



# OMNITERM TTP Universal Dual Trip

Model C2468B Universal Input Dual Alarm/Trip Module

## DATASHEET

- TC/mV/VC/RB universal input in one product
- Two Independent Alarm/Trip Relay Outputs
- 2A / 30Vdc contact rating
- Built-in “rate of change” alarm
- 24Vdc powered
- Three port isolation to 1500Vac
- Software configurable
- Output overload detection



### Features

- DIN Rail or surface mountable
- Narrow 45mm module width
- 20 - 30V dc powered.
- 1500Vac Isolation Input/Output/Power Supply
- Wide operating temperature range
- User friendly configuration software
- Linearised for all standard input types
- Special function options included as standard
- Designed to meet IEC 61508 SIL1 criteria.

### OVERVIEW

The OMNITERM TTP Universal Input Dual Trip Module is designed for the widest range of alarm/trip 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 minimum to 10Vdc maximum input span. (Extended ranges are available – see Order Codes)

This module has two alarm/trip relay contacts with “rate of change” functionality built in.

Full isolation (input/output/power supply) to 1500Vac ensures trouble-free accurate measurement.

This product provides extremely low life-cycle costs by reducing spares stock-holding requirements, and reducing specialist technical expertise required for field support, module replacement and field configuration. This new holistic approach to instrumentation asset

management ensures reliable performance and minimal down-time.

Using advanced Sigma-Delta A/D technology combined with sophisticated digital filtering techniques, the TTT offers 16-bit measurement resolution with increased dynamic range, tailored for noisy plant environments.

### CONFIGURATION MANAGEMENT

The powerful but intuitive configuration software ensures the maximum instrument flexibility with reliable configuration management to ensure all instruments on the plant are always correctly configured to the design requirements specification.

### HIGH RELIABILITY

This product has been designed with high reliability applications in mind. This product has been designed to meet the criteria of IEC61508 for SIL1 applications.

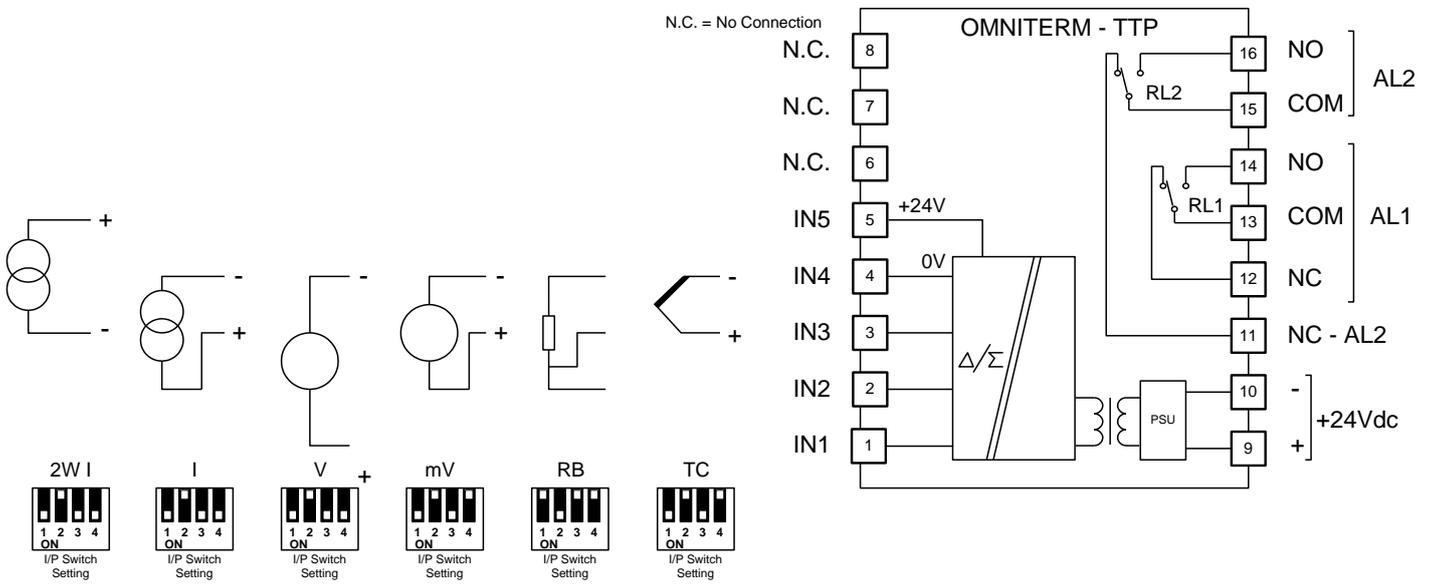




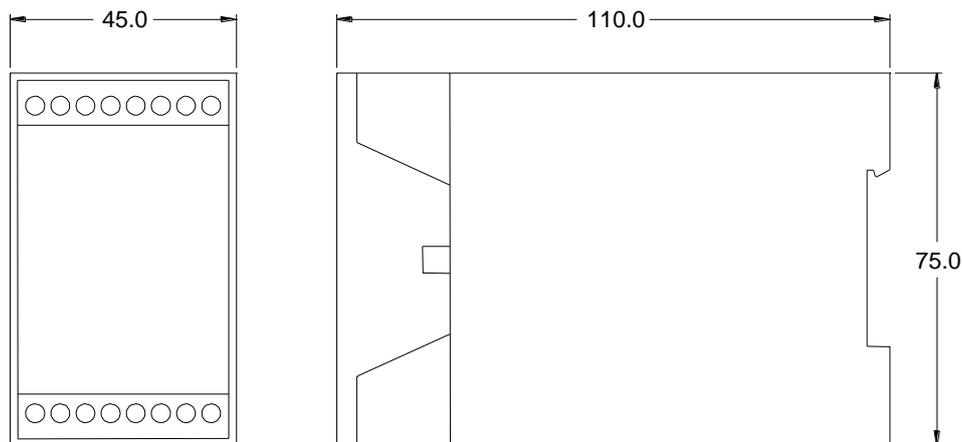
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### Electrical Connections



### Mechanical Details





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### Specifications

#### Input

##### Measurement Types and Ranges

Unless otherwise stated, all specifications refer to Model C2401-0

##### THERMOCOUPLES (TC Input Ranges covered)

Type B (Pt30Rh-Pt6Rh)	400 – 1820 °C (400 °C min. span*)
Type E (NiCr-CuNi)	-150 – 1000 °C (80 °C min. span*)
Type J (Fe-CuNi)	-210 – 1200 °C (100 °C min. span*)
Type K (NiCr-NiAl)	-270 – 1372 °C (100 °C min. span*)
Type N (NiCrSi-NiSiMg)	0 – 1300 °C (175 °C min. span*)
Type R (Pt13Rh-Pt)	-50 – 1767 °C (500 °C min. span*)
Type S (Pt10Rh-Pt)	-50 – 1767 °C (500 °C min. span*)
Type T (Cu-CuNi)	-270 – 400 °C (100 °C min. span*)
Type W ( )	1000 – 2500 °C(1000 °C min.span*)
Type W5 (Re/W26-Re)	0 – 2320 °C (300 °C min. span*)
Type W3 (Re/W25-Re)	0 – 2500 °C (300 °C min. span*)

\*Minimum Span May be lower but with reduced accuracy overall

Cold Junction Compensation	Internal
CJC Accuracy	< 0.5 °C over 0 – +40 °C <1 °C over -10 – +60 °C
TC Burnout Detection	Settable upscale or downscale

##### RESISTANCE THERMOMETERS (RB Input Ranges)

Model C2401-0	2 or 3 wire connection
Model C2401-1	True 4-wire connection
Measuring Current	200µA nominal 20µA for Model C2401-3 1000µA for Model C2401-4
Lead Resistance	≤ 100 ohms per lead
Pt100 (IEC60751/DIN43760)	-200 – 850 °C (50 °C min. span)
Ni100 (DIN43760)	-60 – 250 °C (50 °C min. span)
Ni120	-80 – 320°C (50°C min. span)
Pt500 (model C2401-3)	-200 – 630°C (50°C min. span)
Pt1000 (model C2401-3)	-200 – 630°C (50°C min. span)
Cu10 (model C2401-4)	-100 – 260°C (50°C min. span)

##### VOLTS (V Input Ranges)

Model C2401-0	-1 – +10V (min. span 0.1V)
Model C2401-2	-1 – +60V (min. span 5V)
Input Impedance	> 1MΩ

##### MILLIVOLTS (mV Input Ranges)

Millivolts	-10 – 100mV (min. span 1mV)
Input Impedance	> 10MΩ

##### CURRENT (I Input Range)

Current	0 – 25mA (0.2 mA min. span)
Current Input Burden	<5 ohms
Supply for two-wire (2W) transmitters	+24V nom.

##### CUSTOM (Any Input Range)

Custom Sensor Ranging	Many additional ranges are User Configurable using the Configuration Software
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##### Accuracy

Initial Error	<0.1%
Non-linearity	<0.1%
Temperature Drift	< 150ppm/°C
TC linearisation error (types B, E, J, K, N, T)	<0.25 °C or 0.1% of reading (whichever is greater) <0.5 °C below -100 °C
TC linearisation error (types R, S, W3, W5)	<2.0 °C
TC linearisation error (type W)	<2.5 °C

##### Selectable Computation Functions

1. Signal Inversion
2. Square Root

##### Alarm/Trip Relay contacts

Number of relays	2 (One per alarm/trip point)
High or Low setting	Configurable to be energised above or below the setpoint.
"Rate of Change" Alarms	Fast (per second) Slow (per minute)
Contact type	SPDT (Form C) per relay
Contact Rating	2A 30Vdc ; 0.5A 250Vac
Source	From AL1 & AL2 Alarm setpoints
Terminal/wire size	0.14 – 2.5mm <sup>2</sup> stranded
Contact Isolation Test/Operating Voltage	1500Vac Isolation 250Vac operating.
Response Time	<20ms for input change 10-90%

##### Alarm/Trip Setpoints

Number of setpoints	2 (One for each Relay)
Settable Range	Full span of the instrument
Repeatability	<0.1%
Deadband	Settable 0.1 to 100%
Rate-of-Change Alarms	Fast (per second) Slow (per minute)

##### Indicator LED's

###### OK LED (Green)

ON Steady	Unit is powered and operating correctly
Single Flash every second	Input Fault.
Triple Flash every second	Configuration Fault.

###### AL1 and AL2 Alarm/Trip indicator LED's (Red)

AL1 ON Steady	ON when relay RL1 is energised.
AL2 ON Steady	ON when relay RL2 is energised.





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### Power Supply

Supply Voltage	24 Volts -15% / +25% (20-30Vdc)
Current Consumption	40mA with relays de-energised 25mA per relay energised Total = 90mA maximum

### Configuration

Input Type	Field selectable via 4 way DIP switch (Accessed from top of module)
Input Range	Field selectable via programming port on front of unit with the aid of a PC and configuration software package.
Alarm/trip Setpoints and Deadband	Field selectable via programming port on front of unit with the aid of a PC and configuration software package.

### Environmental Conditions

Operating Temperature	-10°C – 60 °C (+14°F – 140°F)
Storage Temperature	-25°C – 85 °C (-13°F – 185°F)

### Compliance with Standards

Safety	EN 60950:1995
Emissions	EN 55011 EN50081-2:1994 Group I, Class A EN50082-2
Immunity – ESD	IEC 61000-4-2:1995, level 3
Immunity – RF Fields	IEC 61000-4-3:1995, level 3
Immunity – Fast Transients	IEC 61000-4-4:1995 2 kV – DC power port 1 kV – input/output lines
Insulation	Basic Insulation between isolated circuits per IEC950
Insulation Test Voltage	Input/Output/Supply 100% tested to 1500Vac

Functional Safety to IEC61508

Suitable for use in SIL1 applications. See separate Reliability Datasheet RDC2468

### Mechanical

Width	45mm
Height	75mm
Depth	110mm
Mounting	Snaps on to DIN rail EN50022-35 Or screws to vertical surface
Housing	Shock resistant ABS
Flammability	UL94-HB (Housing) UL94-V0 (Terminals)
Terminal/wire size	0.14 – 2.5mm <sup>2</sup> stranded

### Weight

Unpacked	170gm approx.
Packed	210gm approx.

### Ordering Information

ORDER CODE	DESCRIPTION
C2468B-0	Omniterm TTP Dual Trip & Transmitter (standard model).
C2468B-1	Omniterm TTP with 4 wire RTD input
C2468B -2	Omniterm TTP with Hi Voltage Input
C2468B -3	Omniterm TTP with low current excitation for Pt1000 etc.
C2468B -4	Omniterm TTP with high current excitation for Cu10 etc.
ACCESSORIES	
C1168A	Omniflex Miniature Jack Programming Cable.

