

DUAL Thermistor Protection Unit



The TEMPENSE way of protection :-

The DUAL type Thermistor Protection Relay is mainly used for over-temperature protection of higher HP motors and generators. The DUAL type Thermistor Protection Relay operates on the signal of PTC Thermistors of 2 different temperatures. The biggest advantage of this Relay is that it gives an ALARM indication at predefined temperature. If no corrective action is taken after getting this indication, the temperature of the device (motor, generator etc.) increases and it trips after the TRIP temperature is attained. The DUAL type Thermistor Protection Relay is very useful for protection of generators/motors, used in critical continuous processes.

The root causes of Motor failure :-

The basic cause of motor burnout is overheating upto unacceptable temperature. Normally class B & class F motors are used in industries & they are operated close to limiting temperatures, hence following conditions lead to motor failure.

- ♦ Single Phasing.
- ♦ Under or Over voltage.
- ♦ Continuous overloading.
- ♦ Intermittent duty or excessive start/ stops.
- ♦ Insufficient ventilation or excessive ambient temperature.
- ♦ Mechanical jamming / overloading.
- ♦ Bearing failure.

It's superiority lies in the fact that it eliminates the root cause of failure.

Functional Description :-

Two sets of Thermistors of different switching temperatures are connected to the Dual Thermistor Protection Relay, one set for ALARM and the other for TRIP. Normally a temperature difference of 20-30°C is kept between ALARM and TRIP while selecting the Thermistors. Each set of Thermistors consists of 3 Thermistors connected in series with each other.

The Relay gets actuated only when the ALARM and TRIP Thermistors are connected to it. When the ALARM Temperature is attained the ALARM contacts changeover and the indication is obtained. The potential free ALARM contacts can be used for connecting a lamp or a siren for annunciation.

If no corrective action is taken after the ALARM temperature, the TRIP temperature is attained and the TRIP contacts changeover. The TRIP contacts are normally wired up in series with the contactor coil or starter coil. Thus at the TRIP temperature the motor / generator trips. In order to provide extra protection the Dual Thermistor Protection Relay resets only after the temperature comes below the ALARM temperature.

Upto six Thermistors, wired in series, can be connected to the ALARM and TRIP inputs each. As soon as one or more reaches its switching temperature, the increase in the resistance is detected by the Relay and the ALARM / TRIP signal is given.

Technical Data :-

Supply Voltage : 110/230/380/415 VAC \pm 10%, 50Hz
 21-24 VDC \pm 10%

Output Contacts : 1NO, 1 NC for ALARM
 (Potential free) 1NO, 1NC for TRIP

Contact Rating : 4 Amps, 230 VAC

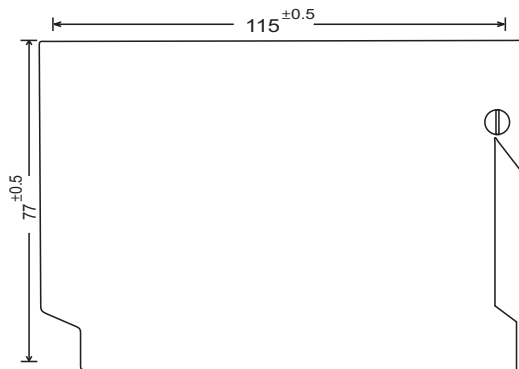
Operational Life : 1 million ON / OFF operations

Input : Max. 6 No. PTC Thermistors for
 ALARM & TRIP each

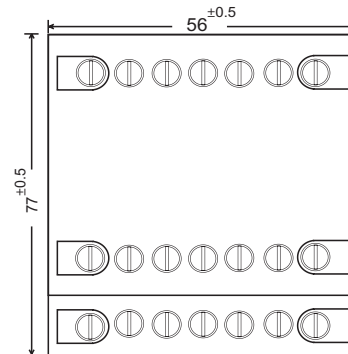
Ambient Temp. : -5°C to 55°C

TPU Characteristics :-

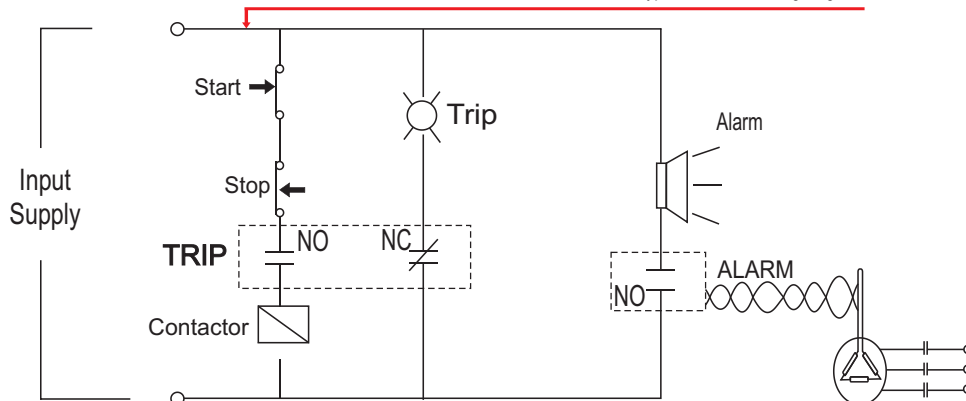
FUNCTION	RESISTANCE
Pick-up	40 Ω of TRIP Thermistor
Alarm	1.8 K Ω of ALARM Thermistor
Trip	1.8 K Ω of TRIP Thermistor
Reset	1.5 K Ω of ALARM Thermistor
Re-drop	30 Ω of TRIP Thermistor



All dimensions are in mm.



Typical electrical wiring diagram



Unrivalled Economy :-

1. The Dual Thermistor Protection Relay's price is constant for all motors and is much lower than that of the other systems.
2. The Dual type Relay reduces maintenance costs and repair cost of the machine.
3. Inventory costs are cut down and blocking of capital is eliminated.
4. Machine down-time is reduced.

Applications :-

The Dual type Thermistor Protection Relay is mainly used for motors / generators in,

- Paper Mills •Steel Industries •Sugar Mills
- Cement Factories •Rubber Factories

Apart from the above fields, Insta Control Pvt. Ltd. has supplied the DUAL type Relay for Compressor Motors, Printing Machine motors etc.

Other Products : PTC Thermistors, Single TPU, Pt-100 RTDs , Pt-100 BTDs, Slot RTDs and Thermal Switches.

ISO 9001 : 2008 Certified Company



INSTA CONTROL PVT. LTD. INDIA

No. 1 - 4, "G" Block, Vishnu Malati Industrial Estate, Shivane,
 Pune 411 023. Tel : 2529 2112 , 2529 0059 Fax : 0091-20-25292113
 E-mail : thermo5@vsnl.com; Website : www. instacontrols.net