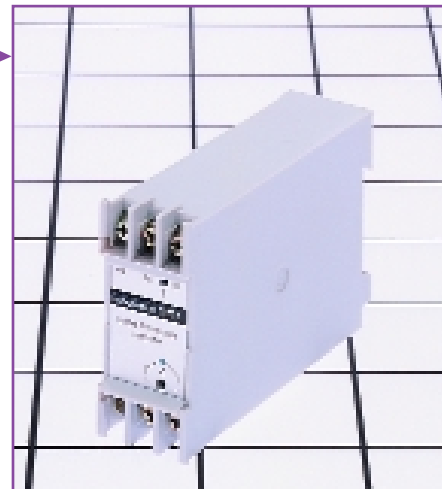


# Thermocouple 3 Wire Isolating Transmitter TCT-3

Function: Isolating multi-range 3 wire temperature transmitter which will convert any thermocouple input into a 4 to 20mA current. The TCT-3 has exceptional input to output high common mode rejection ratio and a high degree of filtering to eliminate false output signals, providing a low ripple output current. Auto-zero, chopper stabilised front-end circuitry provides a superb thermal stability and allows input spans as low as 1.5mV (equivalent to 40°C for type K thermocouple). Calibration is performed by means of three internal coarse range resistors and two potentiometers (Span and Zero) brought out to the front panel for fine tuning. The TCT-3 three wire configuration allows a loop load of 300 ohms at a supply voltage of just 10 Volts and 1000 ohms at a supply voltage of 24 Volts.



TempTrans  
CONVERTERS

## SPECIFICATIONS

Please note that the following are typical standard ranges. We will manufacture instruments to cater for other ranges too, within certain limitations. Please contact our internal sales department for further clarification.

### INPUTS:

#### Thermocouples

Types B, E, J, K, R, S & T

#### Input Span

Minimum 1.5mV  
Maximum 80mV

#### Equivalent Temperatures

T/C	Min Span	Max Span
B	550°C	1800°C
E	220°C	1000°C
J	30°C	1200°C
K	40°C	1400°C
R	200°C	1760°C
S	200°C	1760°C
T	40°C	400°C

#### Lead Wire Resistance Effect

6µV per 100 ohms

### OUTPUTS:

#### DC Current

4 to 20mA

#### Overload

Current limited to 25mA max

#### Loading

$$R_L \text{ maximum} = (V_{\text{Supply}} - 4) / 0.02$$

i.e.	$V_{\text{Supply}}$	$R_L \text{ max}$
	10 Volts	300 ohms
	12 Volts	400 ohms
	15 Volts	550 ohms
	24 Volts	1000 ohms
	30 volts	1300 ohms
	32 Volts	1400 ohms

#### Input/Output Calibration

Three coarse range resistors and two fine-tuning potentiometers

#### Adjustability

Zero:  $\pm 35\%$  of span minimum  
Span:  $\pm 30\%$  of span minimum

#### Isolation

600 Volts DC or peak AC

#### Burnout Protection

Upscale (standard)  
Downscale (optional)

### SUPPLY:

#### Power Supply Voltage

10 to 32 Volt DC  
Reverse polarity protected

#### Supply and Load Variation Effect

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

#### Current Consumption

15mA typical (@  $I_o = 0$ )

### GENERAL:

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

Better than  $\pm 0.04\%$  of span

#### Cold Junction Compensation Error

For 15 to 40°C:  $\pm 0.15^\circ\text{C}$  typical  
For 0 to 70°C:  $\pm 1.0^\circ\text{C}$  typical

#### Temperature Coefficient

Better than  $\pm 0.1\%$  of span/ $\square$  10°C

#### Common Mode Rejection

132dB typical dc to 60Hz,  
127dB minimum

#### Response Time

320mS (0 to 98%)

#### Operating Temperature Range

-20 to +70°C

Option: -40 to +85°C

#### Storage Temperature Range

-40 to +85°C

#### Operating/Storage Humidity Range

5 to 95% RH non-condensing

#### Mounting

Standard 35mm DIN rail

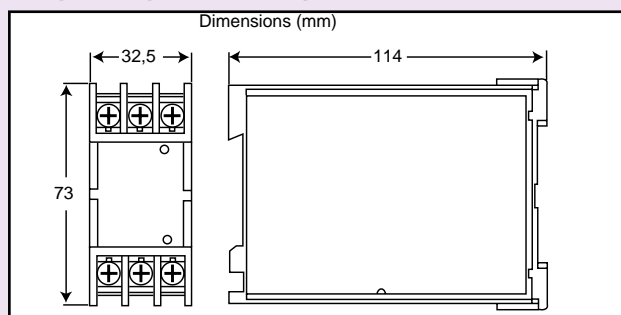
#### Protection Level

Box to IP50 Terminals to IP10

#### Weight

140 gms

## MECHANICAL DETAILS



## TERMINATION DETAILS

### Terminal

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

### Terminal

4	-
5	+
6	Unused

## ORDERING DETAILS

- Give identification code, i.e. TCT-3
- Give details of sensor type, i.e. Thermocouple type K
- Give details of temperature range, i.e. 0 to 1200°C
- Please specify if optional Operating Temperature Range required
- Please specify if Downscale Burnout Protection required, Upscale supplied as standard



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