

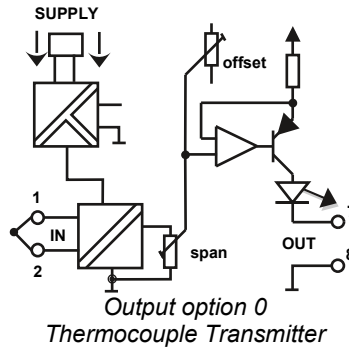
Thermocouple Transmitter TCT286

The TCT286 is a separately powered isolating thermocouple transmitter with three way power/input/output isolation. Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments. There are two ac/dc power supply choices covering 10Vdc to 250Vac. Thermocouple types K, J, T, N, R and S are linearised and special applications can be supplied. The TCT286 has three operation variations to cover standard transmitter, thermocouple splitter and mixed configuration capability.

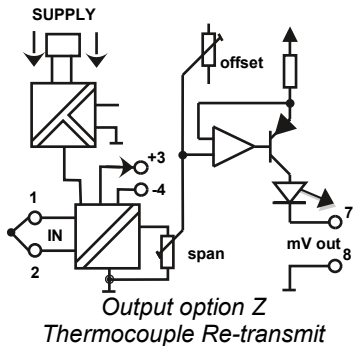


Thermocouple transmitter

The classic thermocouple transmitter. The TCT286 may be connected remotely near the thermocouple. The standardised process signal (4-20mA most popular) is calibrated to represent the temperature range that is important in your application. Compensation cable is required from the thermocouple cable to terminals 1 and 2 where the cold junction compensation occurs.



Thermocouple Re-transmit.

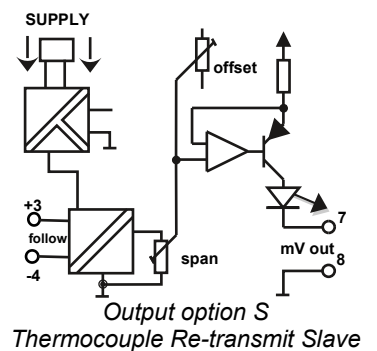


The specified thermocouple type and range is isolated and re-transmitted as a millivolt signal. Compensation cable is required from the thermocouple cable to terminals 1 and 2 and from terminals 7 and 8 to the temperature measurement instrument where the cold junction compensation occurs. Up scale burnout may be implemented on both the TCT286 and the temperature measurement device as the TCT286 has a low 2.2Ω output impedance on terminals 7 and 8.

Output option Z also “Master Output” on terminals 3 and 4. This is a 0.6V to 6V signal representing the calibration range of the connected thermocouple.

Thermocouple Re-transmit Slave.

A TCT286 re-transmit slave is connected in parallel with a re-transmit master on terminals 3 and 4 of both modules using copper wire. One re-transmit master can support many re-transmit slaves. The re-transmit master and all the re-transmit slaves should be mounted on the same horizontal din rail subjected to the same ambient conditions. Terminals 1 and 2 are not used on the re-transmit slaves. Compensation cable is required from terminals 7 and 8 to each temperature device where the cold junction compensation occurs.



Mixed Configuration

Thermocouple re-transmit and re-transmit slave are obviously used together. Both of these configurations are thermocouple isolating extenders. Isolation is important on a thermocouple as it may be connected to the frame of the machinery.

If you want to split a thermocouple into two process signals then the best thing to do is use one thermocouple transmitter and split the output from it using a process signal splitter. We suggest a SL340 and an SL332. However if you require a thermocouple output plus a process output you can use a TCT286 standard transmitter and a TCT286 re-transmit together. Both should be mounted on the same horizontal din rail subjected to the same ambient conditions. Terminals 1 and 2 are connected in parallel with compensation cable. Up/Down scale burnout should only be specified on one of the two modules the other is burnout=none. Additional thermocouple slave modules may be used. For additional process outputs use a splitter.

General Specifications

Size (mm): 23.5W x 71.5H x 109D.
 Mounting: Clip for 35mm DIN-Rail.
 Housing material: ABS
 Termination: Screw terminals.
 Protection class: IP40.
 Weight: 0.106 kg.
 Protection class: IP40.
 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: for TC types K, J, T, N, R and
 S. 0.2%
 Cold junction compensation: 0.02% per °C C/J change
 Input offset: 200% of range.
 Input range: 4mV up to 80mV.
 Input impedance: > 1MΩ.
 Operating temperature: -10...+65°C.
 Temperature drift error: < 0.5% of range.
 Three way Isolation: >2kV rms.
 Electromagnetic compatibility: AS/NZS 4251.1, EN 50081.1

Order Code TCT286 - X X X X X

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

Input:
 1 = TC Type: (J, T, K, R, N, S or E)
 Calibration range: ? - ? C
 Burn out: (upscale, downscale, none).

Output:
 0 = Link Select (process signals).
 Z = TC Re-transmit + Master.
 S = TC Re-transmit Slave

To split a thermocouple five ways you need 1 x Z module and 4 x S modules.

Action:
 1 = Direct. 2 = Reverse.

Options:
 0 = None.

*) = Price Extra.

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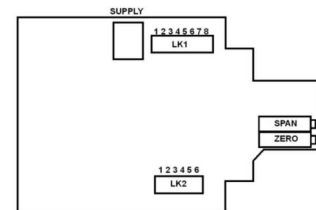
Change output range Thermocouple Transmitter only (Output = 0)

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

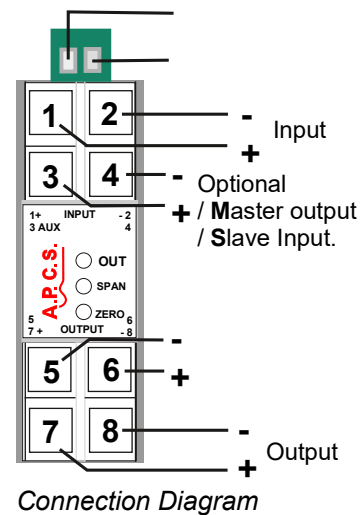


About The Thermocouple

A thermocouple is a welded joint two cables made of different metals we will call the hot junction. There are standard thermocouple types K, J, T etc that use standard metals with a known voltage to temperature relationship. The two cables are connected to the measuring instrument. The point of connection usually plated copper terminals is known as the cold junction. The millivolts measured at the cold junction represents difference between the hot junction and cold junction temperatures. If the cold junction is hotter than the hot junction then a negative voltage measured. The measuring instrument measures the cold junction temperature at its terminals to calculate the actual measured temperature.

When a standard TCT286 with thermocouple input and process signal output the cold junction compensation is performed in the TCT286.

When a Thermocouple (mV signal re-transmit) is ordered the junction compensation is performed on the measuring instrument. In this situation it is important that compensation cable is used between the TCT286 output and the measuring instrument in order for the measuring instrument to work correctly.



Connection Diagram