

Installation Instructions

ST222A Temperature Programmer

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See separate handbook for User Instructions
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Configurable Parameters

The following installation parameters of the ST222A can be configured:-

- ◆ Thermocouple type default: K type
- ◆ Operating units (°C/°F) default: °C
- ◆ Maximum allowed kiln temperature default: 1320°C (R/S), 1200°C (K/N)
- ◆ Kiln power rating default: 0.0kW
- ◆ Maximum firing time hours limit default: disabled
- ◆ Ambient (room) temperature trip: default: 50°C
- ◆ Error 1 enabled/disabled default: enabled
- ◆ Error 4 enabled/disabled default: enabled
- ◆ Error 5 temperature overshoot detection: default: enabled
- ◆ Power fail recovery enabled/disabled default: enabled
- ◆ Lock-up on error enabled/disabled default: disabled
- ◆ PID process cycle time default: 30 seconds
- ◆ PID values defaults: P=55, I=200, D=10

Entering Configuration Mode







To enter configuration mode power down the ST222A. Press and hold down the  key and the  key while powering up the ST222A. Release the keys when the operating units (°C/°F) and the thermocouple type are displayed.







Note: in the configuration sequence which follows if no key presses are detected within 15 seconds the ST222A will exit configuration mode with this “timeout” error message, the alarm buzzer will sound a long note and configuration changes will not be saved.

Configuration Sequence



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



The operating units (°C/°F) letter will now flash. This can be altered with the  &  keys.
Note: changing this value will cause all firing programs to be reset to factory defaults!
Press the   key.



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



The kiln power rating in kW is now displayed. The ST222A needs to know this so that it can calculate the energy used. The power rating can be entered with the ▲ & ▼ keys with a resolution of 0.1kW. 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 Err5. 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 (A. --). 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. 1 indicates that error 5 is enabled, E5. 0 indicates that error 5 is 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.


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.

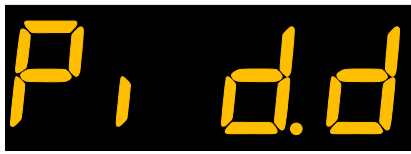



Lock-up on error status is now displayed. This can be altered with the ▲ & ▼ keys. LE. 1 indicates that lock-up on error is enabled. LE. 0 indicates that lock-up on error is disabled. Press the ►■ key.




The PID menu is now displayed. To review or change PID settings press the ▲ or ▼ keys to select Pid.d (set default PID values) or Pid.c (change PID values). **Only enter the PID menu if you know what you are doing!** To skip PID setting press the ►■ key.


Pressing the  key above causes the ST222A to store the configuration data and then leave configuration mode by resetting itself without changing PID values.






The load PID default values is now displayed. 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 above causes the ST222A 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 review or 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 0 (disabled) to 9999 seconds. To review or 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 review or change the control cycle time press the  key.



To change the control cycle time use the  or  keys. The factory default value for the this time period is 30 seconds. It can be changed in the range 3 seconds to 120 seconds. To exit configuration mode, store the changed values and reboot the ST222A press the  key.

IMPORTANT

Error messages are provided to detect kiln faults and so offer some protection to the kiln.

Error messages should normally be left enabled. Error messages should only be disabled as a short term measure - to diagnose kiln problems for example. Power fail recovery may need to be disabled if un-attended firing is not allowed.