

# IMPRESS

SENSORS & SYSTEMS

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



## IMSTL

### Submersible Dual Level & Temperature Transmitter - Silicon Sensor

- Stainless steel, Silicon piezo-resistive sensor
- Level accuracy:  $<\pm 0.1\%$  FS BFSL (0.06% optional)
- Pressure ranges from 0.5mWG to 100mWG
- Temperature range -20 to +60°C
- Dual independent 4-20mA outputs

The IMSTL has been designed for use in continuous submersion in liquids such as water, oil and fuels. The submersible uses the latest piezo-resistive media isolated silicon sensing technology and a stainless steel diaphragm. It offers excellent stability, repeatability and resolution required for use in rivers and reservoir measurement. The temperature sensor is based on a platinum resistance thermometer with Class 'B' accuracy. Housed within a 316L stainless steel, or high grade Duplex stainless steel housing, this submersible transmitter is the ideal product for hydrostatic level measurement where temperature is also a critical part of the measurement. Every device is temperature compensated and calibrated, supplied with a traceable serial number and calibration certificate.

**There are many options available on the IMSTL transmitter. These include the following :**

- Pressure range and engineering units
- Pressure reference (Gauge or Absolute)
- Level accuracy (Non-linearity & hysteresis)
- Level accuracy for thermals
- Cable material in PUR, PVC or FEP
- Housing material
- O ring seal material
- Temperature range

**Suitable for the following applications:**

- River level & temperature
- Reservoir level & temperature
- Tank level & temperature
- Borehole level & temperature
- Aquifer level & temperature
- Environmental monitoring
- V-notch weir flow measurement

IMSTL Submersible Level Transmitter

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## Submersible Level & Temperature Transmitter Silicon Sensor

### Input Pressure Range

Nominal pressure, Gauge	mWG	0.5	1	2.5	3.5	5	7	10	20	35	70	100
Nominal pressure, Absolute	mWG	-	-	-	-	-	-	-	20	35	70	100
Permissible Overpressure	mWG	10	10	10	10	10	21	21	60	105	210	210

### Output Signal & Supply Voltage

Wire system	Output	Supply Voltage
Level Transmitter: 2-wire	4 - 20mA	10 – 30V dc
Temperature Transmitter: 2-wire	4 - 20mA	10 – 30V dc

### Level Performance

Accuracy (Non-linearity)	<math>\pm 0.1\% / FS (BFSL)</math> <math>\pm 0.06\% / FS (BFSL) \text{ optional}</math>	
Hysteresis	<math>\pm 0.05\% / FS</math>	
Setting Errors (offsets)	Zero & Full Scale, <math>\pm 0.5\% / FS</math>	
Permissible Load	$R_{max} = [(Voltage\ Supply - 9\ min) / 0.02] \Omega$	
Influence Effects	Supply Load	other outputs - <math>< 0.005\% FS / 1V</math> 0.05 % FSO / k $\Omega$

### Temperature Performance

Measurement Accuracy	(mA output / 2000) or 5 $\mu A$ (whichever is the greater)
Thermal drift	1 $\mu A / ^\circ C$
Loop Voltage effect	0.2 $\mu A / V$
Maximum Output load	$[(V_{supply} - 10) / 21] K\ Ohms$ (Example: 700 Ohms @ 24V)
Output timing	Transmitter startup time: 4 seconds (I out <math>< 4mA</math> during startup) Warm-up time: 1 minute to full accuracy Update time: 500ms Response time: 1 second

### Permissible Temperatures & Thermal Effects

Media temperature	-20 $^\circ C$ to +60 $^\circ C$ (non freezing)
Storage temperature	-20 $^\circ C$ to +70 $^\circ C$
Compensated temperature range (level only)	20 $^\circ C \pm 25^\circ C$
Thermal Zero Shift (TZS) (level only)	<math>\pm 0.02\% / FS / ^\circ C</math> (option code 2) <math>\pm 0.01\% / FS / ^\circ C</math> (option code 1)
Thermal Span Shift (TSS) (level only)	<math>< -0.015\% / ^\circ C</math>
Thermal drift (temperature only)	1 $\mu A / ^\circ C$

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## Submersible Level & Temperature Transmitter Silicon 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	316L Stainless Steel
Cable sheath material	PUR PVC (optional) FEP (optional)
Media wetted parts	Housing, 'O' ring seal, diaphragm & cable sheath

### Miscellaneous

Current consumption	Level transmitter limits at 25mA Temperature transmitter limits at 21.5mA
Weight	Transmitter: Approx. 300g including nose cone Cable: Approx. 48g per mtr
Installation position	Any
Operation Life	> 100 x 10 <sup>6</sup> cycles

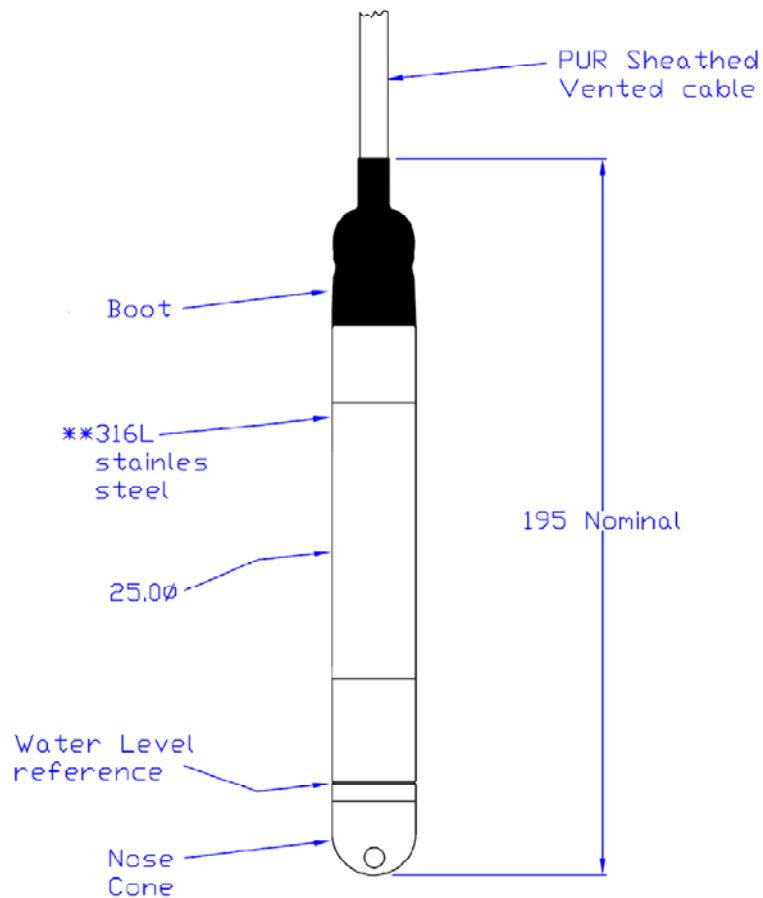
### Wiring Designation

		PUR Sheath	PVC Sheath	FEP Sheath
Level transmitter	+ve Supply -ve Supply Ground & Cable Screen	Red Blue Green	Brown White Green	Brown White Green
Temperature transmitter	+ve Supply -ve Supply Ground & Cable Screen	White Yellow Green	Pink Yellow Green	Pink Yellow Green

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## Submersible Level & Temperature Transmitter Silicon Sensor

### Outline Drawing



### Accessories



Cable support hanger  
Part No. 100084



Cable Terminal Box with Vent  
Part No. KL2-ZB.601-200-000-4



Wall mounted digital indicator  
Part No. SRP-N118-1821-1-2-001

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