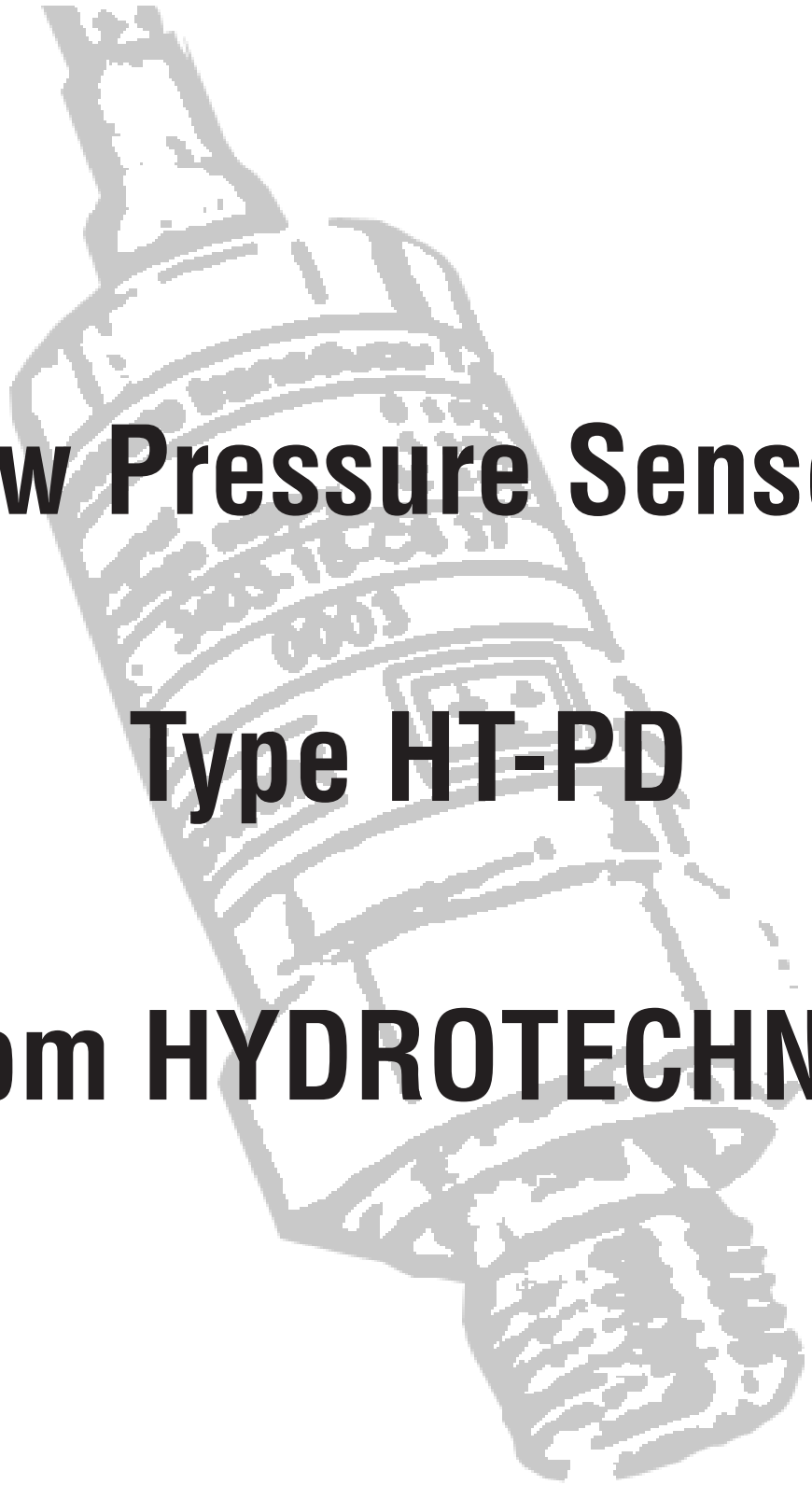
HYDROTECHNIK Limburg

Test with confidence



New Pressure Sensors

Type HT-PD

from HYDROTECHNIK

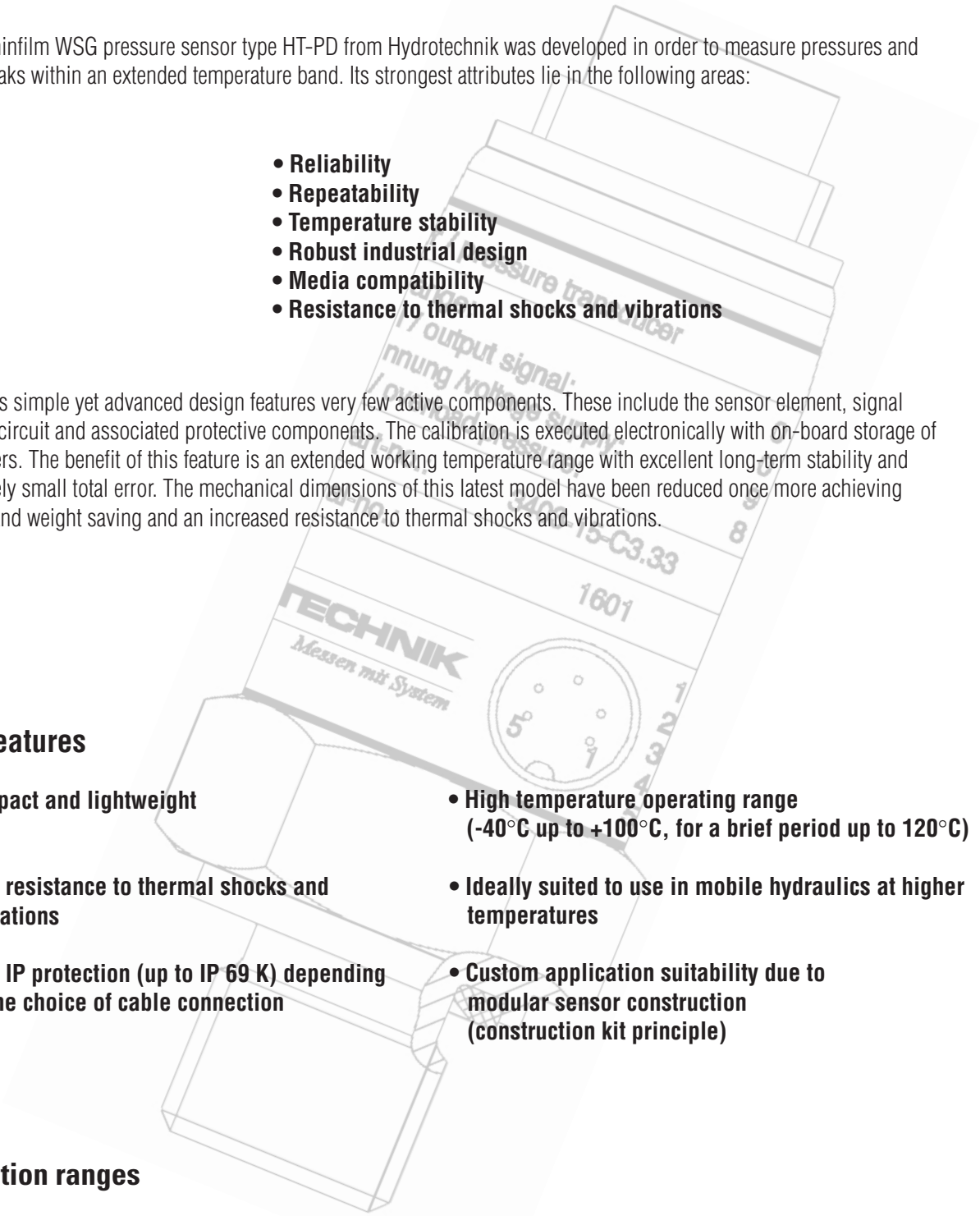
Edition 9/2000

Product range pressure sensors type HT-PD

The latest thinfilm WSG pressure sensor type HT-PD from Hydrotechnik was developed in order to measure pressures and pressure peaks within an extended temperature band. Its strongest attributes lie in the following areas:

- **Reliability**
- **Repeatability**
- **Temperature stability**
- **Robust industrial design**
- **Media compatibility**
- **Resistance to thermal shocks and vibrations**

The HD-PD's simple yet advanced design features very few active components. These include the sensor element, signal processing circuit and associated protective components. The calibration is executed electronically with on-board storage of all parameters. The benefit of this feature is an extended working temperature range with excellent long-term stability and comparatively small total error. The mechanical dimensions of this latest model have been reduced once more achieving major size and weight saving and an increased resistance to thermal shocks and vibrations.



Major features

- **Compact and lightweight**
- **High resistance to thermal shocks and vibrations**
- **High IP protection (up to IP 69 K) depending on the choice of cable connection**
- **High temperature operating range (-40°C up to +100°C, for a brief period up to 120°C)**
- **Ideally suited to use in mobile hydraulics at higher temperatures**
- **Custom application suitability due to modular sensor construction (construction kit principle)**

Application ranges

- **Industrial hydraulics**
- **Mobile hydraulics**
- **Pneumatics**
- **Industrial robot**
- **Process & control**
- **Testing & development**
- **Quality control**
- **Service and maintenance**
- **Laboratory & calibration**

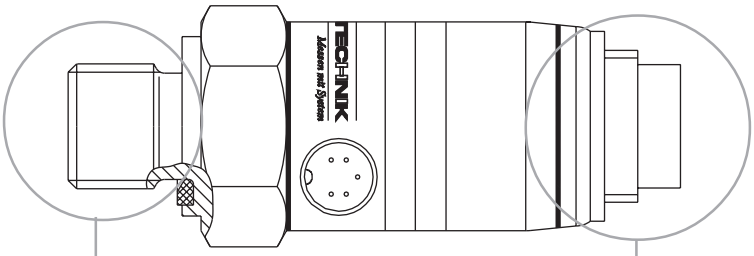
Construction kit principle HT-PD

HYDROTECHNIK Limburg

Test with confidence

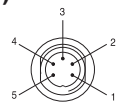
For user with custom requirements

Available connection options

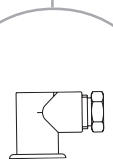


Pressurized connection
ISO 228-G 1/4
M 14 x 1,5

Standard connection with 5-pole plug (Amphenol type T3362000 or Binder type 09-0115-00-05 series 723)

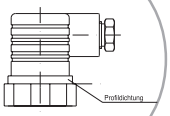


IP 40

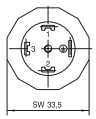


4-pole plug integrated within the pressure sensor (Hirschmann MINI, type A 14)

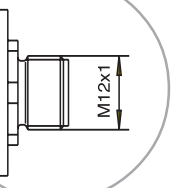
IP 65



4-pole plug integrated within the pressure sensor (Hirschmann type GDM acc. to DIN 43650)

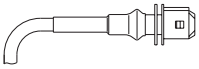


IP 65

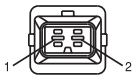


5-pole plug integrated within the pressure sensor (Lumberg-plug type RSF 5)

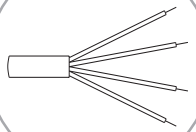
IP 67 *)



Cable flow chart connector from the pressure sensor 0,5 m with connected 2-pole plug (AMP type 106462)



IP 67 *)



Free cable end integrated within the pressure sensor without cable plug

IP 69K
(only valid for pressure sensors with cable)

*) IP 67 rating is only valid when the connection is made as screw-in or as plug-in connection

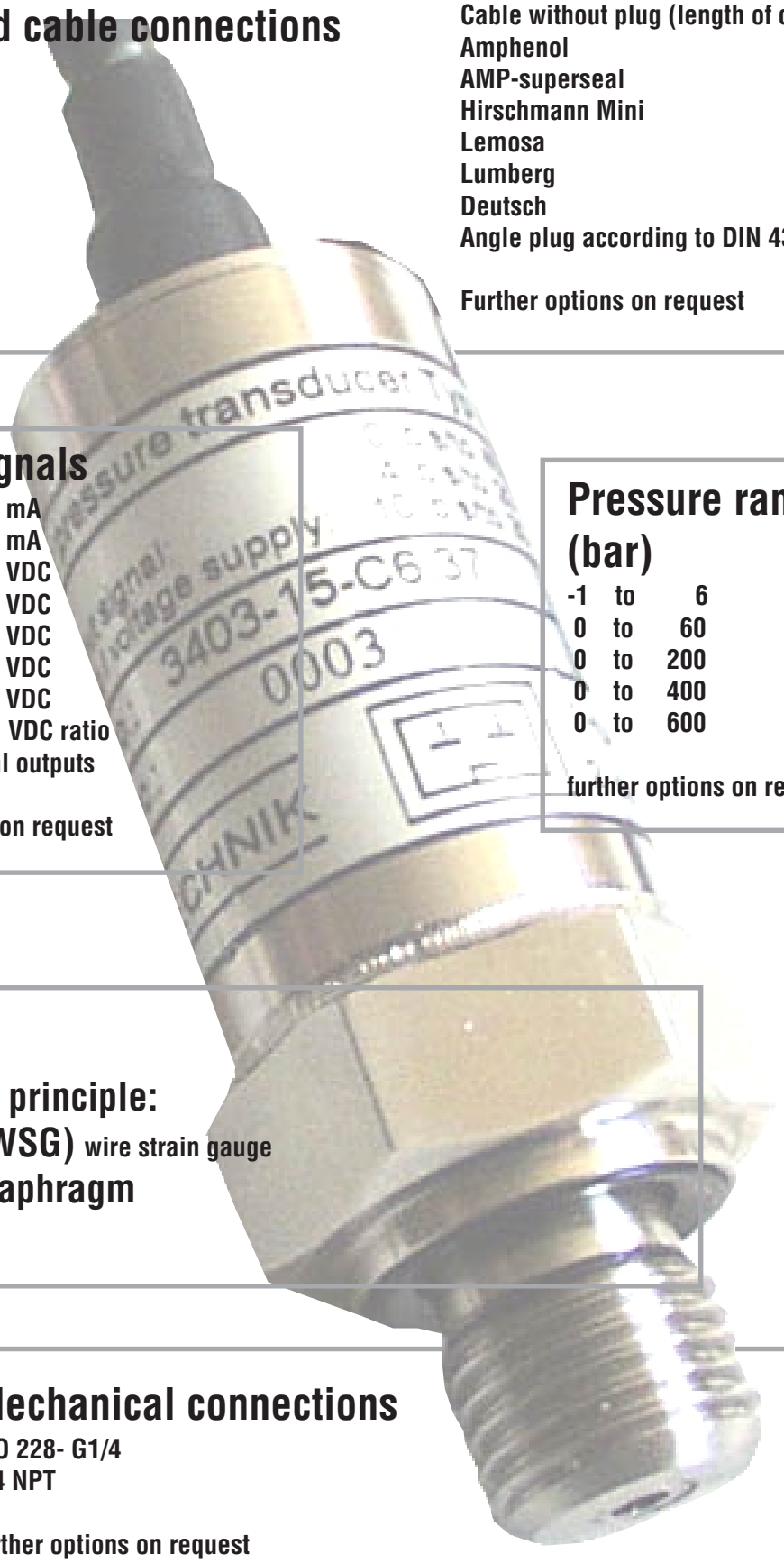
Further options on request

Pressure sensor type HT-PD

Plug and cable connections options

Cable without plug (length of cable optional)
Amphenol
AMP-superseal
Hirschmann Mini
Lemosa
Lumberg
Deutsch
Angle plug according to DIN 43650

Further options on request



Output signals

0	to	20	mA
4	to	20	mA
0	to	5	VDC
1	to	5	VDC
1	to	6	VDC
0	to	10	VDC
1	to	10	VDC
0,5	to	4,5	VDC ratio

and other signal outputs

further options on request

Pressure ranges (bar)

-1	to	6
0	to	60
0	to	200
0	to	400
0	to	600

further options on request

Measuring principle:

Thinfilm (WSG) wire strain gauge
on steel diaphragm

Mechanical connections

ISO 228- G1/4
1/4 NPT

further options on request

Technical data HT-PD

HYDROTECHNIK Limburg

Test with confidence

Reference of the specific data 20 °C ±3 K

Measuring principle:	Thinfilm WSG / relative pressure
Measuring output signal:	Options 0 to 20 mA (three-wire), 4 to 20 mA (two-wire) or 0 to 10 VDC (three-wire)
Supply voltage:	10 to 30 VDC (signal 0 to 20 mA /4 to 20 mA) 12 to 30 VDC (signal 0 to 10 VDC)
Over voltage protection:	To max. 35 VDC
Current consumption: (Sensor under zero load)	12 mA (0 to 20 mA/4 to 20 mA) 8 mA max. (0 to 10 VDC)
Non.linearity and hysteresis:	±0,5 % of full-scale output
Error limit:	Typically 1,5% in the temperature range -40 °C to +100 °C
Repeatability:	±0,1 % of full-scale output
Mechanical overload capacity:	1,5 x nominal pressure
Bursting pressure:	3 x nominal pressure
Working temperature range:	-40 °C to +100 °C (for a brief period +120 °C)
Media temperature:	-40 °C to +130 °C
Stock temperature range:	-40 °C to +130 °C
Long-term stability:	0,1 % of final scale/year
Load resistor:	Current source: $R_L = \frac{V_s - 5V}{20\ mA}$ (0 to 20 mA), $R_L = \frac{V_s - 10V}{20\ mA}$ (4 to 20 mA) Voltage source: R_L = 5 kOhm
Environmental rating (EN 60529/IEC 529)**:**	IP 40 to IP 69K (depending on plug connection)
Fatigue life (FS cycles)**:**	> 10 x 10^7
Frequency response (amplifier):	DC to >1 kHz
Reaction time:	< 1 ms
Insulation resistance:	Minimum 100 MOhm
CE-mark:	Interference emission acc. to EN 50081-2, immune to interference acc. to EN 50082-2
Resistance to vibrations:	20 g (1mm vibration way 10 bis 2000 Hz)
Resistance to thermal shocks:	50 g (6 ms half sinusoid)
Electrical connection:	5-pole Plug (standard)
Pressurized connection G (mechanical):	ISO 228-G1/4 A: maximum 25 Nm, gasket: Gi-ring: FKM (Viton)
Material:	Wetted parts: 1.4542 stainless steel
Weight:	0,06 Kg

Please ask for further information:

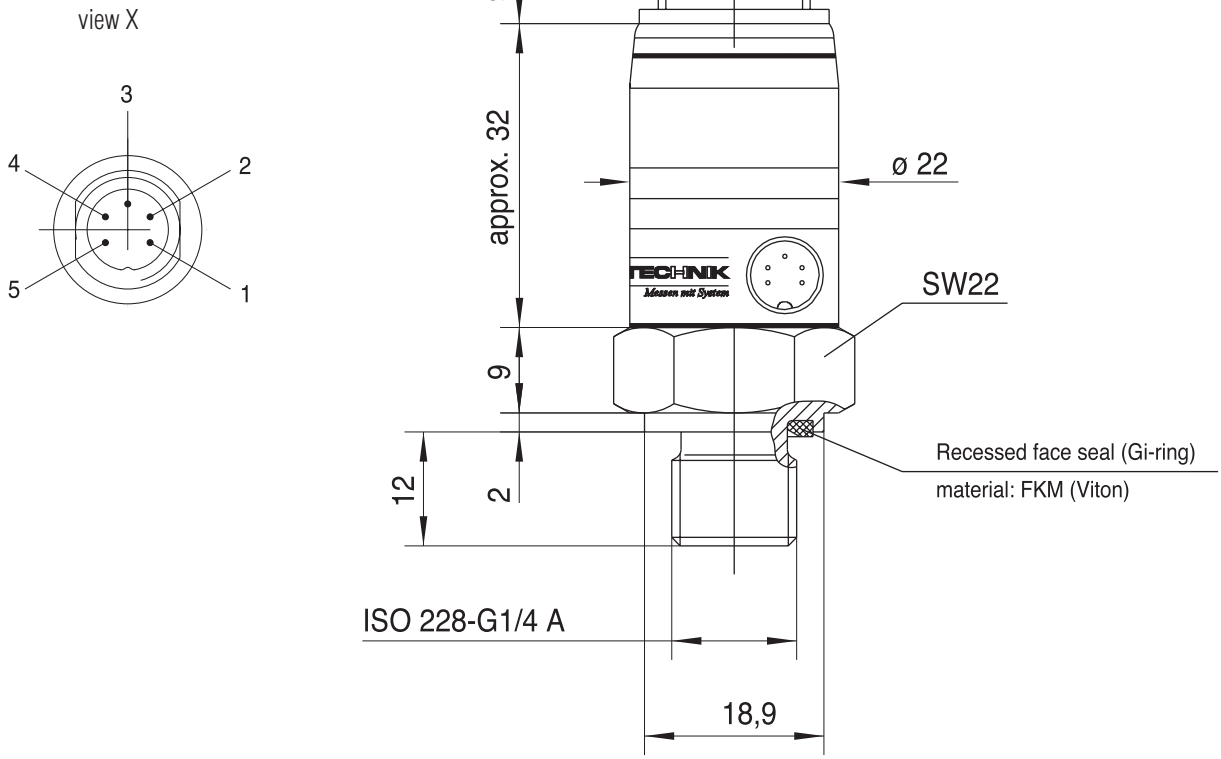
Technical data HT-PD concerning standard HT-PD

HYDROTECHNIK Limburg

Test with confidence

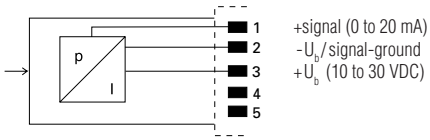
Technical data corresponding to page 3

Physical dimensions:

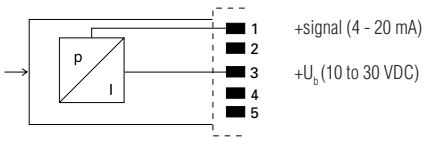


Signal connection, pressure measuring ranges

Connection scheme 0 to 20 mA
3-wire technology



Connection scheme 4 to 20 mA
2-wire technology



Pressure measuring ranges HT-PD / 0 to 20 mA			order-number
0	to	60	3403-21-C3.33
0	to	200	3403-10-C3.33
0	to	400	3403-15-C3.33
0	to	600	3403-18-C3.33

Pressure measuring ranges HT-PD / 4 to 20 mA			order-number
0	to	60	3403-21-C3.37
0	to	200	3403-10-C3.37
0	to	400	3403-15-C3.37
0	to	600	3403-18-C3.37