

## 6100MP MICROPROCESSOR BASED LEVEL TRANSMITTER



### FEATURES

- Σ **Continuous Output**
- Σ **Non Fouling Flush Diaphragm Design**
- Σ **For Sludge and Sewage Applications**
- Σ **316SS Construction**
- Σ **Teflon, 316SS, Viton Diaphragm**
- Σ **Microprocessor Based Electronics**
- Σ **Ultra Stable/High 0.2% Accuracy**
- Σ **4/20MA and RS485 MODBUS® Outputs**
- Σ **Ranges to 115 Feet Water Plus**
- Σ **No Desiccants or Breather Tubes**
- Σ **Stand Off Option**
- Σ **Fully Repairable and Field Calibrateable**

### CONSTRUCTION

The Series 6100MP Microprocessor Based Level System is composed of a lower assembly sensor, submersible cable, and optional meter/controller. The lower assembly sensor has a 316SS body, a 2-1/2 inch diameter Viton\* convoluted diaphragm, and an isolated solid state Piezo-resistive pressure transducer. The integral microprocessor based electronics provide active temperature compensation and significantly improved performance while offering a range of outputs including 4/20MA and RS485 MODBUS®.

The submersible cable is 20-gauge direct burial, polyurethane jacket, shielded cable available in unspliced lengths to 1000 feet.

Mounted in a fixed submerged position, the Series 6100MP sensor measures the head pressure imposed on the diaphragm by the liquid height above. Calibrated to the specific gravity of the process fluid, the sensor operates reliably in still and wastewater wet wells as well as sludge and process sumps, tanks and reservoirs. The 6100MP sensor is an excellent choice for measuring levels of dense sludges since it provides reliable data without the complexity and clogging often associated with other types of systems.

The straight forward design and construction of the 6100MP sensor makes it ideal for use in water,

wastewater and process applications, whenever an analog or digital signal is required for pump control, indication, alarm, or telemetry applications.

### MOUNTING & PROCESS MEDIA REQUIREMENTS

The 6100MP sensor can be either pipe suspended (1/2 inch NPT) or cable suspended (by others) in a vertical position in the reservoir or well to be monitored. The process media can be any type compatible with the sensor and cable materials (316SS, Teflon\*, Viton\*, polyurethane).

### SOLID STATE PRESSURE SENSOR

The sensing element of the solid state pressure sensor consists of four nearly identical piezo-resistors buried in the surface of a thin circular silicon diaphragm. Gold wires attached to the silicon chip surface provide connection to the Piezo-resistors and serve as pads for bonding of the wire leads. Pressure caused the thin diaphragm to flex inducing a stress or strain in the diaphragm and also in the buried resistors. Therefore, a change in pressure (mechanical input) is converted to a change in resistance (electric output). The sensing element converts (transduces) one form of energy to another. Teflon and 316SS diaphragms are available. Teflon and Viton are products of E.I. DuPont.

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## 6100MP MICROPROCESSOR BASED LEVEL TRANSMITTER

The liquid level of the \_\_\_\_\_ shall be sensed by a Sigma Controls Series 6100MP submersible level sensor.

The transducer shall be microprocessor based with active temperature compensation offering  $\pm 0.2\%$  accuracy, 4/20MA and/or digital data output directly proportional to the measured liquid level over a factory calibrated range of zero to \_\_\_\_\_ feet of water.

The sensor shall be of the solid state head sensing type, suitable for continuous submerged operation and shall be installed in accordance with the manufacturer's directions.

The bottom face of the sensor shall be installed \_\_\_\_\_ inches above the floor at elevation \_\_\_\_\_.

The sensor shall be mounted using a vertical 1/2 inch stainless steel pipe or cable system as indicated on the project drawing.

The sensor housing shall be machined from 316SS with a 2-1/2 inch diameter Viton\* convoluted diaphragm clamped between two rings to provide a water tight pressure seal.

A silicon oil fill liquid behind the diaphragm shall transmit the sensed pressure to a solid state isolated Piezo-resistive pressure transducer which shall convert the sensed pressure to a corresponding electrical value.

The sensed pressure shall cause a thin silicon diaphragm to flex inducing a strain or stress in both the diaphragm and the attached Piezo-resistors. Any change in pressure shall result in a change in output reading.

The optional meter/controller shall be a microprocessor based device with graphical backlit LCD display and 5 user function keys. The meter/controller shall be fully user configurable and offer as standard 2 or 4 output relays and 4/20MA retransmission signals. It shall be a Myriad LC1 or LC2 manufactured by Sigma Controls, Inc.

The fiberglass re-enforced polyester enclosure is Nema 4X with a molded clear window and an aluminum hinged instrumentation panel.

SENSOR SPECIFICATIONS	
Ranges	Ft of Water: 0/5, 0/12, 0/16, 0/35, 0/70, 0/115 Contact factory for additional ranges. Pressure (PSIG): 0/2, 0/5, 0/7, 0/15, 0/30, 0/50
Thermal Limits	Max. Operating: $-40^{\circ}\text{C}/85^{\circ}\text{C}$ ( $-40^{\circ}\text{F}/185^{\circ}\text{F}$ ) Compensated: $0\text{C}/50^{\circ}\text{C}$ ( $32^{\circ}\text{F}/122^{\circ}\text{F}$ ) Temp Effects: $\pm 0.2\%$ Output Span within compensated range
Accuracy	$\pm 0.2\%$ of Span
Input	7.8 –36 VDC (See Table)
Output	4/20MA 4/20MA and MODBUS®
Electrical Connection	Attached Two Wire Submersible Polyurethane Jacketed Cable
Cable Color Code	Red (+) Power Black (-) Power Yellow Digital 'A' Blue Digital 'B'
Materials of Construction	316SS Body and Clamp Rings, 300 Series SS Bolts, Convoluted Molded Viton* Diaphragm, Buna 'O' Ring, Neoprene Grommet, Polyurethane Jacketed Cable

ORDERING INFORMATION	
MODEL	6100MP = 316SS Body
RANGES	002 = 0/2 PSIG = 0/5 FT WC 005 = 0/5 PSIG = 0/12 FT WC 007 = 0/7 PSIG = 0/16 FT WC 015 = 0/15 PSIG = 0/35 FT WC 030 = 0/30 PSIG = 0/70 FT WC 0/50 = 0/50 PSIG = 0/115 FT WC
OUTPUT	1 = 4/20MA and MODBUS®
FILL LIQUID	DS = Silicone 200 Fill Liquid
OPTIONS	SB = Cable Support Bracket PB = Pipe Cable Support Bracket WB = Wall Mount Pipe Support Bracket CD – 1/2" Conduit Adapter AC = TVSS 120VAC Surge Protection DIN MT DC = TVSS 4/20MA Surge Protection DIN MT WC = Stainless Steel Support Cable (Please Specify) SO = Stand Off
CABLE LENGTH	Specify Length in Feet
EXAMPLE	6100MP-015-1-DS-SB-50

DIMENSIONS	OPTIONS

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