

**EXTERNAL SURGE PROTECTOR**

## Features

- Lifetime Warranty Protection vs. Voltage Surge
- Low Peak Clamping Voltage
- Up to 20,000 Amperes Peak Surge Protection
- Contains Gas Discharge Tube
- Automatically Resets
- FM/UL/CUL-approved for Hazardous

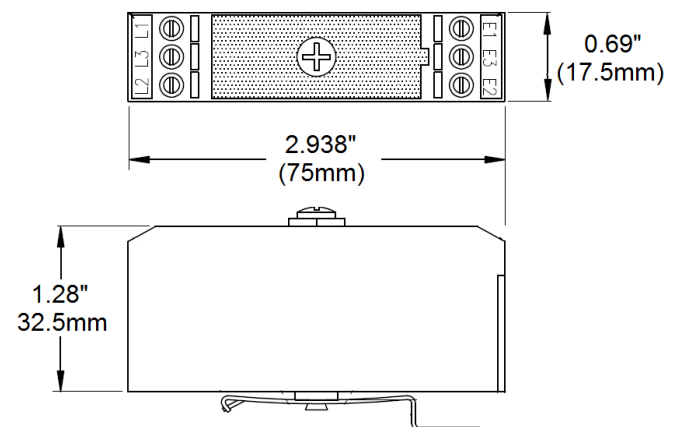
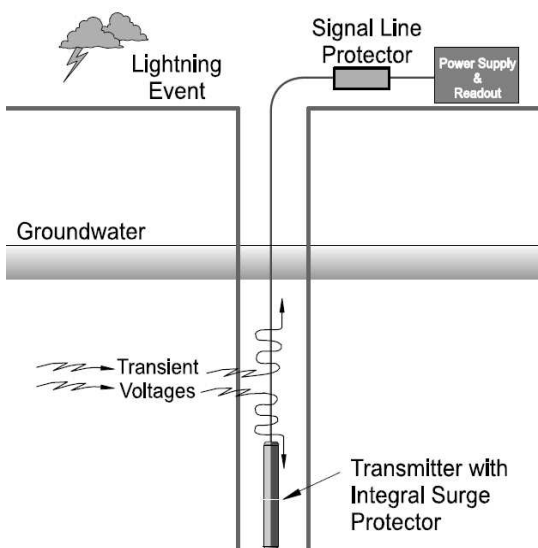
## LIGHTNING PROTECTION FOR KPSI TRANSDUCERS

The lightning protection option is designed to protect above and below ground pressure transducers from damaging surge voltage and current. Designed in cooperation with a major manufacturer of surge protection devices, these systems are capable of protecting against fast rising voltage transients as well as current surges associated with lightning discharges.

The protectors are a multi-stage design, with a solid state section that intercepts the leading edge of the surge within nanoseconds. The second stage of the design contains a *gas discharge tube* which crowbars up to 20,000 ampere currents to the ground. The tube remains in the crowbar state until the surge has passed, then automatically resets the line to normal operation without the need to reset a circuit breaker.

The Lightning Protection Option is comprised of two parts. Part one is *housed integral* to the pressure transducer via a factory-installed extension of the transducer. **The housing extension increases the overall length of the transducer, and is specified in the datasheets for each model.** Part two is *external surge protection* installed by the user between the transducer wiring and the power supply/readout. The protectors are FM/UL/CUL Intrinsic Safety rated for use in hazardous environments when used with an appropriate barrier.

The transducer is covered against damage due to lightning or over voltage spikes for the life of the instrument, however, it is not meant to protect against continuous overvoltage and will not be warranted for such applications. This option is available on all our submersible pressure transducers except for the model 300DS.



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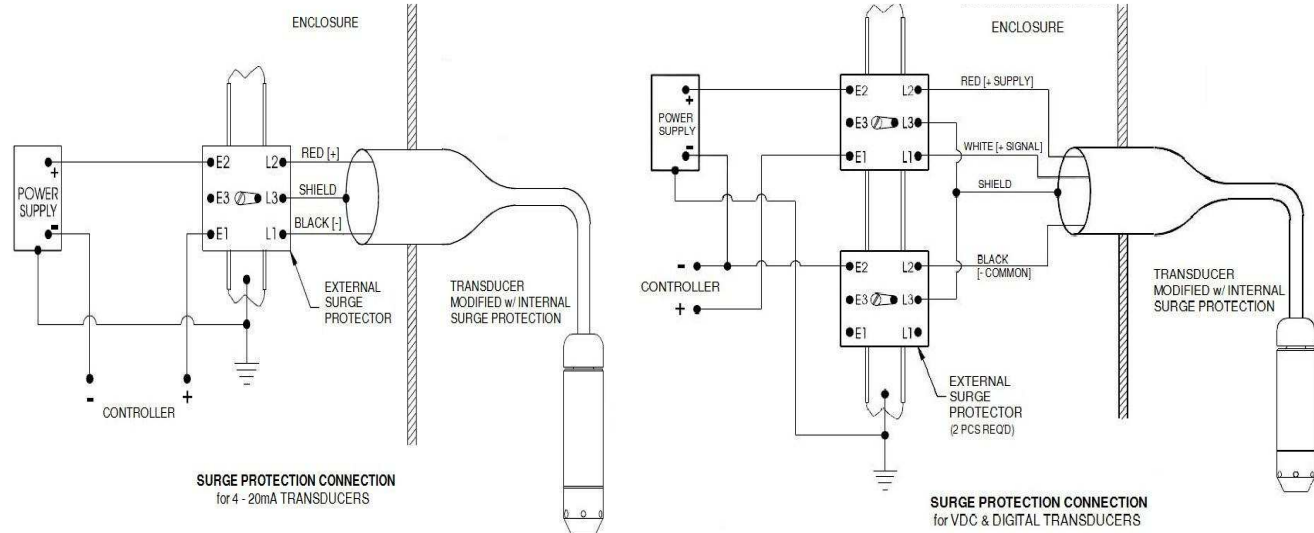
## Lightning Protection Specifications

Power supply needs to be limited to 150mA to avoid lock up of the gas tube after a suppression event	
Life Expectancy	> 1000 Operations
Peak Clamping Voltage	36 volts
Response Time	< 10 nsecs

## Method of Operation

A solid state section intercepts the leading edge of the surge with sub-nanosecond response time. Within microseconds, a gas tube capable of shunting 20,000 amperes current operates and crowbars the surge to ground. The protector remains in the crowbar state until the surge has passed and line voltages return to safe levels. The line is automatically restored to normal operation and the lightning protection waits for the next surge without the need for resetting a breaker or replacing a fuse. Both line to ground and line to line protection are provided.

**Note: for 4-20 mA type sensors the supply voltage must be at least 12 VDC when lightning protection option is installed.**



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