



### FEATURES

- Single program
- 2 controlled heating / cooling ramps + soak
- Suitable for pottery & ceramics use
- Soak times up to nearly 100 hours
- Ramp rates from 1 to 999°C/hour + full
- Program 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
- Standard alarm / safety relay with alarm buzzer

## DESCRIPTION

### GENERAL

The ST312A is a single program controller designed for pottery & ceramics firing. It is fully adjustable with a detailed 6-lamp mimic display. The program comprises 2 ramps followed by a soak. Ramps can be heating or cooling. It executes a controlled ramp to intermediate temperature t1 then it executes another controlled ramp to final temperature t2. It soaks at t2 for the required soak period. Natural cooling then follows.

### SETTING UP

To change any of the controller's settings press the **➡** key until the required lamp on the mimic display flashes. The current value will be displayed together with the units (°C, °C/hr or hr.min). Change the displayed settings with the **⬆** & **⬇** keys which can be held down for acceleration. Use the **⬅** key to correct mistakes. 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

The ST312A is factory configured as a signal controller. It can easily be installer-reconfigured as a power controller by moving one internal link. Signal controllers are used to drive kilns which are fitted with contactor control gear (electrically operated power switches). Such kilns are often fitted with an industry standard control socket and the ST312A can be supplied fitted with a mating controller plug and lead if required. Power controllers are used to directly switch power to smaller kilns (up to 5kW power rating) which do not have control gear.

The ST312A is 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:

75VA (standard version)

5kW (power version)

Fuse: 1.0A slow-blow HRC  
20mm x 5mm ceramic

#### Control Relay(s)

Contact type: SPST NO

Switched Live -

nominal 230VAC output

@300mA max (signal configuration)

@24A max (power configuration)

#### Connectors

Thermocouple: 3.5mm plug/socket

Power: 13 way 24A terminal block  
- Max. wire size 2.5mm<sup>2</sup>

### Temperature

#### Temperature setting (t1 & t2)

Range: 0 to 1320°C (R/S) 0 to 1200°C (K/N)

Resolution: 1°C

#### Control Accuracy

P.I.D. Control

Reading accuracy: ±0.25% FSD ±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

Single program.

2 ramps & 1 soak

1st ramp rate: 1 to 999°C/hour or full power

2nd ramp rate: 1 to 999°C/hour or full power

Ramps can be heating or cooling

### Environmental

Operating temperature range: -10°C to +55°C

Storage temperature range: -10°C to +55°C

### Enclosure

Material: ABS

Sealing: IP65

Colour: Light Grey  
RAL 7035

Size: 120x122x58mm

Fixings: 90x110mm

(4 off) + wall mounting  
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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