

# 2-WIRE ISOLATED TEMPERATURE TRANSMITTER TX2DR

Input : Thermocouple, Millivolts



- Solder jumpers for
  - Input type
  - Span
  - Upscale / Downscale
- High accuracy and stability
- 10~30 V DC supply
- Isolation between input and output
  - 1500 V AC RMS / 1 minute
  - 250 V AC RMS, continuous
- Multirange : 4 for thermocouple, 5 mV to 50 mV  
4 for millivolts, 5 mV to 50 mV
- Multiinput : TC E, J, K, L, N, R, S & T inputs or millivolts
- 0.1% voltage linear 4~20 mA output
- Upscale / downscale selectable sensor break detection
- ON LED shows state

## GENERAL

TX2DR is a 2-wire isolated transmitter suitable for thermocouple or millivolt input. It provides isolation between the input and the 4~20 mA output current. It finds applications for use with grounded thermocouples, PLCs, DCS, etc.

TX2DR -TC covers 8 thermocouple types as well as millivolts and has 4 overlapping ranges. It has a voltage linear output.

All selections are made by solder jumpers. 'Fine' ZERO/SPAN potentiometers are provided for calibration.

## SPECIFICATIONS

All specifications at ambient of 25 °C, unless specified otherwise

<b>INPUTS</b>			
Input type	Thermocouple :E, J, K, L, N, R, S & T Millivolts (see Table 1)		
Input impedance	> 5 M		
<b>MONITORING</b>			
Sensor break detection <sup>#</sup>			
Upscale current	~ 26 mA		
Downscale current	~ 3.5 mA		
ON LED	Provided		
<b>ADJUSTMENTS</b>			
Span selectable	5 to 50 mV, 4 overlapping ranges (see Table 2)		
Range	User to specify* * Ranges in °C/°F for thermocouples * All ranges are zero based (eg 0~1000°C, 0~50 mV)		
<b>OUTPUT</b>			
Current	4~20 mA		
Linearity	Voltage linear		
Current limit	~26 mA		
Permissible load	600 @ 24 VDC, 22 mA (see Fig 2)		
<b>ISOLATION</b>			
Mutual isolation between input & output	a) 1500 V AC RMS, 50 hz / 1 minute b) 250 V AC RMS, 50 hz, continuous		
<b>ACCURACY</b>			
Linearity & calibration	±0.1% of span ±thermocouple non-linearity for span > 7.5 mV ±0.2% of span ±thermocouple non-linearity for span < 7.5 mV (Error due to thermocouple non-linearity can be significant. It depends on thermocouple type & span, being largest in T, R & S type thermocouples)		
Temperature effect on accuracy			
Millivolts	±0.025% of span per °C		
Thermocouples	±0.025% of span per °C ± 0.1 °C per °C (for TC T) ±0.025% of span per °C ± 0.05 °C per °C (for other TC)		
<b>Cold junction compensation</b>		Automatic	
<b>Supply voltage/load effect</b>		±0.002% of span / V	
<b>POWER SUPPLY</b>			
Supply voltage		10 to 30 V DC	
<b>ENCLOSURE</b>			
Din rail mount		See Fig 3	
Material		ABS plastic	
Dimensions (in mm)		80(H) x 25(W) x 85(D)	
Mounting		Snap on for 35 mm DIN rail to DIN 46277	
Weight		< 200 grams	
Protection		IP 20	
Field mount		See Fig 4	
Material		Cast aluminium	
Dimensions (in mm)		95(H) x 95(W) x 50(D)	
Mounting		Field	
Weight		500 grams	
Protection		IP 54	
Connection, single/stranded wires		2.5 mm <sup>2</sup> , AWG14	
<b>TEMPERATURE, HUMIDITY</b>			
Ambient, storage		-20 ~ +85 °C	
Ambient, operation		-20 ~ +55 °C	
Relative humidity		0 ~ 95%	
<b>TABLE 1</b>		<b>TABLE 2</b>	
Input selection <sup>#</sup>		Span selection (mV) <sup>#</sup>	
TC E		4.5 ~ 9	
TC J / L		8 ~ 18	
TC K / T		14.5 ~ 32	
TC N		29.5 ~ 52	
TC R / S			
Millivolts			

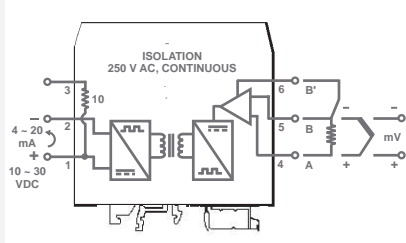
<sup>#</sup> User selectable by solder jumpers

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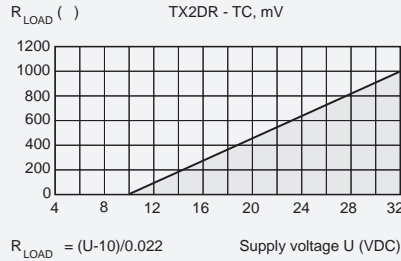
## CONNECTION DIAGRAM

Fig 1



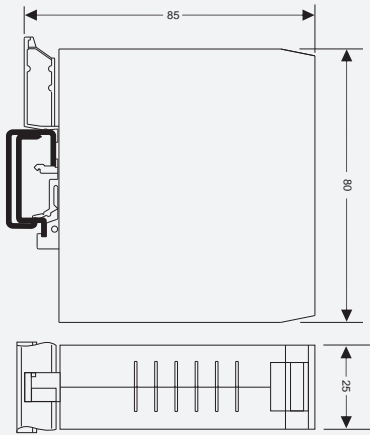
## OUTPUT LOAD

Fig 2



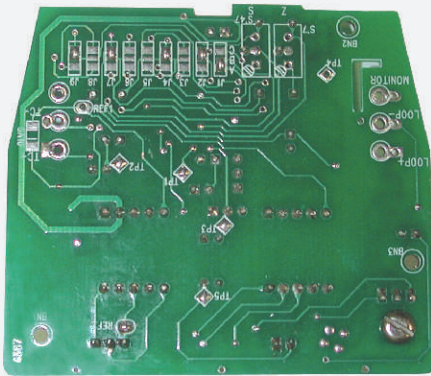
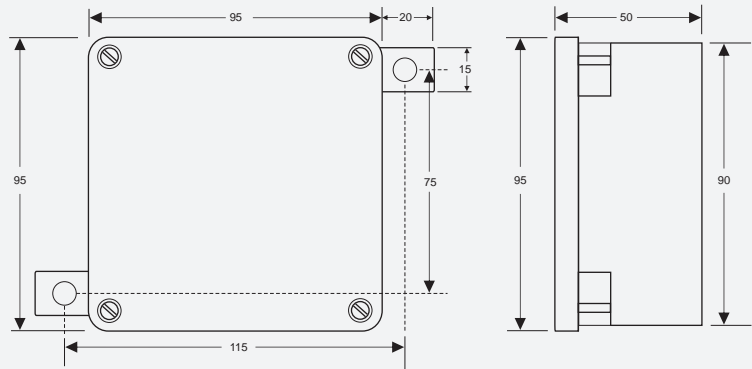
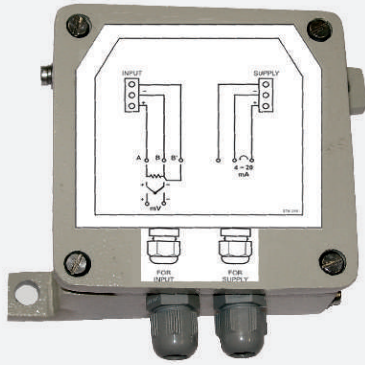
## DIN RAIL MOUNT ENCLOSURE

Fig 3



## FIELD MOUNT ENCLOSURE

Fig 4



PCB SHOWING SOLDER JUMPERS

## ORDERING INFORMATION

2102	A	B	C	D	
<b>A</b>	<b>Input type</b>	<b>B</b>	<b>Unit</b>	<b>D</b>	<b>Enclosure</b>
0	TC E	0	°C	0	Din rail
1	TC J	1	°F	1	Field mount
2	TC K	2	Millivolts		
3	TC L				
4	TC N				
5	TC R				
6	TC S				
7	TC T				
8	Millivolts				
		<b>C</b>	<b>Full scale (FS)*</b>		
		Enter value corresponding to 20 mA			

- Examples**
- Input TC K, Range : 0 to 1000°C  
FS = 1000, Dinrail mount  
A = 2, B = 0, C = 1000, D = 0
  - Input mV, Range : 0 to 25 mV  
FS = 25, Field mount  
A = 3, B = 2, C = 25, D = 1

\* FS high for thermocouples, eg 1000°C, span for mV range, eg 10 mV



### SALES INQUIRIES

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