

141 Helpsheet



*World Leaders in Computer Controlled Testing
Systems for Geotechnical Engineers and Geologists*

Hardware

STD & ADV Controller

Minimum Pressure Limit when open to Atmosphere

1. Introduction

If you have a problem with your GDS controller where the piston is continuously beeping and moving to the right when open to atmosphere, and the screen is showing a Minimum Pressure Limit error message, this generally means that the transducer zero value has drifted by more than minus 50kPa. Negative drift is something that can occasionally happen to a pressure transducer that has been in use for many years.

This might not be apparent by looking at the pressure reading on the controller as there might be a large zero offset set on the controller to correct the drift.

If the controller piston has reached the forward travel limit then you will see the piston moving backwards and forwards and it tries to move to the right to increase the pressure then move back to the left to back off the travel limit.

There are three ways to correct this problem depending on the amount of zero drift:

1. Adjust the zero gain potentiometer inside the controller to increase the zero value
2. Shift the zero value by inserting a resistor into the transducer connector on the PCB
3. Replace the pressure transducer

2. How to Correct the Offset

To see how much the zero value has shifted the first thing to do is remove any soft zero offset that is in the memory of the controller. To do this press RESET 0 8 on the controller keypad. The controller will now display the actual zero value returned from the transducer.

Now open the controller to atmospheric pressure. This will cause the controller to beep and the piston to move to the right. Look at the pressure reading. It will probably show a value less than minus 50kPa.

To correct the problem you will need to adjust the zero potentiometer inside the controller to increase the zero value. Open the controller and prop up the top plate of the controller so that you can run the controller with all the cables connected but still get to the controller PCB.

With the controller open to atmosphere turn screw of the zero potentiometer until the pressure reading is 0Kpa. The location of the zero potentiometer is shown below:

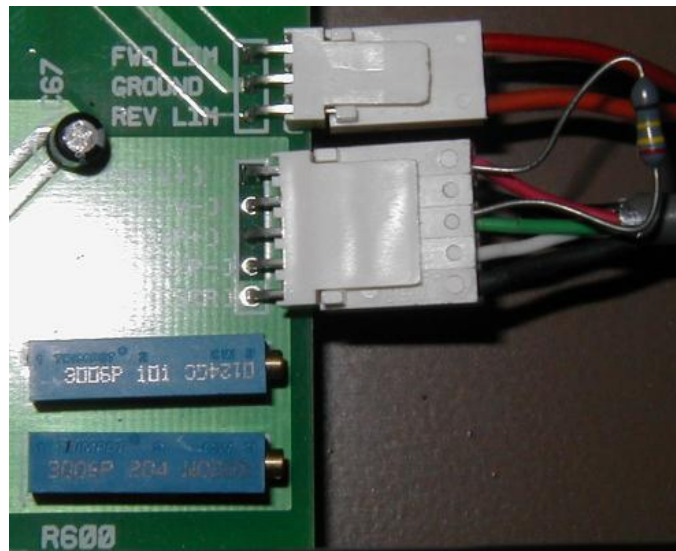


Advanced Controller – the zero potentiometer is the closest to the front



Standard Controller – the zero potentiometer is on the right

If it is not possible to adjust the zero potentiometer far enough to set the value to 0Kpa then it will be necessary to insert a resistor into the connector where the transducer plugs into the controller PCB. This will shift the zero value in the positive direction. The size of the shift will depend on the size of the resistor used. The resistor needs to be inserted between the RED and the GREEN wires on the transducer connector as shown in the picture below.



Select the size of resistor from the table below (interpolate between points in the table if necessary):

Resistor Value in K Ohms	Correction in kPa
100	217
200	110
300	73
400	57
500	43

After correcting the zero drift it will be a good idea to compare the transducer against a calibrated pressure source. If necessary the gain potentiometer (next to the zero potentiometer) can be adjusted to alter the span. If the transducer is no longer linear compared to the calibrated source then it will need to be replaced.