



IMCL

Submersible Level Transmitter - Ceramic Sensor

- Ceramic, piezo-resistive sensor
- Accuracy: $<\pm 0.25\%$ FS BFSL (0.1% optional)
- Pressure ranges from 10mWG to 100mWG
- Selection of housing & cable materials
- Variety of outputs including mV, Volts and mA

The IMCL has been designed for use in continuous submersion in liquids such as water, oil and fuels. This submersible device uses a ceramic sensor which has excellent corrosion resistance, it is ideal for applications where the media may be aggressive, as it has a conventional thin stainless steel diaphragm. Housed within a 316L stainless steel, high grade Duplex stainless steel or PVC housing, this submersible level transmitter is the ideal product for hydrostatic level measurement where stability and repeatability are critical in harsh environments. Every device is temperature compensated and calibrated, supplied with a traceable serial number and calibration certificate. The electronics incorporate a microprocessor based amplifier, this means there are no pots and therefore very stable.

There are many options available on the IMCL level transmitter. These include the following :

- Pressure range and engineering units
- Pressure reference (Gauge or Absolute)
- Output type
- Accuracy Level (Non-linearity & hysteresis)
- Thermal accuracy
- Cable material in PUR, FEP or TPE
- Housing material
- O ring seal material

Suitable for the following applications:

- River level
- Tank level
- Borehole level
- Aquifer level
- Environmental monitoring

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Input Pressure Range

| | | | | | | | | | |
|----------------------------|-----|----|----|----|----|----|----|-----|-----|
| Nominal pressure, Gauge | mWG | 10 | 15 | 20 | 25 | 40 | 50 | 75 | 100 |
| Nominal pressure, Absolute | mWG | - | 15 | 20 | 25 | 40 | 50 | 75 | 100 |
| Permissible Overpressure | mWG | 15 | 30 | 30 | 75 | 75 | 75 | 150 | 150 |

Output Signal & Supply Voltage

| Wire system | Output | Supply Voltage |
|----------------------|--|---------------------|
| 2-wire | 4 - 20mA | 9 – 32V dc |
| | 0 – 5V dc | 9 – 32V dc |
| 3-wire ¹⁾ | 0 – 10V dc | 13 – 32V dc |
| | 0 – 2.5V dc | 6 – 32V dc |
| | 0.5 to 4.5V dc | 5V dc |
| | (others on request) | (others on request) |
| 4-wire | Passive mV/V (See mV/V output table below) | 2 – 30V dc |
| | 2mV/V (rationalised) | 2 – 12V dc |
| | 10mV/V (amplified) | 3 – 12V dc |

Performance

| | | |
|--------------------------|--------|--|
| Accuracy (Non-linearity) | | <±0.25% / FS (BFSL) |
| | | <±0.1% / FS (BFSL) optional |
| Hysteresis | | <±0.1% / FS |
| Setting Errors (offsets) | 2-wire | Zero & Full Scale, <±0.5% / FS |
| | 3-wire | Zero & Full Scale, <±0.5% / FS |
| | 4-wire | See table |
| Permissible Load | 2-wire | Rmax = [(Voltage Supply – 9 min) / 0.02] Ω |
| | 3-wire | Rmin = 10 k Ω |
| Output Resistance | 4-wire | Rmin = 11 k Ω |
| | Supply | mV/V & 0.5 to 4.5V – Ratiometric, |
| Influence Effects | | other outputs - <0.005 % FS / 1V |
| | Load | 0.05 % FSO / kΩ |

Permissible Temperatures & Thermal Effects

| | |
|-------------------------------|-----------------------------------|
| Media temperature | -20°C to +60°C (non freezing) |
| Storage temperature | -20°C to +70°C |
| Compensated temperature range | 20°C ±25°C |
| Thermal Zero Shift (TZS) | <±0.02% / FS / °C (option code 2) |
| | <±0.01% / FS / °C (option code 1) |
| Thermal Span Shift (TSS) | <-0.015% / °C |

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Electrical Protection

| | |
|------------------------------------|--------------------------------|
| Supply reverse polarity protection | No damage but also no function |
| Lightning Protection | Internally fitted |
| Electromagnetic compatibility | CE Compliant |

Mechanical Stability

| | |
|-----------|---------------------------|
| Shock | 100 g / 11 ms |
| Vibration | 10 g RMS (20 ... 2000 Hz) |

Materials

| | |
|-----------------------|---|
| Housing | 316L Stainless Steel High Grade DUPLEX Stainless Steel UNS31803 (optional) |
| 'O' ring seals | Viton |
| Diaphragm | Ceramic Al ₂ O ₃ 96 % PUR |
| Cable sheath material | PVC (optional) FEP (optional) |
| Media wetted parts | Housing, 'O' ring seal, diaphragm & Cable sheath |

Miscellaneous

| | | |
|-----------------------|---|---------------------------------------|
| Current consumption | 2-wire, 3-wire & 4-wire | Limits at 25mA, Typ. 6mA, Typ.2 – 5mA |
| Weight | Transmitter: Approx. 250g including nose cone Cable: Approx. 48g per mtr | |
| Installation position | Any | |
| Operation Life | > 100 x 10 ⁶ cycles | |

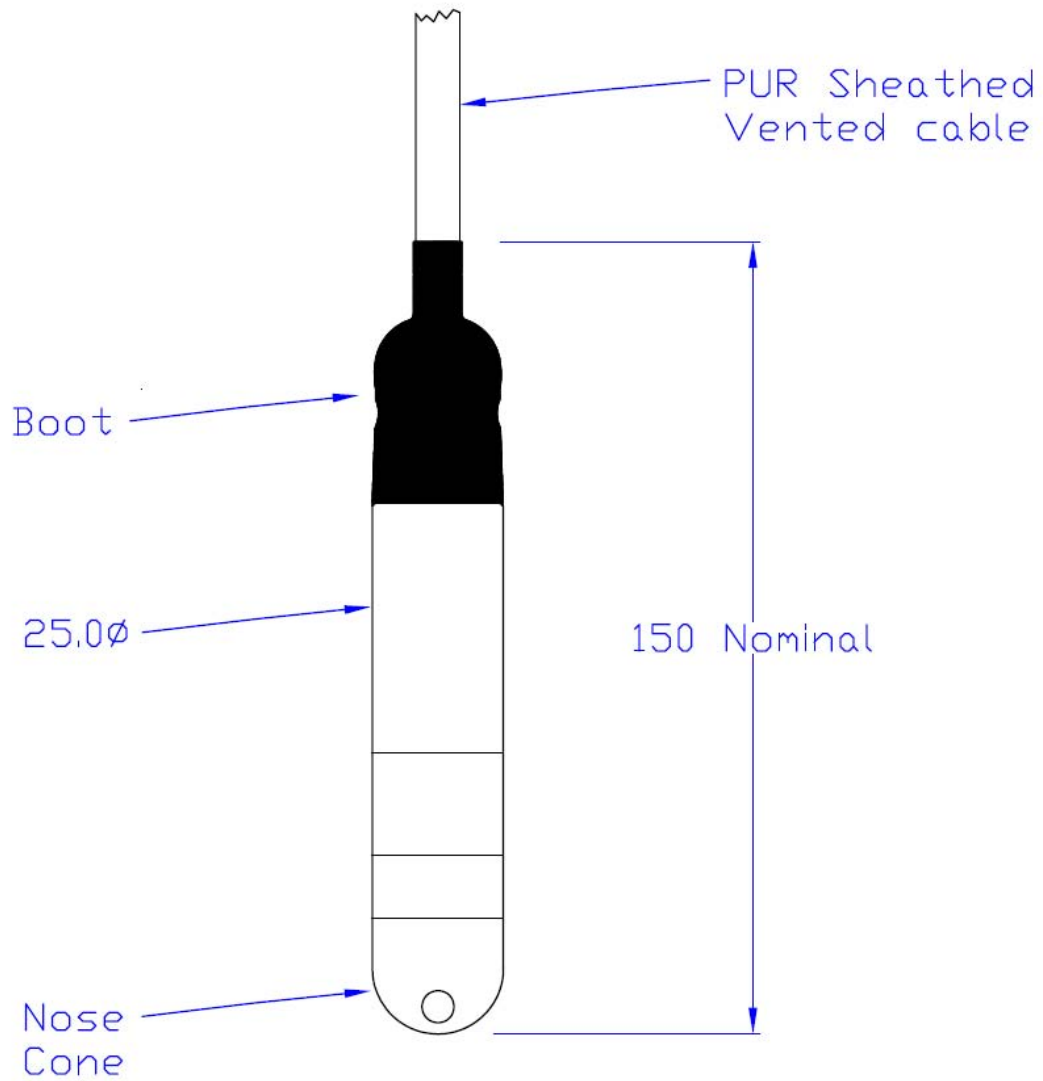
Typical Passive mV/V Outputs

| Nominal pressure | mWG | 10 | 15 | 20 | 25 | 40 | 50 | 75 | 100 |
|--------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|
| Output | mV/V | 3.6..6.0 | 1.8..3.0 | 2.5..4.0 | 2.0..3.3 | 3.2..5.2 | 4.0..6.5 | 2.3..3.6 | 3.1..4.8 |
| Zero Setting Error | mV/V | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |

Wiring Designation

| | | PUR Sheath | PVC Sheath | FEP Sheath |
|--------|--------------|------------|------------|------------|
| 2-wire | +ve Supply | Red | Brown | Brown |
| | -ve Supply | Blue | White | White |
| | Ground | White | Pink | Pink |
| | Cable Screen | Green | Green | Green |
| 3-wire | +ve Supply | Red | Brown | Brown |
| | -ve Supply | Blue | White | White |
| | +ve Output | Yellow | Yellow | Yellow |
| | Ground | White | Pink | Pink |
| 4-wire | Cable Screen | Green | Green | Green |
| | +ve Supply | Red | Brown | Brown |
| | -ve Supply | Blue | White | White |
| | +ve Output | White | Pink | Pink |
| | -ve Output | Yellow | Yellow | Yellow |
| | Cable Screen | Green | Green | Green |

Outline Drawing



Accessories



Cable support hanger



Cable Terminal Box with Vent



Wall mounted digital indicator