070, triaxial, metal seal
Bakeout temperature	150 °C	250 °C	250 °C
Operating temperature: high temperature sensor cable	5-150 °C	5-250 °C	
Operating temperature: standard sensor cable	5-80 °C	5-80 °C	5-80 °C
Internal seal	FPM	Silver	Silver
Flange	Stainless steel	Stainless steel	Stainless steel
Isolator	Al ₂ O ₃	Al ₂ O ₃	Al ₂ O ₃
Measurement range max.	5 · 10 ⁻³ hPa	5 · 10 ⁻³ hPa	5 · 10 ⁻³ hPa
Measurement range min.	2 · 10 ⁻⁹ hPa	1 · 10 ⁻¹⁰ hPa	1 · 10 ⁻¹¹ hPa
Radiation resistance		1 · 10 ⁷ Gy	1 · 10 ⁷ Gy

	Cold cathode gauge head IKR 050, coaxial, FPM seal	Cold cathode gauge head IKR 060, coaxial, metal seal	Cold cathode gauge head IKR 070, triaxial, metal seal
Flange (in)	DN 25 ISO-KF		
Weight	0.6 kg		
Order number	PT R18 500		
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF	DN 40 ISO-KF
Weight	0.6 kg	0.6 kg	0.6 kg
Order number	PT R18 501	PT R18 753	PT R20 501
Flange (in)	DN 40 CF-F	DN 40 CF-F	DN 40 CF-F
Weight	0.85 kg	0.85 kg	0.85 kg
Order number	PT R18 502	PT R18 751	PT R20 502

Accessories			
Sensor cable, IKR 050/060, 3.0 m, 80 °C	PT 548 406-T	PT 548 406-T	
Sensor cable, IKR 050/060, 6.0 m, 80 °C	PT 548 407-T	PT 548 407-T	
Sensor cable, IKR 070, 3.0 m, 80 °C			PT 548 306-T
Sensor cable, IKR 070, 6.0 m, 80 °C			PT 548 317-T



Gauge head accessories

Sensor cables	Order number
Sensor cable, TPR 017/018, 3.0 m, 80 °C	PT 548 308-T
Sensor cable, TPR 017/018, 6.0 m, 80 °C	PT 548 309-T
Sensor cable, TPR 017/018, 10 m, 80 °C	PT 548 456-T
Sensor cable, TPR 017/018, 15 m, 80 °C	PT 548 457-T
Sensor cable, TPR 017/018, 20 m, 80 °C	PT 548 458-T
Sensor cable, TPR 017/018, 25 m, 80 °C	PT 548 459-T
Sensor cable, TPR 017/018, 30 m, 80 °C	PT 548 460-T
Sensor cable, TPR 017/018, 35 m, 80 °C	PT 548 461-T
Sensor cable, TPR 017/018, 40 m, 80 °C	PT 548 462-T
Sensor cable, TPR 017/018, 45 m, 80 °C	PT 548 463-T
Sensor cable, TPR 017/018, 50 m, 80 °C	PT 548 464-T
Sensor cable, TPR 010, 2.0 m, 80 °C	PT 548 401-T
Sensor cable, TPR 010, 3.0 m, 80 °C	PT 548 402-T
Sensor cable, TPR 010, 6.0 m, 80 °C	PT 548 403-T
Sensor cable, TPR 010, 30 m, 80 °C	PT 548 415-T
Sensor cable, TPR 010, 40 m, 80 °C	PT 548 416-T
Sensor cable, TPR 010, 50 m, 80 °C	PT 548 417-T
Sensor cable, TPR 010, 10 m, 80 °C	PT 548 450-T
Sensor cable, TPR 010, 15 m, 80 °C	PT 548 451-T
Sensor cable, TPR 010, 20 m, 80 °C	PT 548 452-T
Sensor cable, TPR 010, 25 m, 80 °C	PT 548 453-T
Sensor cable, TPR 010, 35 m, 80 °C	PT 548 454-T
Sensor cable, TPR 010, 45 m, 80 °C	PT 548 455-T
Sensor cable, IKR 050/060, 3.0 m, 80 °C	PT 548 406-T
Sensor cable, IKR 050/060, 6.0 m, 80 °C	PT 548 407-T
Sensor cable, IKR 050/060, 10 m, 80 °C	PT 548 419-T
Sensor cable, IKR 050/060, 30 m, 80 °C	PT 548 422-T
Sensor cable, IKR 050/060, 15 m, 80 °C	PT 548 483-T
Sensor cable, IKR 050/060, 20 m, 80 °C	PT 548 484-T
Sensor cable, IKR 050/060, 25 m, 80 °C	PT 548 485-T
Sensor cable, IKR 050/060, 35 m, 80 °C	PT 548 486-T
Sensor cable, IKR 050/060, 40 m, 80 °C	PT 548 487-T
Sensor cable, IKR 050/060, 45 m, 80 °C	PT 548 488-T
Sensor cable, IKR 050/060, 50 m, 80 °C	PT 548 489-T
Sensor cable, IKR 070, 3.0 m, 80 °C	PT 548 306-T
Sensor cable, IKR 070, 6.0 m, 80 °C	PT 548 317-T
Sensor cable, IKR 070, 10 m, 80 °C	PT 548 490-T
Sensor cable, IKR 070, 15 m, 80 °C	PT 548 491-T
Sensor cable, IKR 070, 20 m, 80 °C	PT 548 492-T
Sensor cable, IKR 070, 30 m, 80 °C	PT 548 493-T
Sensor cable, IKR 070, 40 m, 80 °C	PT 548 494-T
Sensor cable, IKR 070, 45 m, 80 °C	PT 548 495-T
Sensor cable, IKR 070, 50 m, 80 °C	BP 229 748-T



Extension for sensor cables	Order number
Extension for sensor cable, TPR 010/017/018, 10 m, 80 °C	PT 548 466-T
Extension for sensor cable, TPR 010/017/018, 20 m, 80 °C	PT 548 468-T
Extension for sensor cable, TPR 010/017/018, 30 m, 80 °C	PT 548 470-T
Extension for sensor cable, TPR 010/017/018, 40 m, 80 °C	PT 548 472-T
Extension for sensor cable, TPR 010/017/018, 50 m, 80 °C	PT 548 474-T

High-temperature sensor cables	Order number
High-temperature sensor cable, TPR 017/018, 3.0 m, 250 °C	PT 548 414-T
High-temperature sensor cable, TPR 017/018, 6.0 m, 250 °C	PT 548 465-T
High-temperature sensor cable, TPR 017/018, 10 m, 250 °C	PT 448 047-T
High-temperature sensor cable, TPR 017/018, 15 m, 250 °C	PT 448 043-T
High-temperature sensor cable, TPR 017/018, 20 m, 250 °C	PT 448 044-T
High-temperature sensor cable, IKR 050/060, 3.0 m, 250 °C	PT 548 542-T
High-temperature sensor cable, IKR 050/060, 6.0 m, 250 °C	PT 548 543-T
High-temperature sensor cable, IKR 050/060, 10 m, 250 °C	PT 448 045-T
High-temperature sensor cable, IKR 050/060, 15 m, 250 °C	PT 548 989-T
High-temperature sensor cable, IKR 050/060, 20 m, 250 °C	PT 448 046-T

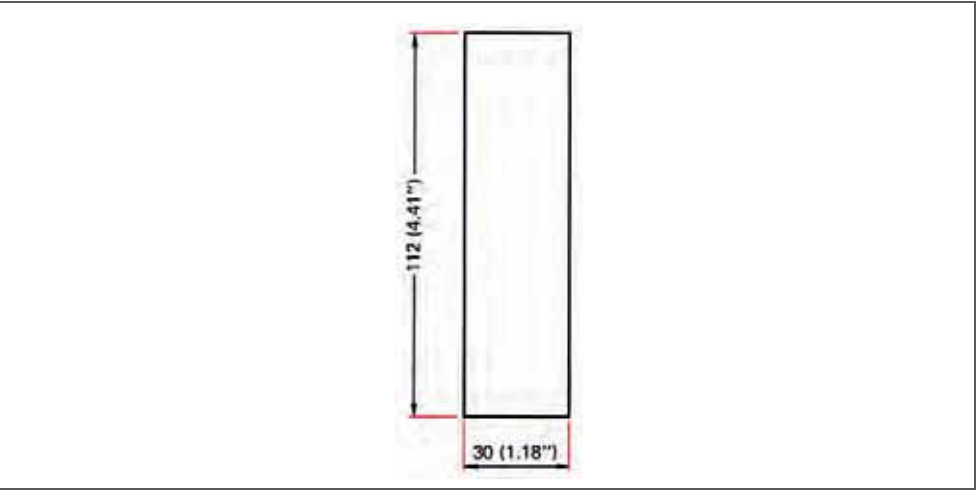


Pirani measurement board

- For 2 TPR 010/018
- Measurement range from 1000 to $8 \cdot 10^{-4}$ hPa



Dimensions (in mm)



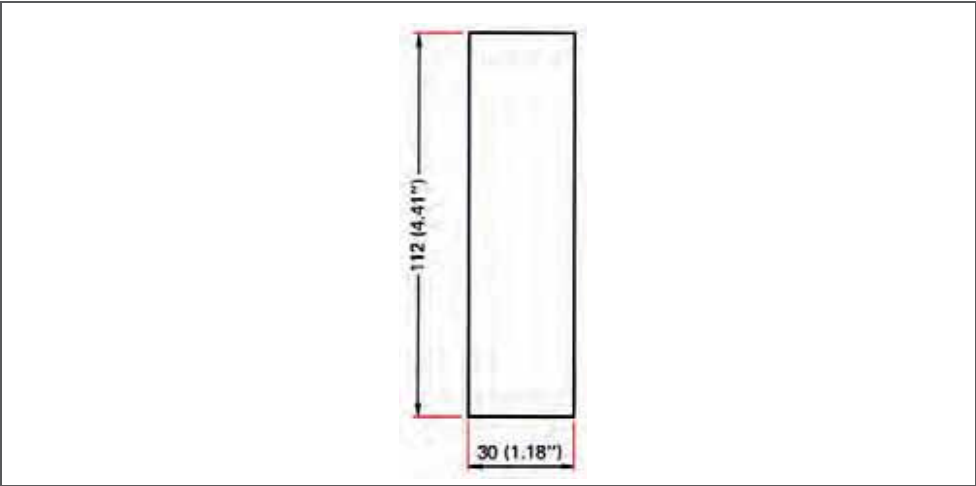
Technical data	Pirani measurement board PI 300 D, for 2 TPR 010/018	Pirani measurement board PI 300 DN, for 2 TPR 017s
Number of measuring circuits	2	2
For gauge	TPR 010, TPR 018	TPR 017
Weight	0.14 kg	0.14 kg
Measurement range max.	1000 hPa	1000 hPa
Measurement range min.	$8 \cdot 10^{-4}$ hPa	$8 \cdot 10^{-4}$ hPa
Sensor cable length	100 m	100 m
Measurement board	Pirani measurement board	Pirani Measurement board
Reaction time of the output signal: Decay	600 ms	600 ms
Reaction time of the output signal: Rise	50 ms	50 ms

Order number		
Pirani measurement board	PT 546 920 -T	PT 549 214 -T

Cold cathode measurement board

- Measurement range from 1 · 10⁻⁹ to 5 · 10⁻³ hPa
- For 2 IKR 050

Dimensions (in mm)



Technical data	Cold cathode measurement board PE 300 DC9, for 2 IKR 050s
Number of measuring circuits	2
For gauge	IKR 050
Weight	0.26 kg
Measurement range max.	5 · 10 ⁻³ hPa
Measurement range min.	1 · 10 ⁻⁹ hPa
Sensor cable length	100 m
Measurement board	Cold cathode measurement board
Reaction time of the output signal: Rise	16 ms

Order number	
Cold cathode measurement board	PT 441 375 -T

Pirani/cold cathode measurement board



CP 300 T11L

- For 1 TPR 010/018 and 1 IKR 070
- Max. sensor cable length: 500 m
- Measurement range from 1000 to $1 \cdot 10^{-11}$ hPa

CP 300 C9

- For 1 TPR 010/018 and 1 IKR 050
- Measurement range from 1000 to $5 \cdot 10^{-9}$ hPa

CP 300 T11

- For 1 TPR 010/018 and 1 IKR 070
- Measurement range from 1000 to $1 \cdot 10^{-11}$ hPa

CP 300 C10

- For 1 TPR 010/018 and 1 IKR 060
- Measurement range from 1000 to $1 \cdot 10^{-10}$ hPa

Dimensions (in mm)



Technical data	Pirani/cold cathode measurement board CP 300 T11L, for 1 TPR 010/018, 1 IKR 070	Pirani/cold cathode measurement board CP 300 C9, for 1 TPR 010/018, 1 IKR 050	Pirani/cold cathode measurement board CP 300 T11, for 1 TPR 010/018, 1 IKR 070	Pirani/cold cathode measurement board CP 300 C10, for 1 TPR 010/018, 1 IKR 060
Number of measuring circuits	2	1 each	1 each	1 each
For gauge	TPR 010, TPR 018, IKR 070	TPR 010, TPR 018, IKR 050	TPR 010, TPR 018, IKR 070	TPR 010, TPR 018, IKR 060
Weight	0.21 kg	0.21 kg	0.25 kg	0.23 kg
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$1 \cdot 10^{-11}$ hPa	$5 \cdot 10^{-9}$ hPa	$1 \cdot 10^{-11}$ hPa	$1 \cdot 10^{-10}$ hPa
Sensor cable length	500 m	100 m	100 m	100 m
Measurement board	Pirani/cold cathode measurement board	Pirani/cold cathode measurement board	Pirani/cold cathode measurement board	Pirani/Cold cathode measurement board
Reaction time of the output signal: Rise	< 50 ms	10 ms	50 ms	50 ms

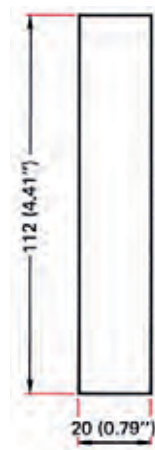
Order number				
Pirani/cold cathode measurement board	PT 441 122 -T	PT 441 000 -T	PT 441 080 -T	PT 441 114 -T

Interface and relay board



- With RS-232-C interface
 - 5 relays, maximum switching voltage 50 V AC
- AC = Alternating Current
DC = Direct Current

Dimensions (in mm)



Technical data	Interface and relay board IF 300 A, RS-232-C, 45 W, 75 VA	Interface and relay board IF 300 B, RS-232-C, 120 W, 1000 VA	Interface and relay board IF 300 C, RS-422, 50 V AC / DC	Interface and relay board IF 300 P, Profibus-DP, 45 W, 75 VA
Weight	0.14 kg	0.15 kg	0.14 kg	0.16 kg
Relay: Connector 15 pole (pins)	D-Sub	GdsA-H, DIN 41612	D-Sub	D-Sub
Relay: Number	5 pieces	5 pieces	5 pieces	5 pieces
Relay: Switching capacity	45 W, 75 VA	120 W, 1000 VA	45 W, 75 VA	45 W, 75 VA
Relay: Switching voltage	30 V DC / 50 V AC	30 V DC / 250 V AC	50 V AC / DC	50 V AC / DC
Relay: Switching current	1.5 A	4 A	1.5 A	1.5 A
Relay: Changeover contacts, potential-free, per relay	1 piece	1 piece	1 piece	1 piece
Relay: Resistance (with connector)	125 mΩ	70 mΩ	125 mΩ	125 mΩ
Interface	RS-232-C	RS-232-C	RS-422	Profibus-DP
Interface: Connection	D-sub connector, 9-pole, pins	Cable with D-sub connector, 9-pole, pins	D-sub connector, 9-pole, sockets	D-sub connector, 9-pole, pins
Interface: Baud rates	300, 1200, 2400, 4800, 9600	300, 1200, 2400, 4800, 9600	300, 1200, 2400, 4800, 9600	12 Mbaud
Interface: Data format	ASCII, 1 start bit, 8 data bits, 1 stop bit, no parity bit	ASCII, 1 start bit, 8 data bits, 1 stop bit, no parity bit	ASCII, 1 start bit, 8 data bits, 1 stop bit, no parity bit	
Interface: Cable length max.	30 m	30 m	1200 m	1200 m
Interface: Type	RS-232-C asynchronous	RS-232-C asynchronous	RS-422 asynchronous	Profibus-DP

Order number				
Interface and relay board	PT 441 130-T	PT 441 250-T	PT 441 390-T	PT 441 395-T

Accessories				
D-Sub mating connector, female, 15-pin, for IF 300 A/C, relay output	PT 441 129-T		PT 441 129-T	
D-Sub mating connector, female, for IF 300 A, RS-232-C	PT 441 128-T			
Interface cable, for IF 300 B, RS-232-C, 0.4 m		PT 548 932-T		
Relay connector, complete, for IF 300 B		PT 546 999-T		

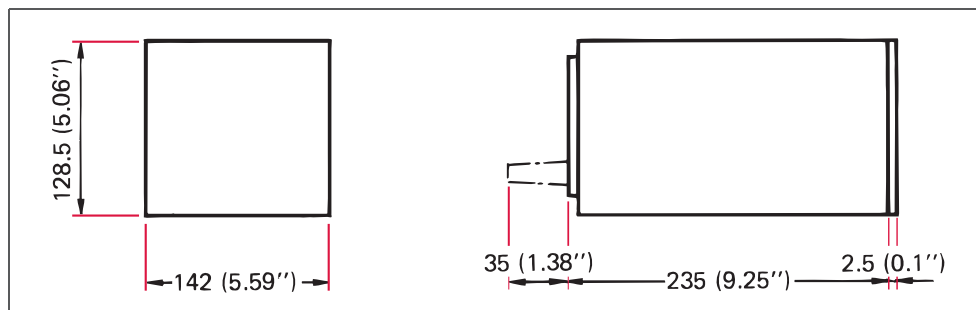


TPG 300, basic unit

- Basic unit with power supply and 3 free slots for measurement, interface and relay boards



Dimensions (in mm)



Technical data	TPG 300, basic unit
Display rate	5 s
Error display	1 LED, red
Filter time constant	16 ms, 160 ms (standard), 1.6 s
Weight: without boards	1.4 kg
Limit frequency	10 Hz, 1 Hz (standard), 0.1 Hz
Unit of measure	mbar, Torr, Pa
Measurement range max.	1000 hPa
Measurement range min.	$1 \cdot 10^{-11}$ hPa
Measurement rate	100 1/s
Measured value display	15 mm high numbers
Mains requirement: frequency (range)	50/60 Hz
Mains requirement: power consumption	55 VA
Mains requirement: voltage (range)	90-264 V AC
Safety	IEC 384, class 1, VDE 0411, part 2.80
Temperature: Operating	5-50 °C
Temperature: Storage	-40-+65 °C

Order number	
TPG 300, basic unit	PT 546 900 -T

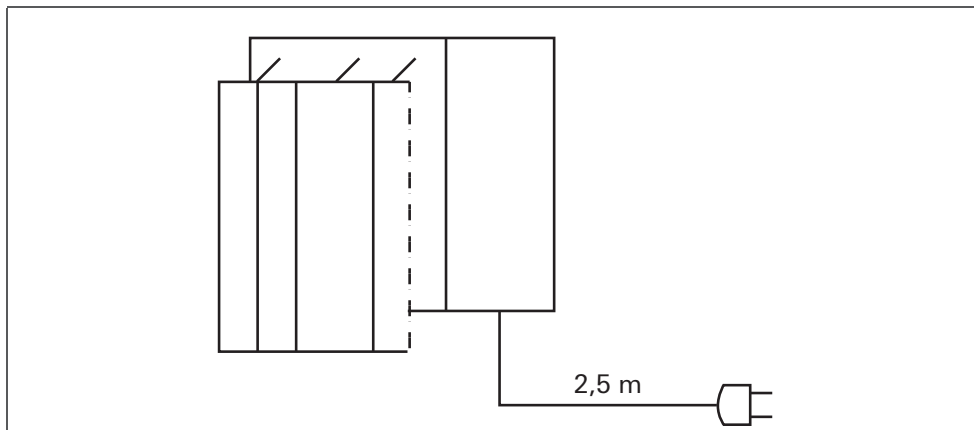
Accessories	
Blank panel, for measurement board	PT 441 259
Blank panel, for IF 300	PT 441 017



TPG 300, complete units with measurement boards and power cords



Dimensions (in mm)



Technical data	TPG 300, complete units with measurement boards and power cords
Display rate	5 1/s
Error display	1 LED, red
Filter time constant	16 ms, 160 ms (standard), 1.6 s
Weight: without boards	1.4 kg
Limit frequency	10 Hz, 1 Hz (standard), 0.1 Hz
Unit of measure	mbar, Torr, Pa
Measurement rate	100 s
Measured value display	15 mm high numbers
Mains requirement: frequency (range)	50-60 Hz
Mains requirement: power consumption	55 VA
Mains requirement: voltage (range)	90-264 V AC
Safety	IEC 384, class 1, VDE 0411, part 2.80
Temperature: Operating	5-50 °C
Temperature: Storage	-40-+65 °C



Technical data	TPG 300, complete measurement unit, incl. PI 300 D	TPG 300, complete measurement unit, incl. PI 300 D, IF 300 B	TPG 300, complete measurement unit, incl. 2 PI 300 D	TPG 300, complete measurement unit, incl. 2 PI 300 D, IF 300 B
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$8 \cdot 10^{-4}$ hPa	$8 \cdot 10^{-4}$ hPa	$8 \cdot 10^{-4}$ hPa	$8 \cdot 10^{-4}$ hPa
Measurement board	PI 300 D for 2 Pirani Gauge TPR 010/018	PI 300 D for 2 Pirani Gauge TPR 010/018	2 PI 300 D for 4 Pirani Gauge TPR 010/018	2 PI 300 D for 4 Pirani Gauge TPR 010/018
Relay: Switching voltage		30 V DC / 250 V AC		30 V DC / 250 V AC
Set point		5 pieces		5 pieces
Interface		RS-232-C, IF 300 B		RS-232-C, IF 300 B

Order number				
TPG 300, complete units with measurement boards and power cords	PT G25 250	PT G25 251	PT G25 252	PT G25 253

Technical data	TPG 300, complete measurement unit, incl. CP 300 C10	TPG 300, complete measurement unit, incl. CP 300 C10, IF 300 B	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C10	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C10, IF 300 B
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$1 \cdot 10^{-10}$ hPa	$1 \cdot 10^{-10}$ hPa	$1 \cdot 10^{-10}$ hPa	$1 \cdot 10^{-10}$ hPa
Measurement board	CP 300 C10 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060	CP 300 C10 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060	PI 300 D, CP 300 C10 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060	PI 300 D, CP 300 C10 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060
Relay: Switching voltage		30 V DC / 250 V AC		30 V DC / 250 V AC
Set point		5 pieces		5 pieces
Interface		RS-232-C, IF 300 B		RS-232-C, IF 300 B

Order number				
TPG 300, complete units with measurement boards and power cords	PT G25 256	PT G25 257	PT G25 262	PT G25 263

Technical data	TPG 300, complete measurement unit, incl. CP 300 C9	TPG 300, complete measurement unit, incl. CP 300 C9, IF 300 B	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C9	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C9, IF 300 B
Measurement range max.	1000 hPa	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa
Measurement board	CP 300 C9 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050	CP 300 C9 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050	PI 300 D, CP 300 C9 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050	PI 300 D, CP 300 C9 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050
Relay: Switching voltage		30 V DC / 250 V AC		30 V DC / 250 V AC
Set point		5 pieces		5 pieces
Interface		RS-232-C, IF 300 B		RS-232-C, IF 300 B

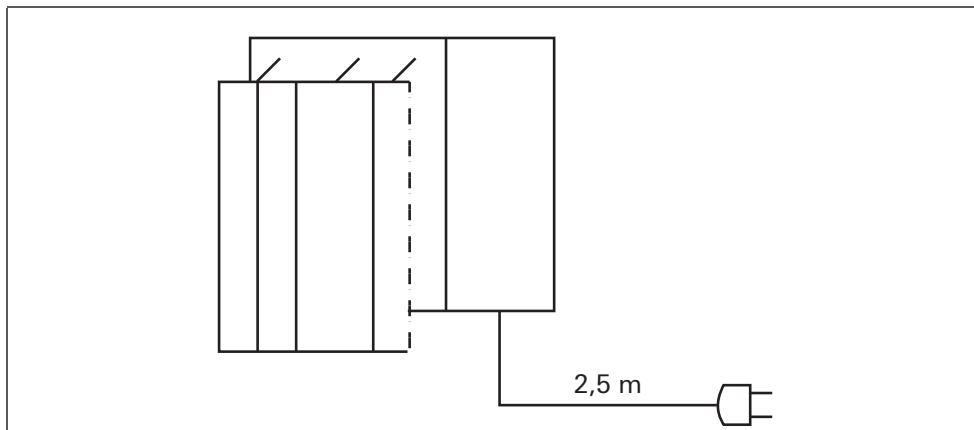
Order number				
TPG 300, complete units with measurement boards and power cords	PT G25 290	PT G25 291	PT G25 292	PT G25 293



TPG 300, complete units with measurement boards and power cords



Dimensions (in mm)



Technical data	TPG 300, complete units with measurement boards and power cords
Display rate	5 1/s
Error display	1 LED, red
Filter time constant	16 ms, 160 ms (standard), 1.6 s
Weight: without boards	1.4 kg
Limit frequency	10 Hz, 1 Hz (standard), 0.1 Hz
Unit of measure	mbar, Torr, Pa
Measurement rate	100 s
Measured value display	15 mm high numbers
Mains requirement: frequency (range)	50-60 Hz
Mains requirement: power consumption	55 VA
Mains requirement: voltage (range)	90-264 V AC
Safety	IEC 384, class 1, VDE 0411, part 2.80
Temperature: Operating	5-50 °C
Temperature: Storage	-40-+65 °C



Technical data	TPG 300, complete measurement unit, incl. 2 CP 300 C9	TPG 300, complete measurement unit, incl. 2 CP 300 C9, IF 300 B	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C9, IF 300 A
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa	$5 \cdot 10^{-9}$ hPa
Measurement board	2 CP 300 C9 for 2 Pirani- and 2 Cold Cathode Gauge TPR 010/018, IKR 050	2 CP 300 C9 for 2 Pirani- and 2 Cold Cathode Gauge TPR 010/018, IKR 050	PI 300 D, CP 300 C9 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050
Relay: Switching voltage		30 V DC / 250 V AC	30 V DC / 50 V AC
Set point		5 pieces	5 pieces
Interface		RS-232-C, IF 300 B	RS-232-C, IF 300 A

Order number			
TPG 300, complete units with measurement boards and power cords	PT G25 294	PT G25 295	PT G25 302

Technical data	TPG 300, complete measurement unit, incl. PI 300 D, IF 300 A	TPG 300, complete measurement unit, incl. CP 300 C9, IF 300 A	TPG 300, complete measurement unit, incl. 2 PI 300 D, IF 300 A
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$8 \cdot 10^{-4}$ hPa	$5 \cdot 10^{-9}$ hPa	$8 \cdot 10^{-4}$ hPa
Measurement board	PI 300 D for 2 Pirani Gauge TPR 010/018	CP 300 C9 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 050	2 PI 300 D for 4 Pirani Gauge TPR 010/018
Relay: Switching voltage	30 V DC / 50 V AC	30 V DC / 50 V AC	30 V DC / 50 V AC
Set point	5 pieces	5 pieces	5 pieces
Interface	RS-232-C, IF 300 A	RS-232-C, IF 300 A	RS-232-C, IF 300 A

Order number			
TPG 300, complete units with measurement boards and power cords	PT G25 306	PT G25 307	PT G25 310

Technical data	TPG 300, complete measurement unit, incl. 2 CP 300 C9, IF 300 A	TPG 300, complete measurement unit, incl. CP 300 C10, IF 300 A	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C10, IF 300 A
Measurement range max.	1000 hPa	1000 hPa	1000 hPa
Measurement range min.	$5 \cdot 10^{-9}$ hPa	$1 \cdot 10^{-10}$ hPa	$1 \cdot 10^{-10}$ hPa
Measurement board	2 CP 300 C9 for 2 Pirani- and 2 Cold Cathode Gauge TPR 010/018, IKR 050	CP 300 C10 for 1 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060	PI 300 D, CP 300 C10 for 3 Pirani- and 1 Cold Cathode Gauge TPR 010/018, IKR 060
Relay: Switching voltage	30 V DC / 50 V AC	30 V DC / 50 V AC	30 V DC / 50 V AC
Set point	5 pieces	5 pieces	5 pieces
Interface	RS-232-C, IF 300 A	RS-232-C, IF 300 A	RS-232-C, IF 300 A

Order number			
TPG 300, complete units with measurement boards and power cords	PT G25 311	PT G25 312	PT G25 313

