TRANSDUCER FIELD CHECKS

APPLICATION NOTE

The following is a field check procedure for KPSI Level and Pressure Transducers. It is designed to provide the information you need to isolate problems that may occur when deploying a transducer. These checks will help eliminate the costly and time-consuming RMA process by determining in advance whether the transducer is operating properly.

When a problem is encountered with a transducer, it is helpful to test the transducer independently from the rest of the system, thereby establishing where to concentrate the troubleshooting effort. It is important to determine if the fault lies in the transducer or the instrument reading the transducer signal, i.e. digital panel meter, programmable logic controller, etc. . . If all of the following transducer tests deliver normal results, the problem may be found elsewhere in your system.

On Page 3 there is a simple hookup diagram for the most common types of electrical output, a 0-5 VDC and a 4-20 mA transducers. The diagram illustrates the attachment of the meter in series with the black (negative signal) wire of the transducer using a 12-28 VDC power supply for transducer excitation. Some suggested power supplies are:

- **(1) - 12 VDC automotive or lantern battery.**
- **(2) - 6 VDC lantern batteries connected in series (for a total of 12 VDC).**
- **(2) - 9 VDC transistor batteries connected in series (for a total of 18 VDC).**
- **A laboratory-style linear power supply capable of 12VDC minimum**

Batteries are suggested to power the transducer during testing to eliminate the possibility that line noise is passing through an improperly filtered, grounded, or damaged installation power supply. Often, it is a faulty power supply that is the cause of an improperly functioning transducer.
A handheld Digital Multi-Meter (DMM) capable of reading 4-20 mA of current, or 0-20 VDC to a resolution of at least 0.01 decimal places. A second instrument should be available to confirm the observations.

ZERO-OUTPUT CHECK:

Once your transducer is correctly configured per one of the page 3 diagrams**, orient the transducer in a vertical position with the pressure port down** and then read the zero output on your meter. For a 0-5 VDC output, the zero should be between 0 and 0.25 volts, and for a 4-20 mA output, between 3.75 and 4.25 mA. If the transducer is submersible, you may opt to test the unit's response in a container of room temperature water and observe its reaction to liquid pressure. It should return to the same zero point when removed. If the output is outside of these limits, note the results and continue to troubleshoot the transducer per the suggested measurements shown below.

CASE CHECK:

These checks **(DIAGRAMS ON PAGE 3)** are performed with powered connection to detect internal shorts either in wiring that might have made contact with the structural components of the transducer, or from water intrusion that has made its way to the internal circuit board. In either case, there should be zero (0) voltage output on the case when the tests below are performed and checked with a Digital Multi-meter.

FIELD CHECK RECORDINGS:

0-5 VDC Output Transducer	Standard Output	Observed Output	4-20 mA Output Transducer	Standard Output	Observed Output
Zero Output Check	0 -0.25 VDC		Zero Output Check	3.75 – 4.25mA	
Case Check	0 VDC		Case Check	0 VDC	
Serial Number			Serial Number		

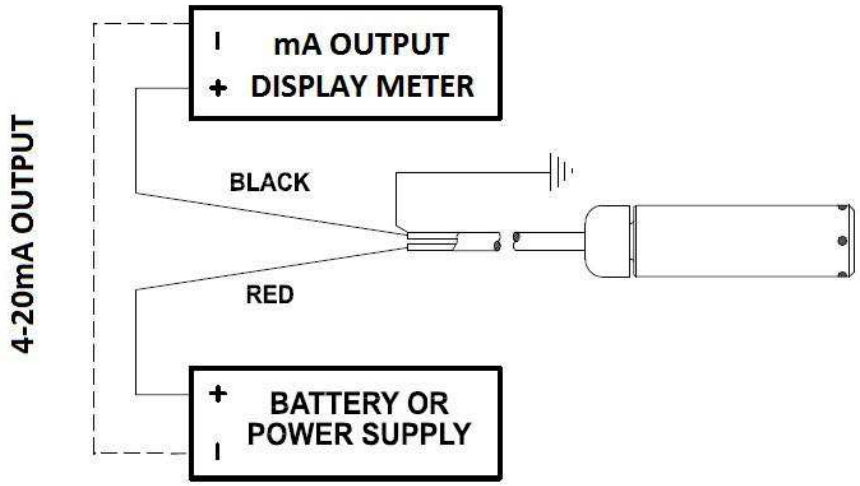
FURTHER MEASUREMENTS:

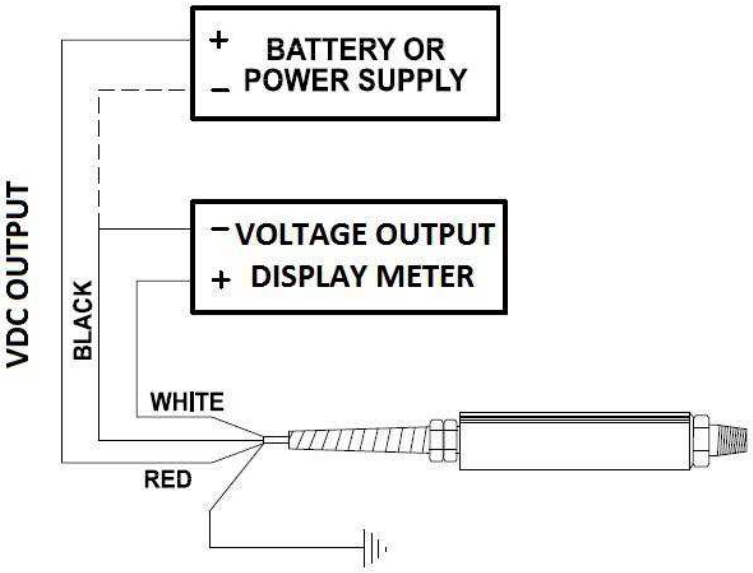
The following checks to the wiring should be made using a Digital Multi-Meter to insure that all connection wiring offer the listed resistance levels for proper operation.

0-5 VDC Output Transducer	Standard Output	Observed Output	4-20 mA Output Transducer	Standard Output	Observed Output
+Excitation (red) to Shield (drain)	> 2.5 Mohms		+Excitation (red) to Shield (drain)	> 2.5 Mohms	
-Excitation (black) to Shield (drain)	> 2.5 Mohms		-Excitation (black) to Shield (drain)	> 2.5 Mohms	
+Output (white) to Shield (drain)	> 2.5 Mohms		Shield (drain) to Housing	< 2 ohms	
Shield (blue) to Housing	< 2 ohms				
Serial Number			Serial Number		

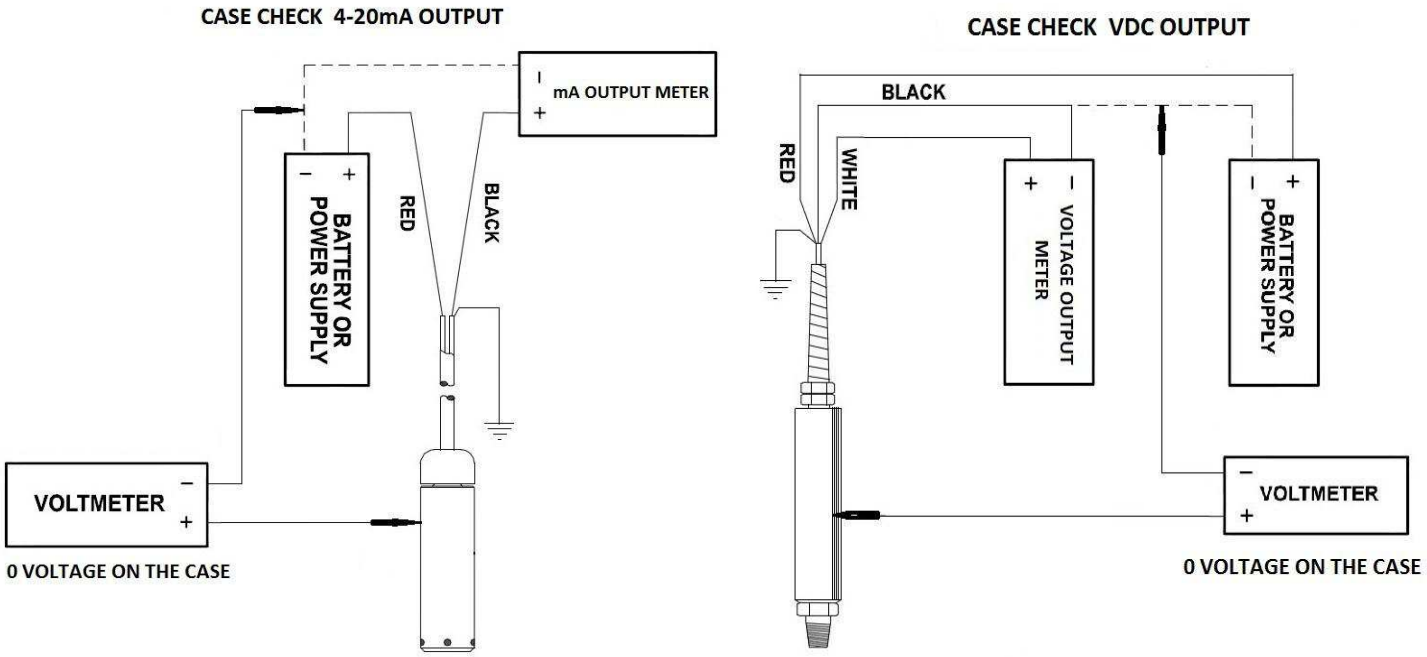
All measurements outlined here should be recorded and sent to Measurement Specialties, a TE Connectivity company. We will review it with you, and determine if further evaluation is necessary. If so, an RMA (Return Material Authorization) number will be established, and you will be asked to send the results along with the transducer to assist in the RMA evaluation process. TE Connectivity Customer Care Department can be reached at (800) 745-8008, or wl.sales@te.com

ZERO OUTPUT CONNECTION





CASE CHECK CONNECTIONS



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