SL17 SUBMERSIBLE PRESSURE TRANSMITTER INSTALLATION AND MAINTENANCE SHEET

ASHCROFT®

WARNING READ BEFORE INSTALLATION

1. GENERAL:

A failure resulting in injury or damage may be caused by excessive overpressure, excessive vibration or pressure pulsation, excessive instrument temperature, corrosion of the pressure parts, or other misuse. Consult Ashcroft Inc., Stratford, Connecticut, USA before installing if there are any questions or concerns.

2. OVERPRESSURE:

Excessive depths or pressure spikes greater than the rated overpressure capability of the transducer may cause irreversible electrical and/or mechanical damage to the pressure measuring and containing elements.

Fluid hammer and surges can destroy any pressure transmitter and must always be avoided. Fluid hammer often occurs when a liquid flow is suddenly stopped. Surges occur when flow suddenly commences. These are particularly damaging to pressure transducers if the pipe is empty. To avoid damaging hammer or surge, fluid lines must remain full, pumps should increase or decrease power slowly and valves should be open or close slowly.

Possibility of damage due to impact is significant for the SL17. This event would most likely be caused during installation, either with contact from the service of the water or the bottom of the vessel. It is best to control the height, speed, and orientation of the sensor to minimize the impact as this can mimic a fluid surge event and mechanically damage the sensor.

Symptoms of hammer, surge or damage due to impact:

- Pressure transmitter exhibits an output at zero pressure (large zero offset)
- Pressure transmitter output remains constant regardless of pressure
- If severely damaged, transmitter will not transmit detectable output

3. FREEZING:

Prohibit the freezing of media in pressure port or surrounding the unit. This will cause the head pressure of the process not to be read and may cause irreparable damage to the sensor and/or transmitter assembly.

4. STATIC ELECTRICAL CHARGES:

Any electrical device may be susceptible to damage when exposed to static electrical charges. To avoid damage to the transmitter observe the following:

- Ground the body of the transmitter before making any electrical connections.
- When disconnecting, remove the ground last.

DESCRIPTION

The Ashcroft Model SL17 submersible level pressure transmitter is unique in its small diameter (17mm) and customizable manufacturing. Units are intended for use in clean fluid applications where the process media is compatible with the 316L SS sensor material, 316L SS body and the polyurethane cable. This includes, but is not limited to, well monitoring, ground water monitoring, environmental remediation, surface water monitoring, water tanks and borehole applications.

MECHANICAL INSTALLATION

Reference temperature for the SL17 is 21°C but it can be used within the temperature limits of –10°C and 40°C. The instrument can be stored within the temperature limits of –20°C and 60°C. Ingress protection of the unit is IP68 (NEMA 6P) and is meant to function while submerged or connected via pressure port.

SL17 units are composed with a 22 AWG 4-wire black polyurethane cable with a Kevlar strength member. Equipped inside each SL17 cable is also a vent tube that runs the entire length of the cable. This vent minimizes the thermal effects inside the transmitter tube and must be kept from clogs, crimps or otherwise constricted. It also must be properly terminated with a desiccant box to avoid moisture ingress. Please refer to the diagram on back page for the suggested termination box, tube and installation practices.

MOUNTING

The SL17 transmitter functions best when installed in a vertical position. Particularly in lower ranges, the analog zero and span offset may differ significantly in different orientations. It is best practice to mount the transmitter in low vibration or low flow situations. The weighted nose cone should be used to minimize significant flow and stabilize the transmitter.

The weight of the sensor is 120g and the standard nose cone is an additional 13g. The optional weighted nose cone is 225g, The total weight of the SL17 assembly is largely based on the cable length; each foot adds an additional 13g to the assembly. The installation should consider the total weight of the assembly to ensure adequate strength over the cable length and at the termination points.

The cable pull strength is 180 lb and should be considered especially during installation and removal procedures.

ELECTRO-MAGNETIC INTERFERENCE

The circuitry of the SL17 transmitter is designed to minimize the effect of electromagnetic and radio frequency interference. To minimize susceptibility to noise, avoid running the termination wiring near inductive equipment.

For best EMC immunity, it is normally recommended that the transmitter case be grounded (when possible) but this recommendation is dependent on the installation and customer requirements. In some installations, it may be undesirable to ground both ends of the shielded cable to avoid potential ground loops. In other cases, it may be preferable to drive the shield as a guard, instead of grounded. As it may be difficult to ground the case in some applications, the transmitter's green wire is internally connected to the case.

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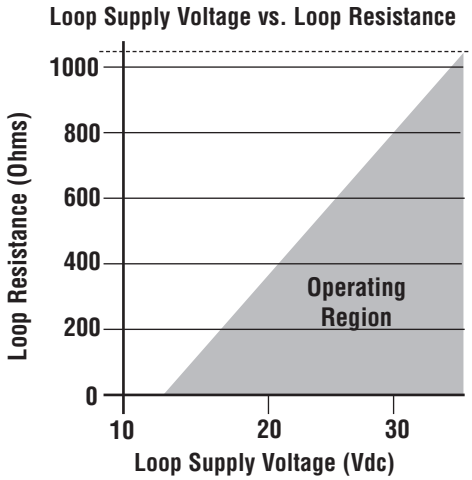
LIGHTNING PROTECTION

For best protection from lightning, the SL17 case should be grounded, either directly or through the green wire. In addition to traditional internal voltage clamps to protect the transmitter from surge (effect of indirect lightning strikes), the SL17 has *additiona*l internal surge protection. In the event of an *extreme* surge, the SL17 will open circuit the loop to protect itself and help protect the reset of the loop devices. If this happens, the loop current will fall below 1mA and stay latched "off" until reset. To reset simply cycle the loop power off/on.

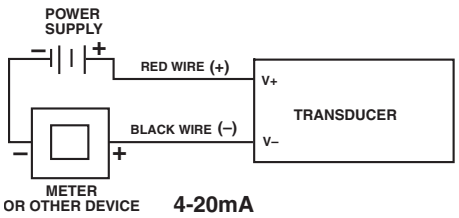
FIELD ADJUSTMENTS

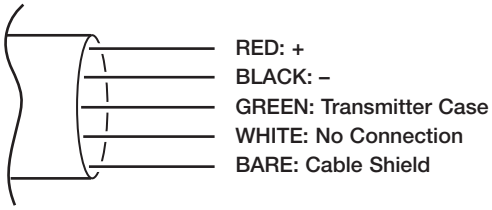
The SL17 transmitters are precisely calibrated over a temperature range at the factory to ensure long and stable performance. There are no field accessible adjustments on the SL17 transmitter.



Vmin = 12V+ (.022A x RL) (includes a 10% safety factor)
RL = RS + RW
RL = Loop Resistance (ohms)
RS = Sense Resistance (ohms)
RW = Wire Resistance (ohms)

WIRING DIAGRAM



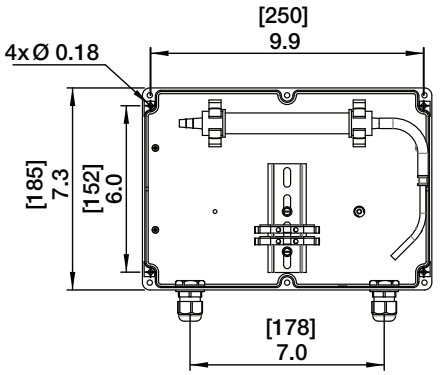


ELECTRICAL INSTALLATION

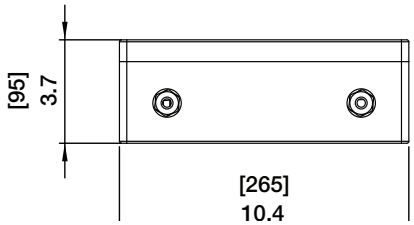
All SL17 units utilize a 10-36Vdc power supply and output a 4-20mA analog signal. Please refer to the wiring diagram below for appropriate wiring protocol.

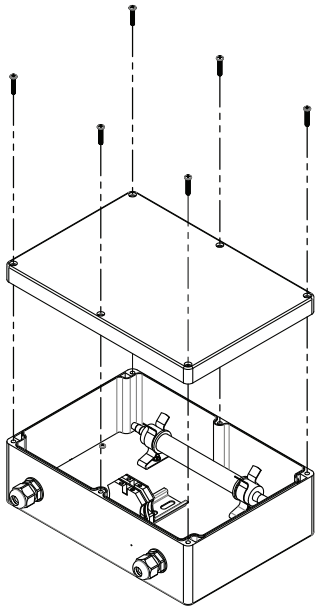
TERMINATION (DESICCANT) BOX

The SL17 vent tube provides a potential for water ingress, if not installed correctly. The addition of the Ashcroft desiccant box can help prevent this phenomenon from occurring by reducing the humidity in the environment air before entering the transmitter vent tube. During operation, the filter will change from blue to pink and a replacement cartridge will be needed upon full color change. Please refer to below for dimensions and suggested installation specifications.



SHOWN WITHOUT COVER





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