97 GDS Helpsheet

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

Hardware

Standard Controller

What is P+V+C+R+A

1. Pressure and Volume (P+V)

The controller comes as standard as a Pressure and a Volume device. It can apply pressure up to 3 MPa (or 4 MPa controllers on request from GDS). There is a digital display of Pressure and Volume change at all times on the controller display panel.

2. Remote Feedback Module RFM (+R) (see further notes below)

When a remote feedback module is installed, 12-bit data acquisition is provided for another external transducer. Each transducer has its own personality module provided by GDS to amplify the transducer output to +/- 10Volts, therefore calibration of the transducer is adjusted within the personality module. Using this external transducer the controller is then capable of setting its pressure with respect to the reading of the RFM transducer (RFM control). There is a digital display of the transducer reading at all times on the controller display panel.

3. Communications (+C)

A 25 pin RS232 connection is fitted to the controller. This allows the controller to be interfaced with a PC. The PC can instruct the controller for its operations, as well as receive data from the controller of Pressure, Volume and the RFM reading (if installed).

4. Analogue Interface (+A)

Two DIN type connections are fitted on the controller. This provides analogue output from the Pressure reading (10V = 4096kPa), and the Volume reading (10V = 100,000 mm3). The analogue interface allows you to integrate a GDS standard controller within an existing Triaxial system that already has a data acquisition device. There is no analogue interface for the RFM output. There is no extra acquisition device installed. It is purely designed to replace certain parts of an existing system, and allow easy acquisition from the customers original data acquisition device.

* RFM Option
As well as an extra data acquisition channel, the controller is now capable of setting its pressure with respect to the reading of the RFM transducer. This has a number of uses, for example:

-RFM LOAD CELL
Using an RFM load cell enables the pressure to be set with a load cell. i.e. if using a triaxial cell of the bellofram type where the load is directly applied by the application of a pressure in a lower chamber, then the pressure can be set by means of looped feedback from the load cell. The pressure (and therefore the force) is set via REMOTE FEEDBACK from the loadcell reading.

-RFM LOW RANGE PRESSURE TRANSDUCER
Using a low range pressure transducer as the controller feedback, will inherently give the controller greater resolution.

-RFM DIFFERENTIAL PRESSURE TRANSDUCER
Using a differential pressure transducer with one side connected to a cell pressure controller and one side connected to a back pressure controller gives for more accurate control over effective stress.

-RFM LOCAL STRAIN TRANSDUCER
Using a local radial strain transducer, feedback could be used to control the cell pressure in such tests K0, ensuring zero radial strain.