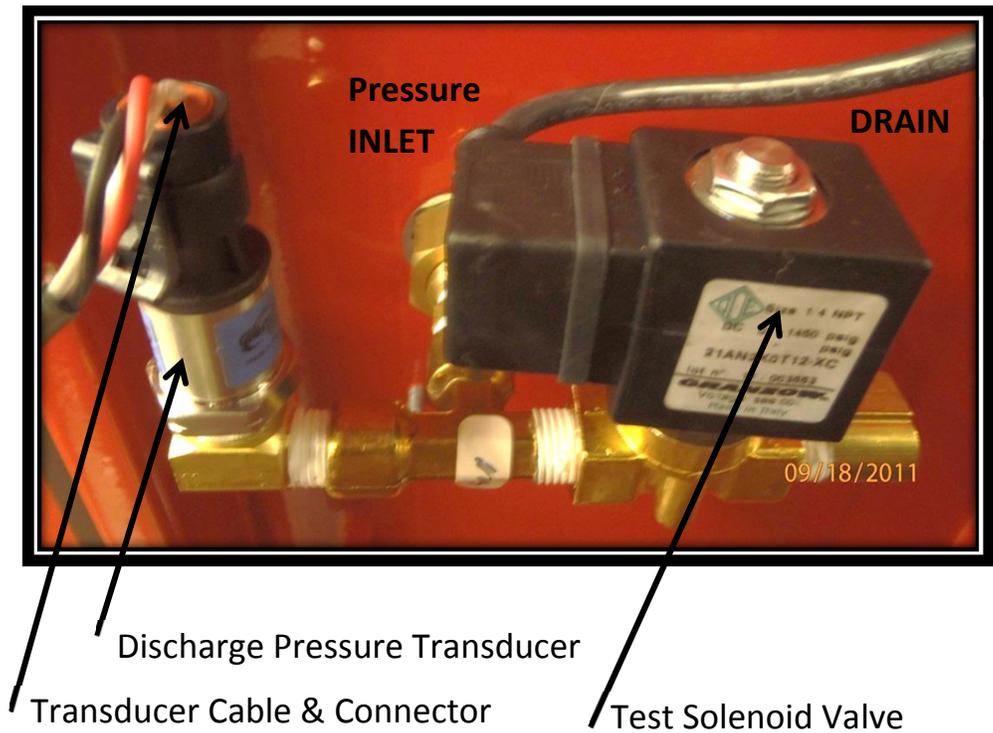


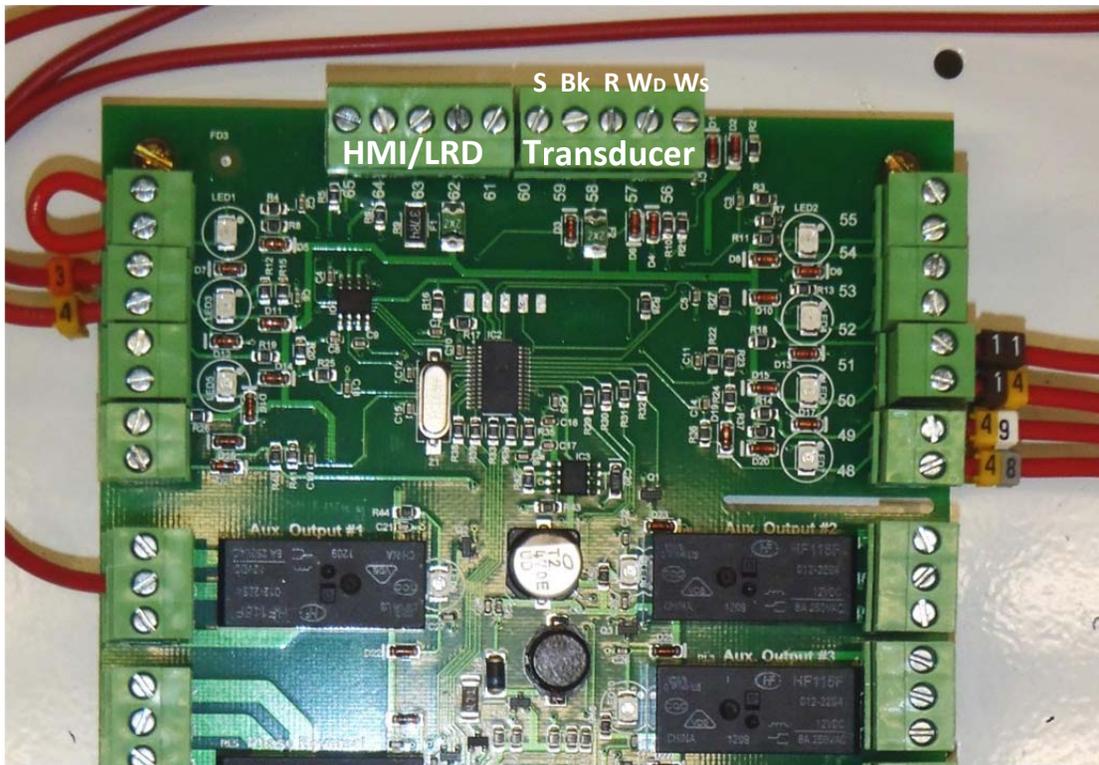
E and G Series Electric Fire Pump Controls

Pressure Transducer Description and Troubleshooting



The Pressure Transducer is located on the side wall of the Fire Pump Controller. Remove the cover with 2 Wing nuts and 2 Hex nuts to uncover the Pressure Transducer and Test Solenoid arrangement. Identify the Discharge Transducer and the Transducer Cable and Connector in the Photo above. If your Controller was built before August 10, 2010, you will not see the Solenoid as above. The transducer will be vertical as shown here on an elbow that goes directly into the Pressure Inlet fitting. If your pressure is reading different from the Sensing Line pressure gauge, then make sure these piping paths are clear. After completing service on the Transducer or Solenoid Valve, please return the cover to its rightful position to protect the inside of the Fire pump Control from spraying water should a leak develop.

The Purpose of the Pressure Transducer is to convert the pressure signal from your sensing line to a DC voltage that the microprocessor can understand. Any change in pressure in the sprinkler system will come back to the controller via the sensing line and send a changing voltage signal to the controller. If the pressure displayed on the HMI Display of the controller is different from the pressure gauge on the sensing line, it could be the transducer that is at fault.



I/O Board located inside the Fire Pump Controller

The Discharge Transducer and the Suction Transducer are connected to the I/O board at the same location all except for the white wire. See the Photo above and note the Location of the Transducer Connection Terminal Block. Both transducers are connected here with two shields together, two Black wires together, and two red wires together. The white wires are located in separate terminals. If no suction transducer is present, the Ws will not be connected.

To trouble shoot the Discharge Transducer,

1. Locate a Screen on the HMI in Real Time Data Section that displays Discharge Pressure. First compare this reading to the sensing line pressure gauge outside the controller. If they are within 3 to 5 PSI, you are reasonably close and no further testing should be needed.
2. Next, using a voltmeter set for 20 VDC, Measure the DC Voltage between Black wire on Terminal 59 and Red wire on Terminal 58. Voltage should be close to 12 VDC. If not, then the I/O board may be at fault or some other device is dragging down the I/O board power supply. Begin further testing by removing the communications plug from the side of the PMR, and the Rear of the HMI Display. Check for 12 VDC now at the Terminals 58 and 59. If now back to normal, then one of the two removed devices is at fault.

3. Once the 12 VDC is stable, measure the voltage between Black wire on Terminal #59 and the White wire on Terminal #57. This reading should be between 1 VDC and 5 VDC. If less than 1.00 VDC or greater than 5.00 VDC, the Transducer is bad and must be replaced.
4. Now take the reading you found in step 3, subtract 1.0 from the reading (example 2.34 VDC reading – 1VDC = 1.34VDC). Take this number and if you have a 300 PSI transducer, multiply by 75. The result is the Discharge pressure that you should be seeing on the HMI Display on the Controller. If not, compare that calculated Discharge Pressure to the sensing line gauge. If it is within 5 PSI, then the transducer is good and you will want to check the programming of the HMI – I/O board for accuracy. If you have the 600 PSI transducer, follow the same steps as above, but substitute 150 into the formula instead of 75.

$$(DC\ Reading - 1.00) \times (75\ or\ 150) = PSI\ Calculated\ Discharge\ Pressure$$
5. If the calculated pressure from the test above is not within a few PSI of the Sensing line gauge or the HMI display, then you should consider the Pressure Transducer as damaged and replace as soon as possible. To replace the Transducer, remove all pressure from the sensing line and keeping the drain valve open on the sensing line, carefully remove the transducer preventing water from falling into the contactors and Soft Start below the pressure transducer opening. Be sure and use a good quality thread sealant and lubricant with reinstalling the new transducer. Making sure not to get thread sealant on the end of the transducer will go a long ways in preventing issues with bad calibration after installing a new transducer.
6. If the transducer checks out OK, then we must investigate the programming of the controller by going to the HMI and moving first to the Factory Setpoints Menu and then checking the setup of the Discharge transducer. To do this follow the following steps:
 - a. Press “Esc” on the HMI Display
 - b. Press Up Arrow two times landing on “Factory Setpoints Menu” and press “Enter”
 - c. Screen will request pass key which is “5211” Hold Up or Down Arrow keys until this key appears in the display, then press “Enter”.
 - d. Press the Down Arrow Key Several times watching the display until it says “Discharge Transducer” On the second line of the display it will give you the programmed selection, <Disable>, <300>, or <600>. To accept the setting press “ESC” or to change the setting, press “Enter”. Upon pressing “Enter”, the screen will allow you to change the setting with the Up and Down Arrow Keys. This setting should match your transducer. See the label on the side of the transducer for Maximum Pressure Range. When selection is correct, press the “Enter” Key and selection is stored.
 - e. Press the Down Arrow Key and you should land on the Transducer Adjustment setting. This allows you to offset the output either 20 PSI up or 20 PSI down from the actual setting thus allowing you to more closely match the Analog Gauge on the Sprinkler System. Press the “Enter” Key to select and the up and down arrows to correct your Discharge Pressure output on the HMI. Press “Enter” once again to store your new selection and then “Esc” to go back to the menu level.

Note: After changes have been made, you must turn off power and wait 5 seconds and then turn power on. This allows the Microprocessor to write the new values off to EEPROM and then read them back when it comes up.

7. When ordering the replacement Transducer, please supply the Controller Catalog Number and Serial number as supporting information.

If you experience any trouble with this procedure, please contact our Customer Service Group at 800-476-6952 and follow the prompts for Technical Service.

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