



ModulLine

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

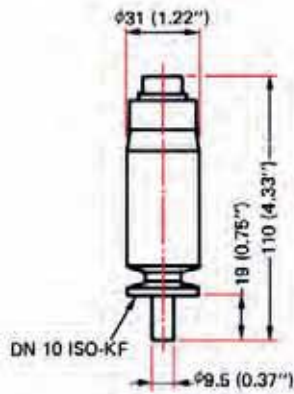
- For corrosive media

TPR 018

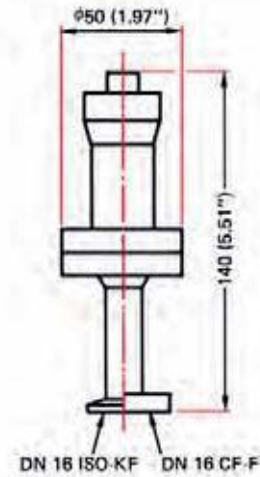
- For UHV

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

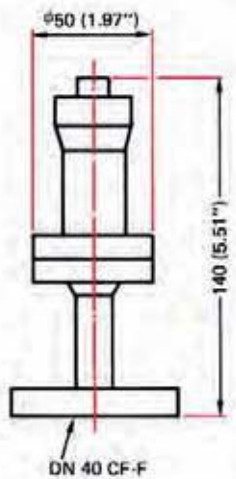
Dimensions (in mm)



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



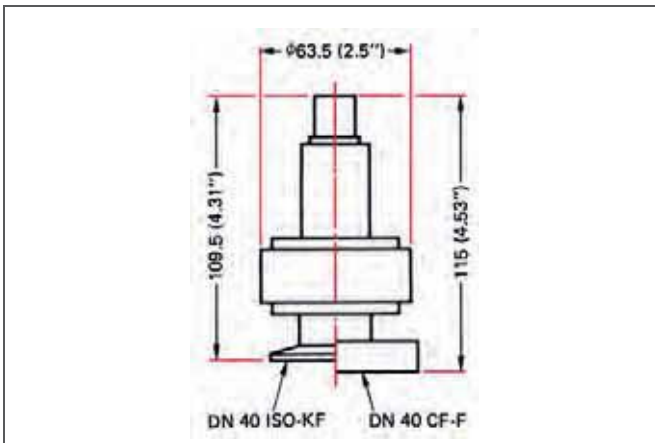
- IKR 050 coaxial**
 - For general applications
- IKR 060 coaxial**
 - For UHV
 - Radiation-resistant
- IKR 070 coaxial**
 - For UHV
 - Radiation-resistant

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

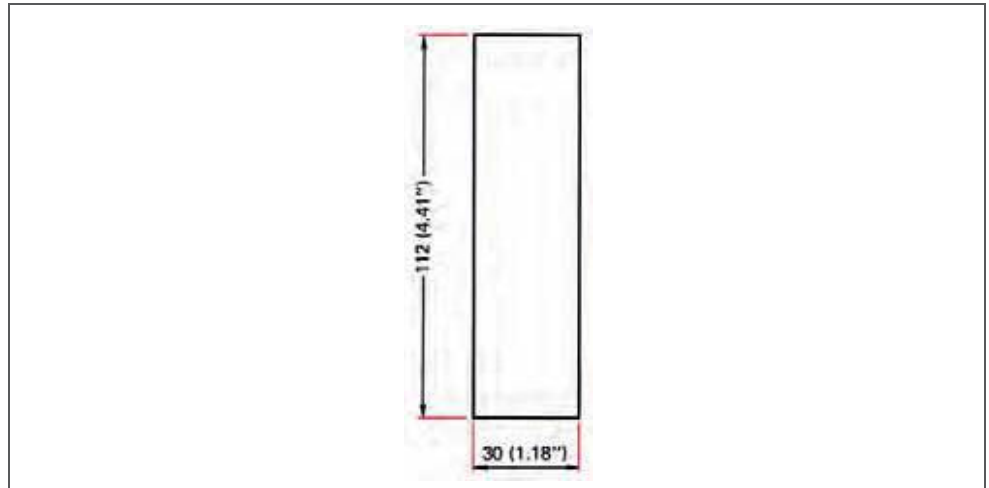
High-temperature sensor cables	Order number
High-temperature sensor cable, TPR 017/018, 3.0 m, 250 °C	PT 548 414-T
High-temperature sensor cable, TPR 017/018, 6.0 m, 250 °C	PT 548 465-T
High-temperature sensor cable, TPR 017/018, 10 m, 250 °C	PT 448 047-T
High-temperature sensor cable, TPR 017/018, 15 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

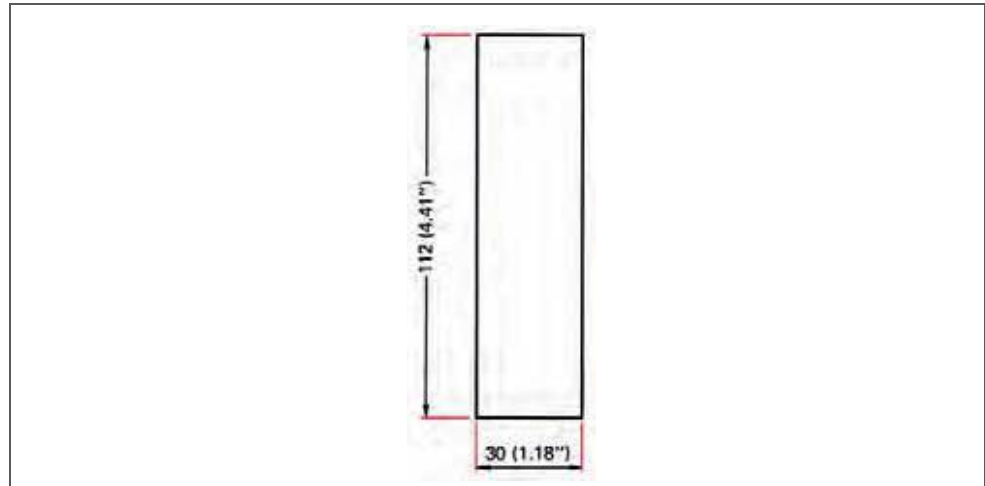
Order number		
Pirani measurement board	PT 546 920 -T	PT 549 214 -T

Cold cathode measurement board

- Measurement range from $1 \cdot 10^{-9}$ to $5 \cdot 10^{-3}$ 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.	$5 \cdot 10^{-3}$ hPa
Measurement range min.	$1 \cdot 10^{-9}$ 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

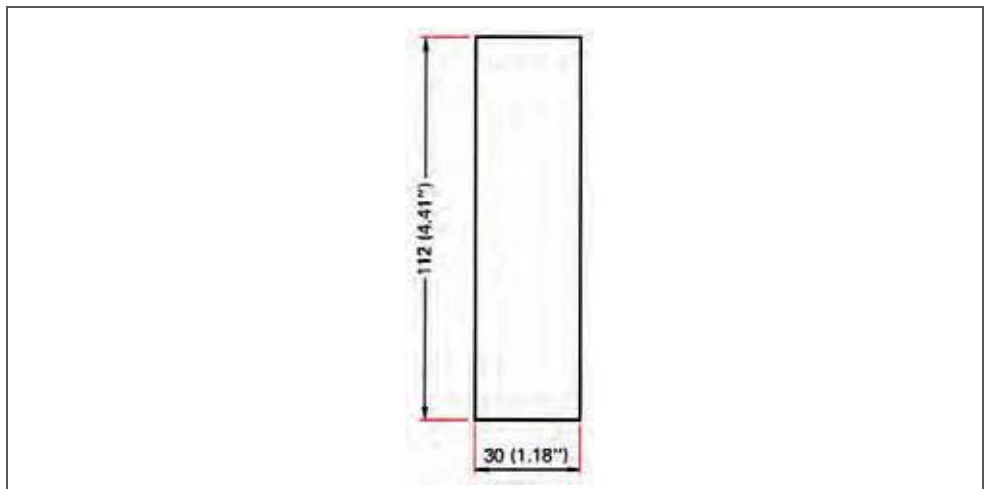
CP 300 T11

- 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

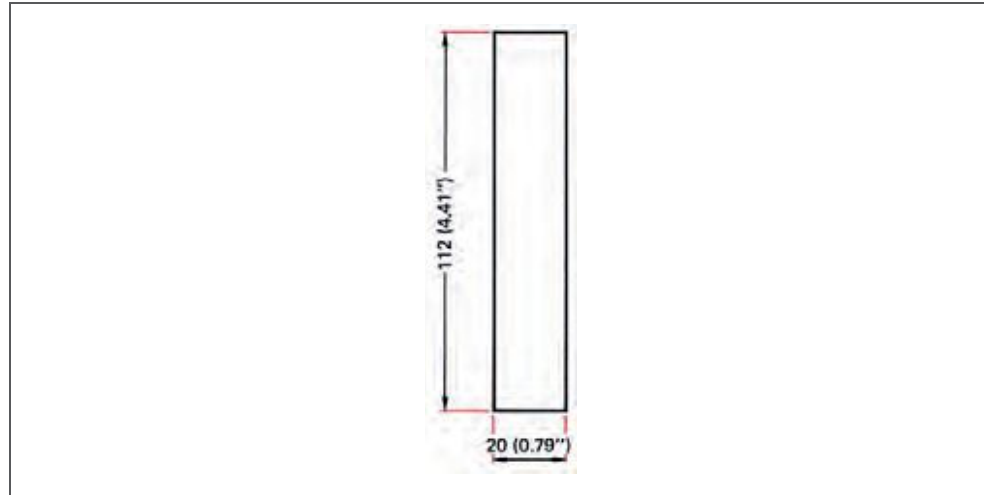
Order number				
Pirani/cold cathode measurement board	PT 441 122 -T	PT 441 000 -T	PT 441 080 -T	PT 441 114 -T

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

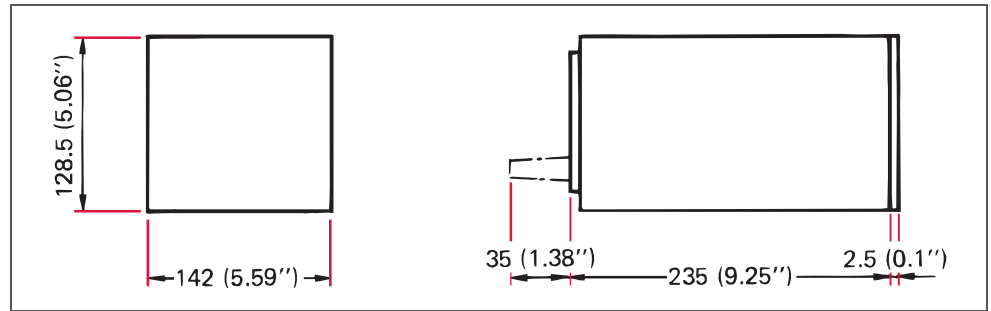
Accessories				
D-Sub mating connector, female, 15-pin, for IF 300 A/C, relay output	PT 441 129-T		PT 441 129-T	
D-Sub mating connector, female, for IF 300 A, RS-232-C	PT 441 128-T			
Interface cable, for IF 300 B, RS-232-C, 0.4 m		PT 548 932-T		
Relay connector, complete, for IF 300 B		PT 546 999-T		

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

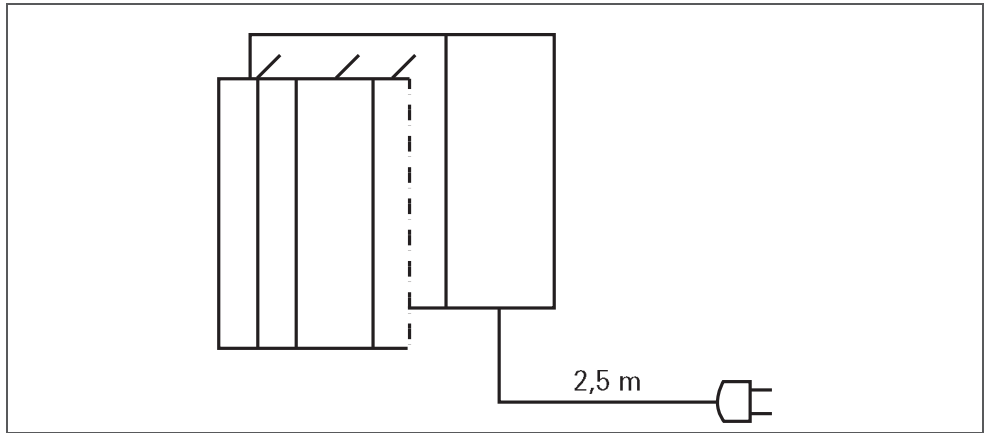
Order number	
TPG 300, basic unit	PT 546 900 -T

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

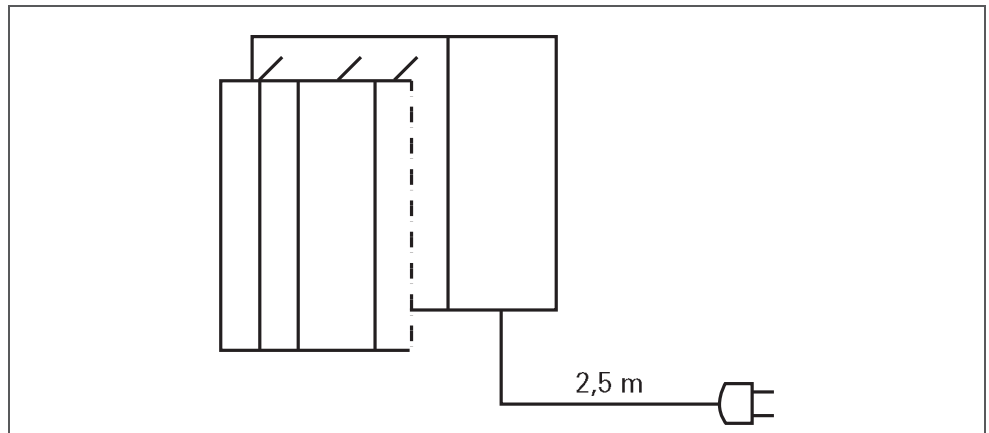
Technical data	TPG 300, complete measurement unit, incl. CP 300 C9	TPG 300, complete measurement unit, incl. CP 300 C9, IF 300 B	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C9	TPG 300, complete measurement unit, incl. PI 300 D, CP 300 C9, IF 300 B
Measurement range max.	1000 hPa	1000 hPa	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