

# MODEL 456-15

## Pressure Transducer



- 0 - 15 PSI pressure input
- 4-20mA output
- High accuracy and repeatability
- Welded 316 SS construction
- Computer-tested and calibrated
- Unique cable seal system
- Fully temperature compensated



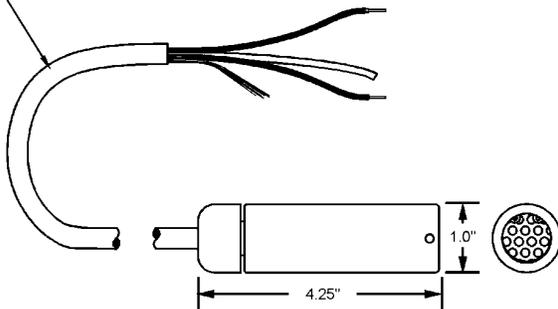
### DESCRIPTION

The **Model 456-15 Pressure Transducer** is designed specifically to meet the rigorous environments encountered in many level measurement applications. This transducer provides repeatable, precise depth measurements under the most adverse conditions. It has been designed for installation in Class I, Division 1, Groups A,B,C and D; Class II, Division 1, Groups E,F,and G; Class III, Division 1 hazardous locations, when connected to the appropriate Stahl apparatus.

The Model 456-15 features high performance internal signal conditioning. An isolated diaphragm sensor has been incorporated for use with hostile fluids and gases. This sensor uses a silicon pressure cell that is fitted into a stainless steel housing with an integral, compliant stainless steel barrier diaphragm. The sensor assembly is housed in a rugged, compact 316 SS case, which provides for a variety of pressure inputs as well as electrical output connections.

### DIMENSIONS

30' BLACK SHIELDED CABLE with VENT TUBE



### SPECIFICATIONS

Model	456-15
Pressure range	0 - 15 PSI other pressure ranges available upon request
Static accuracy	± 1% FSO BFSL Static accuracy includes the combined errors due to nonlinearity, hysteresis & nonrepeatability on a "full scale output" (FSO) "best fit straight line" (BFSL) basis, at 25° C or 77° F, per ISA S51.1.
Thermal error	0.1% FSO/°C worst case Thermal error is the maximum allowable deviation from BFSL due to a change in temperature, per ISA S51.1.
Proof pressure	1.5 x rated pressure
Burst pressure	2.0 x rated pressure
Resolution	Infinitesimal
Excitation	9 to 30VDC
Input current	20mA max.
Output current	4 - 20mA
Zero offset	4 - 20mA ± 0.12mA max.
Output impedance	< 10 ohms
Insulation resistance	100 megohms at 50VDC
Circuit protection	Polarity, surge/shorted output
Compensated temp	+32° to +122° F
Operating temp range	+14° to +140° F
Enclosure material	316 stainless steel
Mounting	Suspended by cable
Weight	7 oz.
Cable	30 feet; approx. 1.2 lbs. Polyurethane jacketed shielded cable with polyethylene vent tube and Kevlar tension members. 200 lbs. pull strength. 22 AWG conductors. Approx. weight: 0.04 lb/ft. Tefzel jacket, optional.
Agency Approvals	Approvals to FM, CSA and UL are standard for Class I, Div 1, Groups A, B, C and D, and Class II, Div 1, Groups E, F and G, and Class III, Div 1 hazardous locations (install to national & local codes w/ approved barrier).

Telephone: Main - (918) 438-1220

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CORPORATION

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# MODEL 456-15 Pressure Transducer

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE.  
KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

## GENERAL SAFETY

POTENTIALLY HAZARDOUS VOLTAGES ARE PRESENT AT THE TERMINALS OF THE MODEL 456-15.  
ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING.  
THIS DEVICE SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

## Installation Instructions

### APPLICATIONS

Suitable applications for the Model 456-15 Pressure Transducer would include - well monitoring; lift stations; dewatering; mobile containers; liquid level control; process control; ground or surface water monitoring; and pump control.

### INSTALLATION

Most installations either suspend the Model 456-15 Pressure Transducer in a perforated 1 1/2" or 2" PVC instrumentation still well, or attach the transducer to a rigid conduit.

To install in rigid conduit: fit the transducer with a 1/2" NPT male conduit fitting where the cable exits the transducer. This fitting can then be mated to a standard rigid conduit.

**IN ALL INSTALLATIONS:** Care should be taken in the placement of the cable, as cable and vent tube damage represents the most frequent causes of transducer failure.

Connect the Model 456-15 Pressure Transducer as shown in the appropriate unit diagram.

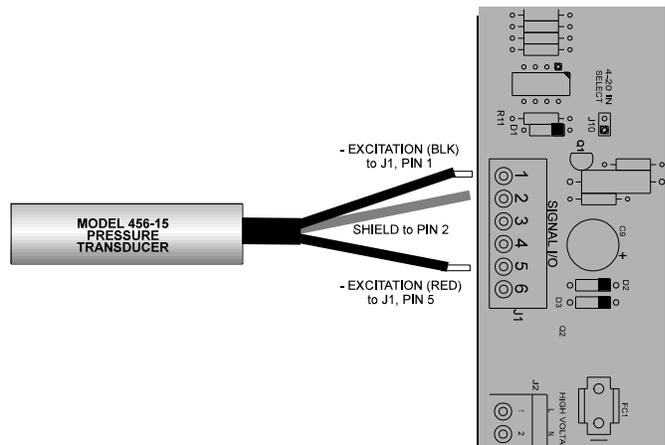
### ADJUSTMENT

There are no adjustments to this device.

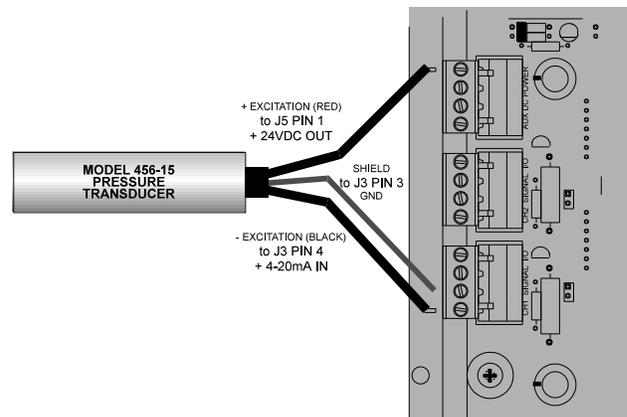
### MOISTURE PROTECTION

Time Mark supplies a Vent Filter/Vapor Trap with each Model 456-15 Pressure Transducer to ensure reliable operation. This device protects sensitive electronic components from mildew, corrosion and rust. It also prevents the formation of a liquid column in the vent tube, which would directly affect the calibration of the Model 456-15 Transducer.

### SIGNAL INPUT - Model 4042 Controller



### SIGNAL INPUT - Model 4082 Controller



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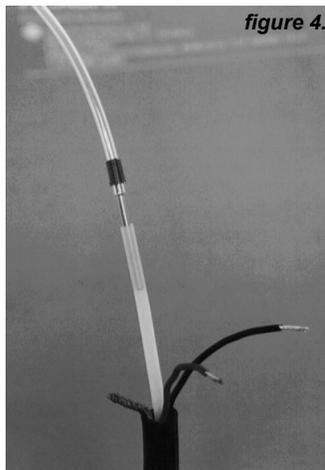
## MOISTURE PROTECTION - continued

The Vent Filter and Vapor Trap connects to the existing vent tube via a 10" flexible vent tube (see fig 4). The acrylic drying tube is 6" in length and 3/4" in diameter. Inserted in each drying tube end cap is a 20 micron polypropylene filter.

The drying tube is filled with 30 grams of indicating desiccant (drying agent). As air passes through the drying tube, moisture is absorbed by the desiccant.

The desiccant changes from blue to red as its drying capacity becomes diminished. The Vent Filter/Vapor Trap can be exposed to air, industrial gases, refrigerants, organic liquids and solvents. It should not be used when ammonia is present.

The desiccant can be rejuvenated after normal use by spreading it in a layer one granule deep and heating it for one hour at 400° F. The heating temperature is critical, because if it is lower than 400° F, the desiccant will not rejuvenate.



## DRYING THE TRANSDUCER

If you get water in the transducer and vent tube, coil the cable and place the cable and transducer in a pan. Place the pan in an oven at 122° F or 50° C for 2 hours.

This on-site remedy may do the trick. Be careful that the oven temperature does not exceed those given, or else you may damage the transducer and cable.

You may also try suspending the cable and transducer in a vertical position, overnight, to allow the water to drain from it.

## CARE AND HANDLING

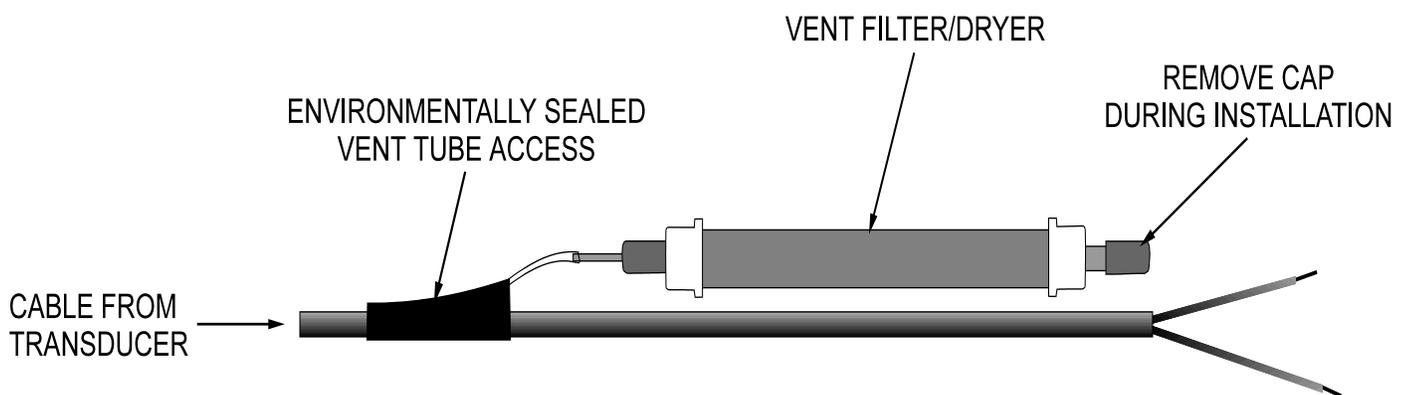
The Model 456-15 Pressure Transducer is designed for rugged use, but it needs protection from overpressure and sharp impact.

When lowering it into a liquid, penetrate the surface slowly, and only to the depth necessary. Avoid dropping the unit from above the surface. Clean the transducer by rinsing it in a mild detergent.

Direct probing of the diaphragm or attempts to remove the protective screens can damage the sensor.

## WARRANTY

This product is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair it for one year from the date of manufacture. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875.



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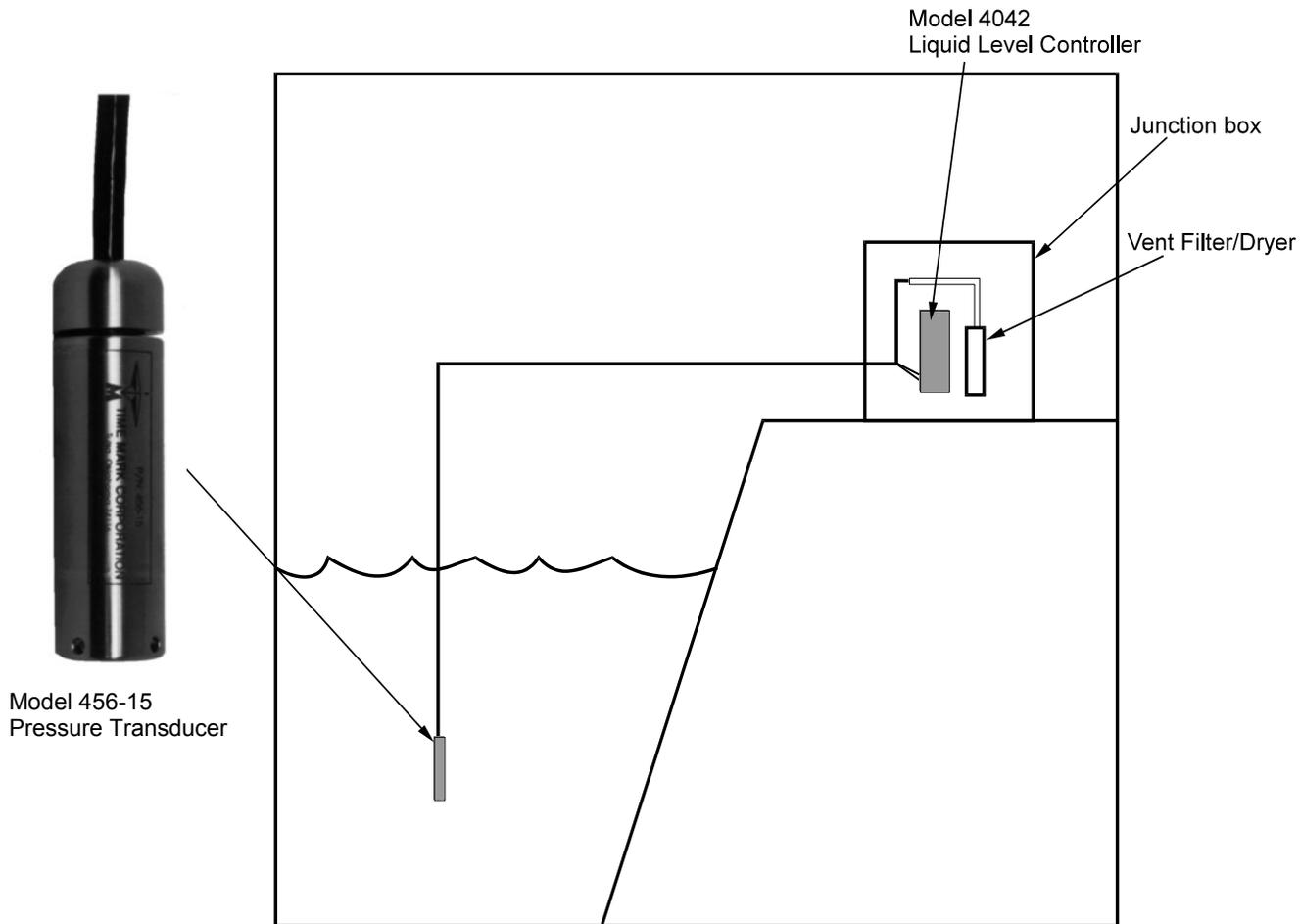
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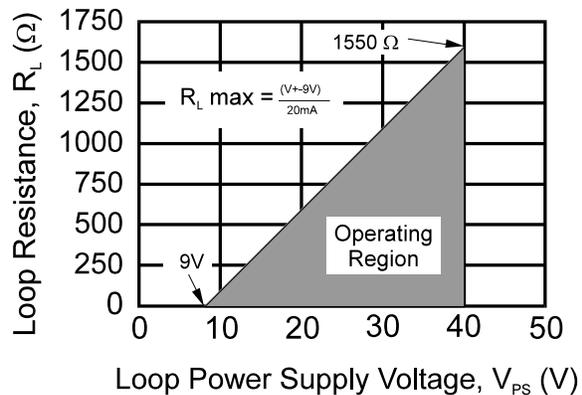
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## TYPICAL APPLICATION



## LOOP RESISTANCE vs. LOOP POWER SUPPLY



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