

### FEATURES

- Fully configurable
- Temperature indicator
- Selectable trip / alarm modes
- Ambient over temperature trip
- Worldwide operation
- Changeover relay with volt free contacts
- Fused supply available for relay contacts
- Alarm buzzer
- Relay energised indicator
- Anti-tamper keyboard lock
- DIN rail mounting
- Wall mounting box accessory available



### DESCRIPTION

The ST131 is a fully installer configurable indicating trip module with a bright orange LED display, an internal alarm buzzer and a volt-free changeover relay. It has a universal power supply suitable for world wide use. The trip feature can be configured to operate in several modes.

### OPERATING MODES

#### Mode 1: Over-temperature trip

T1 is the trip temperature. T2 not used. Relay energised while  $t < T1$ . Relay de-energised and internal buzzer sounds when  $t \geq T1$ . Internal buzzer can be muted by pressing any key. "Err1" is intermittently displayed. Ambient temperature trip is active (unless disabled). Power cycle to reset.

#### Mode 2: Damper / Heat Lock

T1 is damper/lock closing temperature. T2 is damper/lock opening temperature. Relay initially de-energised. Relay energised when  $t \geq T1$ . Then, if  $T2 \geq T1$ , waits for  $t \geq (T2 + TH)$ . Relay de-energises when  $t \leq T2$ . Ambient trip inactive.

#### Mode 3: Damper / Heat Lock - Relay operation reversed

Same as mode 2 but the operation of the relay is reversed

#### Mode 4: Temperature Window Detector

T1 is warning start temperature. T2 is warning finish temperature. Ambient trip inactive.

If  $T2 > T1$ : Heating window detector

Relay energises and buzzer sounds when  $t \geq T1$

Relay de-energises and buzzer mutes either when  $t \geq T2$  or any key is pressed

If  $T2 < T1$ : Cooling window detector

Waits until  $t \geq (T1 + TH)$ .

Relay energises and buzzer sounds when  $t \leq T1$

Relay de-energises and buzzer mutes either when  $t \leq T2$  or any key is pressed

#### Mode 5: Temperature Window Detector - Relay operation reversed

Same as mode 4 but the operation of the relay is reversed

#### Mode 6: On/Off Temperature Control

T1 is set-point. T2 not used. Ambient temperature trip is active (unless disabled).

If  $t \leq (T1 - TH)$  relay is energised. If  $t \geq T1$  relay is de-energised.



Wall mounting box accessory

## SETUP PARAMETERS

Installer / Setup mode is entered by pressing and holding the ► key for 5 seconds.. To exit this mode do not press any keys for 10 seconds - ST131 will reboot.

Setup Parameter	Default Value	Range
P00 Thermocouple type	2	0 - 3 (0=K, 1=N, 2=R, 3=S)
P01 Trip temperature T1	1320°C	30 - 1400°C
P02 Trip temperature T2	600°C	30 - 1400°C
P03 Operating mode	1	1 - 7
P04 Hysterisis TH	5°C	2 - 50°C
P05 Display brightness	3	0 - 6
P06 Internal buzzer disable	0	0 - 1 (1= disabled)
P07 Ambient trip temperature	50°C	40 - 71°C (71= disabled)
P08 Lockout for engineer enable	0	0 - 1 (1 = lockout enabled)

## ERROR MESSAGES

**Err1:** Over-temperature alarm in mode 1

**Err2:** Thermocouple open circuit

**Err3:** Thermocouple reads less than -40°C. This could be an installation error (thermocouple reversed)

**Err7:** Ambient trip temperature exceeded

## ORDERING DETAILS

Part Number	Description
ST131	ST131 Indicator / Trip Module
ST131-BOX	Wall mounting box accessory for ST131

## SPECIFICATION

### Electrical

#### Power supply

Voltage range: 85 - 265V  
Frequency: 50/60Hz  
Power: 2.5VA  
Fuse: 3.15A(T) 20mm x 5mm

#### Relay

Contact type: SPCO Volt-free  
3A max. @230VAC

#### Thermocouple

R,S,K,N (installer selectable)

#### Connector

Pluggable screw terminal block with 'rising clamp' connector on 5mm pitch

### Temperature

#### Accuracy

±1°C typical, ±3°C maximum

#### Cold Junction Compensation

Yes

#### Weight

Unit weight: 144g (with mating connector)  
Packaged weight: 176g

#### Size

Unit size (mm): 103(L) x 53(W) x 58(D)  
Packaged size (mm): 108(L) x 95(W) x 67(D)

### Environmental

Operating temperature range: -10°C to +70°C  
Storage temperature range: -10°C to +70°C

### Enclosure

Material: Polycarbonate (UL 94 V0)  
Sealing: none  
Colour: light grey (RAL 7035)  
IP20

### Error Handling

Thermocouple failure detection  
Ambient over-temperature trip  
Warning buzzer

## FURTHER DETAILS

Further information can be found at:  
[www.staffordinstruments.co.uk](http://www.staffordinstruments.co.uk)

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