

# 37 GDS Helpsheet



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

## Hardware

### Advanced Controller – High Pressure

### 64MPa Voltage Protection Board

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## 1. Overview

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When the 64MPa digital pressure/volume controller is at or near its' maximum pressure, strain energy is stored in the fluid compressed in the cylinder. If the controller is then powered off (e.g. there is a power cut), this energy is transferred into motion, driving back through the ball nut and ball screw and into the stepping motor which is then driven in reverse. This creates a voltage which is then applied to the main circuit board. This damages many of the components on the board. To protect the board against the risk of this rare event, we now have a voltage protection board and on the power supply.

## 2. Application

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The voltage protection board is designed to go between the main board and the connector to the main board from the power supply. The voltage protection board has a prominent diode on it. It is the charging up of the diode that gives the voltage protection.

The voltage protection board is designed to fit on both types of Mark III controller boards. Current main boards have the tines of connector CON5 in the vertical position. The voltage protection board is connected vertically on CON5 with the diode facing the main board. Note that the connections printed on the voltage protection board will correspond to the connections printed on the main board (i.e. left to right: 5,5,0,0,24,-12,12V) The connector from the power supply then pushes horizontally onto CON2 on the voltage protection board. The tines of CON3 should be taped over.

Earlier boards have the tines of connector CON5 in the horizontal position. The voltage protection board is connected horizontally onto CON5 with the diode facing vertically upwards. Note that the connections printed on the voltage protection board will correspond to the connections printed on the main board (i.e. left to right: 5,5,0,0,24,-12,12V) The connector from the power supply then pushes vertically onto CON3 on the voltage protection board. The tines of CON2 (now "underneath") should be taped over.

