

40 GDS Helpsheet



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

Hardware

Advanced Controller – Mark III

Re-Setting Gain of Pressure Measurement for Changing Pressure Transducer from Druck to Microgage

1. Introduction

In the past, GDS digital controllers were initially fitted with Druck PDCR 810 2MPa range pressure transducers having 100mV Full Range Output (FRO). We now fit Microgage P102 500psi range pressure transducers having 200mV FRO which corresponds to about 116mV for 2MPa. Where the Druck transducers have failed in existing GDS digital controllers and digital pressure interfaces, we now replace these with the Microgage transducer.

To make this replacement, GDS supply an upgrade kit. The kit is in two parts, mechanical and electrical. The mechanical part is the adapter which physically enables the plumbing connection to be made. The electrical part comprises the 2 resistors that must be changed on the main circuit board. They allow for the different electrical characteristics of the replacement transducer.

2. Mechanical Connection

The Druck transducer is provided with a 1/4 inch BSP male connection. The Microgage transducer is provided with a 7/16 inch UNF female connection. To connect the Microgage transducer in place of the Druck transducer therefore requires a 7/16 inch UNF female to 1/4 inch BSP male adapter. This adapter is provided as part of the upgrade kit.

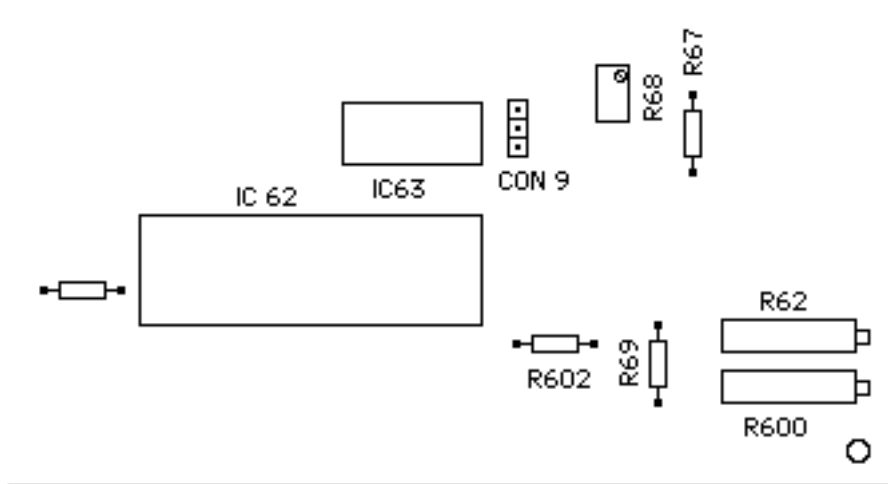
3. Electrical Modification

1. To make the changes on the main circuit board first requires that the board be removed from the controller case as follows. Remove the eight screws holding on the top-plate and with the assistance of a colleague gently lift the front edge of the top-plate by about 150mm so that access can be gained to the main board directly beneath the control panel. Carefully noting all the connections for both colour and orientation, remove the main board.
2. Referring to the figure below, change R69 to the 300K ohm resistor supplied in the upgrade kit. This allows the zero offset to have an adjustment of +/-5% FRO.
3. Referring to the figure below, change R602 to the 470 ohm resistor supplied in the upgrade kit. This gives the correct gain value for the Microgage transducer.
4. Replace the main board and reconnect all the electrical connections.
5. Power on the controller for 24 hours. Connect the pressure outlet to a zero reference

pressure* and use the potentiometer R600 to set the pressure reading to zero.

6. Connect the pressure outlet to a reference pressure* of 2000 kPa and use the potentiometer R62 to adjust the pressure reading to 2000 kPa.
7. Replace the top plate.

* The pressure reference could be a GDS digital controller that has also been powered on for at least 24 hours.



Layout of components at bottom right of MKIII circuit board