



### FEATURES

- Multi-zone: 1, 2 or 3 heating zones
- 32 programs - each with up to 32 segments (ST325)
- Each segment is a controlled heating/cooling ramp + soak (ST325)
- 99 programs - with optional linking (ST326)
- Each program is 3 heating/cooling ramps + soak (ST326)
- Suitable for glass or ceramics use
- Soak times up to nearly 100 hours
- Ramp rates from 1 to 999°C/hour + full
- Programs can be reviewed or altered while firing
- Program Pause & Segment Advance facilities
- Keyboard lockable
- Delayed start facility - up to 4 days
- Power failure recovery
- Energy used display
- Event / Damper / Fan relay output
- Alarm relay with alarm buzzer
- Mains power switch
- Micro-SD memory card reader

## DESCRIPTION

### GENERAL

These are multi-program multi-zone controllers designed for glass, ceramics & pottery use. The ST325 is targeted towards glass use with 32 programs each of up to 32 segments. Each segment is a controlled heating/cooling ramp followed by a soak. It is supplied pre-programmed with 9 typical glass programs (which can be over-written). The ST326 is targeted towards pottery use with 99 programs. Each program has up to 3 ramps and a soak. Ramps can be heating or cooling. It is supplied pre-programmed with 10 typical pottery firing programs (which can be over-written). Program linking is possible (installer configurable option).

### SETTING UP

Press the  $\rightarrow$  key to flash the program number display – this can be changed if required with the  $\uparrow$  &  $\downarrow$  keys. To change any of the controller's settings press the  $\rightarrow$  key (or reverse with the  $\leftarrow$  key) until the required lamp on the mimic display flashes. The current value will be displayed together with the units ( $^{\circ}\text{C}$ ,  $^{\circ}\text{C}/\text{hr}$  or  $\text{hr}.\text{min}$ ). Change the displayed settings with the  $\uparrow$  &  $\downarrow$  keys which can be held down for acceleration. All settings are remembered while the controller is powered off. The keyboard can be locked to prevent tampering.

### FIRING

The START/STOP key is used to commence or halt a firing. The progress of the firing is shown on the mimic display. If a start delay has been set then the delay time remaining will be displayed. During firing the settings can be reviewed and altered if required, the program can be paused/resumed or a segment can be advanced. During soaking the soak time remaining and the soak temperature are alternately displayed. In the event of a power failure the controller will intelligently re-commence firing when power returns.

### CONFIGURATION

These controllers are fitted with a total of 5 relays - these are designed to drive contactor control gear. They can be configured to drive 1, 2 or 3 heating zones. There is a standard alarm relay (with alarm buzzer) and there is a configurable 5th relay which can be used as an event relay, damper relay or fan relay. The controllers are fully configurable and are fitted with a micro-SD memory card reader which can be used to automatically set or change the configuration or to update the embedded firmware to add future enhancements etc. For single zone use the controllers can be supplied fitted with a lead + a Harting 7D connector. For multi-zone use a lead + Harting 15DX connector can be supplied. The controllers are supplied with a metal holster style wall mounting bracket.

## SPECIFICATION

#### Electrical

##### Power supply

Voltage range: 216.2 - 253V  
Frequency: 50Hz (nom)  
Phases: 1

Power: Controller 3VA (max)  
Switched outputs: 125VA total

Fuse: 1.0A slow-blow HRC  
20mm x 5mm ceramic  
(protects controller and outputs)

Switch: Yes

##### Control Relays (5)

Contact type: SPST NO  
Switched Live -  
nominal 230VAC outputs  
500mA maximum total output load

##### Connectors

Thermocouple: 3.5mm pitch plug/socket

Power: 5mm pitch plug/socket  
- max. wire size 1.5mm<sup>2</sup>

##### Heating Zones

1, 2 or 3 zones

#### Temperature

##### Temperature setting

Range: 0 to 1320 $^{\circ}\text{C}$  (R/S) 0 to 1200 $^{\circ}\text{C}$  (K/N)  
Resolution: 1 $^{\circ}\text{C}$

##### Control Accuracy

P.I.D. Control  
Reading accuracy:  $\pm 0.25\%$  FSD  $\pm 1$  digit

##### Thermocouple

R, S, K & N type (selectable)

##### Cold Junction Compensation

Yes - precision semiconductor type

#### Time

Start delay range: 00:00 to 99hr 59min  
Soak time range: 00:00 to 99hr 59min  
Resolution: 1 min

#### Programs

**ST325:** 32 programs each with 32 segments  
1 ramp & 1 soak per segment  
**ST326:** 99 programs  
3 ramps & 1 soak per program

Ramp rate is 1 to 999 $^{\circ}\text{C}/\text{hour}$  or full power  
Ramps can be heating or cooling  
Optional ramp time display

#### Environmental

Operating temperature range: -10 $^{\circ}\text{C}$  to +55 $^{\circ}\text{C}$   
Storage temperature range: -10 $^{\circ}\text{C}$  to +55 $^{\circ}\text{C}$

#### Enclosure

Material: ABS                      Size: 120x122x58mm  
Sealing: IP65                      Fixings: 90x110mm  
Colour: Light Grey                (4 off) + wall mounting  
RAL 7035                              bracket (optional)

#### Error Handling

Thermocouple failure detection  
Thermocouple reversal detection  
Heater failure detection  
Kiln over-temperature detection  
Room over-temperature detection  
Lock-up on error facility

#### Other

Keyboard lock facility + indicator  
Program running & kiln heating-on indicators  
Energy used display  
Program pause & segment advance features

#### Weight

Instrument + wall bracket: 0.710kg  
Shipping weight: 1.180kg

## FURTHER DETAILS

Complete operating & installation instruction handbooks can be downloaded from our web site at [www.staffordinstruments.co.uk](http://www.staffordinstruments.co.uk)

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[www.staffordinstruments.co.uk/docs/st32x/data32x.pdf](http://www.staffordinstruments.co.uk/docs/st32x/data32x.pdf)

Stafford Instruments Ltd.  
Unit 22 Wolseley Court,  
Staffordshire Technology Park,  
Stafford, ST18 0GA U.K.  
Tel: +44 (0)1785 255588  
Fax: +44 (0)1785 255589  
email: [sales@stafford-inst.co.uk](mailto:sales@stafford-inst.co.uk)

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