BLOCK DIAGRAM

Output

Limit

Scale

Linear Value

Linearise

Compensated Value

Cold Junction Comp.

Input

Normal Output High Limit Value
Normal Output Low Limit Value
Process Low Fault Value
Process High Fault Value
Fault Output Value

Input Zero
Output Zero
Input Span
Output Span

mV Lo: uV
mV Hi: mVx100
TC: deg C or F x10
RTD: deg C or F x10
Voltage: mV
Current: uA
(or custom linearisation)

AVAILABLE OUTPUT RANGES
1. Unipolar Current (0.000 to 20.000mA)
2. Bipolar Current (-10.000 to +10.000mA)
3. Voltage (-10.000 to +10.000V)
4. Fast Pulse (0 to 32767 pulses/hour)
5. Slow Pulse (0 to 3276.7 pulses/hr)

mV/TC Lo: uV
mV/TC Hi: mVx100
RTD Lo: Ohmsx100
RTD Hi: Ohmsx10
Voltage: mV
Current: uA

AVAILABLE INPUT RANGES
1. mV/TC Lo (-10.000 to +32.000 mV)
2. mV/TC Hi (-10.00 to +100.00 mV)
3. RTD Lo (0.00 to 327.00 Ohms)
4. RTD Hi (0.0 to 500.0 Ohms)
5. DC Voltage (-1.000 to +10.000 Volts)
6. DC Current (-3.000 to +30.000 mA)

TC(Lo): uV
TC(Hi): uVx10
others: 0

Measurement units as per Input Range Selected

Used for Thermocouple Inputs Only.

Scale for TC Type
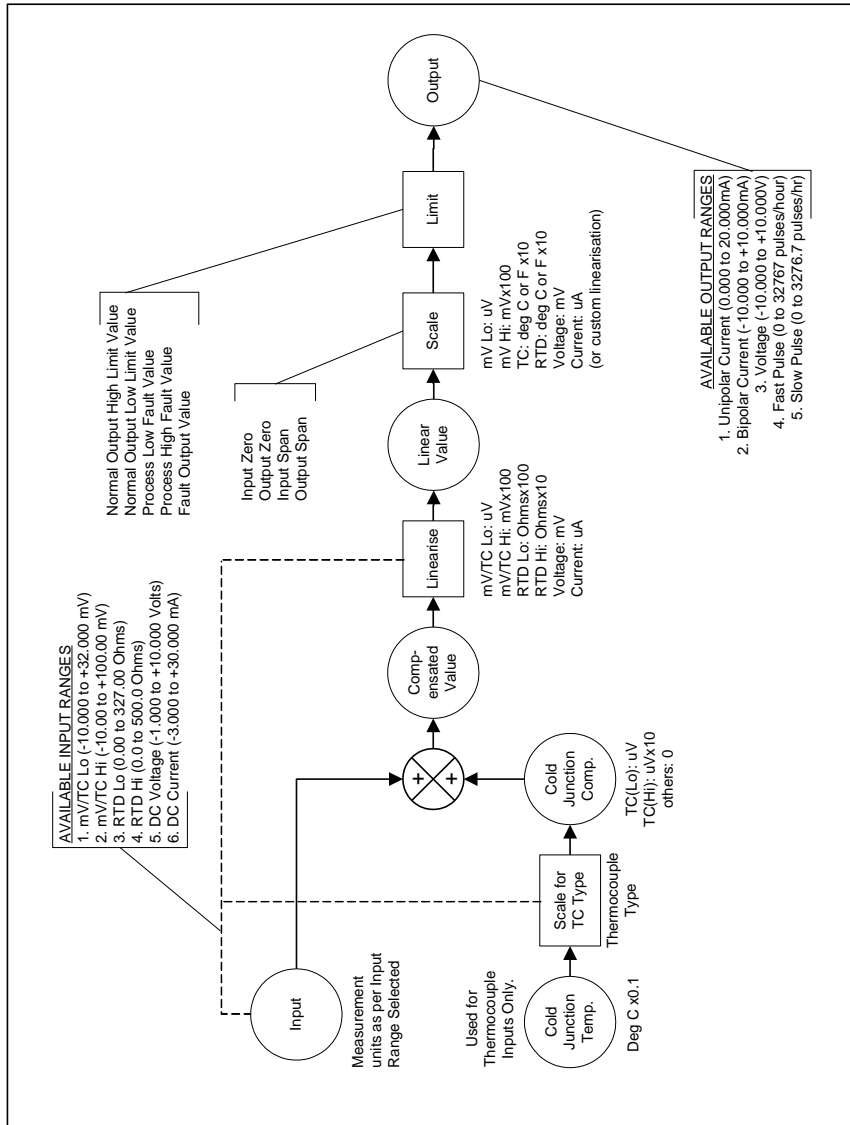
Thermocouple Type

Cold Junction Temp.

Deg C x0.1

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INSTALLATION GUIDE
OMNITERM TXB Model C2401B
### 24Vdc powered Universal 4 wire Signal Conditioner

The OMNITERM TXB Universal four-wire transmitter is designed for the widest range of signal conditioning applications in a single off-the-shelf product, using advanced state-of-the-art digital measurement techniques, combined with extremely user friendly software configurability.

The input will accommodate most thermocouple and resistance bulb types, as well as voltages and currents from 1mV to 10Vdc input span. (see special models for extended ranges.) The output can be configured for unipolar or bipolar outputs of current or voltage from ± 1mA to ± 10mA; 0-20mA; or ± 1V to ± 10V.

FEATURES

- **DIN Rail (35x7mm) or surface mounting**
- **20-30 Volt dc powered**
- **Three port isolation to 1500Vac**
- **Linearised temperature measurement**
- **Software selectable input/output ranges**
- **Switch selectable input/output types**
- **Unique Output Overload Indication**
- **Bipolar Input and Output**

MECHANICAL DETAILS

22.5   110   75
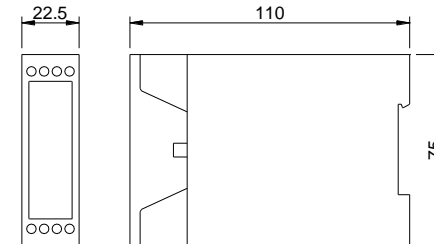
FRONT INDICATOR LIGHT

The green indicator light on the front of the module is used to indicate correct operation of the unit:

Steady On	Unit operating Correctly
One Flash	Input Fault
Two Flashes	Output Overload Fault
Three Flashes	Configuration Fault

Product Specifications

Unless otherwise stated, all specifications refer to Model C2401B

Power Supply

Supply Voltage	20-30Vdc 65mA dc maximum plus output load current

Selectable Input Ranges

Thermocouple

Thermocouple Types	B, E, J, K, N, R, S, T, W, W3, W5
Internal Cold Junction Compensation	Error< 0.5 °C over 0 to +40 °C; <1 °C over –10 to +60 °C
Burnout Detection	Programmable (including to NAMUR NE43)
Linearisation Error Types B, E, J, K, N, T Types R, S, W3, W5 Type W	greater of <0.25°C or 0.1% of reading; <0.5°C below0 °C <2.0°C <2.5°C

Resistance Bulb

Resistance Bulb Types	2 or 3 wire Connection PT100, Ni100, Ni120 Pt500, Pt1000 (model C2401B-3) Cu10 (model C2401B-2) True 4 wire Connection (model C2401B-1)

Voltage and Current

Voltage Input Range	-1 to +10Vdc (minimum span 0.1Vdc)
Extended Range (Model C2401B-2)	-1 to +60Vdc (minimum span 5Vdc)
milliVolt Range	-10mV to +100mVdc (minimum span 1mVdc)
Current Range	-2.5mA to +25mAdc (minimum span 0.2mAdc)
Input Impedance	Voltage Inputs >1Mohm; Current Inputs < 5 Ohms

Selectable Output Ranges

Unipolar Current	0 to +20mAdc (min span 1mA; load < 1kOhm)
Bipolar Current	-10mAdc to +10mAdc (min span 1mA; load < 1kOhm)
Bipolar Voltage	-10Vdc to +10Vdc (min span 1V; load > 1kOhm)
Integrator Pulses	100 to 1,000 pulses per hour (500ms pulse width) 1000 to 10,000 pulses per hour (60ms pulse width) Transistor switched output:20Vmin 30Vmax Load must be greater than 850 Ohms

Accuracy

Initial Error	<0.1% of reading
Temperature Drift	< 150ppm/°C of reading[1]

Environmental Conditions

Operating/Storage Temperature	-10°C to 60 °C / -25°C to 85 °C

Compliance with Standards

Safety	EN60950:1995
Emissions	EN 55011;EN50081-2:1994 Grp I, Cl A; EN50082-2
Immunity – ESD & RF Fields	IEC 61000-4-2:1995, Lvl 3; IEC 61000-4-3:1995, Lvl 3
Immunity – Fast Transients	IEC 61000-4-4:1995: 2 kV - DC power; 1 kV - I/O lines
Insulation	Basic Insulation between isolated circuits per IEC950
Insulation Test Voltage	Input/Output/Supply 100% tested to 1500Vac

Mechanical

Dimensions (W x H x D)	22.5 x 75 x 110mm
Mounting	DIN Rail EN5022-35 or screws to vertical surface
Housing	Shock Resistance ABS
Flammability	UL94-HB (housing) UL94-V0 (terminals)
Weight	Unpacked 110g approx.; Packed 140g approx.

Note:1 This parameter not 100% production tested
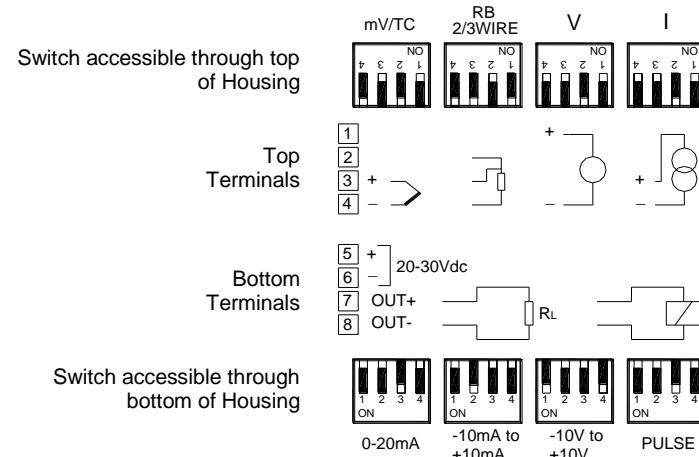
CONFIGURATION

Configuration is performed by a combination of switch selection for the Input and Output Hardware Types, and Software Configuration for the Input and Output Ranges and Scaling.

Software Configuration is performed using the OMNISET Software Configuration Utility running on a Windows PC.

The Configuration is downloaded to the TXB product using a Model C1168 Programming Cable available from OMNIFLEX.

SETUP INSTRUCTIONS

STEP 1: Setup Required Input Type and Output Type on Switches

STEP 2: Use PC based OMNISET Configuration Software with TXB Template File and Model C1168 Programming Cable to set the all configuration parameters including required range on Input and Output.

See Help in TXB Template File for more detailed procedure.

STEP 3: Mount the TXB in the desired location and wire as per diagram