



- LATEST STRAIN GAUGE TECHNOLOGY
- ALL STAINLESS STEEL CONSTRUCTION
- PRESSURE RANGES 0-500mbar TO 0-700bar
- OUTPUT OPTIONS 0-20mV, 0-5V, 0-10V, and 4-20mA
- EXCELLENT STABILITY/ ACCURACY
- LOW COST
- O.E.M. APPLICATIONS
- CE APPROVED

### DESCRIPTION

The Genspec GS4000 series of general-purpose pressure transducers are designed for applications where economical price and reliable pressure measurement is required. Incorporating the latest strain gauge technology and utilising unique manufacturing techniques have resulted in a low cost, high quality transducer ideal for O.E.M applications.

Constructed from stainless steel with 17/4PH stainless steel diaphragm for ranges above 20 bar, and a ceramic diaphragm for lower ranges, the GENSPEC series of transducers are extremely rugged yet of compact design.

Applications include the continuous monitoring of oil, gas, water and other liquids in the process, industrial, medical and aerospace industries. Also the measurement and control of pressure in refrigeration, pneumatic, compressor, HVAC and engine monitoring systems.

GENSPEC transducers are compatible with the PM8000 range of panel meters and controllers to produce a simple low cost and accurate pressure measuring and control system.

Available in pressure ranges from 0.5bar to 0-700bar, gauge or absolute and electrical outputs 0-20mV, 0-5Vdc, 0-10Vdc and 4-20mA.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 1barVAC and 0 to 0.5bar through to 700 bar, see table below for list of all standard pressure ranges.

#### PRESSURE REFERENCE:

Gauge or absolute

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

1.6x for ranges -1bar to 20bar

2x for ranges 25bar to 250bar

1.5 for 400bar to 700bar

#### OUTPUT SIGNAL (OPTIONS):

4-20 mA (2 wire), 0-5 Vdc (3 or 4 wire), 0-10 Vdc

(3 or 4 wire), 0-20mV (4 wire)

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.5\%$  FS

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

5-15Vdc for 0-20mV versions

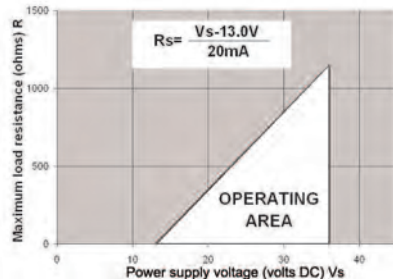
#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 303 stainless steel, Alumina and Nitrile seal for ranges up to 20bar, and 17/4PH and 303 stainless steel for ranges above.

#### OPERATING TEMPERATURE RANGE:

Ambient: -20° to +85°C

Storage: 5° to +40°C

#### TEMPERATURE EFFECTS:

$\pm 2\%$ FS total error band for -20° to 70°C

Typical thermal zero and span coefficients

$\pm 0.03\%$ FS/°C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/4" BSP or 1/4"NPT Male (others on request)

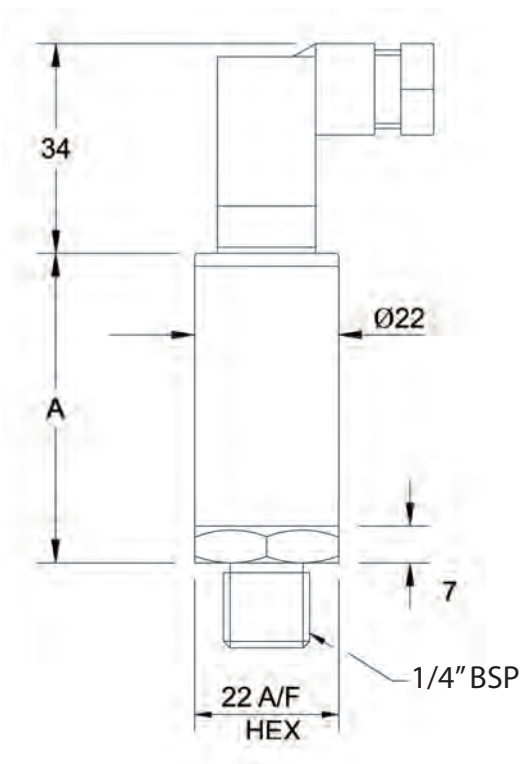
#### ELECTRICAL CONNECTION:

Mating micro DIN socket with screw terminal connections, rated IP65. Options include flying lead with optional cable length, IP67 cable gland.

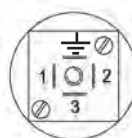
#### WEIGHT:

95 grams for standard unit with DIN socket fitted.

### DIMENSIONS (in mm)



TOP VIEW, MICRO DIN SOCKET REMOVED



MODEL NO.	A
GS4000	
GS4100	37
GS4001/2	
GS4101/2	64
GS4003	
GS4103	55

#### ELECTRICAL CONNECTION

Pin No.	2 wire	4 wire
1	+supply	+supply
2	4-20mA signal	-supply
3	not fitted	+output
4	to case	-output

### ORDER DETAILS

State model number and pressure range required:-  
e.g. GS4100 0-6barg

Model No.	DESCRIPTION
GS4x00	2mV/V, 4 WIRE
GS4x01	0-5V, 4 WIRE
GS4x02	0-10V, 4 WIRE
GS4x03	4-20mA, 2 WIRE

### PRESSURE RANGES

-1 - 0 bar Vac	0 - 25 barg
0 - 500 mbarg	0 - 40 barg
0 - 1 barg	0 - 60 barg
0 - 1.6 barg	0 - 100 barg
0 - 2.5 barg	0 - 160 barg
0 - 4 barg	0 - 250 barg
0 - 6 barg	0 - 400 barg
0 - 10 barg	0 - 600 barg
0 - 16 barg	0 - 700 barg

### CALIBRATION

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# GS4200-USB<sup>®</sup>

USB-POWERED  
DIGITAL PRESSURE TRANSDUCER



- USB 1.1 AND USB 2.0 FULL SPEED COMPATIBLE
- AUTO DETECTION & CONFIGURATION
- HOT PLUGABLE AND SOLELY POWERED BY USB BUS
- ESI-USB<sup>®</sup> WINDOWS INTERFACE SOFTWARE SUPPLIED
- EXTREMELY HIGH 21 BIT RESOLUTION
- EXCELLENT STABILITY AND REPEATABILITY
- INCLUDES BUILT-IN TEMPERATURE MONITORING
- IP68 USB CABLE INCLUDED
- RANGES 0-500mbar TO 0-1500bar

## DESCRIPTION

The GS4200-USB<sup>®</sup> Digital Pressure Transducer has been designed to measure, analyse and record pressure directly on your computer without the need for costly I/O interface boards.

The transducer is powered by the computer's USB port, data is then presented on the PC via the ESI-USB<sup>®</sup> configurable software supplied with the transducer. It has instant connection with auto-detection, and will configure automatically with your desktop or laptop pc via USB protocol.

The fast sample rate enables dynamic pressures to be measured with up to 21 bit resolution. For real-time analysis, data transferred to the PC is achieved without loss of accuracy or bandwidth.

This pressure transducer is USB 1.1 and USB 2.0 compatible, the ESI-USB<sup>®</sup> interface configuration and analysis software is compatible with Windows<sup>®</sup> 98, 98SE, 2000, ME, XP & Vista. Data can be displayed in graphical or tabular form, with a choice of pressure units and fully adjustable scales. Data can be saved to a file or exported to Excel.

Excellent measurement accuracy provides high resolution with a precision greater than 1 in 10,000. Pressure ranges are available from 500mbar to 1500bar in gauge or absolute reference.

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# GS4200-USB<sup>©</sup> USB-POWERED DIGITAL PRESSURE TRANSDUCER

## SPECIFICATION

### PRESSURE RANGES:

500mbar to 1500bar, see table below for list of all standard pressure ranges.

### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

4x for 0.5bar range

2x for ranges 1bar to 600bar

1.5x for 1000bar

1.1x for 1500bar

### OUTPUT SIGNAL:

USB 1.1 and USB 2.0 full speed connection.

### RECALIBRATION

Fully configured and re-calibrated via PC software. Including pressure unit selection linearity and temperature compensation adjustment.

### SUPPLY VOLTAGE:

5Vdc via USB bus.

### COMBINED NON-LINEARITY AND

### HYSTERESIS:

$\pm 0.05\%$  FS best fit straight line definition.

### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

### LONG TERM STABILITY:

0.1 % FS/year non-cumulative.

### PRESSURE MEDIA:

All fluids compatible with titanium alloy.

### RESOLUTION:

Up to 21 bit pressure measurement.

### OPERATING TEMPERATURE RANGE:

Ambient:  $-20^{\circ}$  to  $+85^{\circ}$ C

Media:  $-50^{\circ}$  to  $+125^{\circ}$ C

Storage:  $5^{\circ}$  to  $+40^{\circ}$ C

### TEMPERATURE EFFECTS:

Typical thermal zero and span coefficients

$\pm 0.005\%$ FS/ $^{\circ}$ C

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

### PRESSURE CONNECTION:

1/4" Male (Other threads available on request).

### WEIGHT:

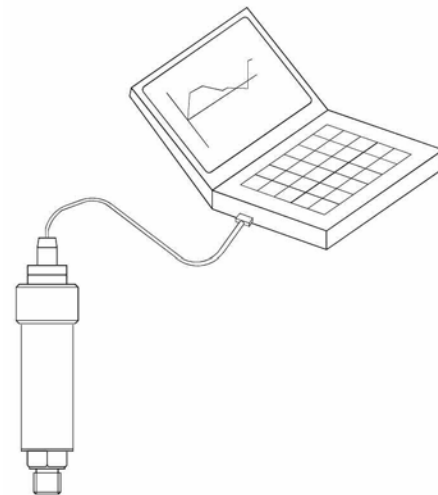
100 grams for standard.

### ELECTRICAL CONNECTION:

Mating to USB Mini B socket for cable connection to PC

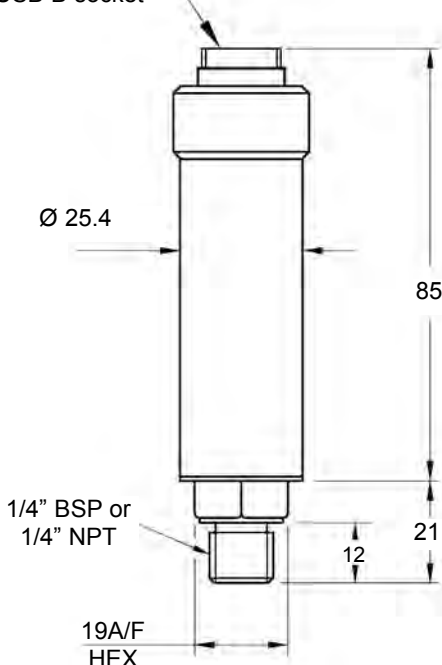
### PRESSURE REFERENCE:

Gauge or Absolute



## DIMENSIONS (in mm)

Remove dust cap  
for access to  
USB B socket



### ORDER DETAILS

State model number and pressure range required:-  
e.g. GS4200-USB 16bar

Model No.	DESCRIPTION
GS4200 - USB	USB digital pressure transducer

### PRESSURE RANGES

Type	Measurement Range
2.5 bar	-1 to 2.5 bar
16 bar	0 - 4 to 0 - 16 bar
100 bar	0 - 25 to 0 - 100 bar
400 bar	0 - 160 to 0 - 400 bar
1500 bar	0 - 600 to 0 - 1500 bar

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- **PRESSURE RANGES** 0-500 mbar to 0-1500 bar
- **SEALED TO IP65** (IP66 & IP67 OPTIONAL)
- **±0.25% ACCURACY**
- **4-20 mA OUTPUT AS STANDARD,**  
(0-100mV, 0-5V or 0-10V, OPTIONAL)
- **EASY ACCESS TO OUTPUT ADJUSTMENT**
- **WIDE OPERATING TEMPERATURE RANGE**
- **OUTSTANDING PERFORMANCE AND STABILITY**
- **AVAILABLE FROM STOCK**
- **CE APPROVED**
- **INTRINSICALLY SAFE OPTION**

## DESCRIPTION

The GENSPEC GS4200 pressure transmitter is designed to meet the operational requirements of demanding pressure measurement applications where good quality, fast delivery and low cost are of the highest priority.

Utilising the latest digital calibration and compensation techniques, and the unique Silicon-On-Sapphire sensor technology the GS4200 provides outstanding performance and gives excellent stability over a wide temperature range. Accuracy is  $\pm 0.25\%$  with an over pressure limit of twice the rated pressure range, this together with the standard output of 4-20 mA and easy access for re-calibration affirm the excellent design. All models are supplied with integral 1/4" BSP pressure connections. Optional connections are available using screw on thread adaptors.

The all titanium alloy wetted parts offer unbeatable corrosion resistance. Versions are also available offering IP66 sealing for installations requiring high levels of environmental protection.

Applications for the GS4200 include the continuous monitoring of hydraulic systems with oil, gas, water and other process liquids, industrial, medical and aerospace industries. Also ideal for the measurement and control of pressure in refrigeration, pneumatic, compressor, HVAC and engine monitoring systems.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 0.5bar through to 1500 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

4x for 0.5bar range  
2x for ranges 1bar to 600bar  
1.5x for 1000bar  
1.1x for 1500bar

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are

0-5 Vdc (4 wire),  
0-10 Vdc (4 wire),  
0-100mV (4 wire).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometer.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc for 4-20mA versions  
13-30Vdc for 0-5V and 0-10V versions  
5-15Vdc for 0-100mV version

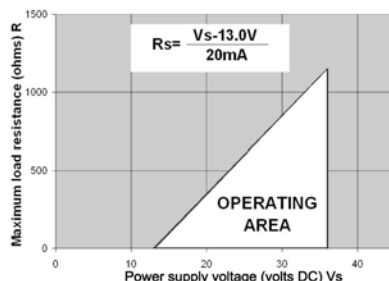
#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



eg with supply voltage load of 36vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS Best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS Defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with titanium alloy.

#### OPERATING TEMPERATURE RANGE:

Ambient:  $-40^\circ$  to  $+85^\circ\text{C}$

Media:  $-50^\circ$  to  $+125^\circ\text{C}$

Storage:  $5^\circ$  to  $40^\circ\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^\circ$  to  $70^\circ\text{C}$

Typical thermal zero and span coefficients

$\pm 0.015\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/4" BSP or 1/4"NPT Male (others on request)

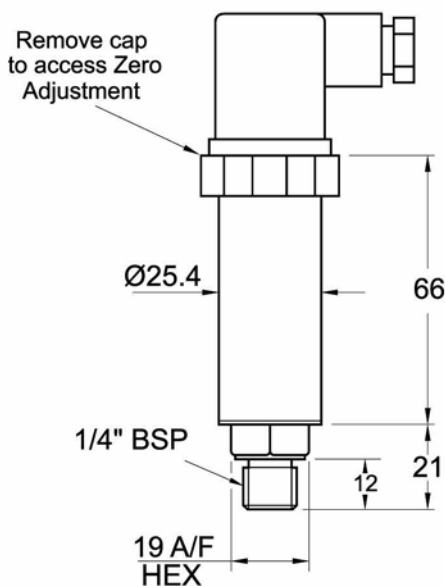
#### ELECTRICAL CONNECTION:

Mating socket with screw terminal connections to DIN 43650, rated IP65. Options include; alternative connectors, fly-lead with optional cable length and cable gland rated to IP66.

#### WEIGHT:

95 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	2 wire	4 wire
1	+supply	+supply
2	4-20mA signal	-supply
3	not fitted	+output
$\perp$	to case	-output

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. GS4200 0-6barG

Model No.	DESCRIPTION
GS4200	4-20mA, 2 WIRE
GS4201	0-100mV, 4 WIRE
GS4202	0-5V, 4 WIRE
GS4203	0-10V, 4 WIRE

#### PRESSURE RANGES

0 - 1 bar Vac	0 - 40 barg
0 - 500 mbarg	0 - 60 barg
0 - 1 barg	0 - 100 barg
0 - 1.6 barg	0 - 160 barg
0 - 2.5 barg	0 - 250 barg
0 - 4 barg	0 - 400 barg
0 - 6 barg	0 - 600 barg
0 - 10 barg	0 - 1000 barg
0 - 16 barg	0 - 1500 barg
0 - 25 barg	

#### CALIBRATION

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- **SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY**
- **PRESSURE RANGES 0-500mbar TO 0-1500bar**
- **SUPERB THERMAL PERFORMANCE**
- **STATE-OF-THE-ART TECHNOLOGY**
- **0-100mV, 0-5V or 0-10V OUTPUT**
- **EXCELLENT ACCURACY**
- **OUTSTANDING LONG TERM STABILITY**
- **ALL TITANIUM ALLOY WETTED PARTS**
- **HIGH OPERATING TEMPERATURE**

## DESCRIPTION

HISPEC - HI2000 series of pressure transducers with state-of-the-art Silicon-on-Sapphire sensor technology offer levels of accuracy and performance previously unobtainable or prohibitively expensive.

The advanced sensor design consists of a piezoresistive silicon strain gauge circuit, which is epitaxially grown onto the surface of a sapphire diaphragm to form a single crystalline structure. The sapphire sensor element is then molecularly bonded to a Titanium alloy sub-diaphragm. This enables the sensor to endure higher over-pressures and provides superb corrosion resistance. The completed sensor exhibits virtually no hysteresis and excellent long-term stability. With outstanding insulation properties, the sapphire substrate protects the strain gauge circuit from electromagnetic pulse radiation and allows the sensor to operate over a very wide temperature range without loss of performance.

With all titanium alloy wetted parts and a stainless steel housing the HISPEC is designed to operate in demanding environments, while maintaining accurate performance and extremely good durability. Applications include aerospace, laboratory and test, oil and gas monitoring equipment (down-hole) and sub-sea.

Available immediately in pressure ranges from 0-0.5 bar to 0-1500 bar and with electrical outputs of 0-100mV, 0-5 Vdc and 0-10Vdc.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 1bar Vac through to 1500 barG, see table below for list of all standard pressure ranges

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges 1bar to 600bar

1.5x for 1000bar

1.1x for 1500bar

#### OUTPUT SIGNAL:

**0-10mV/V [nominal] (4 wire non-amplified)**

Zero offset:  $\pm 1\text{mV/V}$ ,

Span tolerance:  $\pm 30\%$ FS

**0-5 Vdc, 0-10 Vdc (4 wire amplified)**

Zero Offset and Span Setting  $\pm 0.2\%$ FS

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

5-15Vdc for 0-10mV/V version

13-30Vdc for 0-5V and 0-10V versions

#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc (amplified versions)

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.25\%$  FS Best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS Defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with titanium alloy.

#### OPERATING TEMPERATURE RANGE:

Ambient:  $-40^\circ$  to  $+125^\circ$

Media:  $-50^\circ$  to  $+125^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 0.5\%$ FS total error band for  $-20^\circ$  to  $70^\circ\text{C}$  Typical thermal zero and span coefficients  $\pm 0.005\%$ FS/ $^\circ\text{C}$

#### INSULATION RESISTANCE:

100Mohm @50Vdc all electrical connection to case

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### VIBRATION:

$\pm 0.05\%$ FS/g with 30g peak, 10Hz -2KHz, 12mm double amplitude

#### MECHANICAL SHOCK:

3x4ft drop on to concrete floor will not degrade performance

#### PRESSURE CONNECTION:

1/4" BSP or 1/4"NPT Male (others on request)

#### ELECTRICAL CONNECTION:

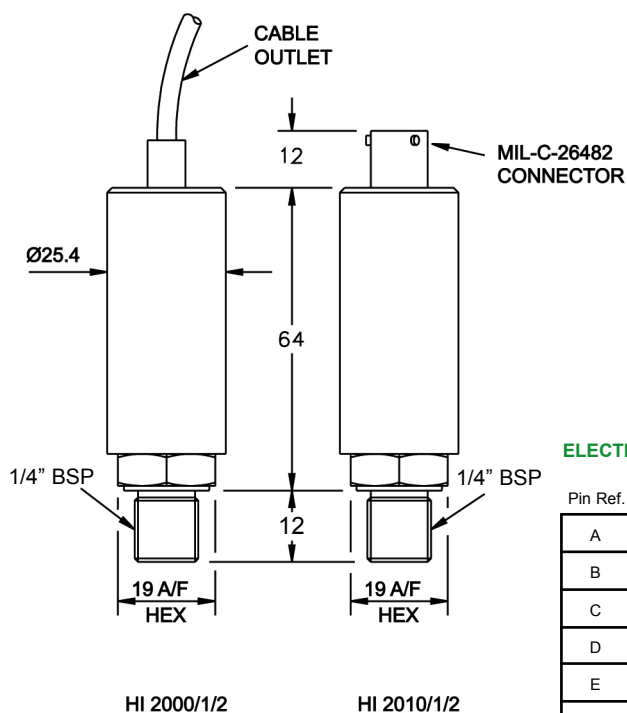
**HI200x:** PTFE insulated flying lead, conductor size 7/0.16mm<sup>2</sup>

**HI201x:** MIL-C-26482 (6 pin bayonet connector), mates with MS3111-10-6S.

#### WEIGHT:

85 grams excluding mating connector and flying lead.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin Ref.	Colour	Designation
A	Red	+ supply
B	Green	+ output
C	Yellow	- output
D	Blue	- supply
E		n/c
F		n/c

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. HI2010 0-6barg

Model No.	DESCRIPTION
HI2000	0-10mV/V, 4 WIRE
HI2001	0-5V, 4 WIRE
HI2002	0-10V, 4 WIRE
HI2010	0-10mV/V, 4 WIRE
HI2011	0-5V, 4 WIRE
HI2012	0-10V, 4 WIRE

#### PRESSURE RANGES

0 - 1 bar Vac	0 - 40 barg
0 - 500 mbarg	0 - 60 barg
0 - 1 barg	0 - 100 barg
0 - 1.6 barg	0 - 160 barg
0 - 2.5 barg	0 - 250 barg
0 - 4 barg	0 - 400 barg
0 - 6 barg	0 - 600 barg
0 - 10 barg	0 - 1000 barg
0 - 16 barg	0 - 1500 barg
0 - 25 barg	

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- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- PRESSURE RANGES 0-400bar TO 0-4000bar
- 0-100mV, 0-5V or 0-10V or 4-20mA OUTPUT
- EXCELLENT ACCURACY
- HIGH OPERATING TEMPERATURE
- ALL TITANIUM ALLOY WETTED PARTS
- INDUSTRY STANDARD HIGH PRESSURE FITTING

### DESCRIPTION

HP1000 series now extends the Silicon-on-Sapphire pressure sensor technology into very high-pressure applications, with operating ranges up to 4000bar and still maintaining an extremely high performance level. The advanced sensor design provides almost zero hysteresis and excellent long-term stability normally not achievable when measuring very high pressure.

The all titanium alloy wetted parts and a stainless steel housing gives the HP1000 unbeatable corrosion resistance. With a design to meet demanding environments, this transducer will consistently maintain accurate performance while sustaining high durability.

Using the industry standard autoclave process connection enables safe and reliable sealing to such high pressures. Available in pressure ranges from 0-400bar to 0-4,000bar and with electrical outputs of 0-100mV, 0-5Vdc, 0-10Vdc and 4-20mA.

Applications include aerospace, laboratory and test, oil and gas monitoring equipment (down-hole) and sub-sea.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 400barG through to 4000 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges 400bar to 600bar

1.5x for 1000bar to 2500bar

1.1x for 3000bar to 4000bar

#### OUTPUT SIGNAL (OPTIONS):

0-10mV/V [nominal] (4 wire non-amplified)

Zero offset:  $\pm 1\text{mV/V}$

Span tolerance:  $\pm 30\%$ FSO

0-5 Vdc, 0-10 Vdc (4 wire amplified)

Zero Offset and Span Setting

$\pm 0.5\%$ FSO

4-20mA (2 wire amplified)

Zero Offset and Span Setting

$\pm 0.08\text{mA}$

#### ZERO AND SPAN ADJUSTMENT:

$\pm 5\%$ FS adjustment with easy access trimming Potentiometers on amplified version only

#### INSTALLATION TORQUE:

50Nm maximum. This will cause a zero shift less than 1% FS

#### SUPPLY VOLTAGE:

Measured across supply connector plug

5-15Vdc for 0-10mV/V version

13-30Vdc for 0-5V and 0-10V versions

13-36Vdc for 4-20mA version

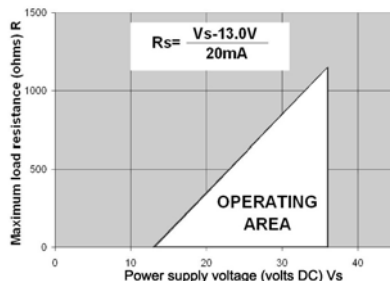
#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc (amplified versions)

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with titanium alloy.

#### OPERATING TEMPERATURE RANGE:

Ambient:  $-40^\circ$  to  $+85^\circ$

Media:  $-50^\circ$  to  $+125^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^\circ$  to  $70^\circ\text{C}$

Typical thermal zero and span coefficients

$\pm 0.02\%$ FS/ $^\circ\text{C}$

#### INSULATION RESISTANCE:

100Mohm @50Vdc all electrical connection to case

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

F250-C Autoclave fitting, Thread: 9/16-18UNF-2B (female)

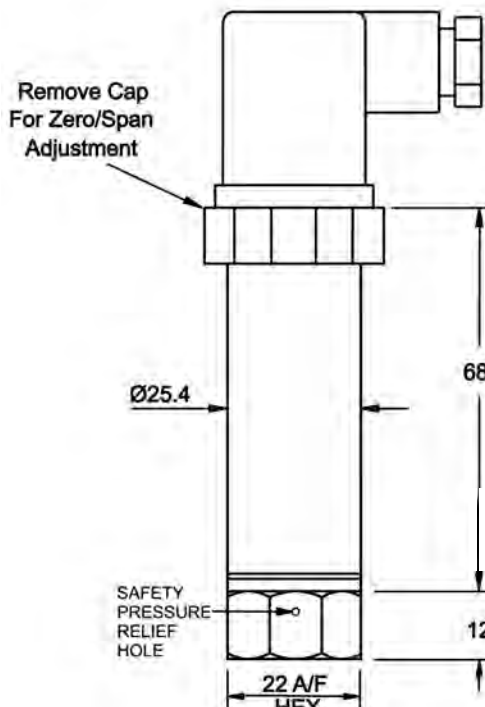
#### ELECTRICAL CONNECTION:

Mating socket with screw terminal connections to DIN 43650, rated IP65.

#### WEIGHT:

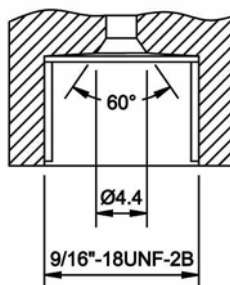
100 grams excluding mating connector.

### DIMENSIONS (in mm)



#### FITTING DETAILS

REF: AE F250-C (AUTOCLAVE)



#### ELECTRICAL CONNECTION

Pin No.	2 wire	4 wire
1	+supply	+supply
2	4-20mA signal	-supply
3	not fitted	+output
4	to case	-output

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. HP1000 0-2000barG

Model No.	DESCRIPTION
HP1000	0-10mV/V, 4 WIRE
HP1001	0-5V, 4 WIRE
HP1002	0-10V, 4 WIRE
HP1003	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 400 barg	0 - 2000 barg
0 - 600 barg	0 - 2500 barg
0 - 700 barg	0 - 3000 barg
0 - 1500 barg	0 - 4000 barg

#### CALIBRATION

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- PRESSURE RANGES 0-50mbar TO 0-1000mbar
- SUITABLE FOR WET MEDIA APPLICATIONS
- 0-100mV, 0-5V, 0-10V OR 4-20mA OUTPUT OPTIONS
- ROBUST STAINLESS STEEL CONSTRUCTION
- HIGH PROOF PRESSURE RANGES
- WIDE OPERATING TEMPERATURE

## DESCRIPTION

LP1000 series now extends the pressure sensor technology into very low-pressure applications, with operating ranges down to 0-50mbar and still maintaining high performance. The advanced sensor design provides very low hysteresis and excellent long-term stability normally not achievable when measuring very low pressure.

The stainless steel housing, fluorosilicone seals and silicon sensing element ensures that the LP1000 series has most effective corrosion resistance and enables the product to be used continuously with wet media. With a design to meet demanding environments, this transducer will maintain accurate performance and provide extremely good durability.

Available in pressure ranges from 0-50 to 0-1000mbar and with electrical outputs of 0-100mV, 0-5Vdc, 0-10Vdc and 4-20mA.

Applications include laboratory and test, air and gas pressure monitoring, leak detection, low pressure liquid and hydrostatic pressure measurements.

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## SPECIFICATION

### PRESSURE RANGES:

0 to 1000 mBarG, see table below for list of all standard pressure ranges.

### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

4x for ranges 0bar to 500mbar

3x for ranges 0bar to 1000mbar

### OUTPUT SIGNAL:

**0-10mV/V [nominal] (4 wire non-amplified)**

Zero offset:  $\pm 1\text{mV/V}$ ,

Span tolerance:  $\pm 30\%$ FSO

**0-5 Vdc, 0-10 Vdc (4 wire amplified)**

Zero Offset and Span Setting

$\pm 0.5\%$ FSO

**4-20mA (2 wire amplified)**

Zero Offset and Span Setting

$\pm 0.08\text{mA}$

### ZERO AND SPAN SETTING:

$\pm 5\%$ FS adjustment with easy access trimming

Potentiometers on amplified version only

### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

5-15Vdc for 0-10mV/V version

13-30Vdc for 0-5V and 0-10V versions

13-36Vdc for 4-20mA version

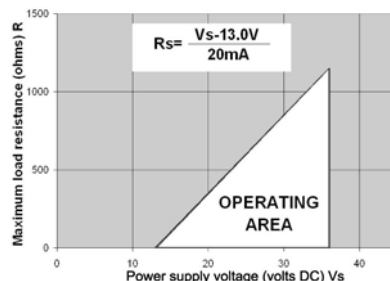
### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.

### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.50\%$  FS best fit straight line definition.

### REPEATABILITY:

$\pm 0.20\%$  FS defined as maximum error between 3 consecutive pressure cycles.

### LONG TERM STABILITY:

$\pm 0.5\%$  FS/year non-cumulative

### PRESSURE MEDIA:

All fluids compatible with 303 stainless steel, PEI, fluorosilicone, silicon.

### OPERATING TEMPERATURE RANGE:

Ambient:  $-20^\circ$  to  $+85^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^\circ$  to  $70^\circ\text{C}$

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^\circ\text{C}$

### INSULATION RESISTANCE:

100Mohm @50Vdc all electrical connection to case

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

### PRESSURE CONNECTION:

1/4" BSP (others on request)

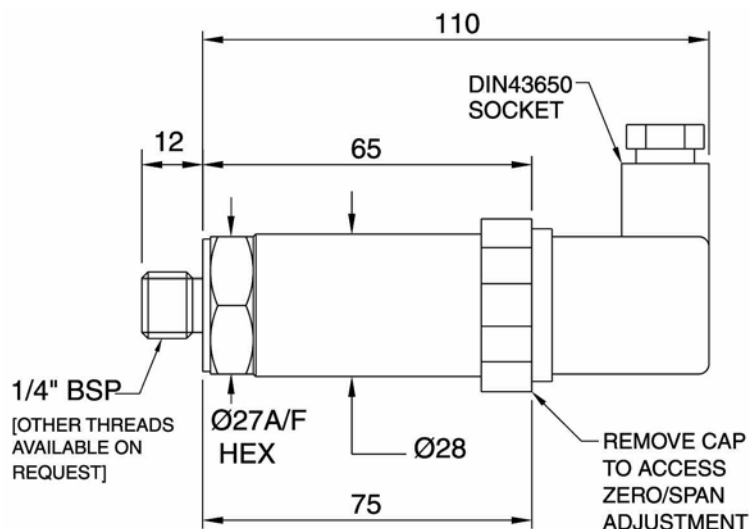
### ELECTRICAL CONNECTION:

Mating socket with screw terminal connections to DIN 43650, rated IP65.

### WEIGHT:

195 grams excluding mating connector.

## DIMENSIONS (in mm)



### ELECTRICAL CONNECTION

Pin No.	2 wire	4 wire
1	+supply	+supply
2	4-20mA signal	-supply
3	not fitted	+output
⊥	to case	-output

### ORDER DETAILS

State model number and pressure range required:-  
e.g. LP1000 0-1000mbarg

Model No.	DESCRIPTION
LP1000	0-10mV/V, 4 WIRE
LP1001	0-5V, 4 WIRE
LP1002	0-10V, 4 WIRE
LP1003	4-20mA, 2 WIRE

### PRESSURE RANGES

0 - 50 mbar  
0 - 100 mbar  
0 - 250 mbar  
0 - 500 mbar  
0 - 1000 mbar

### CALIBRATION

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# PANEL METER

PM1000 SERIES  
PLUG-ON DISPLAY



- BRIGHT LED DISPLAY
- INDICATION RANGE -999 TO +9999
- FITS TO DIN 43650 CONNECTOR
- PLUG-ON TO ANY TRANSMITTER WITH 4-20mA OUTPUT
- EASY TO SCALE ON SITE
- ROBUST DESIGN
- SET POINT OPTION

## DESCRIPTION

The PM1000 series is a universal 4 digit LED plug-on display for transmitters with 4-20mA 2 wire output and fitted with DIN43650 connector.

The plug-on display simply fits between the transmitter plug and connecting cable socket and is powered from the 4-20mA current loop signal of the transmitter. No additional power is required.

Display settings are stored in non-volatile EEPROM, and can be easily modified through the menu using two programming buttons. Calibration parameters (zero, span, decimal point position, filter, and set-point level) can all be reprogrammed and stored and retained when power is removed. The display assembly inside the enclosure can be rotated through 90° steps, which will suit any mounting angle and simply installation.

Model PM1000 is the standard version. An integral open-drain switch output is provided on model PM1001. This can be programmed to open or close at a set-point level. The output can then be used to trigger an alarm or provided external controller.

Typical applications for the plug-on display include use on pressure, temperature, level, RH, or flow transmitters for local readout, alarm activation or control.

Adaptations for custom connectors can be made and available on request.

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# PANEL METER

PM1000 SERIES  
PLUG-ON DISPLAY

## SPECIFICATION

### DISPLAY:

4 digit red LED display, 7mm digit height.

### DISPLAY OUTPUT RANGE:

-999 to 9999

### INPUT SIGNAL:

4-20mA, 2 wire current loop.

### DISPLAY CALIBRATION:

Factory set to display 4.00 to 20.00 for 4-20mA input.

### ACCURACY:

0.2% of full-scale input +/- 1 digit

### POWER SUPPLY VOLTAGE:

Requires 5 V or less from loop supply.

### ALLOWED LOOP CURRENT:

Maximum 60mA. Above this automatic circuit protection is activated.

### DISPLAY SAMPLING RATE:

300mS to 25.5 S, adjustable filter setting from menu.

### OPEN DRAIN SWITCH OUTPUT:

Model number PM1001 only: P type MOSFET switch. Maximum current source: 90mA, with automatic circuit protection.

### PROGRAMMING:

Via two press buttons, menu assisted.

Access to the programming buttons is made by removing front cover.

### MENU SELECTION:

Zero adjustment: -999 to 9999

Span adjustment: 0 to 9999

Decimal point: 3 positions or off

Filter: 0.3 to 25.5 second

Over-range: On/Off

Setpoint: -999 to 9999

Setpoint direction: Up/Down

Settings stored in Non-volatile EEPROM

### ERROR MESSAGES:

*When over-range option is selected:*

'HI' is displayed when input is above 20mA 'LO'

is displayed when input is less than 4mA

*when over-range option is off:*

'ErC6' is displayed when range -999 to 9999 is exceeded.

### TEMPERATURE RANGE:

Operating: - 10°C to + 60°C

Storage: - 30°C to + 80°C

### CASE MATERIAL:

Moulded ABS plastic, Red Acrylic display window, Nitrile seal.

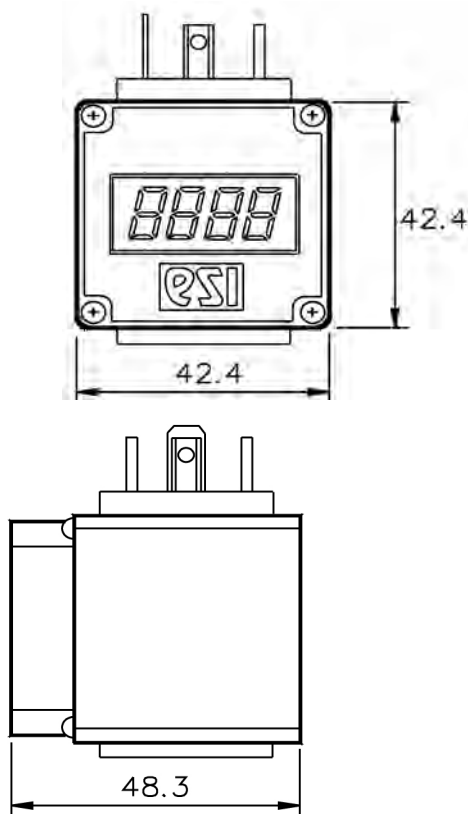
### INGRESS PROTECTION TYPE:

Splash-proof, enclosure sealed to IP65

### ELECTRICAL CONNECTION:

Plugs directly onto transmitters with 4-20 mA output and right-angle DIN 43650 (3-pin +earth) connector plug.

## DIMENSIONS (in mm)



### PROGRAMMING

To setup display:  
Remove 4 screws and front cover  
to access programming buttons

### ELECTRICAL CONNECTIONS

Pin No.	PM1000	PM1001
1	+supply	+supply
2	4-20mA signal	-supply
3	not connected	open drain (P type switch)
	Connected through to transducer plug	

### ORDER DETAILS

State model number.

Model No.	DESCRIPTION
PM1000	Standard plug-on display.
PM1001	Plug-on display with single set point.

### CALIBRATION

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# PANEL METER

PM8000 PANEL METER



Model shown PM8004

- SIMPLE TO USE PROCESS INDICATOR
- 3 1/2 DIGIT LED PROCESS METER
- WIDE RANGE OF SCALABILITY
- 4-20mA, 0-10 & 1-5V DC PROCESS SIGNALS
- EXCELLENT STABILITY/ACCURACY
- DUAL SLOPE ADC
- DECIMAL POINT DISPLAY

## DESCRIPTION

The PM8000 offers you a simple process indicator ideal for general monitoring applications. The wide range of scalability provided makes this panel meter suitable for displaying of many different physical variables such as temperature, pressure, weight, humidity etc.

The 3digit red LED Display has an accuracy of  $0.1\% \pm 1$  count and accepts standard process signals of 4-20mA, 1-5V and 0-10V and many others. A regulated 24V (rated 30mA) or 10V (rated 50mA) sensor supply is readily available on the input connector which can be used to power an external sensor. Jumper switches can be used to select 10V or 24V.

Detachable screw connectors are provided to allow easy maintenance and installation. Zero and Span can be finely trimmed with a multi-turn potentiometer.

Dual slope integration is employed to give  $\pm 1999$  count resolution for  $\pm 20$ mA or  $\pm 10$ V analogue input signals. A decimal point can be selected to appear where required by a push-on jumper switch.

Optional features include variable display brightness control, remote decimal point selection using remote switching and an extra fixed zero digit to multiply the reading by 10.

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# PANEL METER

PM8000 PANEL METER

## SPECIFICATION

### DISPLAY:

4 digit red LED display, 14.2mm digit height.

### RESOLUTION:

1 in 2000 maximum over full range, with 3 1/2 Digit Display (0 to +/- 1999)

### INPUT SIGNAL:

4-20mA, 0+/-20mA, 0+/-1mA, 0-10Vdc, 0+/-10Vdc, 1-5Vdc,.....others possible on request.

### INPUT RESISTANCE:

13ohms for current input, 1 Mohms for voltage

### COMMON MODE REJECTION:

100dB 0-60Hz, 250V max

### ADC METHOD:

Dual slope conversion

### SPEED OF RESPONSE:

Display update: 2.5/sec

### ACCURACY:

0.10% of reading +/- 2 counts

### TEMPERATURE STABILITY:

100 ppm/°C for span, 50 ppm/°C for zero

### OUTPUT FOR EXTERNAL SENSORS:

24Vdc or 10V

### ACCURACY OF THE EXCITATION SUPPLY:

+/-20% accuracy

### CURRENT CAPACITY OF THE EXCITATION SUPPLY:

30mA for 24V, 50mA for 10V

### POWER SUPPLY:

110 or 240 Vac standard, 11 to 30Vdc as option.

### POWER CONSUMPTION:

4VA maximum

### TEMPERATURE RANGE:

Operating: 0°C to + 50°C

Storage: - 10°C to + 70°C

### HUMIDITY:

90% RH maximum at 40°C, non-condensing

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

### ELECTRICAL CONNECTION:

4 way detachable screw terminal connector for conductor size 0.5 to 1.5mm

### BEZEL SIZE:

96mm wide x 48mm high (1/8 DIN)

### CUTOUT SIZE:

92mm wide x 45 mm high

### DEPTH BEHIND PANEL:

93 mm minimum required

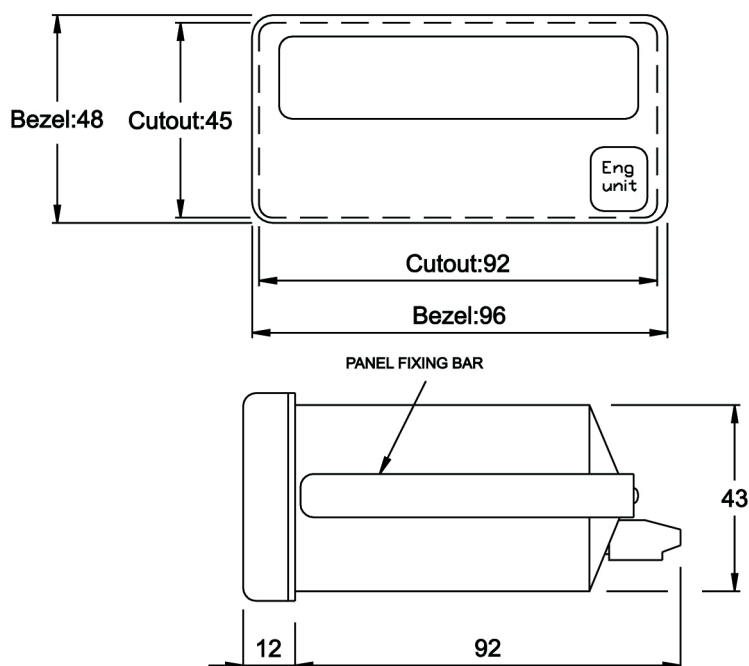
### WEIGHT:

300 grams typically

### CASE MATERIAL:

Black polycarbonate

## DIMENSIONS (in mm)



### ORDER DETAILS

State model number. No options with this panel meter

Model No.	DESCRIPTION
PM8000	3 1/2 Digit Scalable Process Meter

### CALIBRATION

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# PANEL METER

PM8001 PANEL METER  
PM8002 PANEL METER  
PM8003 PANEL METER



Model shown PM8004

- 4-20MA, 0-10V & 0-5V DC & 1-5V PROCESS SIGNALS
- 3 1/2 & 4 1/2 DIGIT DISPLAY FORMATS
- EXCELLENT STABILITY/ACCURACY
- REGULATED SENSOR SUPPLY
- ZERO & SPAN ADJUSTMENTS
- LARGE RANGE OF OUTPUT FORMATS
- OPTIONAL FEATURES

## DESCRIPTION

The PM8001, PM8002 and PM8003 are an extremely versatile range of process meters providing the solution to most process monitor and readout needs.

PM8001 has a 3digit display ranging from 0 to 1999. PM8001 and PM8002 have 4digit displays ranging from 0 to 19999, with accuracy of 0.05%. All have 14.2mm high, bright red LED readout as standard. Optional readout colours are available.

Input signals options include 4-20mA, 0-10V, 1-5V and 0-5V, with other possible on request. Specify input type when ordering.

Many output options are available in this range. These include analogue signal output for re-transmission, set-point alarm relays, serial data output. Specify output type when ordering.

Traditional screwdriver trimming potentiometers are used for calibration and alarm level setting on this product. This provides an uncomplicated, quick approach to setting operating parameters during installation.

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# PANEL METER

PM8001 PANEL METER  
PM8002 PANEL METER  
PM8003 PANEL METER

## SPECIFICATION

### DISPLAY:

High intensity red LED display, 14.2mm digit height.

### RESOLUTION:

3 1/2 Digit model PM8001

4 1/2 Digit models PM8002, PM8003

### INPUT SIGNAL:

4-20mA, 0-10Vdc, 1-5Vdc, 0-5Vdc...others possible on request.

### INPUT RESISTANCE:

24ohms for current input, 1.1Mohms for voltage

### SPEED OF RESPONSE:

Display update: 2.5/sec

### DECIMAL POINT SELECTION:

Set position with push-on jumpers at rear

### ACCURACY:

0.05% of reading +/- 1 count PM8001  
+/-10 counts PM8002/3

### TEMPERATURE STABILITY:

50 ppm of range/°C span and zero

### OUTPUT FOR EXTERNAL SENSORS:

Selectable 10 or 24Vdc, regulated. Others possible, including constant current.

### ACCURACY OF THE EXCITATION SUPPLY:

+/-5% accuracy. Stability is 50ppm/C typical

### CURRENT CAPACITY OF THE EXCITATION SUPPLY:

120mA for 10V, 30mA for 24V

### POWER SUPPLY:

110 or 230 Vac standard, 24Vac and 10 to 30Vdc as option.

### CURRENT CONSUMPTION:

8VA maximum

### TEMPERATURE RANGE:

Operating: - 20°C to + 50°C

Storage: - 40°C to + 70°C

### HUMIDITY:

90% RH maximum at 40°C, non-condensing

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

### ELECTRICAL CONNECTION:

4 way detachable screw terminal connector for conductor size 0.5 to 1.5mm

### BEZEL SIZE:

96mm wide x 48mm high (1/8 DIN)

### CUTOUT SIZE:

92mm wide x 45 mm high

### DEPTH BEHIND PANEL:

125 mm minimum required

### WEIGHT:

550 grams typically

### CASE MATERIAL:

UL 94V0 rated black ABS

### OPTIONS (spec):

#### ANALOGUE OUTPUT DRIVE CAPACITY:

4-20mA into loads 0 - 500ohms. 0-10V into loads from 500ohms to Infinity

#### ANALOGUE OUTPUT ISOLATION:

380V safety rated from power & earth, but not

isolated from input stage

#### ANALOGUE OUTPUT SPEED OF RESPONSE:

500 milliseconds.

#### ANALOGUE OUTPUT ACCURACY:

0.05% of range

#### ANALOGUE OUTPUT LINEARITY:

0.01% of range

#### ALARM RELAYS:

2 SPCO relays with adjustable hysteresis. Set HIGH or LOW. De-energise on alarm for fail safe

#### RELAY CURRENT RATING:

7A, resistive load. If driving inductive loads, MOV varistors are recommended

#### RELAY VOLTAGE RATING:

250Vac, 24Vdc

#### ALARM SET-POINT STABILITY:

+/- 100 ppm/°C typical

#### ALARM SPEED OF RESPONSE:

15mS typical

#### ALARM HYSTERESIS:

1 count (PM8001), 10 counts (PM8002/3)

#### ALARM ANNUNCIATION:

Red LED illuminates when relay de-energises

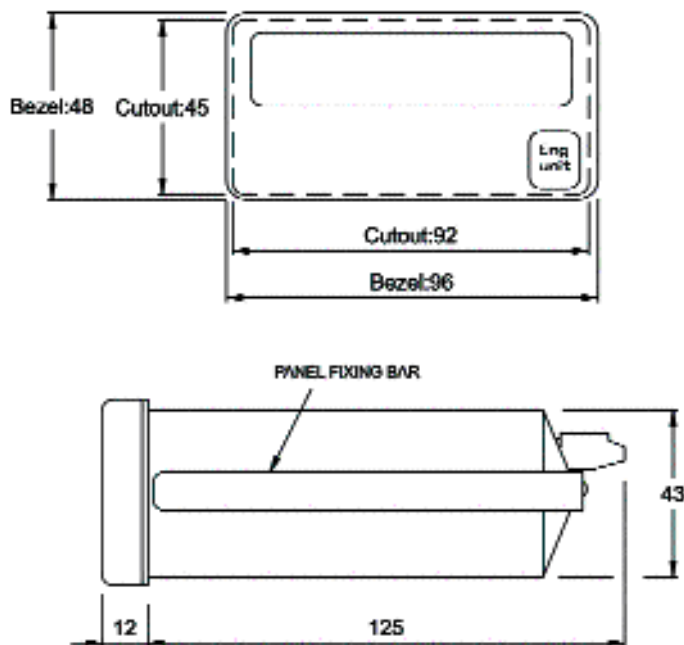
#### SERIAL OUTPUT FORMAT:

1 start bit, 8 data bits, 1 or more stop bits. ASCII data terminated with a carriage return

#### BAUD RATE:

Selectable 1200, 2400, 4800 or 9600

## DIMENSIONS (in mm)



## ORDER DETAILS

State model number, input signal and output option if required.

Model No.	DESCRIPTION
PM8001	3 1/2 digits. 2 programmable alarms
PM8002	4 1/2 digits. No alarms
PM8003	4 1/2 digits. 2 programmable alarms

## OPTIONS

Analogue Output.	4-20mA, 0-10Vdc, +/-5Vdc
Alarm Output.	2 SPCO Relay
Serial Output.	RS232

## CALIBRATION

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# PANEL METER

PM8004 PANEL METER



- 4-20mA, 0-10V, 1-5V & 0-10mA INPUT/ DISPLAY RANGES
- SIMPLE TO PROGRAM
- 8 PROGRAM MEMORY OPTION
- 5 DIGIT LED DISPLAY
- EXCELLENT STABILITY/ACCURACY
- ISOLATED 24Vdc SENSOR EXCITATION
- 10 POINT USER-DEFINED LINEARISATION
- DIRECT ACCESS MENU FUNCTIONS FOR CALIBRATION, ALARM SETTING AND MORE

## DESCRIPTION

The PM8004 series of digital panel meters are the ideal solution for measurement display and control applications, and are well suited to the readout and display of physical properties such as pressure, strain, temperature, humidity and others.

A MENU-FREE calibration system is employed with this panel meter design. This makes calibration and set-up of operating parameters very straightforward and radically simplifies this process compared with the usual complex menu arrangement used on most digital meters. In the PM8004 the menu is replaced by simple push buttons enabling the zero, span, analogue output or alarms to be adjusted via a button on the front of the panel.

The 5 digit red LED display is standard, providing 1 in 63000 resolution and an accuracy of 0.05% of range. Inputs include 4-20mA, 0-10V, 1-5V and 0-10mA. A 24V sensor excitation supply is provided and can be used to power an external transmitter current loop. Additionally a linearisation feature is provided with 10 user-defined points, which can be used to improve display accuracy with non-linear input signals.

Standard features include: Peak and valley memories to record max/min readings and which can be viewed using the MAX/MIN button on the front panel or by using remote contact closure switches. Automatic zero-drift compensation used to cancel long-term drift caused by ageing and temperature change etc. Calibration counter and tamper detector, in which an internal totaliser counts each calibration. This is then stored in non-volatile memory, which cannot be reset, making this a useful function to track calibration history. Finally a reset command can be used to clear any stored data. As a safety precaution for stored data, a 'lock-out' switch has been incorporated into the design to ensure that if this switch is enabled, no data can be lost.

Options include 2 or 4 programmable alarm relay outputs, analogue outputs for signal retransmission, RS232 serial or BCD outputs.

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# PANEL METER

PM8004 PANEL METER

## SPECIFICATION

### DISPLAY:

High intensity red LED display, 14.2mm digit height.

### RESOLUTION:

1 in 63000 maximum over full range, with 5 Digit Display (0-99990)

### INPUT SIGNAL:

4-20mA, 0-10mA, 0-10Vdc, 1-5Vdc, ....others possible on request.

### INPUT RESISTANCE:

33ohms for current input, 1.1Mohms for voltage

### SPEED OF RESPONSE:

Display update: 2/sec

### FILTERING / SMOOTHING:

Selectable time constant of 0 to 5 seconds

### ACCURACY:

0.05% of reading

### TEMPERATURE STABILITY:

50 ppm/°C for span, 20/°C for zero

### OUTPUT FOR EXTERNAL SENSORS:

24Vdc, isolated

### ACCURACY OF THE EXCITATION SUPPLY:

+/-20% accuracy.

### CURRENT CAPACITY OF THE EXCITATION SUPPLY:

50mA for 24V

### POWER SUPPLY:

95 to 265 Vac standard, 11 to 30Vdc as option..

### CURRENT CONSUMPTION:

8VA maximum

### TEMPERATURE RANGE:

Operating: - 20°C to + 50°C

Storage: - 40°C to + 70°C

### HUMIDITY:

90% RH maximum at 40°C, non-condensing

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN50081-1

Immunity EN50082-1

Certification CE marked

### ELECTRICAL CONNECTION:

4 way detachable screw terminal connector for conductor size 0.5 to 1.5mm

### BEZEL SIZE:

96mm wide x 48mm high (1/8 DIN)

### CUTOUT SIZE:

92mm wide x 45 mm high

### DEPTH BEHIND PANEL:

125 mm minimum required

### WEIGHT:

300 grams typically

### CASE MATERIAL:

UL 94V0 rated black ABS

### OPTIONS (spec):

### ANALOGUE OUTPUT DRIVE CAPACITY:

4-20mA into loads 0 - 500ohms. 0-10V into loads from 500ohms to Infinity

### ANALOGUE OUTPUT ISOLATION:

250V optically isolated

### ANALOGUE OUTPUT SPEED OF RESPONSE:

100 milliseconds.

### ANALOGUE OUTPUT ACCURACY:

0.1% of range

### ANALOGUE OUTPUT LINEARITY:

0.02% of range

### ALARM RELAYS:

2 or 4 SPCO relays with adjustable hysteresis. Set HIGH or LOW. De-energise on alarm for fail safe

### RELAY CURRENT RATING:

5A, resistive load. If driving inductive loads, MOV varistors are recommended

### RELAY VOLTAGE RATING:

250Vac, 24Vdc

### ALARM SET-POINT STABILITY:

+/- 100 ppm/°C typical

### ALARM SPEED OF RESPONSE:

15mS typical

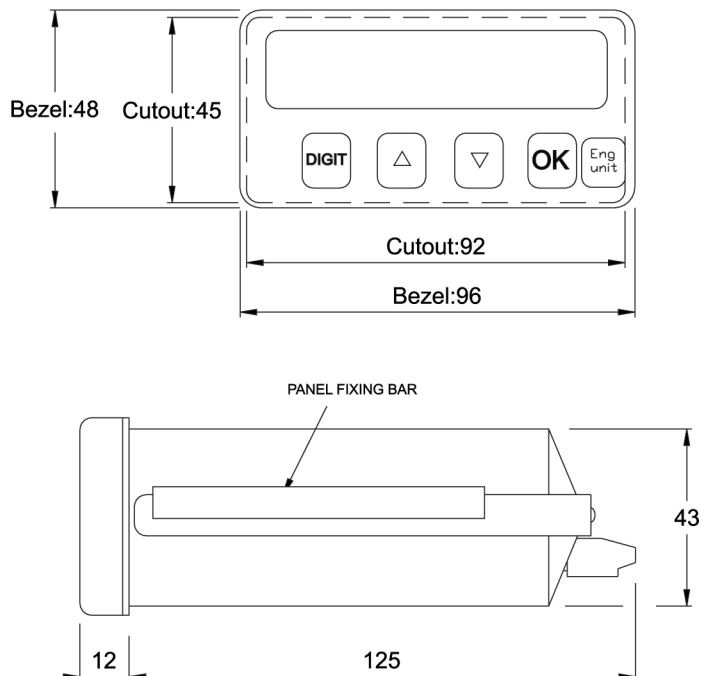
### SERIAL OUTPUT FORMAT:

1 start bit, 8 data bits, 1 or more stop bits. ASCII data terminated with a carriage return

### BAUD RATE:

Selectable 1200, 2400, 4800 or 9600

## DIMENSIONS (in mm)



### ORDER DETAILS

State model number, and option.

MODEL NO.	DESCRIPTION
PM8004	Standard, no alarms
PM8004-2AL	2 programmable alarms
PM8004-4AL	4 programmable alarms
PM8004-AN5V	No alarms. 0-5Vdc external O/P
PM8004-AN10V	No alarms. 0-10Vdc external O/P
PM8004-AN20	No alarms. 4-20mA external O/P
PM8004-RS232	No alarms. RS232 external O/P
PM8004-DIFF	No alarms. 4-20mA diff. external O/P
PM8004-BCD	No alarms. BCD external O/P

All models, up to 5 programmable digits.

### CALIBRATION

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# PANEL METER

PM8005 PANEL METER  
PM8006 PANEL METER



- 4-20mA, 0-10V, 1-5V etc PROCESS SIGNALS
- 5 DIGIT LED DISPLAY
- EXCELLENT STABILITY/ACCURACY
- DIRECT ACCESS MENU FUNCTIONS FOR CALIBRATION, ALARM SETTING AND MORE
- LARGE RANGE OF STANDARD FEATURES

Model shown PM8004

## DESCRIPTION

The PM8005 and PM8006 digital panel meters are simplified versions of the popular PM8004 digital process meter family offering the same high performance standards as the PM8004 but with a trimmed down feature list.

A MENU-FREE calibration system is employed with this panel meter design. This makes calibration and set-up of operating parameters very straightforward and radically simplifies this process compared with the usual menu arrangement used on most digital meters. The menu in this case is replaced by simple push buttons enabling zero, span, analogue output or alarms to be adjusted via a button on the front of the panel.

The 5 digit red LED display is standard, providing  $\pm 30000$  count resolution and an accuracy of 0.10% of range. Input signals include 4-20mA, 0-10V, 1-5V and 0-10mA. A 24V sensor excitation supply is provided and can be used to power an external transmitter current loop.

Standard features include: digital signal filtering, automatic zero-drift compensation, last digit rounding (count by 1, 2, 5, 10, 20, 50), minimum (valley) and maximum (peek) reading memory, display taring, two set-point alarm relays with latching or adjustable hysteresis, calibration counter and taper detector.

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# PANEL METER

PM8005 PANEL METER  
PM8006 PANEL METER

## SPECIFICATION

### DISPLAY:

High intensity red LED display, 14.2mm digit height.

### RESOLUTION:

+/-30000 counts maximum over full range, with 5 Digit Display (-20000 to +99999)

### INPUT SIGNAL:

4-20mA, 0-10mA, 0-10Vdc, 1-5Vdc, ....others possible on request.

### INPUT RESISTANCE:

33ohms for current input, 1.1Mohms for voltage

### SPEED OF RESPONSE:

Display update: 2.5/sec

### FILTERING / SMOOTHING:

Selectable time constant of 0 to 5 seconds

### ACCURACY:

0.1% of reading +/-2 counts

### TEMPERATURE STABILITY:

100 ppm/°C for span, 50/°C for zero

### OUTPUT FOR EXTERNAL SENSORS:

24Vdc

### ACCURACY OF THE EXCITATION SUPPLY:

+/-20% accuracy.

### CURRENT CAPACITY OF THE EXCITATION

#### SUPPLY:

30mA for 24V

### POWER SUPPLY:

95 to 265 Vac standard, 11 to 30Vdc as option..

### CURRENT CONSUMPTION:

8VA maximum

### TEMPERATURE RANGE:

Operating: 0°C to + 50°C

Storage: - 10°C to + 70°C

### HUMIDITY:

90% RH maximum at 40°C, non-condensing

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

### ELECTRICAL CONNECTION:

4 way detachable screw terminal connector for conductor size 0.5 to 1.5mm

### BEZEL SIZE:

96mm wide x 48mm high (1/8 DIN)

### CUTOUT SIZE:

92mm wide x 45 mm high

### DEPTH BEHIND PANEL:

125 mm minimum required

### WEIGHT:

300 grams typically

### CASE MATERIAL:

UL 94V0 rated black ABS

### Programmable alarm on PM8006 only:

### ALARM RELAYS:

2 SPCO relays with adjustable hysteresis. Set HIGH or LOW. De-energise on alarm for fail safe

### RELAY CURRENT RATING:

5A, resistive load. If driving inductive loads, MOV varistors are recommended

### RELAY VOLTAGE RATING:

250Vac, 24Vdc

### ALARM HYSTERESIS:

Settable from 0 to 9998 counts

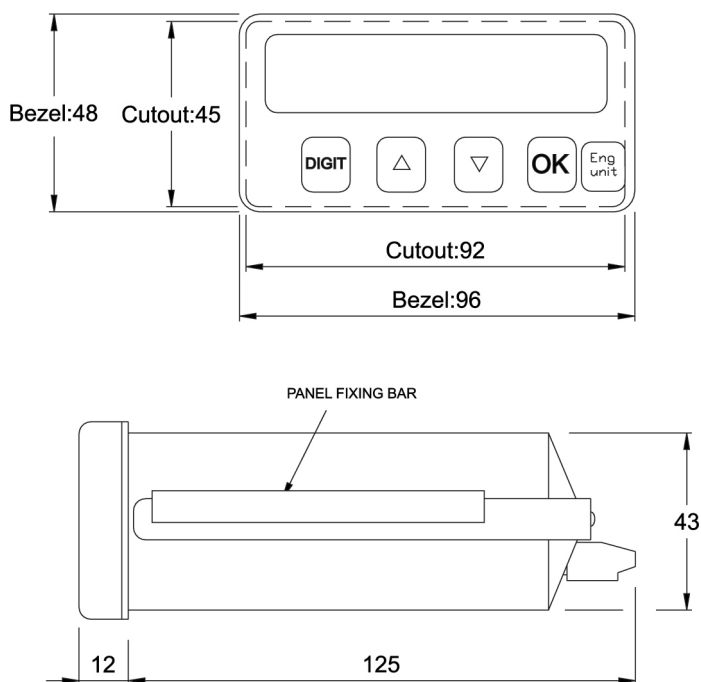
### ALARM SET-POINT STABILITY:

+/- 100 ppm/°C typical

### ALARM SPEED OF RESPONSE:

15mS typical

## DIMENSIONS (in mm)



### ORDER DETAILS

State model number only. No options available.

MODEL NO.	DESCRIPTION
PM8005	No alarms
PM8006	2 programmable alarms

### CALIBRATION

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- HIGH STABILITY CERAMIC SENSOR
- SUPPLY VOLTAGE 13 - 36Vdc
- 4-20mA TWO WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 500mbar TO 400bar
- DIN RAIL MOUNTABLE DIN 46277-1
- INTRINSICALLY SAFE MODELS

### DESCRIPTION

The PR3000 pressure transmitter incorporates a highly stable ceramic thick film pressure diaphragm, with a unique high performance amplifier to give excellent reliability over a long service life.

Housed in a robust enclosure for DIN Rail or bulkhead mounting the transmitter is fitted with an IP65 sealed connector.

Standard pressure fitting is 1/4" BSP female. Electrical connection is a DIN plug and socket. Access to zero and span potentiometers is by removing the connector nut and base plug enabling easy on-site adjustment.

Applications include the static and dynamic measurement of liquids or gases for measurement and control applications. The DIN Rail mounting facility offers ideal use in control panels for pneumatic, hydraulic, H.V.A.C. or industrial process applications.

Ranges available for -1-0bar and from 0-500mbar to 0-400bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 500mbar through to 400 bar, see table below for list of all standard pressure ranges.

#### PRESSURE REFERENCE:

Gauge or absolute versions for all ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS. 1.5x for all ranges

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration)

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

$\pm 5\%$ FS adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug 13-36Vdc for 4-20mA versions

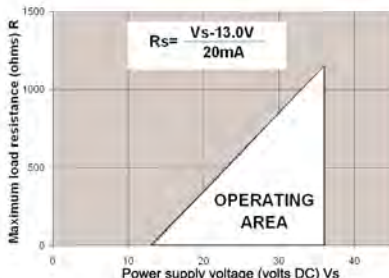
#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc.

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with alumina, 303 stainless steel and Nitrile seal.

#### OPERATING TEMPERATURE RANGE:

Ambient  $-20^{\circ}$  to  $+85^{\circ}$ C

Storage:  $5^{\circ}$  to  $+40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 2\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.03\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/4" BSP female

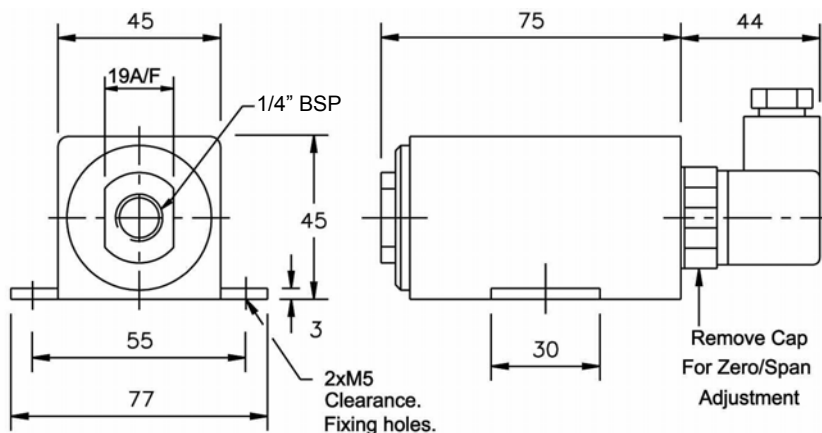
#### ELECTRICAL CONNECTION:

Mating socket with screw terminal connections to DIN 43650, rated IP65. Option: flying lead, with optional cable length.

#### WEIGHT:

375 grams for standard unit with DIN 43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	2 wire
1	+supply
2	4-20mA signal
3	not fitted
	connect to case

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3000 0-6barg

Model No.	DESCRIPTION
PR3000	Transmitter 0-500mbar to 0-400 bar

#### PRESSURE RANGES

-1 - 0 bar Vac	0 - 16 bar
0 - 500 mbar	0 - 25 bar
0 - 1 bar	0 - 40 bar
0 - 1.6 bar	0 - 60 bar
0 - 2.5 bar	0 - 100 bar
0 - 4 bar	0 - 160 bar
0 - 6 barg	0 - 250 bar
0 - 10 bar	0 - 400 bar

#### CALIBRATION

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- HIGH STABILITY AND REPEATABILITY
- SUPPLY VOLTAGE 13-36Vdc
- ALL STAINLESS STEEL HOUSING
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 1bar TO 1000bar
- INTRINSICALLY SAFE MODELS
- COMPATIBLE INDICATORS AND ALARMS
- CE MARKED

### DESCRIPTION

The PR3100 series pressure transmitters have been designed to meet the requirements of the majority of industrial applications of pressure measurement requiring an output of 4-20mA.

Robustly constructed from stainless steel this range of pressure transmitters incorporates the latest strain gauge technology together with a custom IC amplifier offering excellent stability and accuracy over a long service life. Output options include 0-20mA, 0-5vdc and 0-10Vdc.

Typical applications for this series of standard transmitters includes, mechanical and civil engineering installations, process plant, production test facilities, water resources, power generation and any application on fluid or gas requiring a stable repeatable and accurate output signal of 4-20mA.

Electrical connection is via a detachable DIN connector allowing easy access to zero and span adjustment.

Standard pressure connection is 1/2"BSP. Optional 1/4"BSP, 1/4"BSPT, 1/2"BSPT, 1/4"NPT, 1/2"NPT are also available on request. In addition PR3100 is available in corrosion resistant materials e.g. Hastalloy C, Inconel etc.

Pressure ranges available from 0-1bar to 0-1000bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 1bar through to 1,000bar, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges 1bar to 400bar

1.5x for 600bar

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are

0-5 Vdc (4 wire),

0-10 Vdc (4 wire),

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometer.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

#### REVERSAL OF SUPPLY VOLTAGE:

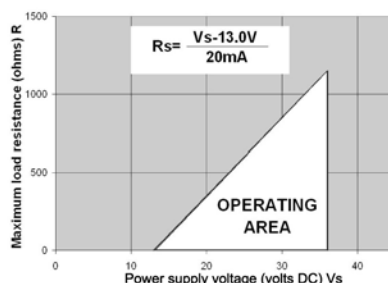
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

eg with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 17/4PH and 303 stainless steel for ranges over 10bar, or alumina and 303 stainless steel for ranges 10bar and below.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^{\circ}$  to  $+85^{\circ}\text{C}$

Storage:  $5^{\circ}$  to  $40^{\circ}\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 2\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}\text{C}$

Typical thermal zero and span coefficients

$\pm 0.03\%$ FS/ $^{\circ}\text{C}$

#### ELECTROMAGNETIC-COMPATILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/2" BSP Male (others on request)

#### ELECTRICAL CONNECTION:

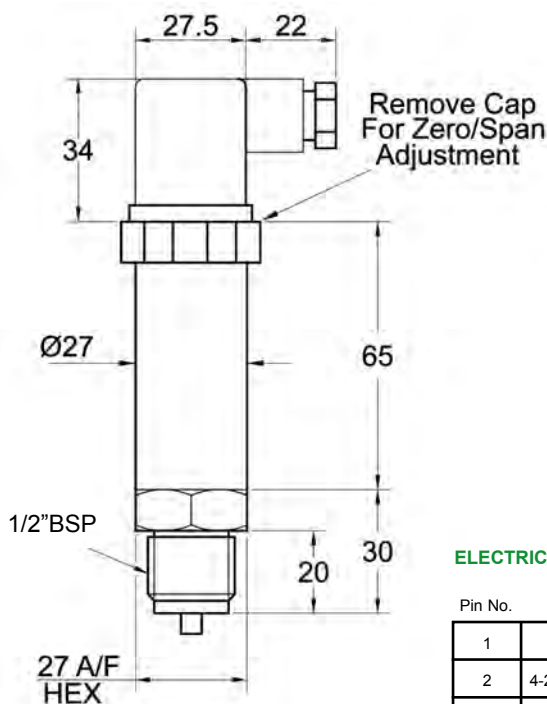
Mating socket with screw terminal connections to DIN 43650, rated IP65.

Option: flying lead with optional cable length

#### WEIGHT:

195 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	2 wire	3 wire	4 wire
1	+supply	+supply	+supply
2	4-20mA signal	-supply	-supply
3	not fitted	+output	+output
⏏	to case	to case	-output

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3100 0-6barg

Model No.	DESCRIPTION
PR3100	4-20mA, 2 WIRE
PR3101	0-20mV, 4 WIRE
PR3102	0-5V, 3 or 4 WIRE
PR3103	0-10V, 3 or 4 WIRE

#### PRESSURE RANGES

-1 - 0 bar Vac	0 - 40 barg
0 - 1 barg	0 - 60 barg
0 - 1.6 barg	0 - 100 barg
0 - 2.5 barg	0 - 160 barg
0 - 4 barg	0 - 250 barg
0 - 6 barg	0 - 400 barg
0 - 10 barg	0 - 600 barg
0 - 16 barg	0 - 1000 barg
0 - 25 barg	Absolute ranges available to 400 bar

#### CALIBRATION

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- HIGH STABILITY AND REPEATABILITY
- SUPPLY VOLTAGE 13-36Vdc
- ALL STAINLESS STEEL HOUSING
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- LOW RANGES FROM 100mbar
- INTRINSICALLY SAFE MODELS
- STANDARD RANGES EX-STOCK
- COMPATIBLE INDICATORS AND ALARMS
- CE MARKED

### DESCRIPTION

The PR3110 series pressure transmitters have been designed to meet the requirements of the majority of industrial applications where accurate low pressure measurement is required.

Robustly constructed from stainless steel this range of pressure transmitters incorporates the latest silicon strain gauge technology together with a custom IC amplifier offering excellent stability and accuracy over a long service life.

Typical applications for this series of standard transmitters includes, mechanical and civil engineering installations, process plant, production test facilities, water resources, power generation and any application on fluid or gas requiring a stable repeatable and accurate output signal of 4-20mA. Outputs options include 0-20mA, 0 - 5 Vdc and 0 - 10 Vdc .

Electrical connection is via a detachable DIN connector allowing easy access to zero and span adjustment.

Standard pressure connection is 1/2"BSP. Optional 1/4"BSP, 1/4"BSPT, 1/2"BSPT, 1/4"NPT, 1/2"NPT are also available on request.

Pressure ranges available from 0-100 mbar to 0-1000 mbar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 100mBar through to 900mBar, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

6x for 100mbar

3x for ranges 200mbar to 1000mbar

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are

0-5 Vdc (4 wire),

0-10 Vdc (4 wire),

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometer.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

#### REVERSAL OF SUPPLY VOLTAGE:

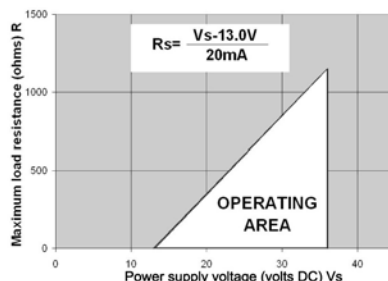
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

eg with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L and 303 stainless steel. Pressure diaphragm is 316L stainless steel.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^{\circ}$  to  $+85^{\circ}\text{C}$

Storage:  $5^{\circ}$  to  $+40^{\circ}\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 2\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}\text{C}$

Typical thermal zero and span coefficients

$\pm 0.03\%$ FS/ $^{\circ}\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/2" BSP Male (others on request)

#### ELECTRICAL CONNECTION:

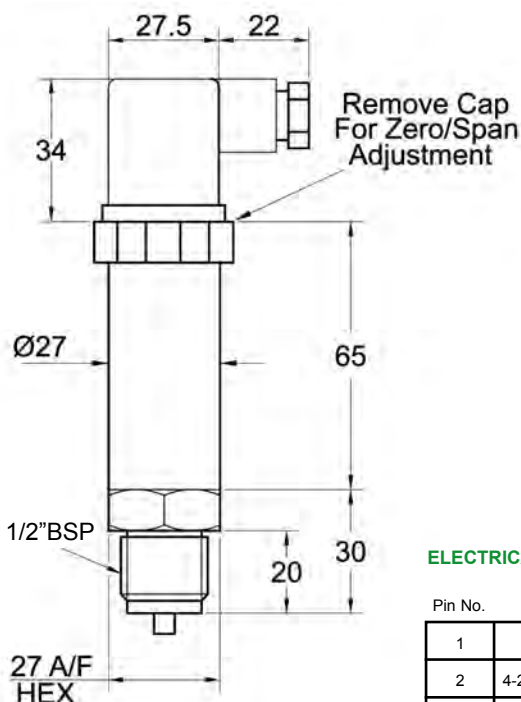
Mating socket with screw terminal connections to DIN 43650, rated IP65.

Option: flying lead with optional cable length.

#### WEIGHT:

195 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	2 wire	3 wire	4 wire
1	+supply	+supply	+supply
2	4-20mA signal	-supply	-supply
3	not fitted	+output	+output
⏏	to case	to case	-output

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3110 0-600mbar

Model No.	DESCRIPTION
PR3110	4-20mA, 2 WIRE
PR3111	0-20mV, 4 WIRE
PR3112	0-5V, 3 or 4 WIRE
PR3113	0-10V, 3 or 4 WIRE

#### PRESSURE RANGES

10 - 100 mbarg 0 - 200 mbarg 0 - 250 mbarg 0 - 300 mbarg 0 - 400 mbarg 0 - 500 mbarg 0 - 600 mbarg 0 - 750 mbarg 0 - 900 mbarg	<b>Note:</b> Absolute ranges start at 0-500mbar
--	--

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- ACCURATE AT VERY WIDE DP RANGE
- HIGH STABILITY AND REPEATABILITY
- WET / WET OPERATION
- 4-20 mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 250mbarDP TO 200barDP
- UNI + BI-DIRECTIONAL OPERATION
- CE MARKED

### DESCRIPTION

The PR3200 Differential Pressure Transmitter uses two ceramic pressure diaphragms, offering high stability and performance with true wet/wet operation, suitable for use with all liquids and gases compatible with stainless steel and alumina. Flush diaphragm models are available with integral or remote pressure diaphragms for hygienic applications.

Applications include flow measurement with pitot tubes, orifice plates and mass flow meters, plus static differential pressure measurement and control in combustion chambers and clean rooms, also condition monitoring and filter monitoring in high pressure hydraulic systems or any application on liquid or gas requiring reliable differential pressure measurement.

Electrical connector is DIN plug and socket. Access to zero and span adjustment is by removing top plate for easy on-site adjustment. Pressure connection as standard is via two 1/4" BSP female connections. Mounting Plate available for standpipe or bulkhead mounting.

Ranges available from 0-250mbarDP to 0-200barDP.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 250mbarDP through to 200barDP, see table under Order Details for list of all standard pressure ranges

#### PRESSURE REFERENCE:

Differential Pressure (DP) only

#### COMMON MODE (STATIC LINE) PRESSURE:

Dependant on the DP pressure range, see table.

DP Pressure Range	Maximum Static Line Pressure
0 - 250 mbar	1 bar
0 - 500 mbar	1.6 bar
0 - 1 bar	2.5 bar
0 - 2 bar	6 bar
0 - 4 bar	10 bar
0 - 10 bar	25 bar
0 - 20 bar	60 bar
0 - 40 bar	100 bar
0 - 100 bar	250 bar
0 - 200 bar	400 bar

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

1.5x Maximum Static pressure for all ranges.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug  
13-36Vdc for 4-20mA versions

#### REVERSAL OF SUPPLY VOLTAGE:

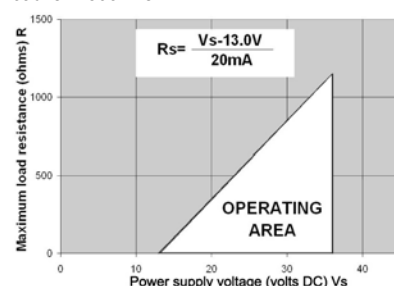
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 303 stainless steel alumina and nitrile.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+85^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 2\%$ FS total error band for  $-20^\circ$  to  $70^\circ\text{C}$

Typical thermal zero and span coefficients

$\pm 0.03\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/4" BSP Female (others on request)

#### ELECTRICAL CONNECTION:

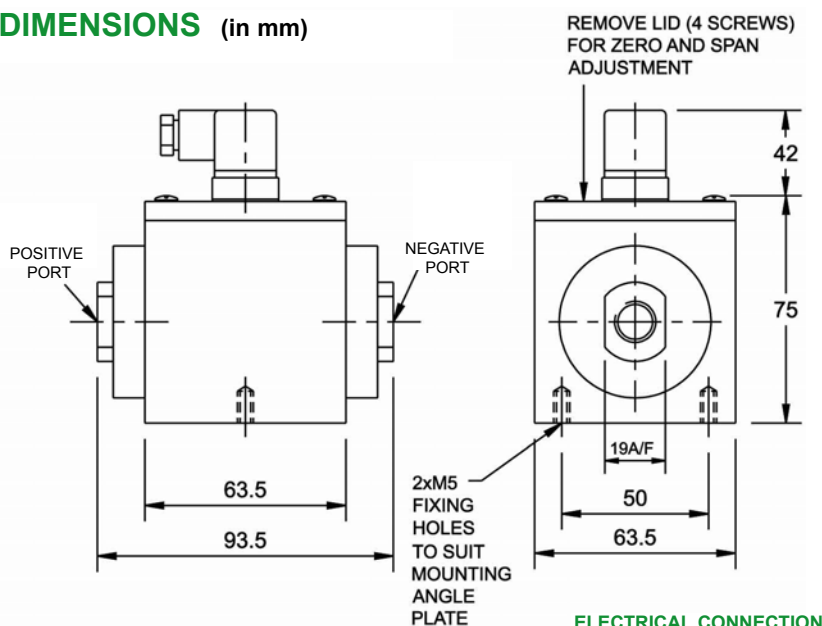
Mating socket with screw terminal connections to DIN 43650, rated IP65.

Option: flying lead with optional cable length

#### WEIGHT:

835 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	2 wire
1	+supply
2	4-20mA signal
3	not fitted
⏏	connected to case

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3200 0-10barDP

Model No.	DESCRIPTION
PR3200	DP Transmitter 0-250mbar to 0-200bar
PR3200MP	Mounting Angle Plate

#### DP PRESSURE RANGES

0 - 250 mbar	0 - 10 bar
0 - 500 mbar	0 - 20 bar
0 - 1 bar	0 - 40 bar
0 - 2 bar	0 - 100 bar
0 - 4 bar	0 - 200 bar

#### CALIBRATION

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- ACCURATE AT VERY LOW D.P
- HIGH STABILITY AND REPEATABILITY
- R.F.I PROTECTION
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 5mbar TO 1000mbar
- 0-5VDC AND 0-10VDC OUTPUTS AVAILABLE

## DESCRIPTION

Our Low Range air differential pressure transmitter provides an accurate solution for low pressure sensing with ranges available from 0-5mbar to 0-1000mbarDP. Incorporating the latest silicon sensor and electronics technologies, these 4-20mA transmitters are fully temperature compensated for unrivalled stability at very low pressure.

Housed in an RFI shielded wall mountable box for EMC protection, these transmitters combine precise measurement for control at very low pressures, with the robustness and flexibility for industrial and commercial installations. An optional heavy-duty aluminium die-cast housing is available for the harshest environments.

Applications include flow measurement with pitot tubes, orifice plates and mass flow meters, plus static pressure measurement and control, in combustion chambers and clean rooms, or any application on air or gas requiring reliable ultra low differential pressure measurement.

Access to screw terminal electrical connections and to zero span potentiometers is by removing the front covers, making installation and on-site adjustment. Cable entry is through a compression seal gland, or optional M20 conduit fitting. Standard pressure connections are to push-on hose fittings for 4mm ID hose.

Ranges available from 0-5mbar to 0-1000mbar, in DP, gauge reference or bi-directional. Ultra low pressure ranges as low as 0-25 Pa also available.

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## SPECIFICATION

### PRESSURE RANGES:

0 to 5mbar through to 1000mbar, see table below for list of all standard pressure ranges.

### PRESSURE REFERENCE:

Differential for all ranges. Gauge and absolute versions available.

### OVERPRESSURE:

Unidirectional pressure can exceed rated range up to the proof pressure limits shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

*For ranges 5mBar and 10mbar*

Proof pressure: 25mbar maximum

*For ranges 20mBar and 100mbar*

Proof pressure: 200mbar maximum

*For ranges 150mBar and 1000mbar*

Proof pressure: 1200mbar maximum

### COMMON MODE PRESSURE:

*For ranges 5mBar and 10mbar*

375mbar maximum equal to both ports

*For ranges 20mBar and 1000mbar*

2 bar maximum equal to both ports

### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are:

0-5 Vdc (3 wire),

0-10 Vdc (3 wire),

### ZERO OFFSET AND SPAN SETTING:

$\pm 0.16$ mA

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometers.

### SUPPLY VOLTAGE:

Measured across supply terminals on connector.

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

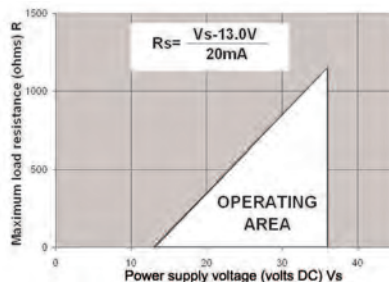
### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.



eg with supply voltage load of 36dc, maximum load is 1150ohms.

### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

### PRESSURE MEDIA:

Dry non corrosive gas only.

### OPERATING TEMPERATURE RANGE:

Ambient:  $-20^\circ$  to  $+70^\circ$ C

Storage:  $5^\circ$  to  $+40^\circ$ C

### TEMPERATURE EFFECTS:

$\pm 2.0\%$ FS total error band for  $0^\circ$  to  $50^\circ$ C

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^\circ$ C

### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN50081-1

Immunity EN50082-1

Certification CE marked

### PRESSURE CONNECTION:

4mm I.D. hose (others on request)

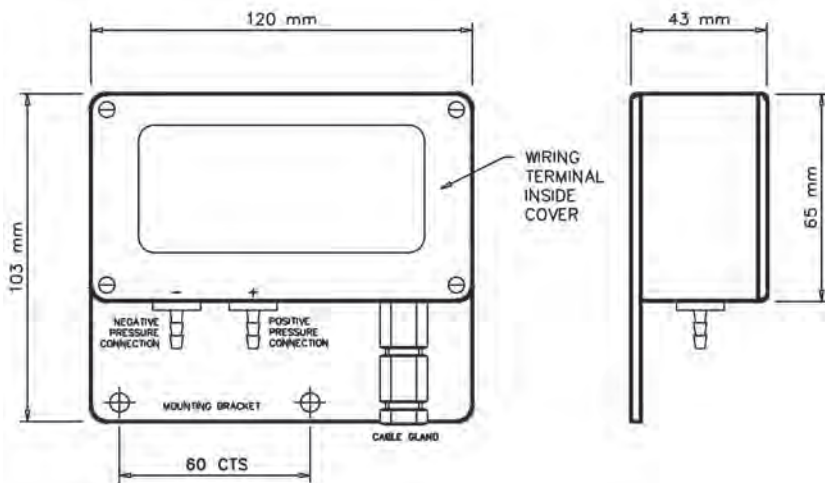
### ELECTRICAL CONNECTION:

Screw terminals for conductor sizes 0.2-2.0mm<sup>2</sup> are located beneath the enclosure lid. Cable entry is through an IP66 cable gland with compression seal for cable sizes 4-8mm. Optional M20 conduit fitting are available.

### WEIGHT:

280 grams for standard unit.

## DIMENSIONS (in mm)



### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	4-20mA signal
3	earth

### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3202 0-50 mbar DP

Model No.	DESCRIPTION
PR3202	4-20mA, 2 WIRE

### D.P. PRESSURE RANGES

0 - 5 mbar	0 - 80 mbar
0 - 10 mbar	0 - 100 mbar
0 - 20 mbar	0 - 250 mbar
0 - 30 mbar	0 - 500 mbar
0 - 50 mbar	0 - 1000 mbar

### CALIBRATION

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- HIGH STABILITY AND REPEATABILITY
- ALL STAINLESS STEEL HOUSING
- RESISTANT TO HIGH VOLTAGE SURGES
- 4-20 mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 0-5mtr TO 0-500mtr
- PRESSURE TIGHT CABLE SHEATH FOR TROUBLE-FREE VENTING

## DESCRIPTION

The PR3400 submersible depth and level transmitter has been designed for the accurate measurement of the depth and level of fluids. Standard version has output signal of 4-20mA, two wire. Options include; outputs of 0-5Vdc and 0-10Vdc, remote amplifier for surface adjustment of zero and span.

For submersion in aggressive or corrosive liquids the PR3400 is available in specialist materials such as Inconel 625, Hastalloy C, titanium and plastic.

The standard depth transmitter is fitted with a nylon nose cone to prevent sludge build-up. The nose cone connection may be replaced by a variety of threaded process connections common in sub-sea requirements. ESI has many options available for high pressure and hydraulic sub-sea applications.

Standard applications include reservoir and borehole level monitoring, water mains pressure metering, power level and outlet pressure on submersible pumps.

Electrical connection is via a screened cable protected by a tough nylon pressure tight sheath, which allows excellent trouble-free venting to the surface.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 5mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 1.6x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.16$ mA

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

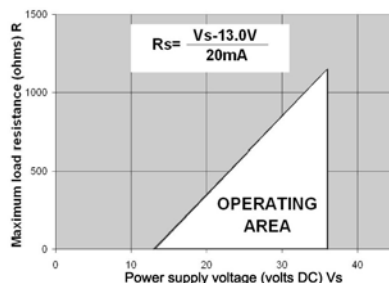
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 1.00\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.15\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.3\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 303 stainless steel housing, alumina diaphragm, nylon cable sheath and nitrile o-ring seal.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+60^\circ$ C

Storage:  $5^\circ$  to  $40^\circ$ C

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 2.0\%$ FS total error band for  $-20^\circ$  to  $60^\circ$ C

Typical thermal zero and span coefficients  $\pm 0.03\%$ FS/ $^\circ$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Nylon nose cone with radial pressure inlets.

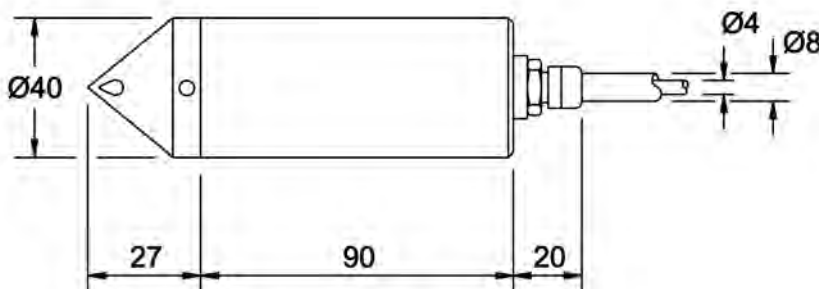
#### ELECTRICAL CONNECTION:

Screened cable in pressure tight flexible nylon sheath. Cable conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

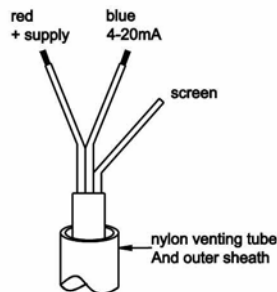
#### WEIGHT:

705 grams excluding cable.

### DIMENSIONS (in mm)



#### CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3400 0 - 10mWG

Model No.	DESCRIPTION
PR3400 Transmitter	Standard Submersible 0-5 to 0-500mtr

#### PRESSURE RANGES

0 - 5 mWG	0 - 100 mWG
0 - 10 mWG	0 - 150 mWG
0 - 20 mWG	0 - 250 mWG
0 - 30 mWG	0 - 500 mWG
0 - 50 mWG	
0 - 80 mWG	

#### CALIBRATION

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- EXCELLENT STABILITY AND REPEATABILITY
- ALL STAINLESS STEEL HOUSING
- RESISTANT TO HIGH VOLTAGE SPIKES
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 0-5mWG TO 0-500mWG
- PRESSURE TIGHT CABLE SHEATH FOR TROUBLE-FREE VENTING

## DESCRIPTION

The PR3420 submersible depth and level transmitter has been designed for the accurate measurement depth in sludge/slurry materials.

The transmitter is mounted on a sludge platform to lift the sensing diaphragm above the sludge/tar level. This prevents build-up of foreign matter on the sensor face, which could affect performance of the transmitter.

A standard version with 4-20mA output signal and in-head electronics, or optionally a remote amplifier version with zero/span adjustment is available. Optional output signals of 0-5 Vdc and 0-10 Vdc are also available.

The PR3420 can be manufactured in materials suitable for use in aggressive or corrosive liquids. Materials include Inconel 625, Hastalloy C, titanium or plastic.

Typical applications include level or contents measurement of liquids where sedimentary deposits may occur in storage tanks, rivers, seabed, etc.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 5mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 1.6x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.16$ mA

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

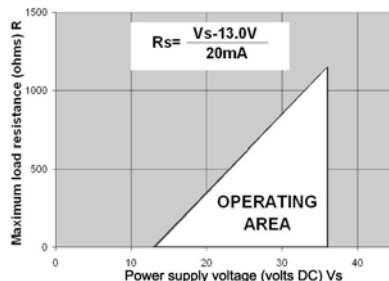
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel housing and diaphragm, polyurethane cable and nitrile o-ring seal.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+60^\circ$ C

Storage:  $5^\circ$  to  $40^\circ$ C

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 2.0\%$ FS total error band for  $-20^\circ$  to  $60^\circ$ C

Typical thermal zero and span coefficients  $\pm 0.03\%$ FS/ $^\circ$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Anti-slurry platform with pressure inlet.

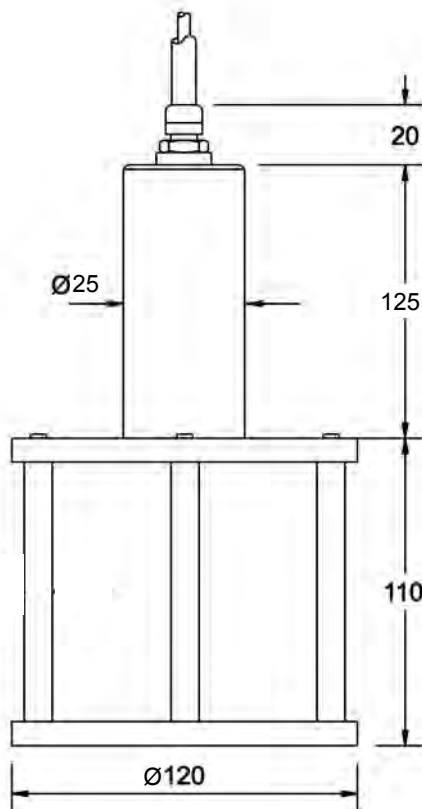
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup> (24awg), resistance 8.9ohms/100metre (x2).

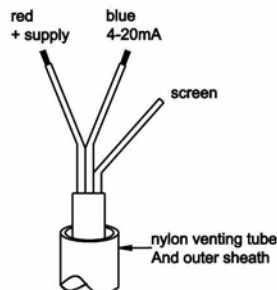
#### WEIGHT:

2000 grams excluding cable.

### DIMENSIONS (in mm)



#### CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3420 0 - 10mWG

Model No.	DESCRIPTION
PR3420 Transmitter	Standard Submersible 0-5 to 0-500mtr

#### PRESSURE RANGES

0 - 5 mWG	0 - 100 mWG
0 - 10 mWG	0 - 150 mWG
0 - 20 mWG	0 - 250 mWG
0 - 30 mWG	0 - 500 mWG
0 - 50 mWG	
0 - 80 mWG	

#### CALIBRATION

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Model shown PR3441

- HIGH STABILITY AND REPEATABILITY
- ALL STAINLESS STEEL HOUSING
- RESISTANT TO HIGH VOLTAGE SURGES
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 0-10mtr TO 0-500mtr
- PRESSURE TIGHT CABLE SHEATH FOR TROUBLE-FREE VENTING

## DESCRIPTION

The PR3440 submersible depth and level transmitter has been designed for the accurate measurement of the depth and level of fluids. Standard version has output signal of 4-20mA, two wire. Options include; outputs of 0-5Vdc and 0-10Vdc, remote amplifier for surface adjustment of zero and span.

For submersion in aggressive or corrosive liquids the PR3440 is available in specialist materials such as Inconel 625, Hastalloy C, titanium and plastic.

The standard depth transmitter is fitted with a stainless steel nose cone to prevent sludge build-up. The nose cone connection may be replaced by a variety of threaded process connections common in sub-sea requirements. ESI has many options available for high pressure and hydraulic sub-sea applications.

Standard applications include reservoir and borehole level monitoring, water mains pressure metering, power level and outlet pressure on submersible pumps.

Electrical connection is via a screened cable protected by a tough nylon pressure tight sheath, which allows excellent trouble-free venting to the surface.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 10mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 1.6x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.16\text{mA}$

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

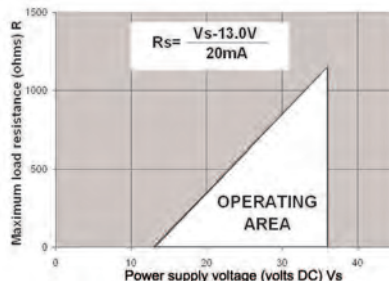
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel housing, alumina diaphragm, nylon cable sheath and nitrile o-ring seal.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+60^\circ\text{C}$

Storage:  $5^\circ$  to  $40^\circ\text{C}$

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 2.0\%$ FS total error band for  $-20^\circ$  to  $60^\circ\text{C}$ .

Typical thermal zero and span coefficients  $\pm 0.03\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Nylon nose cone with radial pressure inlets.

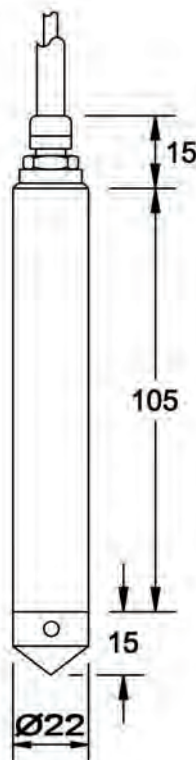
#### ELECTRICAL CONNECTION:

Screened cable in pressure tight flexible nylon sheath. Cable conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

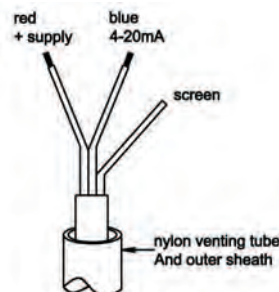
#### WEIGHT:

250 grams excluding cable.

### DIMENSIONS (in mm)



#### CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3440 0 - 10mWG

Model No.	DESCRIPTION
PR3440 Transmitter	Bore hole Submersible 0-10 to 0-500mtr

#### PRESSURE RANGES

0 - 10 mWG	0 - 100 mWG
0 - 20 mWG	0 - 150 mWG
0 - 30 mWG	0 - 250 mWG
0 - 50 mWG	0 - 500 mWG
0 - 80 mWG	

#### CALIBRATION

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- EXCELLENT STABILITY AND REPEATABILITY
- 316L STAINLESS STEEL CONSTRUCTION
- 4-20 mA TWO-WIRE OUTPUT
- INTEGRAL TRANSIENT VOLTAGE PROTECTION
- RANGES 0-1mtr TO 0-500mtr
- HIGH STRENGTH MOULDED POLYURETHANE CABLE WITH VENT TUBE
- INTRINSICALLY SAFE OPTION
- HIGH VOLTAGE SURGE PROTECTION OPTION

## DESCRIPTION

The PR3441 submersible transmitter has been designed for the accurate measurement of the depth and level of liquids in borehole applications.

Standard output signal is 4-20mA two wire. Supply range 13-36Vdc, with integral transient voltage protection.

Electrical connection is via a high strength moulded polyurethane cable with integral tube for excellent trouble-free venting to the surface atmosphere.

The standard depth transmitter is fitted with stainless steel nose cones with radial inlet holes to prevent sludge build-up. The PR3441 transmitter is suitable for depth and level measurement in boreholes 25mm diameter or greater.

Applications include borehole level and reservoir level monitoring, water mains pressure measurement in inspection chambers, power level and outlet pressure measurement on submersible pumps.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 1mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 2x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

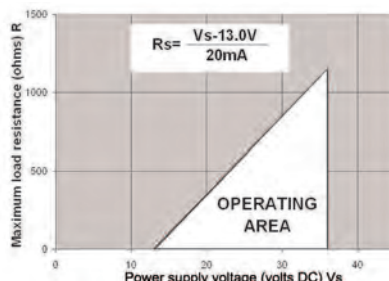
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel housing and diaphragm, polyurethane cable and nitrile o-ring seal.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+85^\circ\text{C}$

Storage:  $5^\circ$  to  $40^\circ\text{C}$

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 2.0\%$ FS total error band for  $-20^\circ$  to  $60^\circ\text{C}$ .

Typical thermal zero and span coefficients  $\pm 0.03\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN6100-6-4

Immunity EN6100-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Stainless steel nose cone with radial pressure inlets

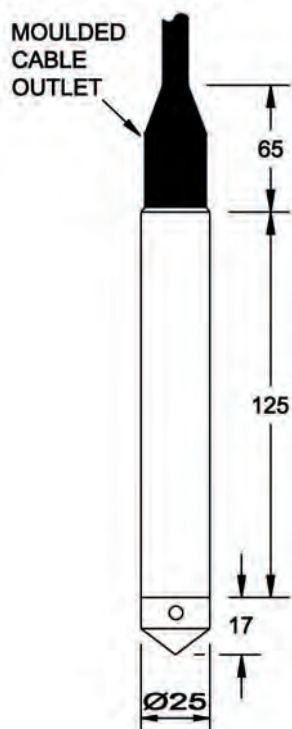
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

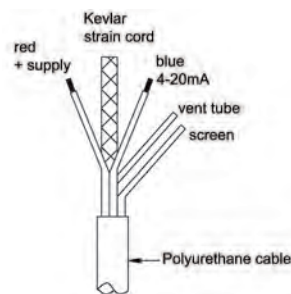
#### WEIGHT:

250 grams excluding cable.

### DIMENSIONS (in mm)



#### POLYURETHANE CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3441 0 - 10mWG

Model No.	DESCRIPTION
PR3441 Transmitter	Bore hole Submersible 0-1 to 0-500mtr

#### PRESSURE RANGES

0 - 1 mWG	0 - 100 mWG
0 - 3 mWG	0 - 150 mWG
0 - 4 mWG	0 - 250 mWG
0 - 5 mWG	0 - 500 mWG
0 - 10 mWG	
0 - 20 mWG	
0 - 30 mWG	
0 - 50 mWG	
0 - 80 mWG	

#### CALIBRATION

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- EXCELLENT STABILITY, REPEATABILITY AND ACCURACY
- ALL STAINLESS STEEL HOUSING
- 4-20mA TWO-WIRE OUTPUT
- INTEGRAL TRANSIENT VOLTAGE PROTECTION
- HIGH STRENGTH MOULDED POLYURETHANE CABLE WITH VENT TUBE
- SLIM-LINE 17mm DIAMETER

## DESCRIPTION

The PR3442 submersible transmitter has been designed for the accurate measurement of the depth and level of liquids in borehole applications.

Standard output signal is 4-20mA two wire and supply range 12-30Vdc, with integral transient voltage protection.

Electrical connection is via a high strength moulded polyurethane cable with integral tube for excellent trouble-free venting to the surface atmosphere.

The standard depth transmitter is fitted with stainless steel nose cones with radial inlet holes to prevent sludge build-up. The PR3442 transmitter is suitable for depth and level measurement in boreholes 19mm diameter or greater.

Applications include borehole level and reservoir level monitoring, water mains pressure measurement in inspection chambers, power level and outlet pressure measurement on submersible pumps.

Standard ranges are available from 0-30mtr to 0-100mtr.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 5mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by a maximum of 2x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

#### SUPPLY VOLTAGE:

12-30Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

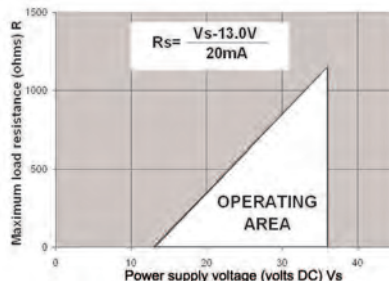
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel housing and diaphragm, and polyurethane cable.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ\text{C}$  to  $+60^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 0.5\%$ FS total error band for  $0^\circ$  to  $25^\circ\text{C}$  Typical thermal zero and span coefficients  $\pm 0.02\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Stainless steel nose cone with radial pressure inlets

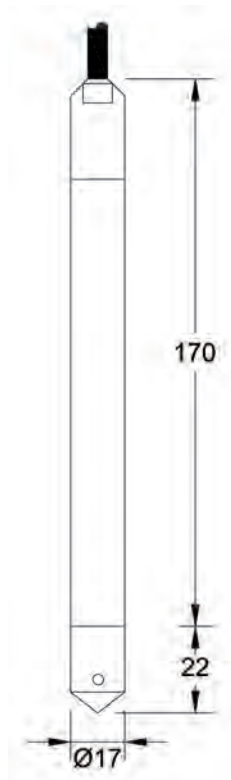
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

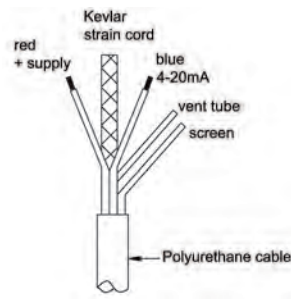
#### WEIGHT:

250 grams excluding cable.

### DIMENSIONS (in mm)



#### POLYURETHANE CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3442 0 - 30mWG

Model No.	DESCRIPTION
PR3442 Transmitter	Bore hole Submersible 0-30 to 300mtr

#### PRESSURE RANGES

0 - 30 mWG  
0 - 50 mWG  
0 - 80 mWG  
0 - 100 mWG  
0 - 150 mWG  
0 - 250 mWG  
0 - 500 mWG

#### CALIBRATION

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- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- ALL TITANIUM ALLOY HOUSING
- EXCELLENT STABILITY, REPEATABILITY AND ACCURACY
- LONG TERM CORROSION RESISTANCE TO SEAWATER
- 4-20mA TWO-WIRE OUTPUT
- HIGH STRENGTH MOULDED POLYURETHANE CABLE WITH VENT TUBE
- SLIM-LINE 17mm DIAMETER

## DESCRIPTION

The PR3443 submersible transmitter has been designed for the accurate measurement of the water depth in boreholes or open water applications.

Standard output signal is 4-20mA two wire and supply range 13-36Vdc, with integral transient voltage protection.

Constructed from titanium alloy the housing and the sensing element are extremely resistant to corrosion from seawater, making this product ideal for continuous service submerged in seawater. The slim-line design makes it suitable for boreholes 19mm diameter or greater.

Electrical connection is via a high strength polyurethane cable with integral tube for rapid venting to the surface atmosphere.

Applications include well and reservoir depth measurement, seawater and river level monitoring.

Standard ranges are available from 0-60mWG to 0-500mWG.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 60mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by a maximum of 2x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.8\text{mA}$

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

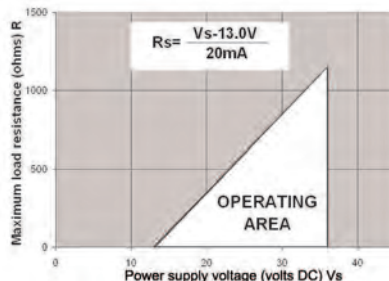
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with titanium alloy housing and diaphragm, and polyurethane cable.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+60^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 0.5\%$ FS total error band for  $0^\circ$  to  $25^\circ\text{C}$  Typical thermal zero and span coefficients  $\pm 0.02\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Titanium depth nose cone with radial pressure inlets

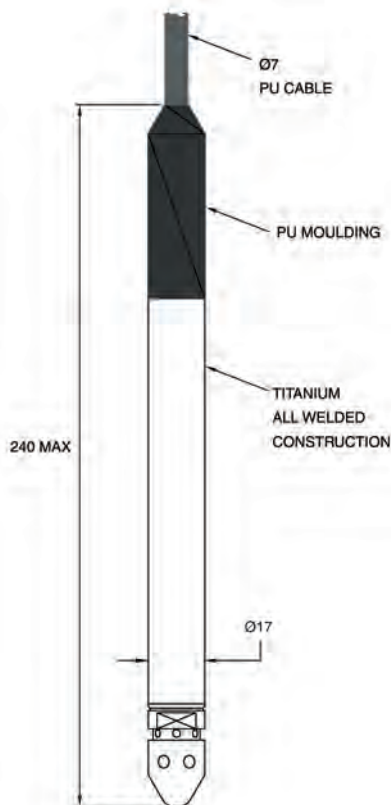
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

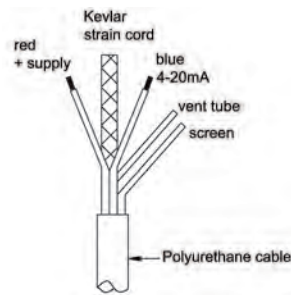
#### WEIGHT:

250 grams excluding cable.

### DIMENSIONS (in mm)



#### POLYURETHANE CABLE TERMINATION



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3443 0 - 10mWG

Model No.	DESCRIPTION
PR3443 Transmitter	Bore hole Submersible 0-60 to 0-500mtr

#### PRESSURE RANGES

0 - 60 mWG  
0 - 80 mWG  
0 - 100 mWG  
0 - 150 mWG  
0 - 250 mWG  
0 - 500 mWG

#### CALIBRATION

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- EXCELLENT STABILITY, REPEATABILITY AND ACCURACY
- SUPER SLIM 12.7mm DIAMETER
- ALL STAINLESS STEEL HOUSING
- 4-20 mA TWO-WIRE OUTPUT
- INTEGRAL TRANSIENT VOLTAGE PROTECTION
- HIGH STRENGTH MOULDED POLYURETHANE CABLE WITH VENT TUBE

## DESCRIPTION

The super slim PR3444 submersible transmitter is designed for accurate depth measurement in small diameter hole applications.

Output signal is a 4-20mA two wire current loop operating from a supply range 9-30Vdc.

Electrical connection is via a high strength moulded polyurethane cable with integral tube for excellent trouble-free venting to the surface atmosphere.

The standard depth transmitter is constructed from a stainless steel housing and nose cone with radial inlet holes. Silicon-on-sapphire sensor technology and the 316L stainless steel measurement diaphragm provide excellent stability and repeatability of measurements.

Applications include hydrostatic pressure measurement in small bore pipes, depth and level measurement in well-boreholes or underground reservoirs.

Standard ranges are available from 0-30mWG to 0-500mWG.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 30mWG through to 500mWG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by a maximum of 2x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA}$

#### SUPPLY VOLTAGE:

13-36Vdc

Minimum supply to transmitter circuit is 13Vdc. Voltage drop in connecting lead due to cable resistance must be considered. See load driving capability (right).

#### REVERSAL OF SUPPLY VOLTAGE:

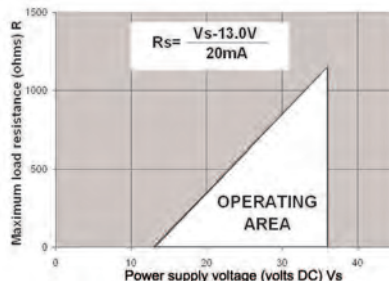
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.10\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel housing and diaphragm, and polyurethane cable.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+60^\circ\text{C}$

Storage:  $5^\circ$  to  $+40^\circ\text{C}$

Media must not freeze around sensor

#### TEMPERATURE EFFECTS:

$\pm 0.10\%$ FS total error band for  $0^\circ$  to  $25^\circ\text{C}$  Typical

thermal zero and span coefficients  $\pm 0.02\%$ FS/ $^\circ\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Depth Nose, Radial Inlet Holes.

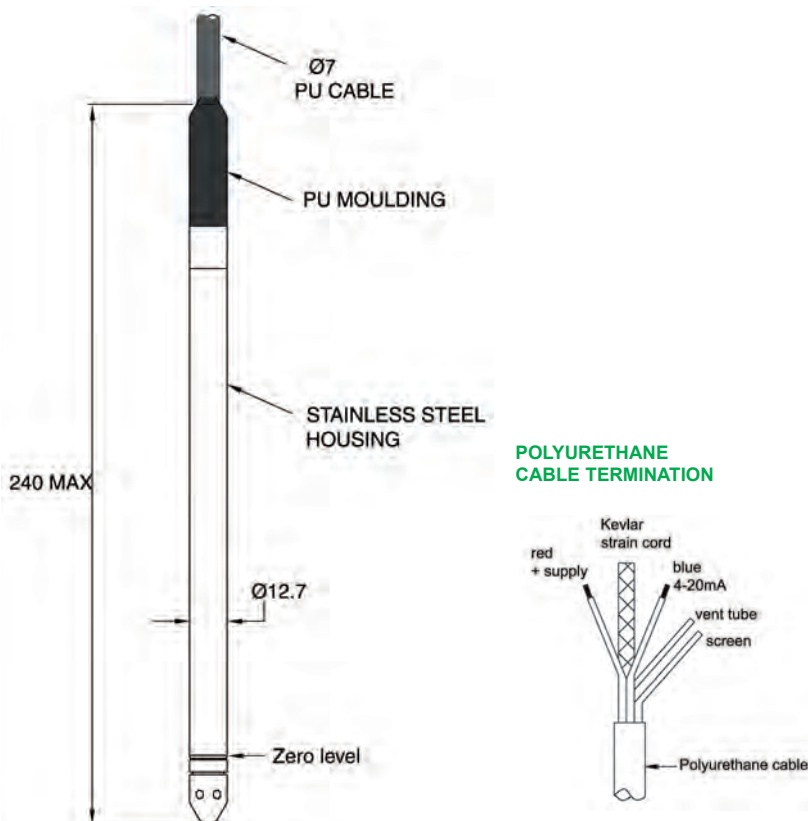
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable moulded to housing. With integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup>(24awg), resistance 8.9ohms/100metre (x2).

#### WEIGHT:

150 grams excluding cable.

### DIMENSIONS (in mm)



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3444 0 - 30mWG

Model No.	DESCRIPTION
PR3444 Transmitter	Bore hole Submersible 0-30 to 0-300mtr

#### PRESSURE RANGES

0 - 30 mWG  
0 - 50 mWG  
0 - 80 mWG  
0 - 100 mWG  
0 - 150 mWG  
0 - 250 mWG  
0 - 500 mWG

#### CALIBRATION

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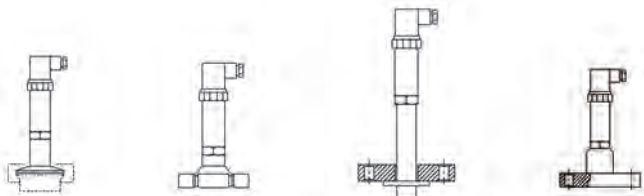
- **LARGE CONVOLUTED MEDIA DIAPHRAGM PREVENTS CLOGGING**
- **CORROSION RESISTANT PROCESS FITTINGS**
- **HYGIENIC MODELS FOR FOOD INDUSTRY**
- **REMOTE CAPILLARY SENSING MODELS**
- **SUPPLY VOLTAGE 13-36VDC**
- **4-20 mA TWO-WIRE OUTPUT**
- **ZERO + SPAN ADJUSTMENT ON-SITE**
- **RANGES 0-200mbar TO 0-1000bar**

## DESCRIPTION

The PR3800 series offer a range pressure transmitters with integrated or remote barrier seals for applications where direct media contact must be prevented. In these installations the process media may corrode the sensing diaphragm or clog the narrow pressure inlet on a standard transmitter. For hygienic application the seal provides a sanitary grade pressure fitting.

Seals are available in a variety of forms and materials for particular purposes and can be directly attached to the proposed connection or remotely via stainless steel capillary. See selection table below for product overview.

## SELECTION TABLE



Product	Pipe Clamp	Hygienic	Homogeniser	Flange
Model No	PR3800	PR3820	PR3840	PR3880
Process Connection	3/4" DN20 1" DN30 1 1/2" DN40 2" DN50	DIN 11851 IDF / ISS to BS4825 RJT to BS1864	Clamp Fixing	ASA 3/4", 1", 2" 150lb DIN 25, 50 BS4504
Pressure Ranges	0-200mbar to 0-100bar Chemical	0-200mbar to 0-100bar	0-10bar to 0-1000bar	0-200mbar to 0-400bar
Application	Industry, aggressive, highly viscous media, paper and pulp industry	Food processing Hygienic for use with milk, beer or other biologically active media	Food Processing Homogenisers	Petrochemical, Pure Water, Viscous media, General industrial use

## ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3800 0-6barg

Model No.	DESCRIPTION
PR38x0 PR38x1 PR38x2	4-20mA, 2 WIRE 0-5V, 4 WIRE 0-10V, 4 WIRE

## PRESSURE RANGES

Not all pressure range available on every product

0 - 1bar Vac 0 - 200mbarg 0 - 500mbarg 0 - 1 barg 0 - 2.5 barg 0 - 4 barg 0 - 6 barg 0 - 10 barg 0 - 16 barg	0 - 25 barg 0 - 40 barg 0 - 60 barg 0 - 100 barg 0 - 160 barg 0 - 250 barg 0 - 400 barg 0 - 600 barg 0 - 1000 barg
--	--

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 200mbar through to 1000barG, see selection table and standard pressure range list.

#### OVERPRESSURE:

Pressure can be exceed the rated pressure range by the multiple below with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

1.5x ranges 0-200mbar to 400bar

1.2x ranges 0-600bar to 1000bar

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are:

0-5 Vdc (4 wire),

0-10 Vdc (4 wire)

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector

plug

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

#### REVERSAL OF SUPPLY VOLTAGE:

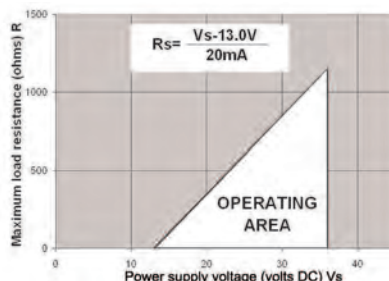
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^{\circ}$  to  $+85^{\circ}$ C

Storage:  $5^{\circ}$  to  $+40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Process fitting, see selection table

#### ELECTRICAL CONNECTION:

Mating socket with screw terminal connections to DIN 43650, rated IP65.

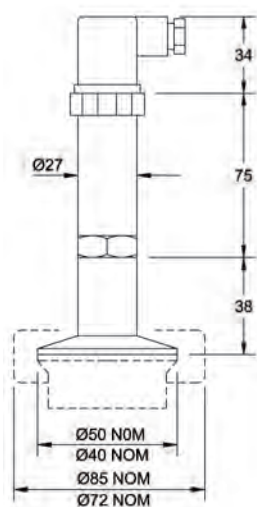
Option: flying lead with optional cable length

#### WEIGHT:

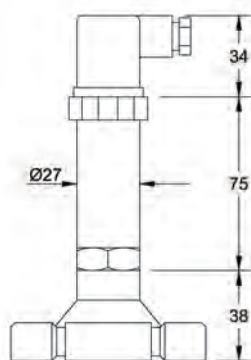
Dependant on fitting.

### DIMENSIONS (in mm)

#### PR3800 PIPE CLAMP FITTING



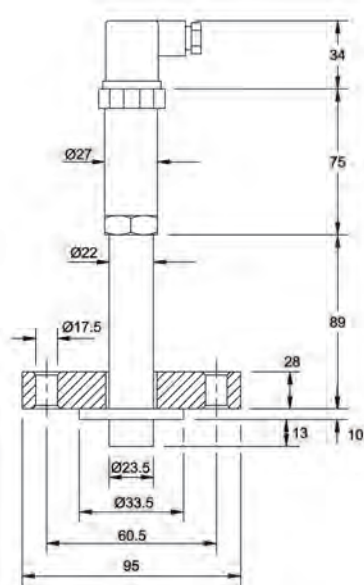
#### PR3820 HYGENIC FITTING



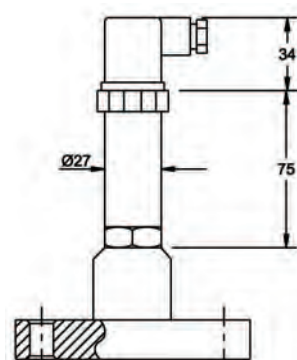
#### SIZES

RTJ, ISS, IDF ....1  
DIN .....25, 40, 50mm

#### PR3840 HOMOGENISER



#### PR3880 FLANGE FITTING



#### CALIBRATION

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#### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	4-20mA signal
3	not fitted
⏏	connected to case

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- 1/2" BSP FLUSH DIAPHRAGM
- 316L STAINLESS STEEL MEMBRANE
- INTEGRAL O-RING SEAL
- HIGH STABILITY AND REPEATABILITY
- SUPPLY VOLTAGE 13-36VDC
- ALL STAINLESS STEEL HOUSING
- 4-20 mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 0-4bar TO 0-400bar
- INTRINSICALLY SAFE MODELS
- CE MARKED

### DESCRIPTION

The PR3850 pressure transmitter has been designed to meet the requirements of the majority of industrial pressure measurement applications where a hygienic flush diaphragm connection is required.

Robustly constructed from stainless steel this range of pressure transmitters incorporates the latest strain gauge technology together with a custom IC amplifier offering excellent stability and accuracy over a long service life. Output options include 0-5Vdc, 0-10Vdc and 0-20mA.

This transmitter is particularly suitable for use with high viscosity materials. Typical applications include food processing, pharmaceutical, petrochemical, waste water and slurry handling. The flush membrane can be easily cleaned for long term reliability and outstanding performance.

The PR3850 offers a stable and accurate output signal of 4-20mA with options for 0-5Vdc, 0-10Vdc, 0-20mA and other output signals.

Electrical connection is via a detachable DIN connector allowing easy access to zero and span adjustment.

In addition to the standard 1/2" BSP connection optional 1" BSP and 1/2" NPT male flush diaphragm process connections are also available.

Pressure ranges available from 0-4bar to 0-400bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 4bar through to 400 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are:

0-5 Vdc (4 wire),

0-10 Vdc (4 wire)

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

$\pm 5\%$ FS zero adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc for 4-20mA versions

13-30Vdc for 0-5V and 0-10V versions

#### REVERSAL OF SUPPLY VOLTAGE:

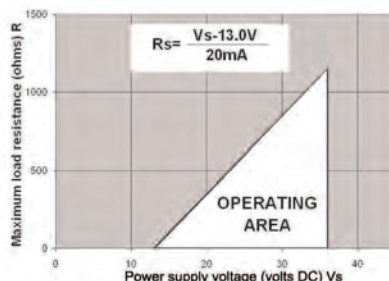
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^\circ$  to  $+85^\circ$ C

Storage:  $5^\circ$  to  $+40^\circ$ C

#### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^\circ$  to  $70^\circ$ C

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^\circ$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/2" BSP Male integral nitrile seal and flush 316L diaphragm.

#### ELECTRICAL CONNECTION:

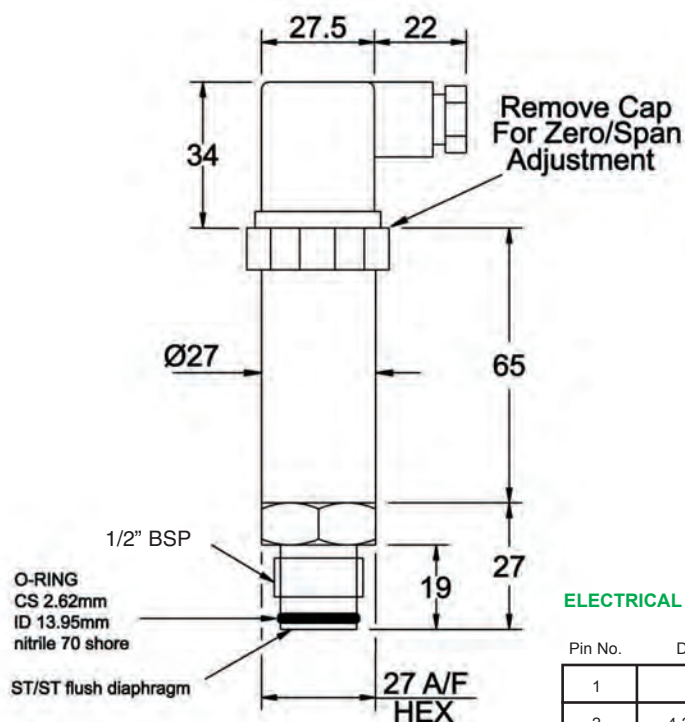
Mating socket with screw terminal connections to DIN 43650, rated IP65.

Option: flying lead with optional cable length

#### WEIGHT:

195 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	4-20mA signal
3	earth

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3850 0-6barG

Model No.	DESCRIPTION
PR3850	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 4 barg	0 - 60 barg
0 - 6 barg	0 - 100 barg
0 - 10 barg	0 - 160 barg
0 - 16 barg	0 - 250 barg
0 - 25 barg	0 - 400 barg
0 - 40 barg	

#### CALIBRATION

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- UP TO 300°C MEDIA TEMPERATURE
- 1/2" BSP WITH FLUSH DIAPHRAGM
- 316L STAINLESS STEEL MEMBRANE
- HIGH STABILITY AND REPEATABILITY
- SUPPLY VOLTAGE 13-36VDC
- ALL STAINLESS STEEL HOUSING
- 4-20 mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- RANGES 0-10bar TO 0-400bar
- INTRINSICALLY SAFE MODELS
- CE MARKED

## DESCRIPTION

The PR3860 pressure transmitter has been designed to meet the requirements of the majority of industrial pressure measurement applications where a hygienic flush diaphragm connection is required.

Robustly constructed from stainless steel this range of pressure transmitters incorporates the latest strain gauge technology together with a custom IC amplifier offering excellent stability and accuracy over a long service life. Output options include 0-5Vdc, 0-10Vdc and 0-20mA.

This transmitter is particularly suitable for use with high viscosity materials. Typical applications include food processing, pharmaceutical, petrochemical, waste water and slurry handling. The flush membrane can be easily cleaned for long term reliability and outstanding performance.

The PR3860 offers a stable and accurate output signal of 4-20mA with options for 0-5Vdc, 0-10Vdc, 0-20mA and other output signals.

Electrical connection is via a detachable DIN connector allowing easy access to zero and span adjustment.

In addition to the standard 1/2"BSP connection optional 1" BSP and 1/2"NPT male flush diaphragm process connections are also available.

Pressure ranges available from 0-10bar to 0-400bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 10bar through to 400 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 1.5x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard. 0-5V and 0-10V available on request.

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA (at room temperature)  
 $\pm 5\%$ FS zero adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug  
 13-36Vdc for 4-20mA versions

#### REVERSAL OF SUPPLY VOLTAGE:

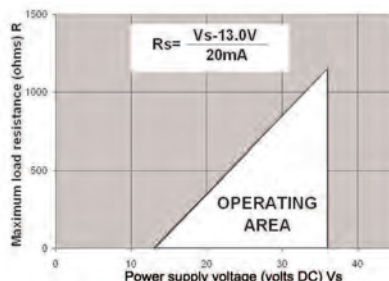
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

##### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L stainless steel.

#### OPERATING TEMPERATURE RANGE:

Media:  $0^{\circ}\text{C}$  to  $300^{\circ}\text{C}$

Sensor and electronics thermally insulated from media temperature.

Operating:  $-20^{\circ}$  to  $+85^{\circ}\text{C}$

Storage:  $5^{\circ}$  to  $+40^{\circ}\text{C}$

#### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}\text{C}$

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^{\circ}\text{C}$

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/2" BSP Male with flush 316L diaphragm.

#### ELECTRICAL CONNECTION:

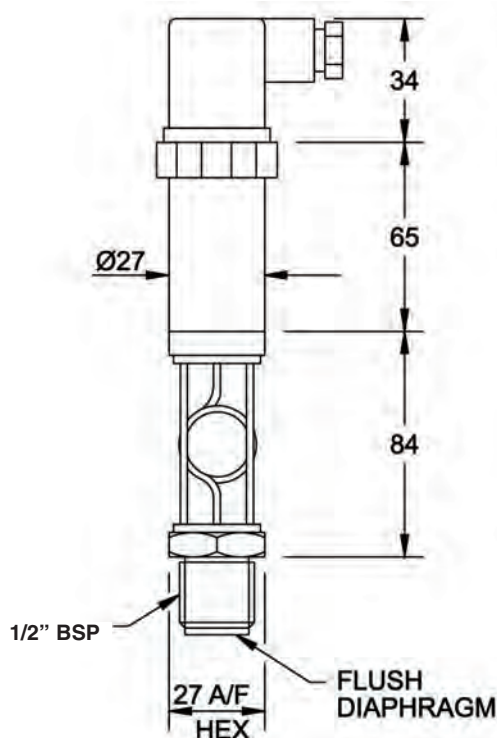
Mating socket with screw terminal connections to DIN 43650, rated IP65.

Option: flying lead with optional cable length

#### WEIGHT:

260 grams for standard unit with DIN43650 socket fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	4-20mA signal
3	earth

#### ORDER DETAILS

State model number and pressure range required:-  
 e.g. PR3860 0-10barG

Model No.	DESCRIPTION
PR3860	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 10 barg	0 - 100 barg
0 - 16 barg	0 - 160 barg
0 - 25 barg	0 - 250 barg
0 - 40 barg	0 - 400 barg
0 - 60 barg	

#### CALIBRATION

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- UNRIVALED ABRASION RESISTANCE
- CERAMIC SENSOR ELEMENT WITH REPLACEABLE POLYURETHANE WEAR WASHER
- SUPERB CHEMICAL AND CORROSION RESISTANCE
- ALL 316L STAINLESS STEEL HOUSING
- 4-20mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTMENT ON-SITE
- SUPPLY 10 - 32 Vdc
- RANGES 0-6bar TO 0-100bar

## DESCRIPTION

The PR3890 pressure transmitter has been designed primarily for use on concrete slurry and other abrasive media.

To meet the demanding requirements of this application, tough and highly abrasive resistant materials are used throughout the design. A specially designed ceramic sensing element protected in a robust 316L stainless steel housing provides a robust solution. The sensor face is then cushioned by a replaceable polyurethane wear membrane, which protects against impacts caused by solids suspended in the liquid media.

The process connection is a proprietary design providing crevice free flush mounting into a 4 inch diameter welded pipe boss. Output signal is standard 4-20mA, 2wire, with loop supply range from 10 to 32Vdc. Operation on a 12Vdc battery system is permitted. Pressure ranges are available from 0-6 bar to 0-100bar.

Cable entry is through a sealed nylon gland for sizes from 4-8mm diameter. Electrical connections are made to 2 screw terminals and will accept conductor size 0.1 to 2.5mm<sup>2</sup>. These and the zero and span adjustment potentiometers are accessible by removing the cable outlet cover.

Applications for the PR3890 include pressure control systems on concrete pumping equipment and general pressure measurement of abrasive media in industrial processes.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 6bar through to 100 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by 1.5x full scale range with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### BURST PRESSURE:

Damage to sensor element will occur when pressure exceeds 2x full scale range.

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration).

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.16$ mA

$\pm 10\%$ FS zero adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

10 - 32Vdc for 4-20mA versions

#### REVERSAL OF SUPPLY VOLTAGE:

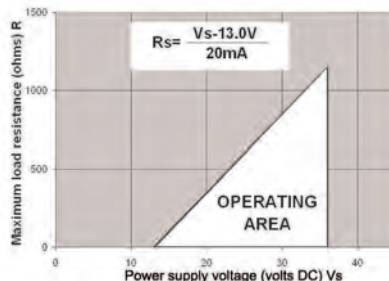
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 1.00\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.15\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.3\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with, polyurethane wear membrane, ceramic diaphragm, 316L stainless steel housing.

#### OPERATING TEMPERATURE RANGE:

Operating :  $-20^{\circ}$  to  $+85^{\circ}$ C

Storage:  $5^{\circ}$  to  $+40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATILITY:

Emissions EN6100-6-4

Immunity EN6100-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Flush mounting into 4" pipe boss.

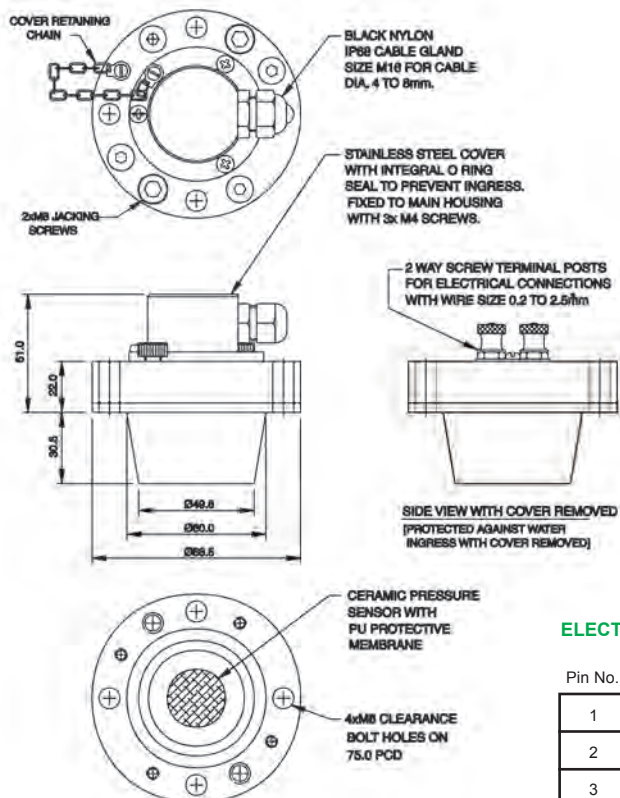
#### ELECTRICAL CONNECTION:

Screw terminals for conductor sizes 0.2-2.5mm<sup>2</sup> are located beneath the connector cover. Cable entry is through an IP66 cable gland with compression seal for cable sizes 4-8mm. Optional M20 conduit fitting available.

#### WEIGHT:

1560 grams for standard unit with cover fitted.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	4-20mA signal
3	connected to case

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3890 0-16barG

Model No.	DESCRIPTION
PR3890	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 6 barg	0 - 40 barg
0 - 10 barg	0 - 60 barg
0 - 16 barg	0 - 100 barg
0 - 25 barg	

#### CALIBRATION

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- ATEX CERTIFIED AND ALL EQUIVALENTS
- FOR HAZARDOUS AREAS:  
ZONE 0 GAS GROUP IIC, TEMPERATURE  
CLASS T4 AND ZONE 20 DUST
- PROTECTION BY INTRINSIC SAFETY TO  
EEXIA IIC T4
- NACE CORROSION RESISTANCE
- HIGH STABILITY AND REPEATABILITY
- SUPPLY VOLTAGE  $U_i=28V_{dcc}$
- 4-20mA TWO-WIRE OUTPUT
- RANGES 0-10bar TO 0-1500bar

## DESCRIPTION

The PR3900 pressure transmitter is designed to meet the majority of industrial pressure measurement applications where installation in a explosive and hazardous area is required.

Designed and certified in accordance with the ATEX directive 94/9/EC this product is intended for installation and operation in potentially explosive atmospheres in zone 0 gas group IIC, temperature class T4 and zone 20 dust. Protection is by intrinsic safety when used with a safety or isolation barrier.

The PR3900 provides a stable and accurate intrinsically safe two wire output signal of 4-20mA when powered through a safety or isolating barrier such as MTL787SP+, MTL2441B or other similar protection device.

The fully welded stainless steel enclosure makes the product extremely robust and able to withstand corrosive demanding environments. Electrical connection is via a strong and durable polyurethane cable with integral vent tube for effective gauge venting to atmosphere.

In addition to the standard 1/4"NPT female connection optional 1/4" and 1/2"BSP male and 1/2"NPT male process connections are also available.

Applications include any above ground explosive / hazardous environment installations, oil and gas industries and volatile chemical processing and storage.

Pressure ranges available from 0-10 bar to 0-1500bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 10 bar through to 1500 barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges up to 600 bar

1.5x for 1000 bar

1.1x for 1500 bar

#### HAZARDOUS AREA:

ATEX II 1 G D For operation in explosive atmospheres in zone 0 gas group IIC, temperature class T4 and zone 20 dust. Protection is by intrinsic safety when used with a safety or isolation barrier. In accordance with ATEX directive 94/9/EC.

#### ATEX CERTIFICATION CODE:

EEx ia IIC T4

#### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug

13-36Vdc, UI=28VDC

#### REVERSAL OF SUPPLY VOLTAGE:

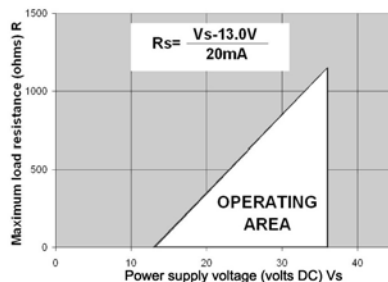
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 300 series stainless steel and titanium alloy diaphragm.

#### OPERATING TEMPERATURE RANGE:

Ambient:  $-40^{\circ}$  to  $+85^{\circ}$ C

Operating:  $-50^{\circ}$  to  $+125^{\circ}$ C

Storage:  $5^{\circ}$  to  $40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.015\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

1/4" NPT Female standard, other options include

1/2" NPT, 1/4" and 1/2" BSP Male

#### INGRESS PROTECTION:

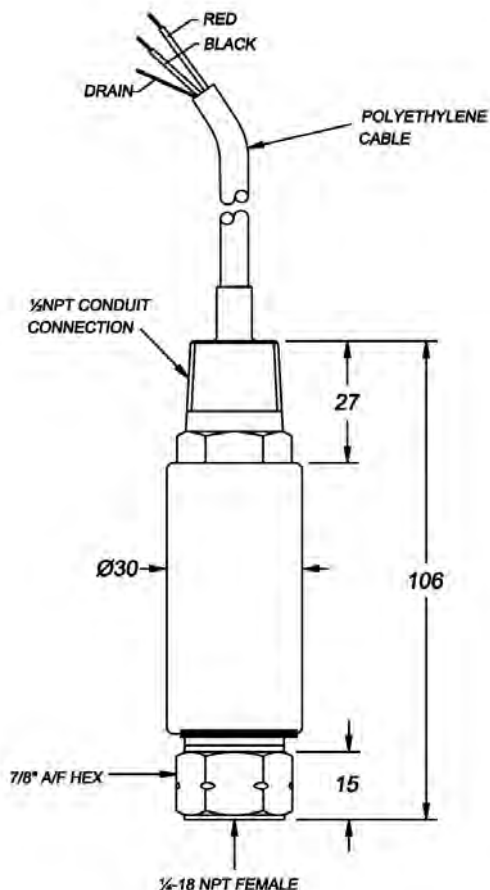
Fully welded housing, IP67 when correctly installed to conduit connection.

#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable (1 meter length), with integral screen, Kevlar strain cord and vent tube. Conductor size 7/0.20mm<sup>2</sup>(24awg).

WEIGHT: 250 grams.

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Colour Code	Function
RED	Supply (13-36Vdc)
BLACK	Signal (4-20mA)
DRAIN WIRE	Cable Screen

#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3900 0-600barG

Model No.	DESCRIPTION
PR3900	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 10 barg	0 - 250 barg
0 - 16 barg	0 - 400 barg
0 - 25 barg	0 - 600 barg
0 - 40 barg	0 - 1000 barg
0 - 60 barg	0 - 1500 barg
0 - 100 barg	
0 - 160 barg	

#### CALIBRATION

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- STAINLESS STEEL HOUSING
- TITANIUM ALLOY DIAPHRAGM
- SUPPLY VOLTAGE 10-32Vdc
- NACE CORROSION RESISTANCE
- 4-20mA TWO-WIRE OUTPUT
- RANGES 0-228bar TO 0-1035bar
- CE MARKED

### DESCRIPTION

The PR3913 Valve-Mountable pressure transmitter has been designed to meet the requirements of the subsea oil industry and is configured to mount directly to the industry standard control valve flange arrangement.

Housed in a fully welded 17-4PH stainless steel housing and conforming to the NACE recommendation for material corrosion resistance, this product will provide a durable solution for long term accurate pressure measurement even when permanently situated in extreme depth sub-sea environments.

The pressure connection is achieved with an 8mm diameter stem with integral dual redundant o-ring seal grooves. The fitting is constructed from Inconel 625 for additional durability and strength.

Providing a two wire output signal of 4-20mA with high stability and repeatability for pressure ranges up to 1000bar+. Intended for permanent immersion in pressurized dielectric oil and protected from ingress with a high pressure glass-to-metal lead through the product can withstand external pressure up to 3000 metres depth water and provides secondary pressure containment up to 1500bar .

Electrical connection is via strong PTFE Raychem Flexlite leads.

Pressure ranges available from 0-228 bar to 0-1035bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 1035 bar, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can be exceeded by with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL:

4-20 mA (2 wire)

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

$\pm 5\%$ FS adjustment with easy access trimming potentiometers.

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug 10-32Vdc min (18V typical)

#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart (right).

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.25\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.2\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

Mineral Oil, Sea Water, Silicone, and hydraulic fluid.

#### OPERATING TEMPERATURE RANGE:

Operating:  $-20^{\circ}$  to  $+40^{\circ}$ C

Storage:  $5^{\circ}$  to  $40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 2.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.005\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Dual 'O' ring piston seal, as illustrated.

Also available with dual 'O' ring face seal or threaded connection (contact sales).

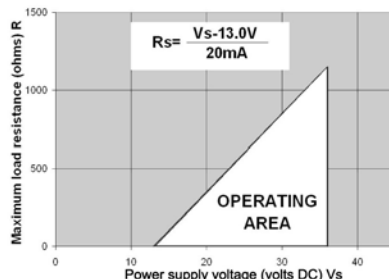
#### ELECTRICAL CONNECTION:

2 flying leads, Raychem wire, rated IP65.

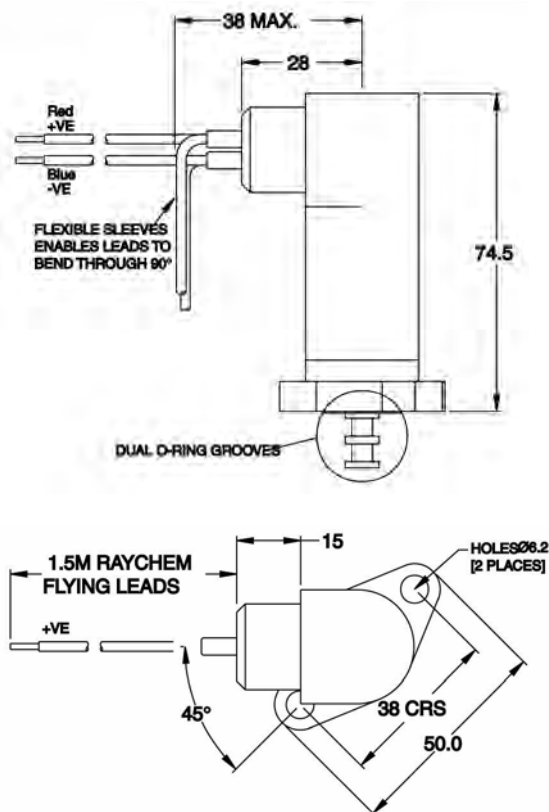
Option: flying lead, with optional cable length.

#### WEIGHT:

200 grams for standard unit with DIN43650 socket fitted.



### DIMENSIONS (in mm)



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3913 0-569barg

Model No.	DESCRIPTION
PR3913	4-20mA, 2 WIRE

#### PRESSURE RANGES

0 - 228 barg  
0 - 379 barg  
0 - 569 barg  
0 - 759 barg  
0 - 1035 barg

#### CALIBRATION

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- SILICON-ON-SAPPHIRE TECHNOLOGY
- 0-750psiDP SENSING RANGE
- 10000psi LINE PRESSURE
- 17000psi SECONDARY CONTAINMENT
- 3000 METRES SUBMERSIBLE DEPTH
- NACE CORROSION RESISTANCE
- TITANIUM ALLOY DIAPHRAGM
- EXTREMELY STRONG CONSTRUCTION
- 5-21mA, 2 WIRE SIGNAL
- SUPPLY VOLTAGE 10-32Vdc
- CE MARKED

### DESCRIPTION

The PR3920 differential pressure transmitter provides very accurate low pressure wet-wet differential pressure measurement on extremely high line pressure sources.

Designed for permanent installation in very demanding subsea applications the housing is completely sealed to resist 300 bar external pressure. Intended for submersion in pressurised di-electric oil with seawater for monitoring of well head control valves or hydraulic pressure measurement. Achieving performance and accuracy levels not normally attainable in such environments and applications.

The PR3920 pressure transmitter provides surface mounting with a stainless steel mounting plate and dual redundant o-ring face seals. Both the high and low pressure ports can withstand 15000psi overpressure with no damage or loss of performance. The titanium alloy wetted parts provide conformance to NACE corrosion resistance requirements.

Electrical connection is via a heavy duty PTFE cable with optional angle of orientation. Output signal is a 5-21mA, 2 wire current loop which can be powered from an external 10 -36Vdc supply.

Application includes control of chemical injection for subsea wells for oil and gas extraction.

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### SPECIFICATION

#### DIFFERENTIAL PRESSURE RANGE:

0 to 750 psi (51 bar) DP

#### LINE PRESSURE:

To both ports simultaneously 0-10000 psi (690 bar) with less than 1%FS change on output signal.

#### OVERPRESSURE:

Either pressure ports can withstand up to 15000psi (1034 bar) with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

#### OUTPUT SIGNAL (0-750psi):

5-21 mA (2 wire)

#### ZERO SETTING:

5mA  $\pm 0.08$ mA

#### SPAN SETTING:

16mA.  $\pm 0.08$ mA

#### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug. 10-36Vdc min (Unregulated)

#### REVERSAL OF SUPPLY VOLTAGE:

Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart (right).

e.g. with supply voltage load of 36vdc, maximum load is 1150ohms.

#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

Less than zero drift 1% FS over 6 months

#### PRESSURE MEDIA:

Sub-sea chemicals, typically wax and scale inhibitors

#### CORROSION RESISTANCE:

NACE compliant materials

#### SECONDARY PRESSURE CONTAINMENT:

1200 bar max

#### OPERATING ENVIRONMENT:

Sealed for immersion in pressurised dielectric fluid up to 300 bar and for short periods in seawater.

#### TEMPERATURE RANGE::

Operating:  $-20^{\circ}$  to  $+40^{\circ}$ C

Storage:  $5^{\circ}$  to  $+40^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 1.0\%$ FS total error band for  $-20^{\circ}$  to  $40^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.04\%$ FS/ $^{\circ}$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

Face sealing mounting plate with dual redundant elastomeric o ring seals on both pressure ports.

Inner O ring BS4518 size 0061-16

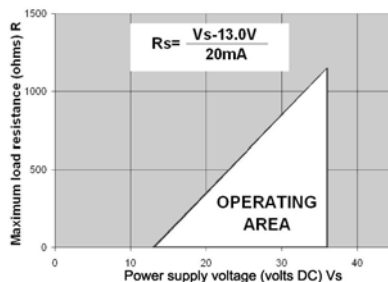
Outer O ring BS4518 size 0131-16

#### ELECTRICAL CONNECTION:

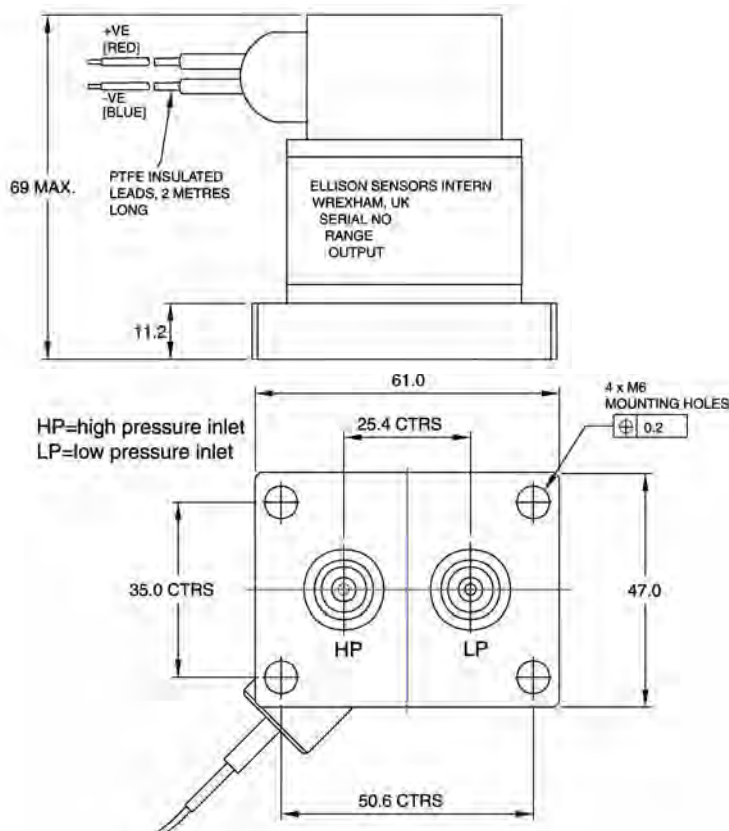
2 fly-lead, 2m long Raychem wire [optional cable outlet orientation available on request].

#### WEIGHT:

Less than 900grams..



### DIMENSIONS (in mm)



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3920 0-51bar

Model No.	DESCRIPTION
PR3920	5-12mA, 2 WIRE

#### PRESSURE RANGES

0 - 51 barDP  
0 - 750 psiDP

#### CALIBRATION

All products manufactured by Ellison Sensors are calibrated using precision calibration equipment with traceability to international standards.

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- **WECO® 1502, 2" MALE WING UNION PRESSURE CONNECTION**
- **ATEX CERTIFIED AND ALL EQUIVALENTS**
- **10000psi LINE PRESSURE**
- **FOR HAZARDOUS AREAS:  
ZONE 0 GAS GROUP IIC, TEMPERATURE  
CLASS T4 AND ZONE 20 DUST**
- **PROTECTION BY INTRINSIC SAFETY TO  
EEXIA IIC T4**
- **NACE CORROSION RESISTANCE**
- **HIGH STABILITY AND REPEATABILITY**
- **SUPPLY VOLTAGE  $U_i+28V_{dcc}$**
- **4-20mA, 2 WIRE SIGNAL**
- **RANGES UP TO 20,000 PSI**

### DESCRIPTION

The PR3930 pressure transmitter with WECO® 1502, 2" male sub end pressure connection provides the solution to accurately measure pressure in fluids up to 15000psi (1035bar) and operate safely where installation in a explosive and hazardous area is required. The pressure connections is intended to locate in a WECO® female sub and be secured by a WECO® wrought nut.

Designed and certified in accordance with the ATEX directive 94/9/EC this product is intended for installation and operation in potentially explosive atmospheres in zone 0 gas group IIC, temperature class T4 and zone 20 dust. Protection is by intrinsic safety when used with a safety or isolation barrier.

With extremely robust construction from 316L stainless steel and titanium alloy the PR3930 is compatible with sour gas media and compliant with NACE corrosive resistance requirements.

Electrical connection is via a strong and durable polyurethane cable or alternatively a MS3102E-14S-2P, 4 pin hermetically sealed connector.

In addition to the standard 1502, 2" male connection an optional WECO® 2202, 2" is available for ranges up to 20,000psi (1380bar). Applications in the oil industry include wellhead measurement, drilling, cementing, mud logging, acidizing.

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### SPECIFICATION

#### DIFFERENTIAL PRESSURE RANGE:

0 to 350 bar through to 20000psi, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

2x for ranges up to 700 bar

1.5x up to 1035 bar

1.1x above 1035 bar:

#### HAZARDOUS AREA:

ATEX II 1 G D For operation in explosive atmospheres in zone 0 gas group IIC, temperature class T4 and zone 20 dust. Protection is by intrinsic safety when used with a safety or isolation barrier. In accordance with ATEX directive 94/9/EC.

#### ATEX CERTIFICATION CODE:

EEx ia IIC T4

#### OUTPUT SIGNAL (0-750psi):

4-20 mA (2 wire configuration) as standard.

#### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08$ mA

#### SUPPLY VOLTAGE:

Measured across supply leads or terminals on connector plug 13-36Vdc,  $U_i = 28$ Vdc

#### REVERSAL OF SUPPLY VOLTAGE:

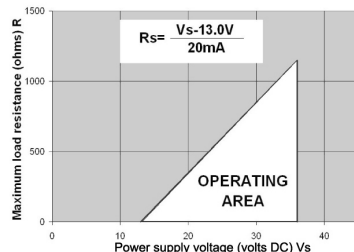
Protected against supply voltage reversal up to 50Vdc

#### LOAD DRIVING CAPABILITY

(4-20mA version only):

Calculate maximum load see chart (below).

eg with supply voltage load of 36vdc, maximum load is 1150ohms.



#### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 0.25\%$  FS Best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS Defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### PRESSURE MEDIA:

All fluids compatible with 316L series stainless steel and titanium alloy BT9 diaphragm. Compatible with NACE sour gas ( $H_2S$ ).

#### OPERATING TEMPERATURE RANGE::

Ambient:  $-40^\circ$  to  $+85^\circ$ C

Media:  $-40^\circ$  to  $+120^\circ$ C

Storage:  $5^\circ$  to  $+150^\circ$ C

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^\circ$  to  $80^\circ$ C

Typical thermal zero and span coefficients

$\pm 0.015\%$ FS/ $^\circ$ C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN61000-6-4

Immunity EN61000-6-2

Certification CE marked

#### PRESSURE CONNECTION:

WECO<sup>®</sup> 1502, 2" male sub (wing union) fitting.

Optional WECO<sup>®</sup> 2202, 2" male sub for 20000psi range.

#### INGRESS PROTECTION:

IP66, (NEMA 4X) when correctly installed to connection.

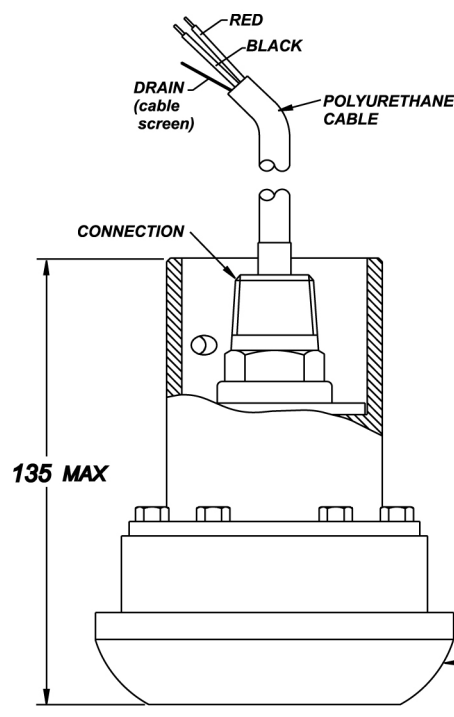
#### ELECTRICAL CONNECTION:

Submersible black polyurethane cable (1m length), with integral screen, Kevlar strain cord. Conductor size 7/0.20mm<sup>2</sup>(24awg). Optional connector: MS3103E-14S-2P, 4 pin.

#### WEIGHT:

2800 grams.

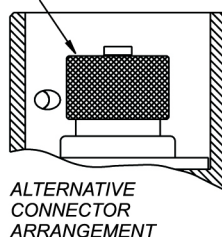
### DIMENSIONS (in mm)



### ELECTRICAL CONNECTION

Lead Colour	Designation	Connector Pin
N/C	N/C	A
BLACK	+Signal (4-20mA)	B
RED	Supply (13-36Vdc)	C
N/C	Case Ground	D

MS3102E-14S-2P, 4 PIN CONNECTION



### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3930 0-1035bar

Model No.	DESCRIPTION
PR3930	4-20mA, 2 WIRE

### PRESSURE RANGES

# 1502 RANGES	
0 - 350 bar	0 - 5000 PSI
0 - 500 bar	0 - 6000 PSI
0 - 700 bar	0 - 7500 PSI
0 - 1035 bar	0 - 10000 PSI
	0 - 15000 PSI
# 2002 RANGES	
0 - 1380 bar	0 - 20000 PSI

### CALIBRATION

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- WECO<sup>®</sup> 1502, 2" MALE WING UNION PRESSURE CONNECTION
- RADIO TRANSMISSION UP TO 500 METRES
- BATTERY POWERED
- NACE CORROSION RESISTANCE
- HIGH STABILITY AND REPEATABILITY
- PRESSURE RANGES UP TO 20,000 PSI

## DESCRIPTION

The PR3950 wireless pressure transmitter with WECO<sup>®</sup> 1502, 2" male sub end pressure connection provides the solution to accurately measure pressure in fluids up to 15000psi (1035bar) and operate safely where installation in a explosive and hazardous area is required. The pressure connections is intended to locate in a WECO<sup>®</sup> female sub and be secured by a WECO<sup>®</sup> wrought nut.

With extremely robust construction from 316L stainless steel and titanium alloy the PR3950 is compatible with sour gas media and compliant with NACE corrosive resistance requirements.

In addition to the standard 1502, 2" male connection an optional WECO<sup>®</sup> 2202, 2" is available for ranges up to 20,000psi (1380bar).

Applications in the oil industry include wellhead measurement, drilling, cementing, mud logging, acidizing.

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### SPECIFICATION

#### DIFFERENTIAL PRESSURE RANGE:

0 to 350 bar through to 20000psi, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated with no damage or change in calibration greater than  $\pm 0.5\%$ FS.

2x for ranges up to 700 bar

1.5x up to 1035 bar

1.1x above 1035 bar:

#### UHF RADIO TRANSMITTER/RECEIVER:

Low power ( license free), transmission frequency 418 MHz or 915MHz

#### OPTIONAL:

ZigBee/IEEE802.15.4 compliant version,ISM 2.4GHz

#### TRANSMISSION RANGE:

Point-to-point radio transmission up to 500 metres line-of-site

#### DATA TRANSMISSION RATE:

Serial radio packet at 4800/9600 baud

#### RESOLUTION:

$\pm 0.024\%$ FS (12 BIT ADC)

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.25\%$  FS Best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS Defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### POWER SUPPLY:

Replaceable Lithium Thionyl Chloride Battery

#### PRESSURE MEDIA:

All fluids compatible with 316L series stainless steel and titanium alloy BT7 diaphragm.Compatible with NACE sour gas (H<sub>2</sub>S).

#### OPERATING TEMPERATURE RANGE::

Ambient: -40° to +85°C

Media: -40° to +120°C

Storage: -55° to +150°C

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for -20° to 80°C

Typical thermal zero and span coefficients

$\pm 0.015\%$ FS/°C

#### RADIO TYPE APPROVAL:

EN300 220

FCC part 15 compliant

#### ELECTROMAGNETIC-COMPATIBILITY:

Certification CE marked

#### PRESSURE CONNECTION:

WECO® 1502, 2" male sub (wing union) fitting. Optional WECO® 2202, 2" male sub for 20000psi range.

#### INGRESS PROTECTION:

IP66, (NEMA 4X) when correctly installed

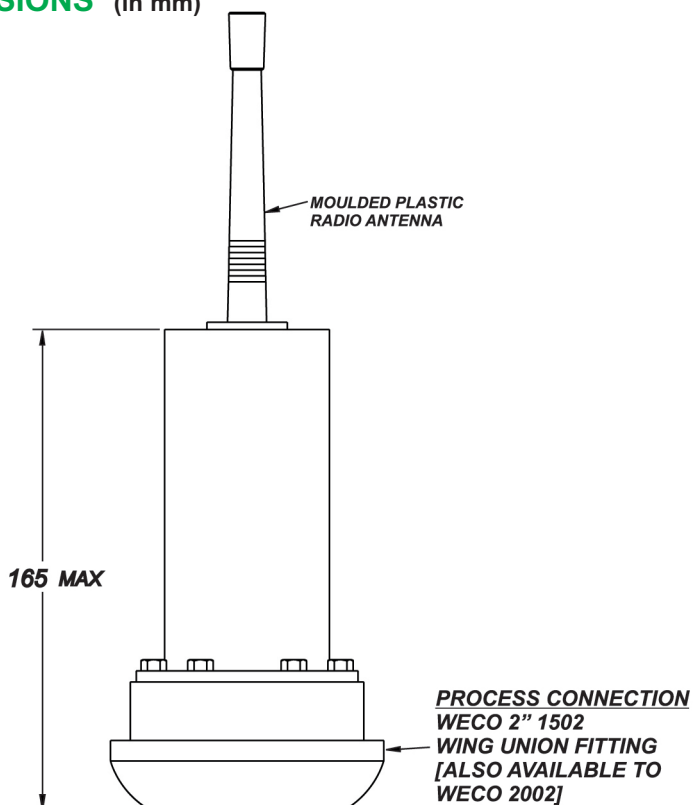
#### WEIGHT:

3Kg.

#### ACCESSORIES:

RX3950 radio receiver station

### DIMENSIONS (in mm)



#### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR3950 0-1035bar

Model No.	DESCRIPTION
PR3950 Rx3950	Radio transmitter Radio receiver

#### PRESSURE RANGES

# 1502 RANGES	
0 - 350 bar	0 - 5000 PSI
0 - 500 bar	0 - 6000 PSI
0 - 700 bar	0 - 7500 PSI
0 - 1035 bar	0 - 10000 PSI
	0 - 15000 PSI
# 2002 RANGES	
0 - 1380 bar	0 - 20000 PSI

#### CALIBRATION

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- SILICON-ON-SAPPHIRE SENSOR ENSURES HIGH STABILITY AND REPEATABILITY
- ALL STAINLESS STEEL HOUSING
- WETTED PARTS IN VARIOUS MATERIALS
- 4-20 mA TWO-WIRE OUTPUT
- ZERO + SPAN ADJUSTABLE
- RANGES 100mbar TO 1500bar
- INTRINSICALLY SAFE MODELS
- STANDARD RANGES EX-STOCK
- FULL RANGE OF BARRIER SEALS AND PROCESS FITTINGS
- CE MARKED

## DESCRIPTION

The PR9000 Series Pressure Transmitters have been designed to meet the requirements of the majority of demanding industrial and process applications for pressure measurement requiring an output of 4-20mA.

With robust stainless steel housing construction, this range of pressure transmitters incorporates the latest silicon-on-sapphire strain gauge technology, together with a custom design amplifier offering excellent stability and accuracy over a long service life.

An important feature of this transmitter is the easily accessible screw terminal connections and the zero/span potentiometers conveniently positioned inside the screw cover head for simplified on-site adjustment and installation. Cable entry to the transmitter head is through a PG9 gland or an optional M20 conduit fitting.

Typical applications for this series of standard transmitters includes mechanical and civil engineering, process plant, production test facility, water resource, and power generation installations, and for any fluid or gas application requiring stable, repeatable and accurate pressure measurement.

Pressure connection is 1/2"BSP as standard, 1/2"BSPT, 1/2"NPT are also available together with hygienic and process flanges with media barriers.

Pressure ranges are 0-100mbar to 0-1500bar.

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## SPECIFICATION

### PRESSURE RANGES:

0 to 100mbar through to 1500barG and 0-1 bar Vac, see table below for list of all standard pressure ranges.

### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges 1bar to 600bar

1.5x for 1000bar

1.1x for 1500bar

### OUTPUT SIGNAL:

4-20 mA (2 wire configuration) as standard.

Optional outputs available are 0-5 Vdc (3 wire), 0-10 Vdc (3 wire).

### ZERO OFFSET AND SPAN SETTING:

$\pm 0.08\text{mA} \pm 5\%$ FS adjustment with easy access trimming potentiometers.

### SUPPLY VOLTAGE:

Measured across supply terminals on connector plug 13-36Vdc for 4-20mA versions 13-30Vdc for 0-5V and 0-10V versions

### REVERSAL OF SUPPLY VOLTAGE:

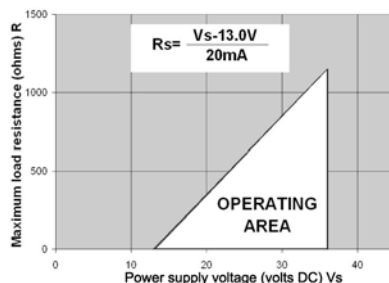
Protected against supply voltage reversal up to 50Vdc

### LOAD DRIVING CAPABILITY

#### (4-20mA version only):

Calculate maximum load see chart below.

e.g. with supply voltage load of 36Vdc, maximum load is 1150ohms.



### COMBINED NON-LINEARITY AND HYSTERESIS:

$\pm 1.00\%$  FS best fit straight line definition.

### REPEATABILITY:

$\pm 0.15\%$  FS defined as maximum error between 3 consecutive pressure cycles.

### LONG TERM STABILITY:

$\pm 0.3\%$  FS/year non-cumulative

### PRESSURE MEDIA:

All fluids compatible with titanium alloy diaphragm and 316L stainless steel wetted parts..

### OPERATING TEMPERATURE RANGE:

Operating :  $-20^{\circ}$  to  $+85^{\circ}\text{C}$

Storage:  $5^{\circ}$  to  $+40^{\circ}\text{C}$

### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^{\circ}$  to  $70^{\circ}\text{C}$

Typical thermal zero and span coefficients

$\pm 0.02\%$ FS/ $^{\circ}\text{C}$

### ELECTROMAGNETIC COMPATIBILITY:

Emissions EN50081-1

Immunity EN50082-2

Certification CE marked

### PRESSURE CONNECTION:

1/2"bsp Male (others on request)

### ELECTRICAL CONNECTION:

Screw terminals for conductor sizes 0.2-2.0mm are located beneath the screw lid inside the head.

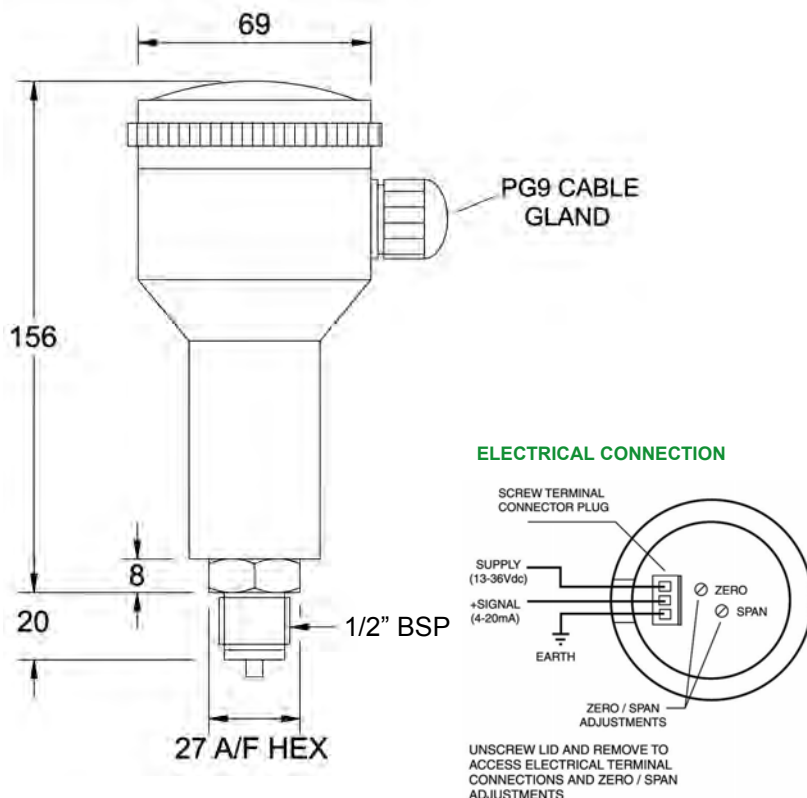
Cable entry to head is through an IP66 cable gland with compression seal for cable sizes 4-8mm.

Optional M20 conduit fitting available.

### WEIGHT:

1200 grams.

## DIMENSIONS (in mm)



### ORDER DETAILS

State model number and pressure range required:-  
e.g. PR9000 0-6barG

Model No.	DESCRIPTION
PR9000	4-20mA, 2 WIRE
PR9001	0-5V, 3 WIRE
PR9002	0-10V, 3WIRE

### PRESSURE RANGES

-1 - 0 bar Vac	0 - 25 barg
0 - 100 mbarg	0 - 40 barg
0 - 500 mbarg	0 - 60 barg
0 - 1 barg	0 - 100 barg
0 - 1.6 barg	0 - 160 barg
0 - 2.5 barg	0 - 250 barg
0 - 4 barg	0 - 400 barg
0 - 6 barg	0 - 600 barg
0 - 10 barg	0 - 1000 barg
0 - 16 barg	0 - 1500 barg

### CALIBRATION

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- SILICON-ON-SAPPHIRE SENSOR TECHNOLOGY
- LICENCE FREE RADIO TRANSMISSION UP TO 500 METRES
- BATTERY POWERED
- ALL STAINLESS STEEL HOUSING
- HIGH STABILITY AND REPEATABILITY
- PRESSURE RANGES 0-500mbar TO 0-1500bar
- ZERO + SPAN ADJUSTABLE
- COMPLIANT TO REGULATORY STANDARDS
- TYPE AND CE APPROVED

## DESCRIPTION

The PR9500 NON-WIRED Pressure Transmitter is designed for safe operation in tough industrial and process applications - without the need for hard wiring. The PR9500 transmitter can be situated in hazardous and relatively inaccessible areas, allowing the operator to monitor at safe distances on site.

No hard wiring means lower installation cost and maintenance, resulting in cost savings. Robustly constructed from stainless steel, the PR9500 transmitter incorporates the latest silicon-on-sapphire sensor technology, giving optimum stability and repeatability in all industrial and process environments.

The PR9500 transmitter operates by sending data signals by radio telemetry to a digital indicator or other device incorporating a compatible receiver. Powered by an internal battery supply, the transmitter is capable of sending data signals at distances of up to 500 metres.

Typical applications include mechanical and civil engineering installations, process plant, water utilities, petrochemical, power generation and any application on fluid or gas requiring a stable, repeatable and accurate pressure measurement at distances on site.

The removal of the large cap at the head of the unit, allows easy access for zero/span adjustment and re-calibration or for battery replacement. Standard pressure connection is 1/2" BSP or optionally 1/2" NPT is available. Pressure ranges are from 0 - 500mbar to 0 - 1500bar.

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### SPECIFICATION

#### PRESSURE RANGES:

0 to 500mbar through to 0-1500barG, see table below for list of all standard pressure ranges.

#### OVERPRESSURE:

Pressure can exceed rated range by the multiple shown below with no damage or change in calibration above  $\pm 0.5\%$ FS.

2x for ranges up to 700 bar

1.5x up to 1000bar

1.1x above 1500bar

#### UHF RADIO TRANSMITTER / RECEIVER:

Low power (license free), transmission frequency 418 MHz, 433MHz

#### TRANSMISSION RANGE:

Point-to-point radio transmission up to 500 metres line-of-site

#### DATA TRANSMISSION RATE:

Serial radio packet at 4800/9600 baud

#### RESOLUTION:

$\pm 0.024\%$ FS (12 BIT ADC)

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

$\pm 0.30\%$  FS best fit straight line definition.

#### REPEATABILITY:

$\pm 0.1\%$  FS defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

$\pm 0.1\%$  FS/year non-cumulative

#### POWER SUPPLY:

Replaceable 3.2V (1/2AA) Lithium Thionyl Chloride battery.

#### PRESSURE MEDIA:

All fluids compatible with 300 series stainless steel and titanium alloy diaphragm.

#### OPERATING TEMPERATURE RANGE:

Ambient  $-40^{\circ}$  to  $+85^{\circ}$ C

Media:  $-40^{\circ}$  to  $+120^{\circ}$ C

Storage:  $-55^{\circ}$  to  $+150^{\circ}$ C

#### TEMPERATURE EFFECTS:

$\pm 1.5\%$ FS total error band for  $-20^{\circ}$  to  $80^{\circ}$ C

Typical thermal zero and span coefficients

$\pm 0.015\%$ FS/ $^{\circ}$ C

#### RADIO TYPE APPROVALS:

MPT1328

EN300220

#### ELECTROMAGNETIC-COMPATIBILITY:

Certification EN300680

CE marked

#### PRESSURE CONNECTION:

1/2" BSP male as standard, optionally 1/2" NPT is available.

#### ELECTRICAL CONNECTION:

Screw terminals for conductor sizes 0.2-2.0mm<sup>2</sup> are located beneath the screw lid inside the head. Cable entry to head is through an IP66 cable gland with compression seal for cable sizes 4-8mm. Optional M20 conduit fitting available.

#### INGRESS PROTECTION:

IP66 when installed correctly.

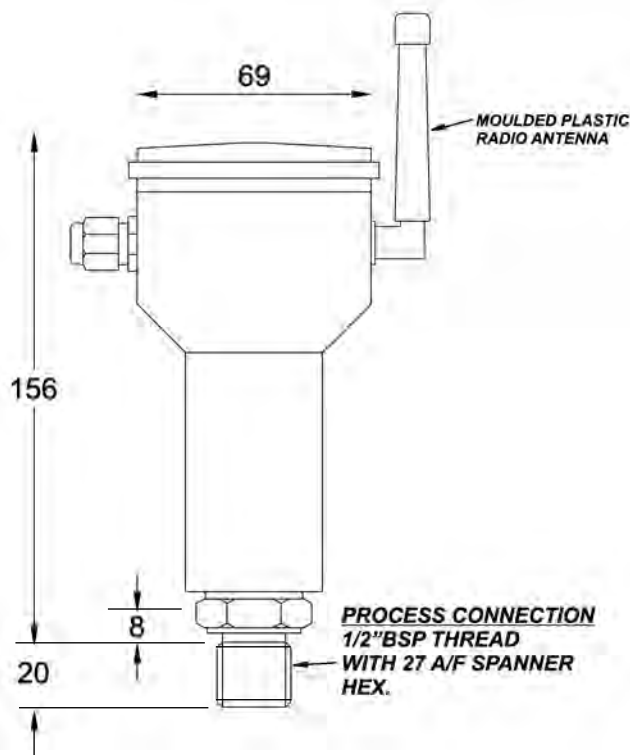
#### WEIGHT:

1.3Kg

#### ACCESSORIES:

RX9500 radio receiver station

### DIMENSIONS (in mm)



#### ORDER DETAILS

State model number, pressure range required and operating frequency:-

e.g. PR9500 0-10barg, 433MHz

Model No.	DESCRIPTION
PR9500	Radio Transmitter
RX9500	Radio Receiver

#### PRESSURE RANGES

-1 - 0 bar Vac	0 - 25 barg
0 - 500 mbarg	0 - 40 barg
0 - 1 barg	0 - 60 barg
0 - 1.6 barg	0 - 100 barg
0 - 2.5 barg	0 - 160 barg
0 - 4 barg	0 - 250 barg
0 - 6 barg	0 - 400 barg
0 - 10 barg	0 - 600 barg
0 - 16 barg	0 - 1000 barg
	0 - 1500 barg

#### CALIBRATION

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# TCG2000

DIGITAL TANK CONTENTS GAUGE



- HIGH ACCURACY
- EXCELLENT LONG-TERM STABILITY
- 5 DIGIT LCD BACKLIT DISPLAY
- ZERO + SPAN ADJUSTMENT ON-SITE
- CREVICE-FREE PRESSURE PORT
- 3/4" ASA 150LB STAINLESS STEEL FLANGE
- IMPACT RESISTANT GLASS REINFORCED POLYESTER ENCLOSURE
- WEATHERPROOF TO IP67
- SERIAL INTERFACE OPTIONS AVAILABLE

## DESCRIPTION

The TCG2000 digital tank contents gauge has been designed to meet the specific application requirements of bulk liquid mass measurement on storage tanks, for stock control and local contents readout.

The TCG2000 is a highly accurate digital gauge, which when mounted near the base of a storage tank will calculate and display the product contents in tonnes. Basically the design consists of a state of the art silicon-on-sapphire pressure sensor, a digital processor unit and a 5 digit LCD local readout display. With this unique design the pressure generated by the liquid contents is sensed and by digital processing a measurement for the contents mass is then calculated.

A 3/4" ASA 150lb stainless steel flange with 14mm diameter inlet bore provides the process connection. The large inlet bore and special crevice free design of the process connection enables even viscous liquids to free flow to the sensing diaphragm, this enhances measurement accuracy and assists with maintenance and cleaning.

To assist commissioning and allow re-calibration on-site the zero and span can simply be readjusted with the push button controls on the local display panel located inside the weatherproof enclosure.

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# TCG2000

## DIGITAL TANK CONTENTS GAUGE

### SPECIFICATION

#### TANK CAPACITY:

Any tank capacity can be accommodated within the display scale limits of 0 to 99990 and the operating pressure specification.

#### OPERATING PRESSURE RANGE:

0 to 250mbar through to 3000mbarG  
Pressure at process inlet.

#### OVERPRESSURE:

4000mbar maximum without damage

#### LOCAL READOUT DISPLAY:

LCD with back light, 10 mm height

#### DISPLAY RESOLUTION:

5 digit display, up to 1 in 65000 resolution.

#### CALIBRATION:

Readout is calibrated in SI units of tonnes, or decimal fraction of tonnes to best suit tank capacity.

#### COMBINED NON-LINEARITY AND

#### HYSTERESIS:

± 0.25 % FS Best fit straight line definition.

#### REPEATABILITY:

± 0.1 % FS Defined as maximum error between 3 consecutive pressure cycles.

#### LONG TERM STABILITY:

± 0.2 % FS/year non-cumulative

#### ZERO OFFSET AND SPAN SETTING:

Fully adjustable from display panel buttons (with calibration count / tamper detection)

#### POWER SUPPLY:

13 to 30 Vdc

#### POWER CONSUMPTION:

40mA maximum

#### HUMIDITY:

95% RH maximum at 40°C,  
non condensing

#### PRESSURE MEDIA:

All fluids compatible with 316 stainless steel, Titanium and Nitrile seal. Pressure sensor is all Titanium construction.

#### OPERATING TEMPERATURE RANGE:

Operating : -20° to +50°C

Storage: 5° to +40°C

#### TEMPERATURE EFFECTS:

±0.75%FS total error band for -10° to 30°C

Typical thermal zero and span coefficients

±0.02%FS/°C

#### ELECTROMAGNETIC-COMPATIBILITY:

Emissions EN50081-1

Immunity EN50082-2

Certification CE marked

#### SERIAL OUTPUT INTERFACE:

RS232C or RS485 connection options available

#### SERIAL OUTPUT FORMAT:

1 start bit, 8 data bits, 1 or more stop bits. ASCII data terminated with a carriage return

#### BAUD RATE:

Selectable 1200, 2400, 4800 or 9600

#### PRESSURE CONNECTION:

3/4" ASA 150lb flange in 316 stainless steel

#### ENCLOSURE MATERIAL:

Glass reinforced polyester, polycarbonate window - with door lock screws.

#### ENCLOSURE RATING:

Weatherproof to IP67.

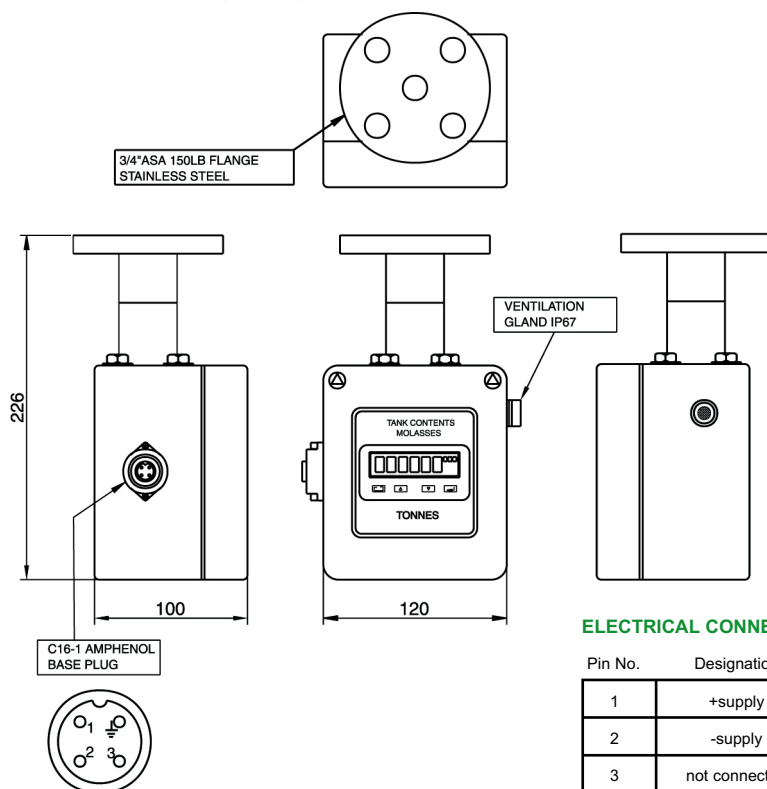
#### ELECTRICAL CONNECTION:

Mates with Amphenol C16-1 series cable connector socket.

#### WEIGHT:

2.5 Kilograms

### DIMENSIONS (in mm)



#### ELECTRICAL CONNECTION

Pin No.	Designation
1	+supply
2	-supply
3	not connected
⏏	earth

#### ORDER DETAILS

State model number and the following calibration data:

Tank capacity in tonnes (or SG of product),  
Tank dimensions: diameter x height in metres,  
Gauge zero setting in tonnes

e.g.:

TCG2000, Capacity 10,000 tonnes,  
12.512m Dia x 11.6m height, GZ 120 tonnes

Model No.	DESCRIPTION
TCG2000	TANK CONTENTS GAUGE WITH LCD DISPLAY

#### CALIBRATION

All products manufactured by Ellison Sensors are calibrated using precision calibration equipment with traceability to international standards.

Ellison Sensors operates a policy of continuous product development. We reserve the right to change specification without prior notice.

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