

# Thermocouple 2 Wire Head Mounting Transmitter TCR-2

Function: Non-isolating multi-range 2 wire temperature transmitter which will convert a thermocouple input into a standardised load-independent 4 to 20mA current output, linearly proportional to the measured temperature. There are three basic models which cover the various thermocouple types. TCR-2a covers types K, J and T; TCR-2b covers type E and TCR-2c covers types R and S. The TCR-2 instrument is housed in a metal enclosure suitable for mounting in DIN B connection heads and which gives excellent RFI immunity. Calibration is performed by means of a DIP switch array for coarse settings and two potentiometers for fine tuning. The calibration devices are located behind the metal top cover.



TempTrans CONVERTERS

## SPECIFICATIONS

Please note that the following are typical ranges. We will manufacture instruments to cater for other ranges within limitations detailed below. All instruments come with span and zero potentiometers for fine tuning on site.

### INPUTS:

#### Thermocouples

#### Span Range

#### TCR-2a : Type K, J & T

Type K: -100 to +1350°C

Type J: -100 to +750°C

Type T: -100 to +400°C

#### TCR-2b : Type E

Type E: -100 to +1000°C

#### TCR-2c : Type R & S

Type R: 0 to +1750°C

Type S: 0 to +1750°C

### OUTPUTS:

#### DC Current

4 to 20mA

#### Burnout Protection

Upscale

#### Overload

Current limited to 28mA max

#### Loading

$$R_L \text{ maximum} = (V_{\text{Supply}} - 10) / 0.02$$

i.e.	$V_{\text{Supply}}$	$R_L \text{ max}$
	10 Volt	0 ohms
	12 Volts	100 ohms
	15 Volts	250 ohms
	24 Volts	700 ohms
	30 volts	1000 ohms
	36 Volts	1300 ohms

#### Input/Output Calibration

Two "Zero" DIP switches  
One "T/C Type" DIP switch  
Three "Span" DIP switches  
and two fine-tuning potentiometers

### SUPPLY:

#### Power Supply Voltage

10 to 36 Volt DC

Reverse polarity protected

#### Supply Variation Effect

Less than  $\pm 0.03\%$  of span for full change

### GENERAL:

#### Cold Junction Error

$\pm 0.9^\circ\text{C}$  typical ( $+3.0^\circ\text{C}$  for R and S) for 0 to  $60^\circ\text{C}$  change

#### Accuracy (including linearity hysteresis and repeatability)

Better than  $\pm 0.1\%$  of span

#### Temperature Coefficient

Better than  $\pm 0.15\%$  of span /  $\Delta 10^\circ\text{C}$

#### Operating Temperature Range

-20 to  $+70^\circ\text{C}$

Option:

#### Operating Temperature Range

-40 to  $+85^\circ\text{C}$

#### Storage Temperature Range

-40 to  $+90^\circ\text{C}$

#### Operating/Storage Humidity Range

5 to 95% RH non-condensing

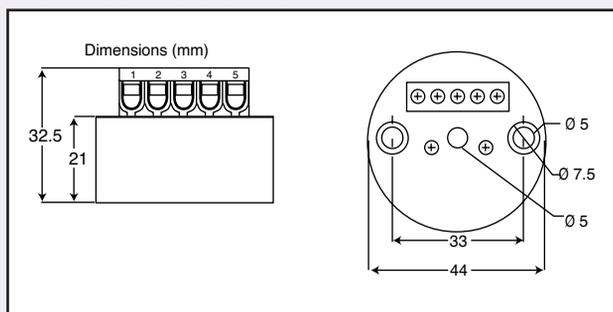
#### Case

Die-cast zinc alloy. Internal circuitry encapsulated in epoxy resin

#### Weight

110 gms

## MECHANICAL DETAILS



## TERMINATION DETAILS

### Terminal

- |   |                                       |
|---|---------------------------------------|
| 1 | $R_{\text{Load}}$ to Power Supply -ve |
| 2 | -                                     |
| 3 | Unused                                |
| 4 | +                                     |
| 5 | Power Supply +ve                      |

## ORDERING DETAILS

- Give identification code, i.e. TCR-2
- Give details of Thermocouple type, i.e. thermocouple type K
- Give details of temperature range, i.e. 0 to  $1200^\circ\text{C}$
- Please specify if optional Operating Temperature Range required



**LEE-DICKENS LTD**

Desborough, Kettering, Northants NN14 2QW U.K.

Tel: (01536) 760156 Fax (01536) 762552