HYCONTROL
LEVEL MEASUREMENT SOLUTIONS

HYCIMSL

Submersible Level Transmitter - Silicon Sensor

- Stainless steel, Silicon piezo-resistive sensor
- Accuracy: <±0.1% FS BFSL (0.06% optional)
- Pressure ranges from 0.5mWG to 100mWG
- Selection of housing & cable materials
- Variety of outputs including mV, Volts and mA

The HYCIMSL has been designed for use in continuous submersion in liquids such as water, oil and other non aggressive chemicals. 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. Housed within a 316L stainless steel housing, this submersible level transmitter is the ideal product for reliable and repeatable hydrostatic level measurement. 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 adjusting pots and therefore the electronics are very stable.

There are many options available on the HYCIMSL 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, PVC or FEP
- O ring seal material

HYCIMSL Submersible Level

Suitable for the following applications:

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

HYCIMSL Submersible Level

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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
2-wire	4 - 20mA	9 – 32V dc
3-wire	0 – 5V dc 0 – 10V dc 0 – 2.5V dc 0.5 to 4.5V dc (others on request)	9 – 32V dc 13 – 32V dc 6 – 32V dc 5V dc (others on request)
4-wire	See passive mV/V output table below	3 – 12V dc

Performance

Accuracy (Non-linearity)	<±0.1% / FS (BFSL) <±0.06% / FS (BFSL) optional	
Hysteresis	<±0.05% / FS typ.	
Setting Errors (offsets)	2-wire 3-wire 4-wire	Zero & Full Scale, <±0.5% / FS Zero & Full Scale, <±0.5% / FS See table
Permissible Load	2-wire 3-wire	Rmax = [(Voltage Supply – 9) / 0.02] Ω Rmin = 10 k Ω
Output Resistance	4-wire	≤200mbar: 2.7-3.3 kΩ, >200mbar: 4.0-6.0 kΩ
Influence Effects	Supply Load	mV/V & 0.5 to 4.5V – Ratiometric, other outputs - <0.005 % FS / 1V 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)	<±0.01% / °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
'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	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	0.5	1	2.5	3.5	5	7	10	20	35	70	100
Output	mV @ 10V	25	50	50	60	100	70	100	100	100	100	100
Zero Setting Error	mV/V	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Wiring Designation

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

Outline Drawing