

#### PIL3 Pressure Sensor (Liquid)



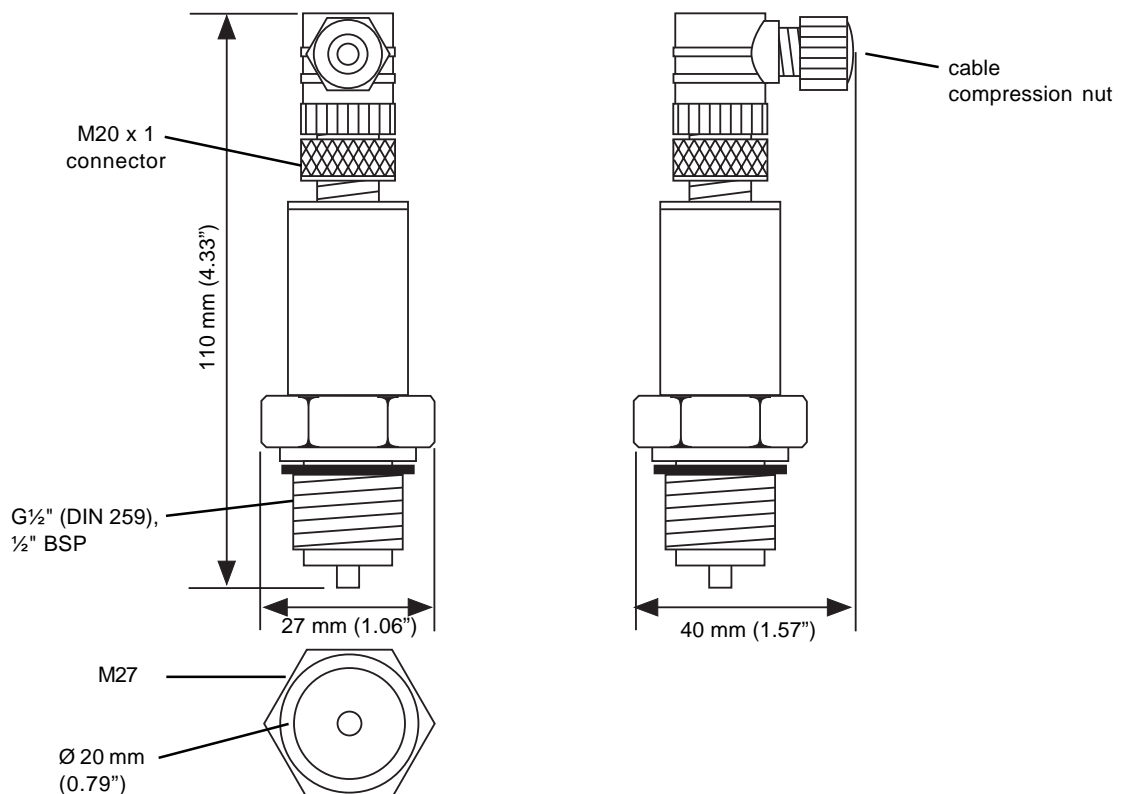
#### Description

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 via a G $\frac{1}{2}$  (BSP) male thread.

#### Features

- $\pm 0.4\%$  full scale accuracy
- Wide temperature range
- 4 to 20 mA output
- IP67 Housing
- 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 chip making the sensor suitable for use with all normal cleaning materials. The electronics are protected from the medium by EPDM (ethylene propylene) seals.

The internal amplifier produces a 2 wire (loop-powered) 4 to 20 mA signal. The electrical connection is via an M20 x 1 two part connector with screw terminals (IP67) suitable for 5 mm (0.2") outside diameter cable.

The pressure connection is a G½" (BSP) outside diameter male thread.

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## INSTALLATION

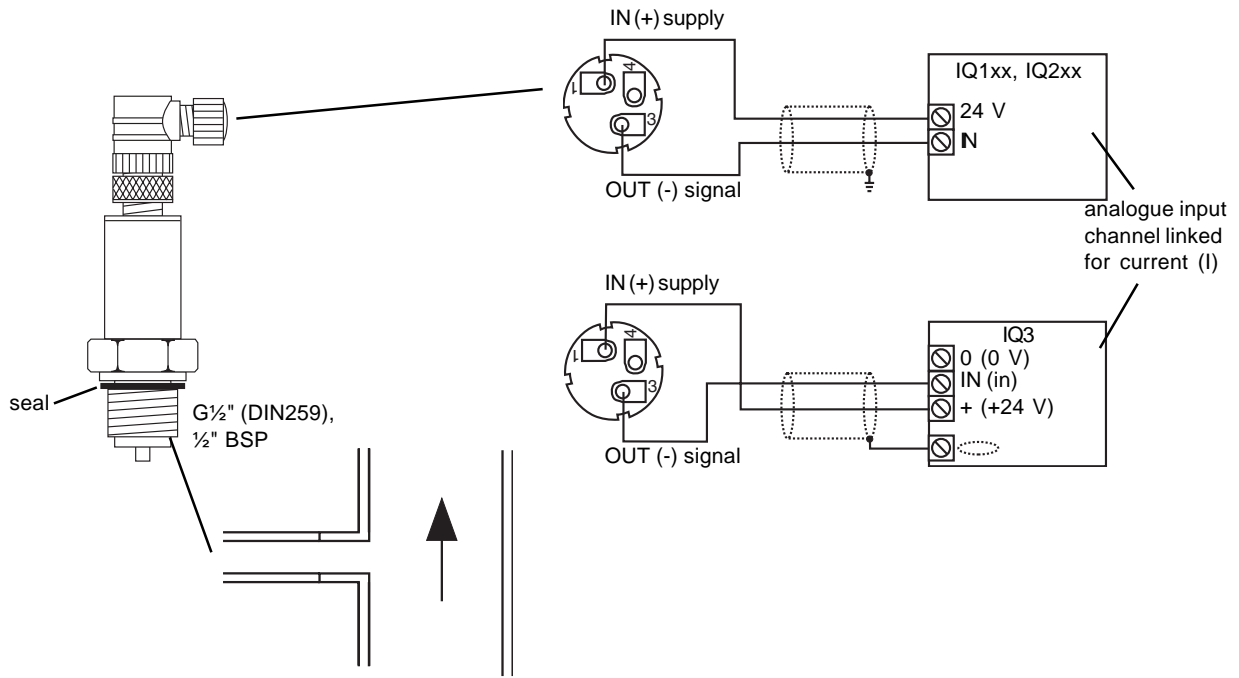
The pressure applied to the pressure port must not be greater than twice the measuring range above ambient pressure.

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.

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

**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)

[range]
<b>4</b> :0 to +4 bar
<b>6</b> :0 to +6 bar
<b>10</b> :0 to +10 bar
<b>16</b> :0 to +16 bar
<b>25</b> :0 to +25 bar

**SPECIFICATIONS**

Output :4 to 20 mA (short circuit proof, protected against polarity reversal).  
 Accuracy :± 0.3 % full scale (total of linearity, hysteresis, repeatability)  
 Adjust accuracy :± 0.3 % full scale (zero point and full scale)  
 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 pressure :2.5 x measuring range (full scale)  
 Ruptive pressure :2.5 x measuring range (full scale)  
 Dimensions :110 mm (4.33") x 40 mm (1.57"), (diameter, max.)  
 Weight :95 gm, 3.3 ozs  
 Dynamic response :Response time <2 ms  
 Pressure connector :G½" (DIN 259), ½" BSP male thread  
 Electrical connections :M20x1 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<sub>2</sub>O<sub>3</sub>), stainless steel 1.4305, media stopper PPS  
     Seals :EPDM (ethylene propylene)  
 Temperature  
     Medium :-25 °C to +125 °C, -13 °F to +257 °F  
     Ambient :85 °C, 185 °F maximum  
 Protection :IP67  
 Emissions :EN5502  
 Immunity :EN50082-2, IE61000-6-2, EN61326-1

**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 <sub>1</sub>	I <sub>2</sub>	O <sub>1</sub>	O <sub>2</sub>
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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