

PRESSURE MODULE

SINGLE CHANNEL BAROMETRIC & TEMPERATURE



The gain, offset and thermal drift of the pressure sensor is digitally compensated to minimise errors and to create a single-ended, amplified output in the 0 to 5 Volt range. The output voltage changes with the absolute pressure applied to the pressure port.

The PT1000 temperature sensing element has a well defined relationship between electrical resistance and temperature allowing the temperature to be measured precisely.

Electrical

Barometric

- Supply voltage 8 to 16V unregulated
- Supply current 10mA max
- Output voltage at 700mbar = 0.5V $\pm 75\text{mV}$ measured at 25°C
- Output voltage at 1200mbar = 4.5V $\pm 75\text{mV}$ measured at 25°C
- Maximum output voltage 5V
- Non-linearity $\leq \pm 0.3\% \text{FSO}$ typ $\leq \pm 0.5\% \text{FSO}$ max
- Hysteresis $\leq \pm 0.1\% \text{FSO}$
- Combined thermal zero and sensitivity shift $\leq \pm 1\% \text{FSO}$ typical, $\leq \pm 2\% \text{FSO}$ max
- Frequency response – in response to a step change in applied pressure, output reaches 63% within 1ms.
- Maximum sink / source current 0.45mA
- Insulation resistance $> 100\text{M}\Omega$ at 50Vdc
- Long term ageing $\leq 0.2\% \text{FSO}$ per annum
- Gain and offset values are measured at 25°C and supplied on a test result sheet
- Compensated temperature range 0 to +50°C

The sensor is protected against short circuit between output and ground but it may be damaged if the output is connected to the supply or if a reverse bias supply voltage is applied.

Temperature

- Sensing element Pt1000
- Nominal resistance: 1000 Ω at 0°C
- Accuracy: $\pm 0.4\text{K}$ typ, $\pm 1.0\text{K}$ max (0 to +70°C)
- Response time 4 sec typ, 10sec max in still air
- Sensor characterised to 70°C
- PT1000 sensing element tip supported by RTV

Mechanical

- Weight less than 55g (including cable)
- Aluminium alloy body hard anodised black
- Polyester cable boss for strain relief to sensor body

Cable and Connection Definition

- 26 AWG unshielded cable
- Cable length is shown on the order details but any length is available on request
- Connection:

Red	= Supply
Green	= Ground
Yellow	= Barometric Signal
Blue	= Pt1000 signal +
White	= Pt1000 signal –

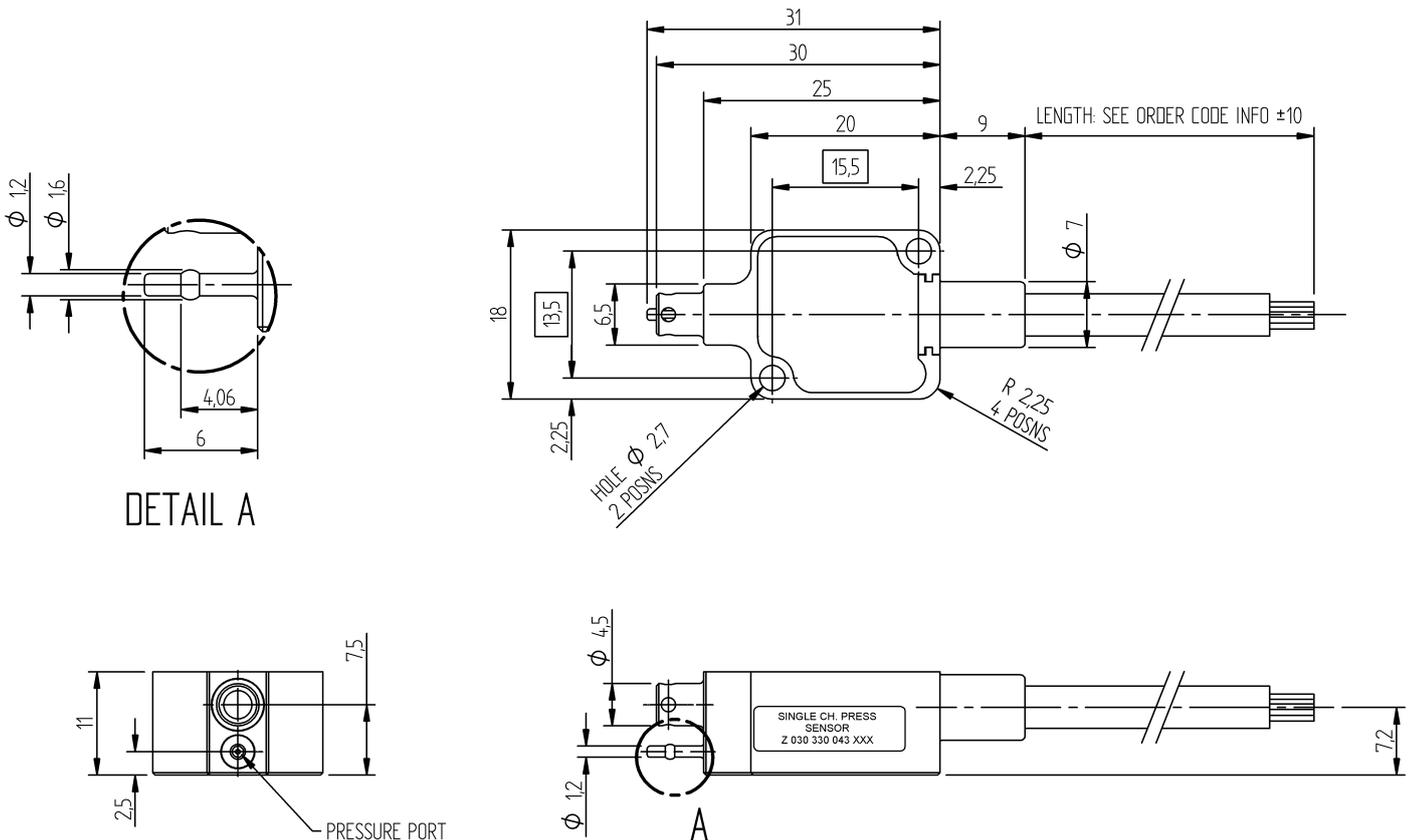
Design and manufacture is in-house, so if our existing designs do not suit your application, we can provide cost effective customised parts to suit even the most demanding application. No engineering charges are made for simple modifications such as customer specific connectors, cable protection and cable lengths. Please contact our technical consultancy for details.

Environmental

- Minimum pressure 0 bar
- Maximum pressure 3 bar
- Calibrated pressure range 700mbar to 1200mbar
- Sensor body resistant to standard motorsport fluids
- Pressure media must be a non-corrosive gas
- Relative humidity
 - Less than 75% average over one year
 - Less than 95% over 30 days in one year
- Water should not be allowed to condense inside the unit
- Operating temperature -25 to +125°C
- Viton jacketed cable (200°C)
- Vibration 50 to 2500Hz at 40g 8hrs per axis
- Compensated temperature range 0 to 50°C

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Cable Length 1000mm	Order Code O 030 330 043 009
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