To enter configuration mode perform the following actions

- Turn the ST221/ST222 off
- Press and hold down the ▶■ key
- Turn the ST221/ST222 on but keep the ▶■ key pressed down
- Wait until the thermocouple type is displayed then release the ▶■ key.

To change the configuration it is important to fully follow the sequence below by pressing the ▶■ key the required number of times until the instrument re-boots (*8888* shows on the display). Just skip over any configuration item that you do not wish to change by accepting the current value with the ▶■ key.

If there is a delay of more than 15 seconds between key presses then the instrument will assume that configuration mode has been entered accidently and it will time out and re-boot without saving any configuration changes.

The currently configured thermocouple type letter will flash. This can be altered with the ▲ & ▼ keys to R,S,K or N type (*r5Hn*).
Press the ▶■ key.

The maximum allowable kiln temperature is now displayed. This can be altered with the ▲ & ▼ keys. Press the ▶■ key.

The currently configured kiln power rating in kW is now displayed. This can be altered with the ▲ & ▼ keys. Press the ▶■ key.

The maximum firing hours limit is now displayed. This can be altered with the ▲ & ▼ keys in the range 10 to 999 hours or disabled (---) . If this limit is exceeded the controller will show *Err6*. Press the ▶■ key.

The ambient temperature trip level is now displayed. This can be altered with the ▲ & ▼ keys in the range 30°C to 70°C or disabled (*At.--*). If this temperature is exceeded the controller will show *Err7*. Press the ▶■ key.

Error 1 (heating failure) message status is now displayed. This can be altered with the ▲ & ▼ keys. *E1.1* indicates that error 1 is enabled. *E1.0* indicates that error 1 is disabled. Press the ▶■ key.

Error 4 (relay welded) message status is now displayed. This can be altered with the ▲ & ▼ keys. *E4.1* indicates that error 4 is enabled. *E4.0* indicates that error 4 is disabled. Press the ▶■ key.

Error 5 (overshoot limit exceeded) message status is now displayed. This can be altered with the ▲ & ▼ keys to *E5.10* (10°C), *E5.20* (20°C), *E5.30* (30°C), *E5.40* (40°C), *E5.50* (50°C) or *E5.--* (disabled). Press the ▶■ key.

Power failure handling status is now displayed. This can be altered with the ▲ & ▼ keys. *PF.1* indicates that power failure recovery is enabled. *PF.0* indicates that power failure recovery is disabled. Press the ▶■ key.

Continued overleaf...

The lock-up on error facility described below is used to prevent the clearing of errors by cycling the power to the instrument - to force an engineer call-out. Errors are cleared by entering this configuration mode.

Lock-up on error status is now displayed. This can be altered with the ▲ & ▼ keys. *LE. 1* indicates that lock-up on error is enabled. *LE. 0* indicates that lock-up on error is disabled. Press the ▶■ key.

The PID menu is now displayed. To review or change PID settings press the ▲ or ▼ keys. ***Only enter the PID menu if you know what you are doing!*** To skip PID setting press the ▶■ key.

Pressing the START/STOP key causes the instrument to store the configuration data and then leave configuration mode by resetting itself without changing PID values.

If the ▶■ key is pressed when this menu is shown then the factory default values for PID will be reloaded. The default values are P: 55°C, I: 200 seconds, D: 10 seconds.

Pressing the ▶■ key causes the instrument to reload the factory default values for PID, store the configuration data and then leave configuration mode by resetting itself.

If the ▶■ key is pressed when this menu is shown then the menu for reviewing or changing P (the proportional band) is shown:-

To change the proportional band use the ▲ or ▼ keys. The factory default value for the proportional band is 55°C. It can be changed in the range 1°C to 999°C. To change I (the integral time) press the ▶■ key:-

To change the integral time use the ▲ or ▼ keys. The factory default value for the integral time is 200 seconds. It can be changed in the range 10 seconds to 999 seconds. To disable the integral term press the ▼ key when I=10 to select I=0. To change D (the derivative time) press the ▶■ key:-

To change the derivative time use the ▲ or ▼ keys. The factory default value for the derivative time is 10 seconds. It can be changed in the range 0 seconds (disabled) to 999 seconds. To exit the configuration setting press the ▶■ key.

The instrument will now store the new PID data, store the configuration data and then leave configuration mode by resetting itself.