

Thermocouple Transmitter/Isolator v1 TCT286

DESCRIPTION

The TCT286 is a separately powered isolating thermocouple transmitter or **thermocouple isolator** with three way power/input/output isolation. Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments.



When configured as a **thermocouple transmitter**;

- The specified thermocouple type and range is converted into a standard process signal that represents temperature.
- Automatic cold junction compensation.
- Front-end zero suppression.
- Upscale or downscale burnout.
- Linearised measurement for thermocouple types K, J, T, N, R and S.

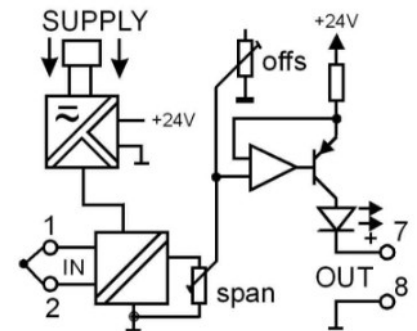
When configured as a **thermocouple isolator**;

- The specified thermocouple type and range is isolated and re-transmitted as millivolts. The millivolts on the output terminals need to be connected using compensation wire to the measurement instrument.
- Due to the nature of a thermocouple and the requirement for cold junction compensation the output millivolt is bipolar.

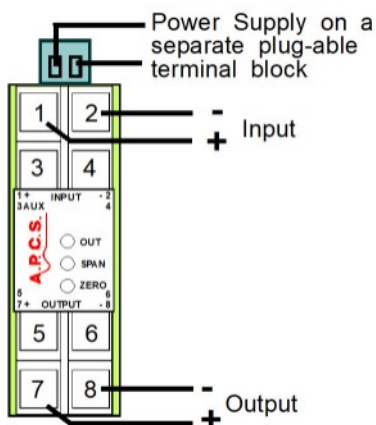
General Specifications

| | |
|----------------------------------|--|
| Size: | 23.5W x 71.5H x 109D (mm). |
| Mounting: | Clip for 35mm DIN-Rail. |
| Housing material: | ABS |
| Termination: | Screw terminals. |
| Protection class: | IP40. |
| Weight: | 0.106 kg. |
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| Front SPAN adjust: | ±25% typical. |
| Front ZERO adjust: | +20/ -10% typical. |
| Output drive: | 10mA into 0 - 2kΩ, 20mA into 0 - 1kΩ. |
| Calibration accuracy: | <0.2% of range. |
| Linearised: | 0.2% |
| Cold junction compensation: | 0.02% per °C C/J change |
| Input offset (Zero suppression): | 200% of range. |
| Input range: | 4mV up to 80mV. |
| Input impedance: | > 1MΩ. |
| Operating temperature range: | -10...+65°C. |
| Temperature drift error: | < 0.5% within operating range. |
| Supply/Input/Output Isolation: | >2kV rms. |
| Electromagnetic compatibility: | Complies with AS/NZS 4251.1 (EN 50081.1) |

Block Diagram



Connection



TYPE NO. DESIGNATION

Power Supply:

1 = 85-265Vac 50/60Hz (90–280Vdc) 2 = 16-42Vac 50/60Hz (10-60Vdc) .

Input:

1 = Thermocouple
 Type: (J, T, K, R, N, S or E)
 Calibration range: ? - ? C
 Burn out: (upscale or downscale).

Output:

0 = Link Selectable (process signals). *) Z = Thermocouple (mV signal retransmit).

Action:

1 = Direct. 2 = Reverse.

Options:

0 = None.

*) = Price Extra.

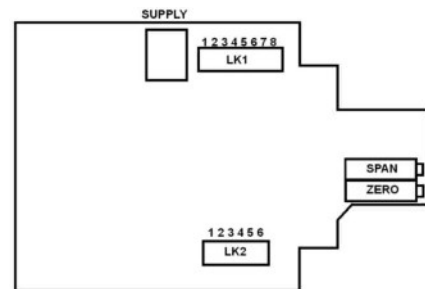
Change output range Thermocouple Transmitter only (Output = 0)

1. Unplug supply plug.
2. Remove terminal covers.
3. Slightly depress lid to base clips and withdraw from housing.
4. Set coding plugs as required.
5. Reassemble unit and connect power.
6. Adjust SPAN and ZERO pots to re-calibrate.
7. Change the label information to the new input/output values.

Output links

| Output | LK2 | | | | | |
|--------|-----|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 4-20mA | X | | X | | | |
| 0-20mA | | X | | | | |
| 0-10mA | | | | X | | |
| 0-5V | | X | | | | X |
| 1-5V | X | | X | | | X |
| 0-10V | | X | | | X | |

Coding Plug Location Diagram



Thermocouple Splitter Application

Two modules are ordered.

- A TCT286-21010 is calibrated to produce 4-20mA for a temperature range of 0 to 300°C and requires correct compensation cable between the thermocouple and TCT286. Ordinary copper cable may be used on the 4-20mA output.
- A TCT286-21Z10 is calibrated to reproduce the equivalent millivolts produced by a type J thermocouple over the range of 0 to 300°C. The exact mV value depends on the ambient temperature at the input terminals. If connected with the correct compensation cable from the TCT286 output to the remote type J temperature measurement instrument the correct temperature will be displayed.
- The two module inputs are wired in parallel with compensation cable, only one long cable to the thermocouple is required. If the long or thermocouple cable breaks both outputs will go up scale due to the burnout option on module 1.

Module 1

Part Number: TCT286-21010
 Power Supply: 16-42Vac 50/60Hz (10-60Vdc)
 Input: Thermocouple Transmitter
 T/C Type: J
 Cal: 0 - 300
 Burn out: UP
 Output: Link selectable, set: 4-20mA
 Action: Direct
 Response Time: 500mS

Module 2

Part Number: TCT286-21Z10
 Power Supply: 16-42Vac 50/60Hz (10-60Vdc)
 Input: Thermocouple Isolator
 T/C Type: J
 Cal: 0 - 300
 Burn out: NONE
 Output: Thermocouple (mV signal)
 Action: Direct
 Response Time: 500mS

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