Data Sheet

PIL3
Pressure Sensor (Liquid)

PIL3 Pressure Sensor (Liquid)

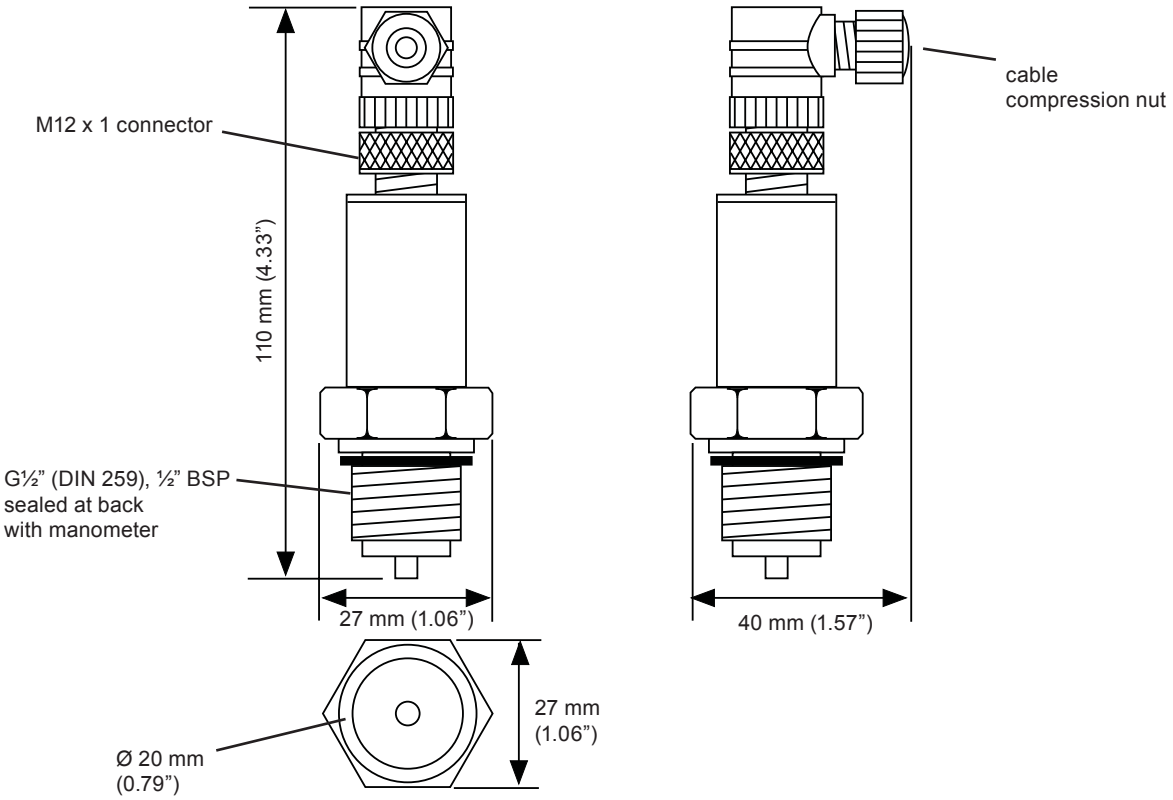
Description

High accuracy gauge pressure sensor for liquids in HVAC applications with a 4 to 20 mA outputs The use of thick film resistances fixed on a ceramic chip gives no mechanical ageing or creepage. Electrical connection is facilitated by an M12 two part connector with screw terminals and pressure connection is by way of a G½ (BSP) male thread sealed at back with manometer.

Features

- ±0.3% full scale accuracy
- Wide temperature range
- 4 to 20 mA output
- IP67 electrical connection
- Compact rugged construction
- Also for use with compressed air or other non-combustible gases

Physical



FUNCTIONALITY

The differential pressure between gauge pressure and ambient is applied across a ceramic chip onto which are fixed thick film resistances. The medium is only in contact with the stainless steel housing and the ceramic cell and FPM O-ring making the sensor suitable for use with all normal cleaning materials. The electronics are protected from the medium by an FPM O-ring seal.
The internal amplifier produces a 2 wire (loop-powered) 4 to 20 mA signal. The electrical connection is by way of an M12 x 1 two part connector with scew terminals (IP67) suitable for 5 mm (0.2”) outside diameter cable.
The pressure connection is a G½” (BSP) outside diameter male thread sealed at back with manometer.

INSTALLATION

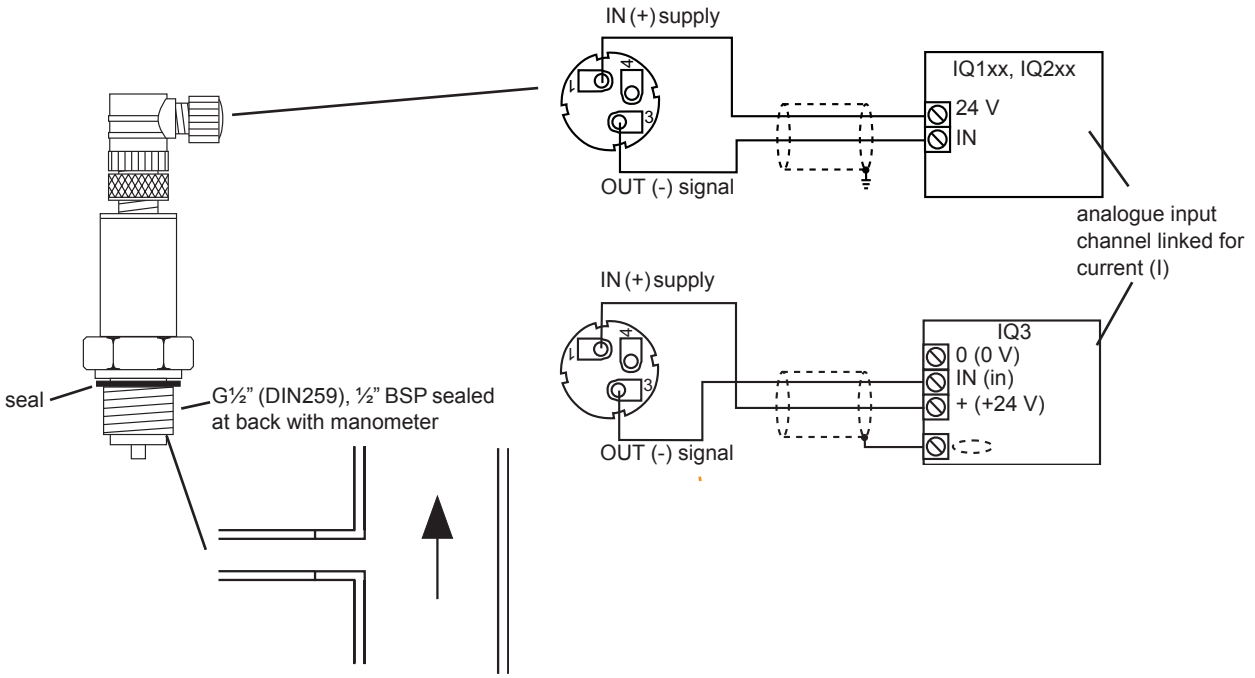
The pressure applied to the pressure port must not be greater than three times measuring range above ambient for PIL3/4, and 2.5 times measuring range for PIL3/6 to PIL3/25.

The installation procedure involves:-
Choose location
Mount sensor
Connect pressure point
Connect to controller
Configure input channel
Test system

The installation procedure is covered in the PIL3 installation instructions TG200127

INSTALLATION (continued)

CONNECTIONS



DISPOSAL.

WEEE Directive:

At the end of their useful life the packaging and product should be disposed of by a suitable recycling centre.
Do not dispose of with normal household waste.
Do not burn.

ORDER CODES

PIL3/[range] :Liquid pressure sensor 4 to 20 mA output
e.g. PIL3/4 liquid pressure sensor 0 to 4 bar, 4 to 20 mA output

[range]
4 :0 to +4 bar
6 :0 to +6 bar
10 :0 to +10 bar
16 :0 to +16 bar
25 :0 to +25 bar

ACC/SP :Steam pigtail, required if used on steam or water above 85 °C, 185 °F (typically drops from 200 °C, 392 °F to ambient from medium to sensor)

SPECIFICATION

Output :4 to 20 mA (short circuit proof, protected against polarity reversal).
Accuracy :± 0.3 % full scale (total of linearity, hysteresis, repeatability)
Temperature coefficient :± 0.015 % full scale /°C, 0.027% /°F
Temperature zero point :± 0.015 % full scale /°C, 0.027 % /°F
Supply :8.0 to 33.0 Vdc
Supply current :20 mA (max)
Overload and ruptive pressure
PIL/4 :up to 3 x measuring range
PIL/6 to PIL/25 :up to 2.5 x measuring range
e.g. PIL3/16 will operate up to 40 bar, but above this pressure will be damaged beyond repair.
Dimensions :110 mm (4.33") x 40 mm (1.57"), (diameter, max.)
Weight :200 gm, 7.04 ozs
Dynamic response :Response time <2 ms
Pressure connector :G½" (DIN 259), ½" BSP male thread sealed at back with manometer
Electrical connections :M12x1 three pin connector, with female part incorporating 3 screw terminals and cable compression nut for up to 5 mm (0.2") OD cable (IP67)
Materials
Housing in contact with medium :ceramic (AL_2O_3), stainless steel 1.4305.
Seals :FPM (fluorocarbon rubber) O-ring
Temperature
Medium :-15 °C to +125 °C, 5 °F to +257 °F
Ambient :85 °C, 185 °F maximum
Protection :IP67
Emissions :EN5502
Immunity :EN50082-2, IE61000-6-2, EN61326-1
Safety :UL approved to standard 873

Input channel and sensor scaling
The input channel should be linked for loop powered current, I.

The sensor type module must be set up with the correct scaling. The recommended method of setting the sensor type scaling is to use SET. For all IQ2 series controllers with firmware version 2.1 or greater, or IQ3 series controllers, the appropriate SET Unique Sensor Reference from those given below should be used.

PIL3/4: **Pressure I 4 bar**
PIL3/6: **Pressure I 6 bar**
PIL3/10: **Pressure I 10 bar**
PIL3/16: **Pressure I 16 bar**
PIL3/25: **Pressure I 25 bar**

Alternatively enter scaling manually using sensor type scaling mode,5, characterise, with input type set to 2 (current) and appropriate row from the table below.

	Y	E	U	L	P	I_1	I_2	O_1	O_2
PIL3/4	2 (current)	2	4.1	0	2	4	20	0	4
PIL3/6	2 (current)	2	6.1	0	2	4	20	0	6
PIL3/10	2 (current)	2	10.1	0	2	4	20	0	10
PIL3/16	2 (current)	2	16.1	0	2	4	20	0	16
PIL3/25	2 (current)	3	25.1	0	2	4	20	0	25

Both methods give system accuracy (including controller) ±0.58% full scale.

For all other IQ controllers see the sensor Scaling Reference Card, TB100521A, for scaling settings.

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