59 GDS Helpsheet

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

Hardware

Advanced Controller 100kPa

Release Notes for 200cc 100kPa Controller

1. Volume Step

The controller is a special and we have had to use a version of firmware which allows us to represent pressure as 999.9 - unfortunately this firmware only allows us to have 10 steps per cubic mm. Actually the physical volume step is 0.5 cubic millimetres. The display will therefore show volume change in units of 5 cubic millimetres. Volume targets will also be shown in units of 5 cubic millimetres.

When the controller is being driven by a computer using the enhanced precision mode the volume format shown as VVVVVV/FFF can be interpreted as follows; VVVVVV is volume in units of 5 cubic millimetres and FFF is fractional volume in units of 0.5 cubic millimetres. To convert the volume change to cubic millimetres use the conversion:-

Volume Change = (VVVVVV)*5 + (FFF)/2 cubic millimetres

2. Care of Pressure Transducer

The pressure transducer is rated at 100 kPa. It has an over range capability of 200% without damage. If the pressure exceeds 200 kPa it may cause a permanent zero offset error to the transducer. You should therefore ensure that at no time can the pressure in the cylinder exceed 200 kPa.

When the controller is powered on and controlling the pressure or volume change it knows the pressure and will try to correct any over range - but it corrects quite slowly. If for example you have the controller powered on and inadvertently connect compressed air to the system at a pressure of 300 kPa the controller will not be able to reduce the pressure fast enough and therefore the pressure in the cylinder will reach 300 kPa and the transducer will be broken.

You should also think about storage conditions. Never leave the controller powered off with a closed valve on the outlet - whenever it is turned off the outlet should always be open to atmosphere. With a closed outlet temperature changes can cause very high pressure changes within the controller (water is quite incompressible so small temperature induced volume changes will cause large pressure changes).