

# **TECHNICAL SPECIFICATION FOR TEMPERATURE TRANSDUCERS AS REQUIRED BY HV PLANT NORTH EAST GRID.**

## **REQUIRED FEATURES:**

1. Normal Output Characteristic
2. Live Zero Output
3. Compact size (Width 50mm x Height 70mm x Depth 103mm)
4. The transducer converts the temperature, as measured by a separate resistance temperature detector (usually a Pt100), into a load independent DC current or voltage signal, which may be used to drive a number of remotely installed instruments.
5. The remote RTD is connected to the transducer in 2 wire or 3 wire mode, the 3 wire connection being used when lead resistance compensation is required.
6. The output is protected against over-voltages due to surges or accidental contact with insulation testers.
7. Internal jumpers allow selecting either 115V or 230V AC auxiliary supply.

## **MODE OF OPERATION:**

The external RTD forms part of a sensitive bridge circuit, which by means of a constant sensing current can transform small changes in input resistance into larger changes in output voltage. This output voltage is referenced and amplified into a load independent current or voltage output signal. The auxiliary supply is transformed in, rectified and smoothed in and is used to power the bridge measuring and output circuits.

## **TECHNICAL SPECIFICATION.**

### **1. Input**

Sensor:  
Standard Range:  
Pt100 DIN standard.  
Other sensors on request.  
0 – 50/100/150/200 C

### **2. Output**

Output quantity:  
Standard values:  
Impressed current or voltage signal  
0-1mA, maximum load 10k  
0-5mA, maximum load 2k  
0-10mA, maximum load 1k  
0-20mA maximum load 500  
4-20mA, maximum load 500  
0-10V, minimum load 1k .

### **3. Auxiliary power supply**

115 or 230V 50Hz  $\pm 20\%$   
24V, 48V, 110V DC  $-5+20\%$   
Voltage: AC 3.0VA at rated output  
DC 5.0W at rated output

### **4. Accuracy**

Error limit at rated conditions:  $\pm 1\%$  of range at 23 C  
Linearity error: 0.5%  
Long term drift: 0.25%  
Temperature shift: 400ppm/ C  
Variation with auxiliary supply: 0.05% for variation specified above

### **5. Protection**

Impulse tests between 5kV (0.5J 1.2/50 wave) IEC  
isolated sets of terminals: standard  
Voltage withstand rating between sets of terminals: 4kV  
50Hz AC for 1 minute  
Power voltage across output: 220V 50Hz indefinitely  
Surge across output terminals: 5kV 25J 1kV 4J  
Personal hazard: Enclosure IP40  
Terminals IP20  
Double insulated

### **6. Physical constraints**

Working temperature: -25 to 13 to 33 to 55 C  
Storage temperature: -55 to 75 C (above dewpoint)  
Relative humidity: 80%  
Variation due to external  
magnetic field (worst case): 0.05% at 400A/m 50Hz  
Position: Surface mounting in any position indoors.

### **7. Enclosure**

Type LDG10 ABS

Terminals: Screw type with wire  
protection. Plated. Rated 20A

Mounting:  
DIN rail type 46277 or Chassis