250 Series DIN-rail and Wall Mounted Relays

Hot Spot 3 Temperature Relay

The Hot Spot 3 relay accepts up to three inputs from resistance temperature detectors (RTD) and provides up to three user adjustable trip points which can be used to initiate alarms, cooling systems or shutdown. The relay is ideally suited for the protection of electric motor windings, transformers, generator windings and bearing temperature. The analogue output can be used for remote monitoring of high temperatures.

Operation

RTD temperature sensors are often fitted inside electric motors to detect hot spots in the windings or the bearings. RTD sensors are popular because they offer a good accuracy for a reasonable price. The same sensors can be used inside transformers, generator sets, gas turbines or as part of a process control system. Hot spots can be caused by many conditions such as overloads, over-voltage, unbalanced supply, worn bearings, ineffective cooling, poor ventilation, shorted turns, insulation breakdown, single phasing etc..

The Hot Spot 3 protector continuously monitors the three RTD temperature sensors and offers up to three user adjustable set points and relay contacts. These can be used to raise alarms, switch on cooling systems or shut down the affected equipment. The highest temperature is indicated with a yellow LED and can be accurately measured or remotely displayed using the 0/1mA analogue output signal.

The temperature is compared with the user adjustable set points. When the measured temperature exceeds the set point, the relay will de-energise and a red LED will illuminate to indicate the trip condition. When the temperature drops below the set point, the relay will reset to the energised condition and the LED will extinguish. The range consists of three product models which offers one, two or three adjustable set points.

Features

Up to three RTD inputs
1mA analogue output
Three adjustable set points
Internal differential
LED trip indication
Automatic reset
Three single-pole relay contacts

Benefits

Temperature monitoring
Unbalanced supply protection
Sustained overload protection
Single-phasing protection
Blocked ventilation protection
Protection against ineffective cooling
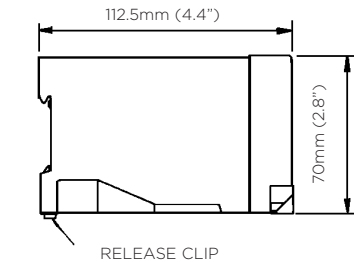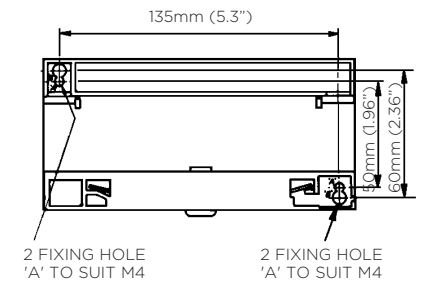Protection of bearing temperature

Applications

Switchgear
Distribution systems
Generator sets
Control panels
Process control
Motor monitoring
Transformers
Overload protection

Product Codes

Relay	Protection	ANSI no.	Cat. no.
3 RTD inputs	3 set points	49	256-PRA
3 RTD inputs	2 set points	49	256-PRB
3 RTD inputs	1 set point	49	256-PRC

When ordering please supply the following information:
• System voltage, frequency and required options.
• The type of temperature sensor being used, e.g. Platinum PT100.
• The maximum temperature or meter scale, e.g. 100% = 1mA = 150°C.
• The set point adjustment range, e.g. 0°C to 150°C.

Specification – Hot Spot 3 Temperature Relay

Input	Up to 3 resistance temperature detectors (RTD). Either 10Ω copper or 100Ω platinum minimum span 100°C
Nominal voltage	AC: 110V, 120V, 220V, 230V, or 240V ±20% DC: Consult factory
System frequency	50/60Hz
Overload	1.2 x rating continuously
Set point repeatability	0.5% of full span
Differential (hysteresis)	Pre-set at 2% of range
AC auxiliary supply voltage	100V, 110V, 120V, 208V, 220V, 240V, 480V, ±20%
DC auxiliary supply voltage	12V, 24V, 48V, 110V or 125V, ±20%. Including ripple
Auxiliary voltage burden	4VA (max)
Analogue output	1mA into 0/4kΩ load
Output relay	1-pole change over
Relay contact rating	AC: 240V 5A, non inductive DC: 24V 5A resistive
Relay mechanical life	0.2 million operations at rated loads
Relay reset	Automatic
Operating temperature	0°C to +60°C (0°C to +40°C for UL models)
Storage temperature	–20°C to +70°C
Temperature co-efficient	0.05% per °C
Interference immunity	Electrical stress surge withstand and non-function to ANSI/IEEE C37 90a
Enclosure style	DIN-rail with wall mounting facility
Material	Flame retardant polycarbonate/ABS
Enclosure integrity	IP50
Dimensions	150mm (5.9″) wide x 70mm (2.8″) high x 112mm (4.4″) deep
Weight	1.0Kg approx.

Dimensions

Model 256

150mm (5.9")
35mm (1.37")

135mm (5.3")
50mm (1.96")
60mm (2.36")

2 FIXING HOLE 'A' TO SUIT M4
2 FIXING HOLE 'A' TO SUIT M4

112.5mm (4.4")
70mm (2.8")

RELEASE CLIP
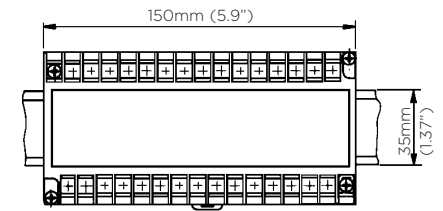
Connections

256-PRA
256-PRB
256-PRC

Indication

R.T.D. Inputs

Remote LEDs if required

1 2 3 | 1 2 3 | 1 2 3 | 15 + mA – 15
A | B | C | PROTECTOR

SET
6 8 5 | 12 14 11 | 22 24 21 | L Aux N

Output Relays

Aux. Supply