

# IMPRESS

SENSORS & SYSTEMS

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Pressure - Temperature - Level - Distance - Control - Indication - Data logging



## 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

IMCL Submersible Level Transmitter

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## Submersible Level Transmitter Ceramic Sensor

### 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
3-wire <sup>1)</sup>	0 – 5V dc	9 – 32V dc
	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

<sup>1)</sup> Care must be taken when using voltage output regarding the screening and earthing, refer to the manual for correct installation method.

### 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
Influence Effects	Supply	mV/V & 0.5 to 4.5V – Ratiometric, 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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## Submersible Level Transmitter Ceramic Sensor

### 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 <sub>2</sub> O <sub>3</sub> 96 %
Cable sheath material	PUR 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 <sup>6</sup> cycles	

### Typical Passive mV/V Outputs

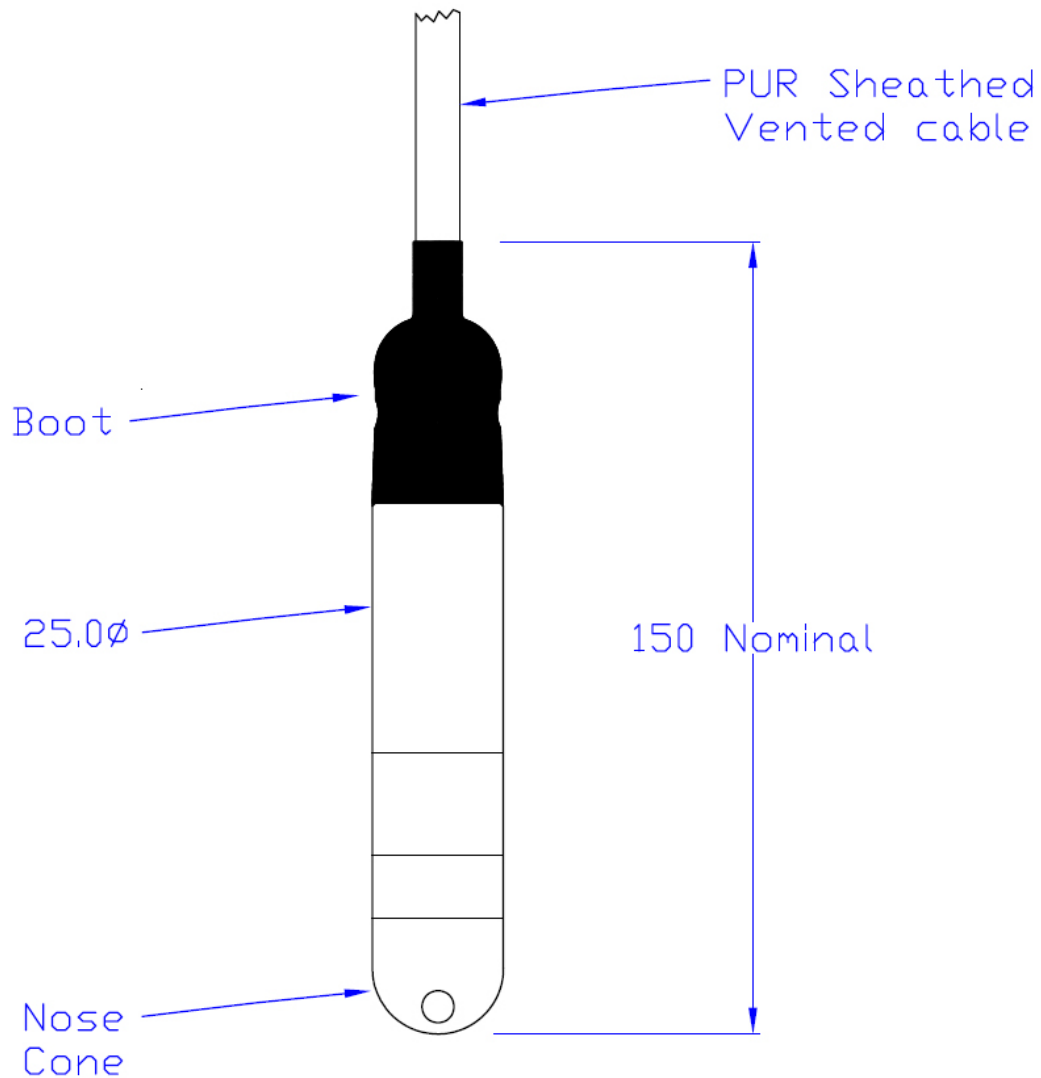
Nominal pressure	mWG	10	15	20	25	40	50	75	100
Output	mV/V	3.6..6.0	1.8..3.0	2.5..4.0	2.0..3.3	3.2..5.2	4.0..6.5	2.3..3.6	3.1..4.8
Zero Setting Error	mV/V	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

### 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	+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

## Submersible Level Transmitter Ceramic Sensor

### Outline Drawing



### Accessories



Cable support hanger



Cable Terminal Box with Vent



Wall mounted digital indicator

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