

REFERENCE

IEC 751
DIN 43760

CERTIFICATE

ISO 9001 : 2008
ISO 14001 : 2004
BS OHSAS 18001 : 2007

1 WARNING

- 1a** Warnings identify potentially dangerous situations or serious hazards. In this manual, a warning indicates an imminently hazardous situation which, if not avoided, could result in serious injury or death.
- 1b** For efficient working of your RTD, please read all instructions carefully before attempting to installation and Operation, using, or maintaining this product.
- 1c** In hazardous area, do not power the unit until the cable gland is sealed and the enclosure cover is screwed down securely.
- 1d** Do not attempt to unscrew the cover of Flame proof housing before loosening locking screw in the base housing. Always re-tighten the locking screw after replacing cover.
- 1e** Before attempting any work on the control, be certain to pull disconnect switch or otherwise assure that electrical circuit(s) through control is deactivated, close operating medium supply valve on controls equipped with pneumatic switch mechanisms.
- 1f** When in doubt about the condition or performance of a ITEC - RTD, return it to the factory.
- 1g** Supply voltage should not exceed RTD sensor rating. For higher voltages, the use of relay circuit is recommended.

2 GENERAL

Temperature measurement with resistance thermometers is based on the property possessed by all conductors and semiconductors, namely that their resistance varies as a function of temperature. This property is more or less pronounced, depending on the particular material. The relative change in the resistance as a function of temperature (dR/dt) is known as the temperature coefficient, the value of which is usually not constant over the range of temperature of interest, but is itself a function of temperature. The result is that the mathematical relationship between resistance and temperature takes the form of a high-order polynomial.

3 INSTALLATION

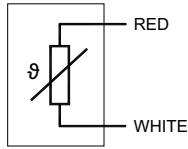
- 3a** When using resistance thermometers for temperature measurement, the fact that the measurement result is influenced by the resistance of the selected lead wire must be taken into account.
- 3b** Three circuit types are commonly used: 2-wire, 3-wire, and 4-wire circuits. The most accurate measurements are obtained with the 4-wire circuit, as in this case the measurement is not affected by lead wire resistance or environment temperature of lead wires
- 3c** The 3-wire circuit is normally used for eliminating the lead wire resistance (Wheatstone bridge).
- 3d** In the case of the 2-wire circuit, the lead wire resistance is fully measured by the measuring bridge. By the use of modern control equipment the influence of the lead wire resistance at 2-wire circuit can be Compensated by a line compensation resistor, which is independent of temperature.
- 3e** Resistance thermometers can be used over a temperature range of -220°C to +600°C.

The wiring diagram for the simplex and duplex configurations are given below.

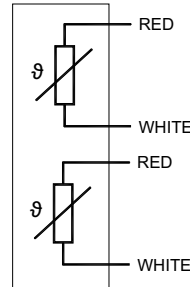
Simplex Configuration

Duplex Configuration

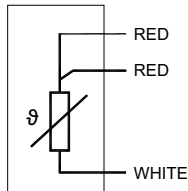
2-Wire



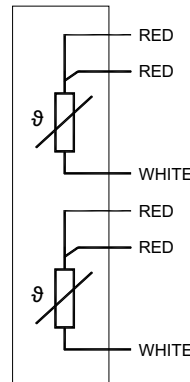
2-Wire



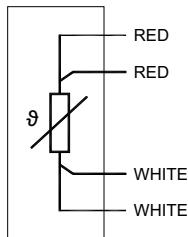
3-Wire



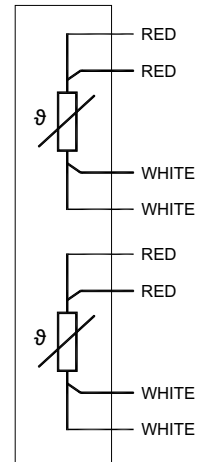
3-Wire



4-Wire



4-Wire



MAINTENANCE

All the resistance thermometers should be checked regularly for wear and tear, accuracy, and proper functioning. Replace all broken or damaged parts immediately.

Never leave housing cover off the control. This cover is designed to keep dust and dirt from interfering with connections / operation. In addition, it protects against damaging moisture and acts as a safety feature by keeping bare wires and terminals from being exposed. Should the housing cover become damaged or misplaced, order a replacement immediately.

ITEC resistance thermometers may sometimes be exposed to excessive heat or moisture. Under such conditions, insulation on electrical wires may become brittle, eventually breaking or peeling away. The resulting "bare" wires can cause short circuits. Check wiring carefully and replace at first sign of brittle insulation. Vibration may sometimes cause terminal screws to work loose. Check all terminal connections to be certain that screws are tight. Air (or gas) operating medium lines subjected to vibration may eventually crack or become loose at connections causing leakage. Check lines and connections carefully and repair or replace, if necessary.

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