



FEATURES

- Single program controller with up to 9 segments
- 1 controlled heating / cooling ramp + 1 soak per segment
- Ideal for glass or 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 ST314A is a single program controller designed for glass, ceramics & pottery use. The program can have from 1 to 9 segments. It is fully adjustable with a detailed 5-lamp mimic display & continuous display of segment number. Each segment comprises of a ramp followed by a soak. Ramps can be heating or cooling. It executes a controlled ramp to the soak temperature where it dwells for the required period then executes the next segment. The end of the program is marked by selecting 'End' while entering a ramp rate. Natural cooling then follows.

SETTING UP

To change any of the controller's settings press the \blacktriangleright key (or reverse with the \blacktriangleleft 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 hr/min). Change the displayed settings with the \blacktriangleup & \blacktriangledown 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

The ST314A 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 ST314A 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 ST314A 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 2.5mm²

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 ± 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

1 program with 1-9 segments

1 ramp & 1 soak per segment

ramp rate: 1 to 999 $^{\circ}\text{C}/\text{hour}$ or full power

Ramps can be heating or cooling

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

Issue: 2.0 dated: 01 June 2009

www.staffordinstruments.co.uk/docs/st314a/data314a.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

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