User's Guide

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DRA-TCI-2

2 Wire Temperature Transmitter

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Contents

1. Procedure to open the housing

Carefully insert a proper screwdriver tip into the side slots. By pressing inward and rotating, the plastic locker will release.
Gently pull out the unit's front panel.

To close the unit, insert the printed circuit board in the proper side guiding slots and push it all the way until the front panel clicks with the body box.

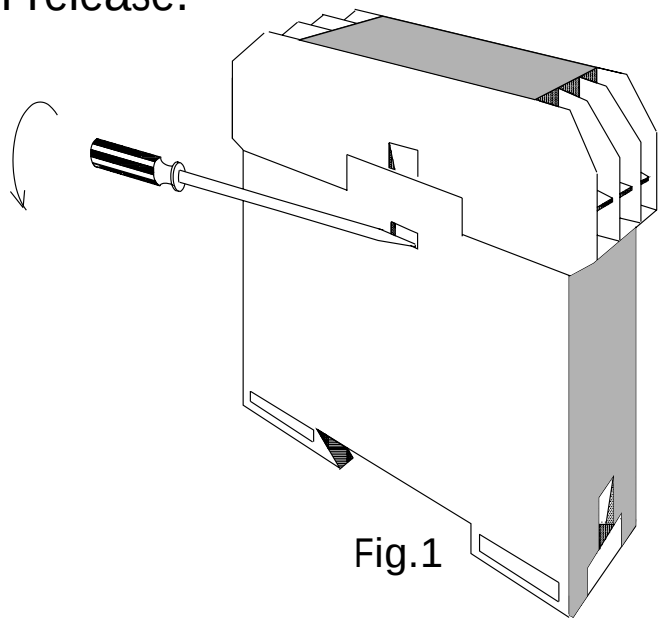

Fig.1

2. Calibration instructions

2.1 Switch Setting

Inside the enclosure are located six DIP switches for coarse range, and two multiturn trimmers are located on the transmitter panel for fine tuning.

Notes:

-The DRA-TCI-2 is orderd for a specific T/C, and can not be altered.

-The following tables indicate coerse ranges. at the outer limits of range it might occur that the desired range can be obtained with the adjacent switch combination.

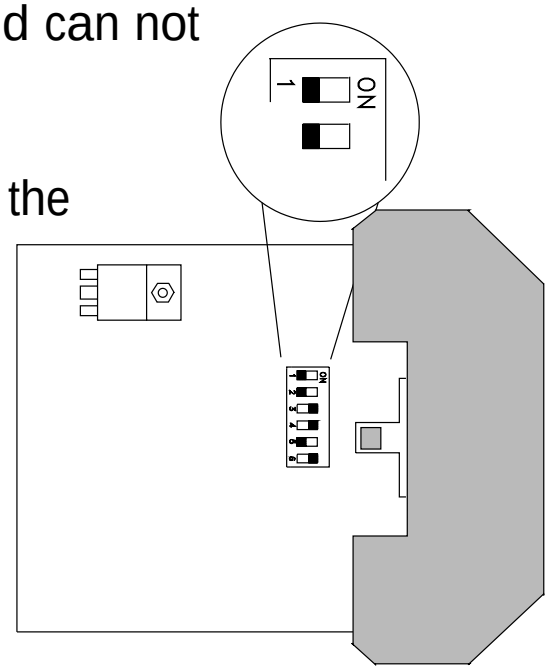

Fig.2

Calibrations steps:

a. Define the desired range limits:
   Tmin - the temperature at which the output current is 4mA.
   Tmax - the temperature at which the output current is 20mA.
   Tspan - the difference between Tmax and Tmin.

b. Open the transmitter according to para. #1.

c. According to the following tables, set switches no. 4 to 6 for the Zero (Tmin), and set switches 1 to 3 for the Span (Tspan).

   Note: "1" represent the switch "ON" state.

2.2 Calibrations tables

"Span" Table

SW	T/C Type				
1-2-3	K (°C)	J (°C)	T (°C)	E (°C)	B,R,S (°C)
0 0 0		50.....95		50.....95	
1 0 0	90.....180				
1 1 0		85....150	50.....80	90....175	
0 0 1	175.....360		60...105		
1 0 1	250.....440	140....250	90...165	169....280	
0 1 1	420.....850	240....490	155...325	270....575	500....1100
1 1 1	820...1350	480....760	310...400	530....1100	1000....1700

"Zero" Table

SW	T/C Type					
4-5-6	K (°C)	J (°C)	T (°C)	E (°C)	B (°C)	R,S (°C)
0 0 0	0.....30	0.....42	-40....-20	-100....-52		
0 0 1	25.....60	30.....85	-25.....5		100....465	0...180
0 1 0	45.....90	70...125	0.....30	-52.....56		120...280
0 1 1	80...120	110...175	25.....60		460....870	240...380
1 0 0	115...160	165...215	55.....85	56...162		340...480
1 0 1	150...190	200...265	80...110		865..1270	440...580
1 1 0	190...230	250...320	105...135	162...269		540...680
1 1 1	225...265	300...350	130...160	215...320	1270..1670	640...800

2.3 Calibration instrumentation:

1. 24Vdc Power Supply
2. T/C calibrator
3. High accuracy DVM
4. Small screwdriver

Connect the transmitter to be calibrated according to Fig #3.

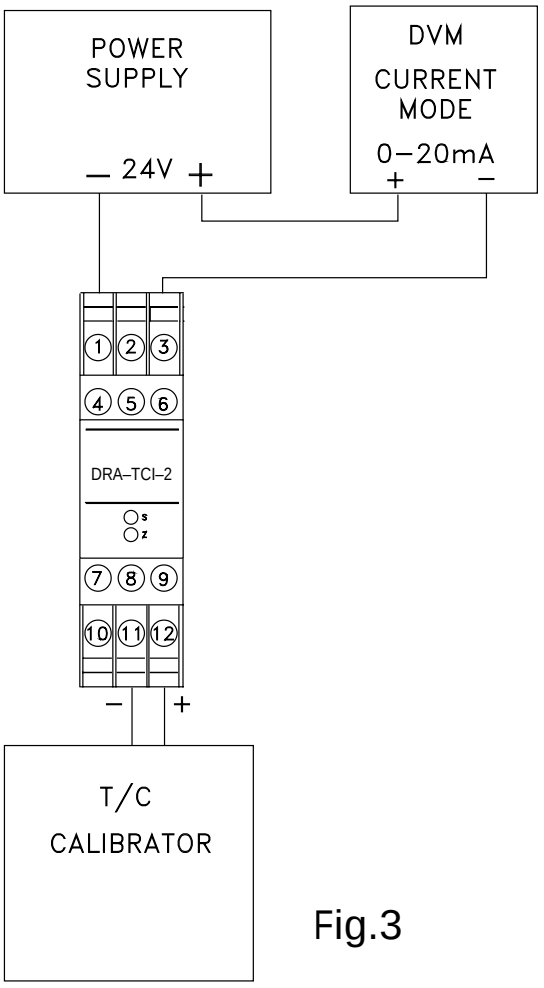

Fig.3

a. Set the T/C calibrator to Tmin.
b. Adjust the Zero trimmer to 4.000mA.
c. Set the T/C calibrator to Tmax.
d. Adjust the Span trimmer to 20.000mA.
e. Repeat steps a. to d. until satisfactory results are achieved.

Calibration example:

Needed: T/C Type K - 200...+500ºC
Tmin: 200ºC
Tspan: 500-200 = 300ºC

1. Set the DIP switch to: 0,0,1,1,1,0 (SW1..SW6)
2. Set the calibrator for 200ºC calibrate "Z" to 4.000mA.
3. Set for +500ºC and calibrate "S" to 20.000mA.
4. Repeat steps 2,3 until satisfactory results are obtained.

3. Connection Diagram

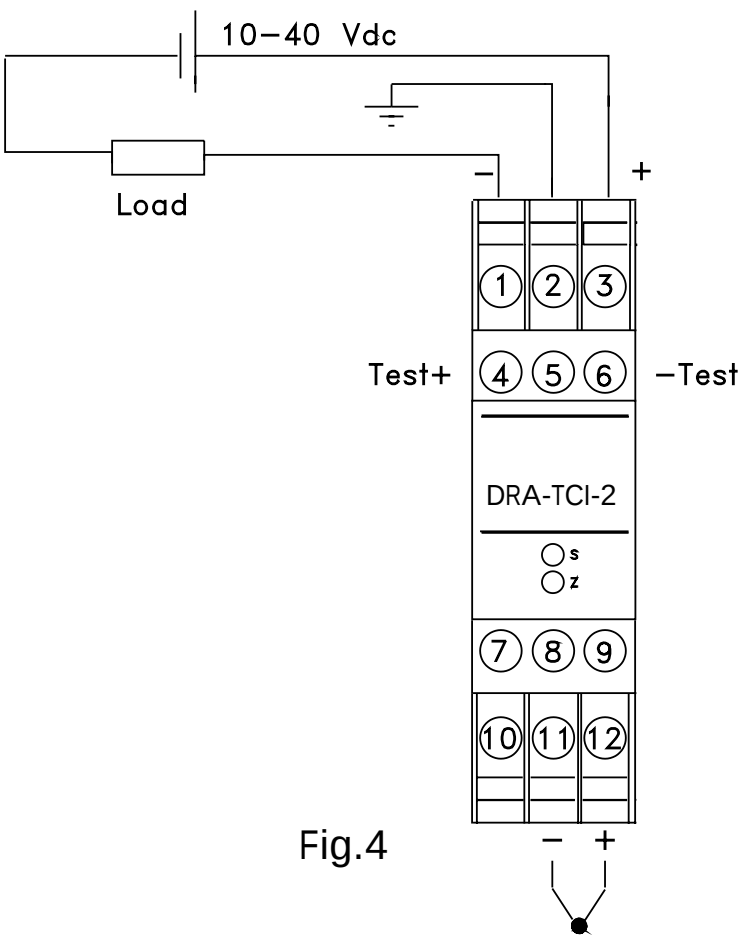

Fig.4

4. Mechanical Dimensions

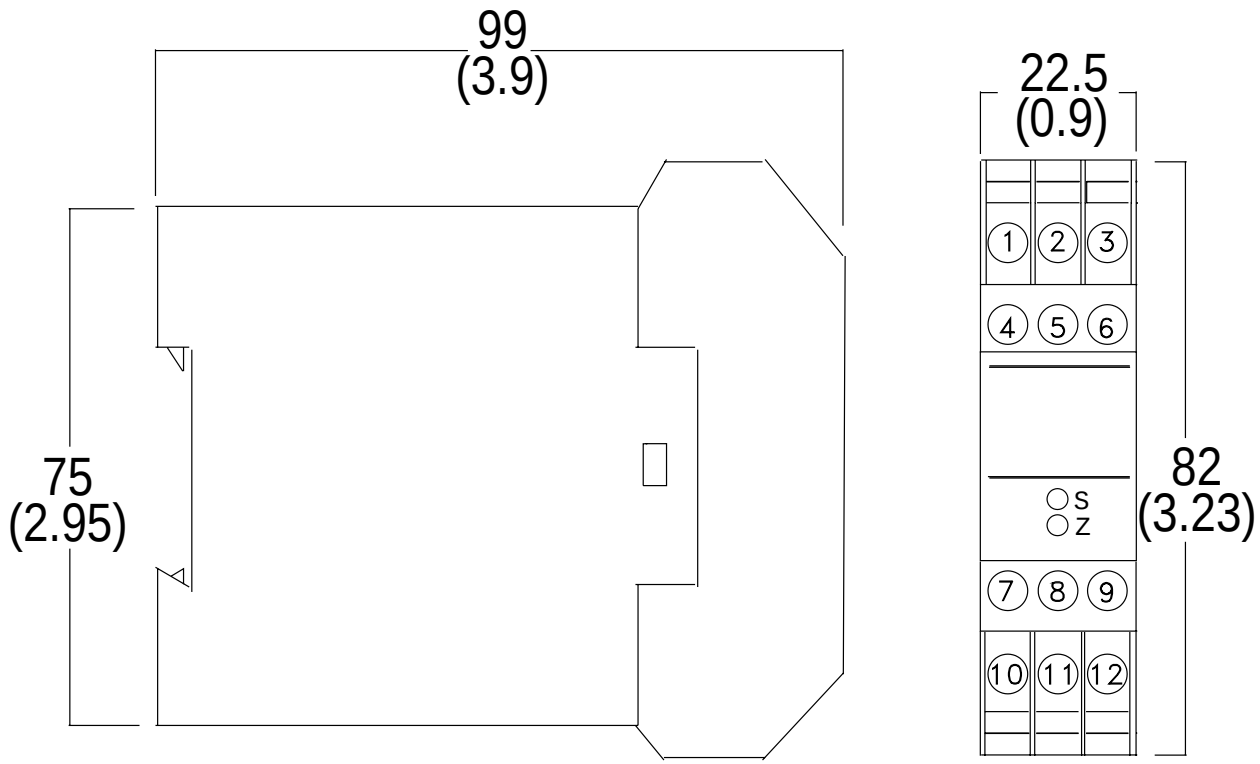

Fig.5

Dimentions are in mm (in)

5. Specifications

Input: Thermocouple type K, T, J, E, B, R, S
Burnout protection: Upscale
Minimum input span: 4mV
Output: 4–20mA, (25mA limited)
Loop resistance: Rmax(Ω) = (Vsupply - 10)/.02
Isolation: 1500 Vdc or peak ac
Response time: 160 msec (0-98%)

Calibration:
Span Calibration: Three DIP switches and "Span" potentiometer
Zero Calibration: Three DIP switches and "Zero" potentiometer
Cold junction compensation error: Typical ±0.9℃ for 0-60℃ change
(±3℃ for B, R and S)
Accuracy (linearity, hysteresis and repeatability):
± 0.08% of span for type K,
± 0.1% to ± 0.2% for other thermocouple types, typical
Test terminals: 40 to 200mV represent 4-20mA
Supply voltage: 10 – 40 Vdc reverse polarity protected
Supply and load variation effect: < ±0.03% of span for full change
CMR: 127db typical dc to 60 Hz
Temperture stability: ±0.01% of span / 1℃
Operating temperture: -20 to +70℃ (-4 to 158℉)
Storage temperture: -30 to +85℃ (-22 to 185℉)
Humidity: 5 - 95% relative humidity, non-condensing
Housing: Plastic polycarbonate
Protection level:
Housing: According to IP-40
Terminals: According to IP-20
Mounting: Standard 35 mm DIN rail
Weight: 130 grams (4.6 oz)

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.
The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR WARRANTY RETURNS, please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR NON-WARRANTY REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. P.O. number to cover the COST of the repair,
2. Model and serial number of product, and
3. Repair instructions and/or specific problems relative to the product.

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