

Motor Fans & Accessories

PTC Thermistors

GENERAL INFORMATION

PTC Thermistors are a temperature dependant semiconductor with a positive temperature coefficient. The resistance of the thermistor remains relatively constant up to it's design tripping temperature. When that temperature is reached the resistance sharply increases. By the correct selection of the thermistor, protection for the piece of equipment (electric motor, transformer etc.) in accordance with AS 1023 can be achieved.

This temperature level is called the nominal temperature (NAT). This characteristic is used for motor or transformer protection and can be equally applied for bearings, boilers, heat sinks, etc.

MOUNTING INSTRUCTIONS

Motor protection by means of thermistors is a very effective protection against thermal destruction.

The optimal protection of electric motors can only be achieved if the PTC Thermistors are mounted into the proper location within the coil. Mechanical stresses on the coils and thermistors can be dramatically reduced by correct mounting.

PTC Thermistors must have their sensing head laying parallel to the coil turns. If they lay across the turns high pressures are placed on both the thermistors and the individual conductors.

The PTC Thermistors must have fitted Sleaving of the appropriate size and type and be located from the rear of the sensor head 30mm along the leads.

To attain the best possible temperature sensing and thus protection the thermistor must be located, within an appropriate coil, and as close as possible to the lamination stack.

As the hottest end of the motor is normally the opposite end to the cooling fan the thermistors should be placed in that location.

ATTENTION

It is very important to place the PTC- sensors always parallel to the coil windings, otherwise the insulation of the Teflon wires may be damaged when shaping the coils.

The PTC thermistor can be destroyed by a voltage higher than 2.5 Volts, only measuring instruments with a lower test voltage should be used, preferably measuring bridges. Thermistor is tested to high voltage destructive strength.

When carrying out an IR test (Thermistor to winding or thermistor to earth) the leads of the thermistor must be connected together so that any high potential does not circuit through the thermistor itself.

TYPICAL VALUE

Max. permissible nominal voltage	U max 2.5 v (per sensor)	Voltage stability of the wires	660 v AC at 0,25mm ²
Sensor Diameter	approx.3 - 3.5mm	Thermal Sensor Time Constant	approx. 2.5 - 3.5 sec
Cable lengths	Single sensor 500mm ±10mm	Triple sensors	500 - 180 - 180 - 180 - 500mm ±10mm
Diameter of lead Cables	0,25mm ² for all sensor types	Nominal switching temperature	80 - 170°C in steps of 10°C