



# PTC THERMISTORS: TYPE YL & JYA

## LIQUID LEVEL SENSING

### DESCRIPTION:

The LEVTEC sensor uses a positive temperature coefficient thermistor element encapsulated within solid glass and is available in standard form as a discrete component, coded YL150LB, or as a threaded probe assembly, coded JYA150. The latter provides protection and ease of mounting.

### FEATURES:

- Solid state
- Reliability
- Suitable for a wide range of fluids
- Total immersion in many liquids
- Remote sensing
- Operation in confined spaces at any altitude

### APPLICATIONS:

Applications for level sensing are extremely varied, ranging from water levels in tea urns to oil levels in fuel storage tanks. The monitoring of liquid levels is an important function in industrial plants and in vehicles where fluids are often rather inaccessible. The installation of an electronic system with a remote level sensor can reduce costs by saving servicing manhours.

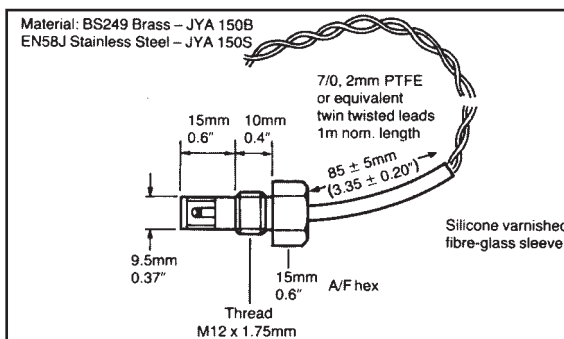
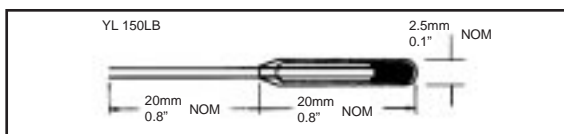
### OPERATION:

When a supply voltage, dc or ac, is applied to the sensor the thermistor element self-heats and stabilizes at a particular power dissipation and circuit current. The applied voltage controls the level of self-heating for a given set of ambient conditions and is usually sufficient to cause the thermistor to self-heat to a temperature well above ambient. When the sensing medium changes, for example from still air to flowing air, or still air to liquid, the rate of power dissipation will immediately change and the thermistor will thermally restabilize producing a new circuit current and operating temperature. This is because the thermal conductivity of the medium has changed.

Changing from a low to a high thermally conducting medium causes the circuit current to increase because of the effective cooling of the thermistor and the resultant decrease in resistance. The circuit current is used to indicate the changing medium by including a small series resistance across which there is a corresponding voltage change which may be used to operate an alarm or control circuit. Except when the device is used to operate a low powered lamp or audio alarm, it is usual to include a trigger circuit to operate a relay or solid state switch.



### DIMENSIONS:



The specified series resistor value of 10 Ω is that required to produce a voltage change suitable for switching a transistor.

### DATA:

- Nominal applied voltage:** .....10V
- Minimum applied voltage:** .....9V
- Maximum applied voltage:** .....12V
- Resistance at 25°C (0.2V app)** .....35-75 Ω
- Maximum test circuit current (short term) at 9.0V** .....250mA
- Ambient temperature range** .....-10 to + 100°C
- Storage temperature range** .....-50 to +155°C

**NOTE:** An application note giving characteristic curves for this device is available from our Sales Department.