PTH
PRESSURE TRANSMITTERS

p nom **40 - 100 - 250 - 400** bar

DESCRIPTION

This series of pressure transmitters has been designed in order to be used for the main industrial applications and on moving machines.

The main feature of this transmitter is to ensure its functioning also in harsh environements, especially for what concerns the fluid temperature range which can go from a minimum of - 40 °C up to a maximum of + 120 °C

The basis of this transmitter is the strain-gauge, which is powered by an electric circuit developed according to the SMT technology which ensures a high reliability and maximum resistance to vibrations and mechanical stress.

Every component into contact with the fluid is made of stainless steel and the pressure sensor is completely fluid-proof.

It's available with current output signal 4 ÷ 20 mA or with voltage output signal 0÷10 V. Versions also available upon request are 0÷5 V and 0.5÷4.5 V, ratiometric. They all are reverse polarity protected.

The protection class of the electrical connection for the version with DIN connector is IP65, while the version with the M12 connector has a protection class IP67.

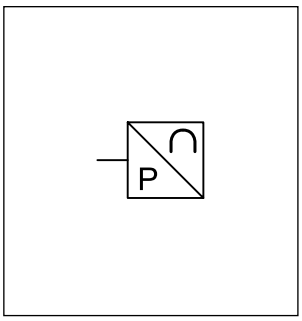
These transmitters are available in 4 different pressure ranges, from 40 to 400 bar.

TECHNICAL SPECIFICATIONS

Nominal pressure P_N	bar	**40**	**100**	**250**	**400**
Overpressure - max working pressure	x P_N	x 3	x 3	x 3	x 2.5
Burst pressure	x P_N	x 7	x 5	x 4	x 5

Accuracy typical at 25 °C		% P_N	± 0,5
Output signal :	current voltage	mA V	4 ÷ 20 0÷10, 0÷5, 0.5÷4.5
Sensor temperature range:		°C	-40 / +120
Ambient and fluid temperature range: sealing in	FPM (standard) NBR EPDM	°C	-20 / +120 -25 / +100 -40 / +125
Rise time (10%…90% of P_N)		ms	1
Hydraulic connection			1/4" BSP with seal
Housing and pressure connection			AISI 304
Mass		g	50

HYDRAULIC SYMBOL



1 - IDENTIFICATION CODE

P	T	H	-		/			-		

Pressure transmitter

High dynamic performance

Nominal pressure
040 = 40 bar **250** = 250 bar
100 = 100 bar **400** = 400 bar
(other pressure values are available upon request)

Series N.
30 = transmitters with electrical connection type K10
31 = transmitters with electrical connection type K12
(the overall and mounting dimensions remain unchanged from 30 to 39)

Seals:
V = FPM seals for special fluids (**standard**)
N = NBR seals for mineral oil
EP = EPDM seals

WARNING! The EPDM is not suitable for use with mineral oil. Verify the compatibility of EPDM with the used fluid!

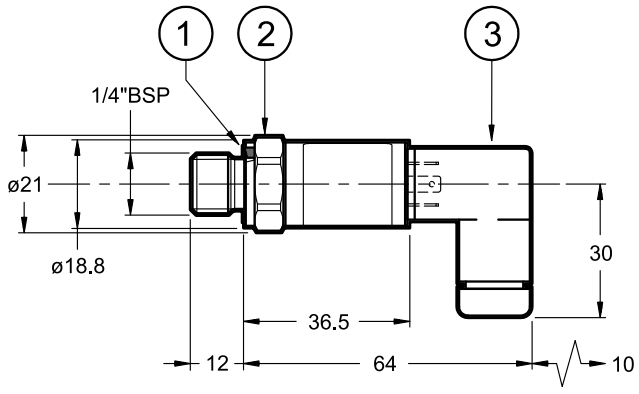
Analogue output signal (**standard**)
E0 = 0 ÷ 10 V
E1 = 4 ÷ 20 mA
upon request only:
E2 = 0 ÷ 5 V
E5 = 0.5 ÷ 4.5 V ratiometric

Electrical connection
K10 = Reduced electrical connector type DIN 43650
K12 = Electrical connector M12 - 4 pin

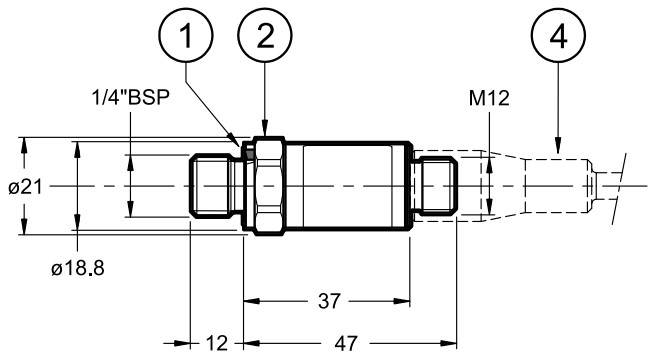
2 - OVERALL AND MOUNTING DIMENSIONS

dimensions in mm

PTH-*/30*- *K10



PTH-*/31*- *K12



1	Integral seal type DIN 3869
2	Key: spanner 19 Tightening torque: 25 Nm
3	Electrical connector EN 17301-803 (ex DIN 43650) Micro C - PG7 **Included in delivery**
4	Electrical connector 5 pin EC5S/M12L/10 (**to be ordered separately**) code 3491001001 IP67 - PG7

3 - TECHNICAL CHARACTERISTICS

Electrical data

		E0	E1	E2	E5
Output signal		0 ÷ 10 V	4 ÷ 20 mA	0 ÷ 5 V	0.5 ÷ 4.5 V ratiometric
Supply voltage	V CC	24 (15 ÷ 32)	24 (9 ÷ 32)	24 (9 ÷ 32)	5 (4.75 ÷ 5.25)
Max current consumption	mA	≤ 15	-	≤ 20	≤ 10
Load resistance	kΩ	≥ 5.0	see par. 4.2	≥ 5.0	≥ 5.0

Accuracy

Accuracy (typical at 25 °C)	% P_N	± 0.5
TEB Total error band (-25…+85 °C)	% P_N	± 1.75
NLH Non linearity and hysteresis (at 25 °C)	% P_N	± 0.2
TC Temperature coefficient	% P_N	± 0.03
Stability after 1 million cycles	% P_N	± 0.2

Environmental conditions

Electromagnetic compatibility (EMC): according to 2014/30/EU		Immunity 61000-6-2 Emissions 61000-6-4
Vibrations		50 G / 11 ms
Class protection according to EN 60529 with connector proprerly installed.	K10 K12	IP65 IP67

4 - TRANSMITTERS SUPPLY

4.1 - Versions in voltage (E0, E2, E5 ratiometric)

These transmitters are equipped with voltage stabilizer which supplies the electric circuit with constant voltage, independently from power supply voltage.

We recommend a stabilized power supply voltage, within proper ranges as in table at par. 3 .

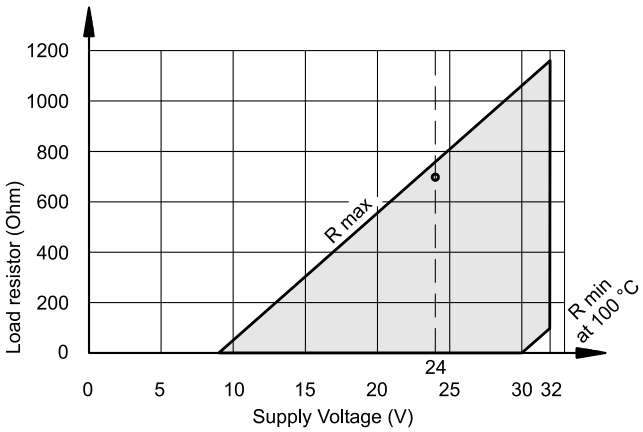
4.2 - Version in current 4 ÷ 20 mA (E1)

The transmitter works properly within an operating area (see diagram) that depends on both the voltage supply value and the external load resistance used to convert the signal.

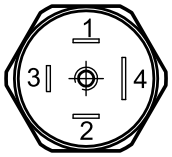
Is recommended to choose values close to the limit Rmax, in order to have a wide signal easier to read.

We suggest supply voltage of 24 VDC and a load resistance of 700 Ohm

min./max resistor vs. supply voltage E1 version
with Pmax = 100%

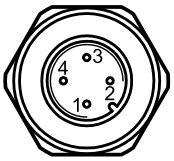


5 - ELECTRIC CONNECTIONS



K10

Connection DIN 43650 reduced
3 pin + GND

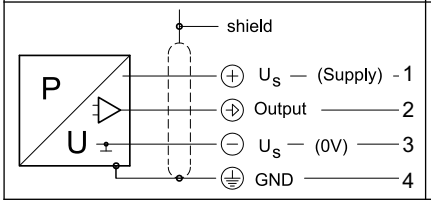


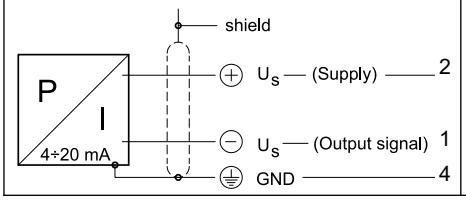
K12

Connection M12x1
4 pin

WARNING! Check that the connection cables are suitable for the temperature range intended for use of the device.

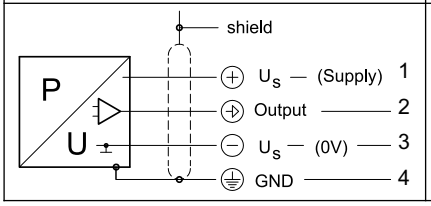
6 - WIRING DIAGRAMS - K10 CONNECTION

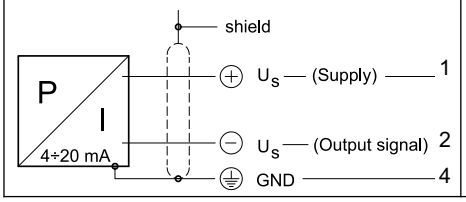
voltage output - 3 wires + GND	Version		
	E0	**E2**	**E5**
	24 V 0÷10 V 0 V GND	24 V 0÷5 V 0 V GND	5 V 0.5÷4.5 V 0 V GND

current output - 2 wires + GND	Vers.
	E1
	24 V 4 ÷ 20 mA GND

WARNING! The pin assignment for the transducer PTH - */30*-E0K10 (DIN 43650 connection) differs from that of the previous series!

7 - WIRING DIAGRAMS - K12 CONNECTION

voltage output - 3 wires + GND	Version		
	E0	**E2**	**E5**
	24 V 0÷10 V 0 V GND	24 V 0÷5 V 0 V GND	5 V 0.5÷4.5 V 0 V GND

current output - 2 wires + GND	Vers.
	E1
	24 V 4 ÷ 20 mA GND

WARNING! The pin assignment for the transducer PTH - */31*-E*K12 (M12 - 4 pin connection) differs from that of the previous series!