



## DTM Distributed Transmitter Monitor

### DTM30 Temperature Module

The DTM30 temperature module is a single channel temperature signal conditioner and processing unit. DTM30 accepts resistance temperature detector (RTD) and thermocouple signal input and has a choice of output options including an isolated (0 or 4 to 20) mA re-transmission signal, change over trip relay, twin normally open relays or various combinations. DTM30 has a high degree of functionality and configurability. For systems that require more local input, DTM30 with an in-built keypad and digital display are available where functions can be accessed via the front panel keys.

#### DTM30 Features

- ✓ **Input/output/power isolation**
- ✓ **Powerful standard functions which the user can easily configure via front panel keys**
- ✓ **Digital display measurement value**
- ✓ **Isolated (0 or 4 to 20) mA output**
- ✓ **Dual relay output**
- ✓ **35mm DIN rail mounting**



#### Specifications

##### Electrical

##### Power Supply:

24V DC  $\pm 10\%$  @200 mA

##### Inputs:

DTM30 units can accept the following input types.

RTD: Pt100, Ni120  
 Thermocouple: K, J, T, R, S, E, F, N, B

##### RTD:

Sensor range: -200 to 850°C  
 Linearization: Pt100 (BS EN 60751/JISC 1604)/Ni120/Custom  
 Basic accuracy:  $0.1^\circ\text{C} \pm 0.05\%$  of reading  
 Thermal drift (zero):  $\pm 0.004\Omega/^\circ\text{C}$   
 Thermal drift (span): 100ppm/°C  
 Excitation current: 1mA  
 Lead resistance effect:  $0.002^\circ\text{C}/\Omega$   
 Max lead resistance: 50Ω/leg

##### Thermocouple:

Sensor range:

| Type   | Range(°C)    |
|--------|--------------|
| K      | -200 to 1370 |
| J      | -200 to 1200 |
| T      | -210 to 400  |
| R      | -10 to 1760  |
| S      | -10 to 1760  |
| E      | -200 to 1000 |
| F      | -100 to 600  |
| N      | -180 to 1300 |
| B      | -10 to 1650  |
| Custom | user defined |



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Basic accuracy:

$\pm 0.04\%$  FS or  $\pm 0.04\%$  reading or  $\pm 0.5^\circ\text{C}$ , whichever is greater (For type R & S, stated accuracy only applies between  $800$  &  $1760^\circ\text{C}$ ) (For type B, stated accuracy only applies between  $400$  &  $1650^\circ\text{C}$ )

Linearization: BS4937 / IEC 584-3 / Custom

Cold junction error:  $\pm 0.5^\circ\text{C}$

Cold junction tracking:  $0.05^\circ\text{C}/^\circ\text{C}$

Cold junction range:  $-20$  to  $70^\circ\text{C}$

Thermal drift (zero):  $\pm 4\mu\text{V}/^\circ\text{C}$

Thermal drift (span):  $\pm 200\text{ppm}/^\circ\text{C}$

## Outputs:

### Relays

Alarm Action: Off, High, Low, Deviation, Test

Max switching voltage:  $48\text{V RMS (AC)}/48\text{V (DC)}$

Max current:  $1\text{A @}48\text{V(AC)}/1\text{A @}30\text{V(DC)}$

Max power:  $60\text{VA(AC)}/30\text{W(DC)}$

Hysteresis: Programmable  $0$  to  $100\%$

Delay Time: Programmable (Alarm must be continuously present for this period in order to be recognized)

Start-up Delay: Programmable

Operate time:  $<5\text{ms}$

Electrical life @ full load:  $100,000$  operations

Mechanical life:  $10,000,000$  operations

## Current Retransmission:

Output Range:  $0-10, 0-20, 4-20$  mA source or sink

Maximum current output:  $<23\text{mA}$

Accuracy:  $0.07\%$

Max power supply:  $30\text{V}$  (In sink mode)

## General:

EMC Approval: EN61326: 1997

Immunity: Annex A Industrial

Response Time:  $300\text{mSec}$  typical

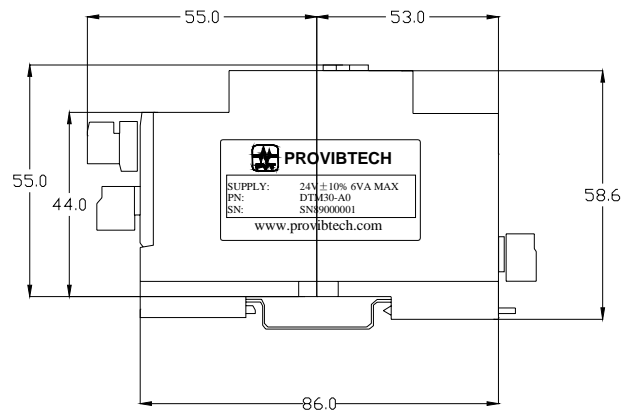
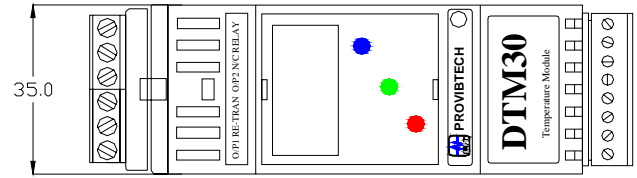
Isolation:  $500\text{V AC I/P}\sim\text{O/P}\sim\text{PSU}$

EMC emissions: BS EN50081-1

EMC immunity: BS EN50082-2

Display Range:  $-1999$  to  $9999$

## Physical



## Environmental

Temperature:

Operation:  $-30^\circ\text{C} \sim +60^\circ\text{C}$ .

Storage:  $-50^\circ\text{C} \sim +85^\circ\text{C}$ .

Humidity:  $10$  to  $90\%$  RH

## Ordering Information

### DTM30-AX

A0: Basic module

## Optional Accessories

### TM900

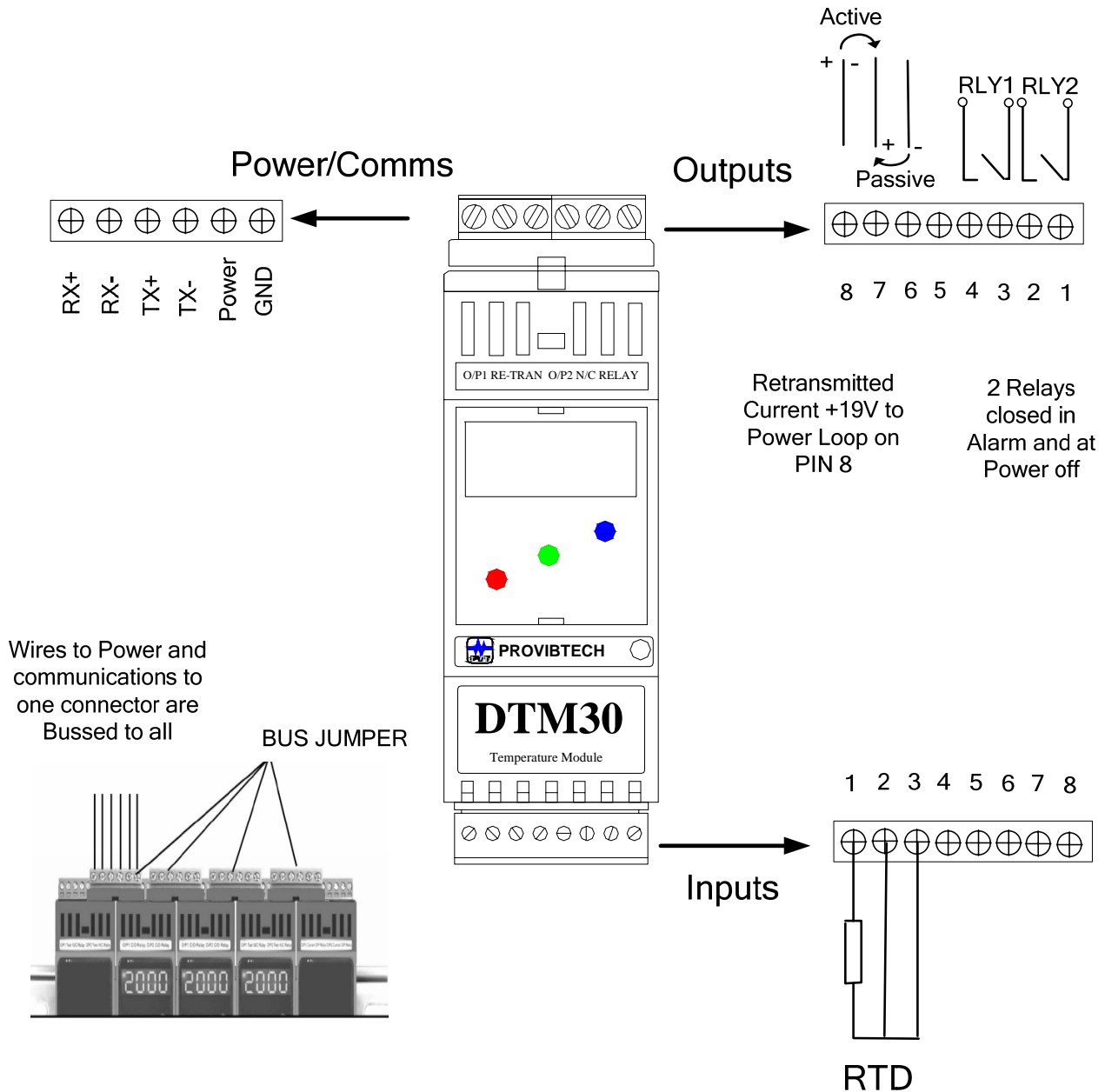
Power converter with isolation. It converts  $95-250$  VAC into  $24\text{VDC}$  and is capable of powering up to five DTM modules.



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## DTM30 System Installation

### DTM30 Field-Wiring Diagram for RTD



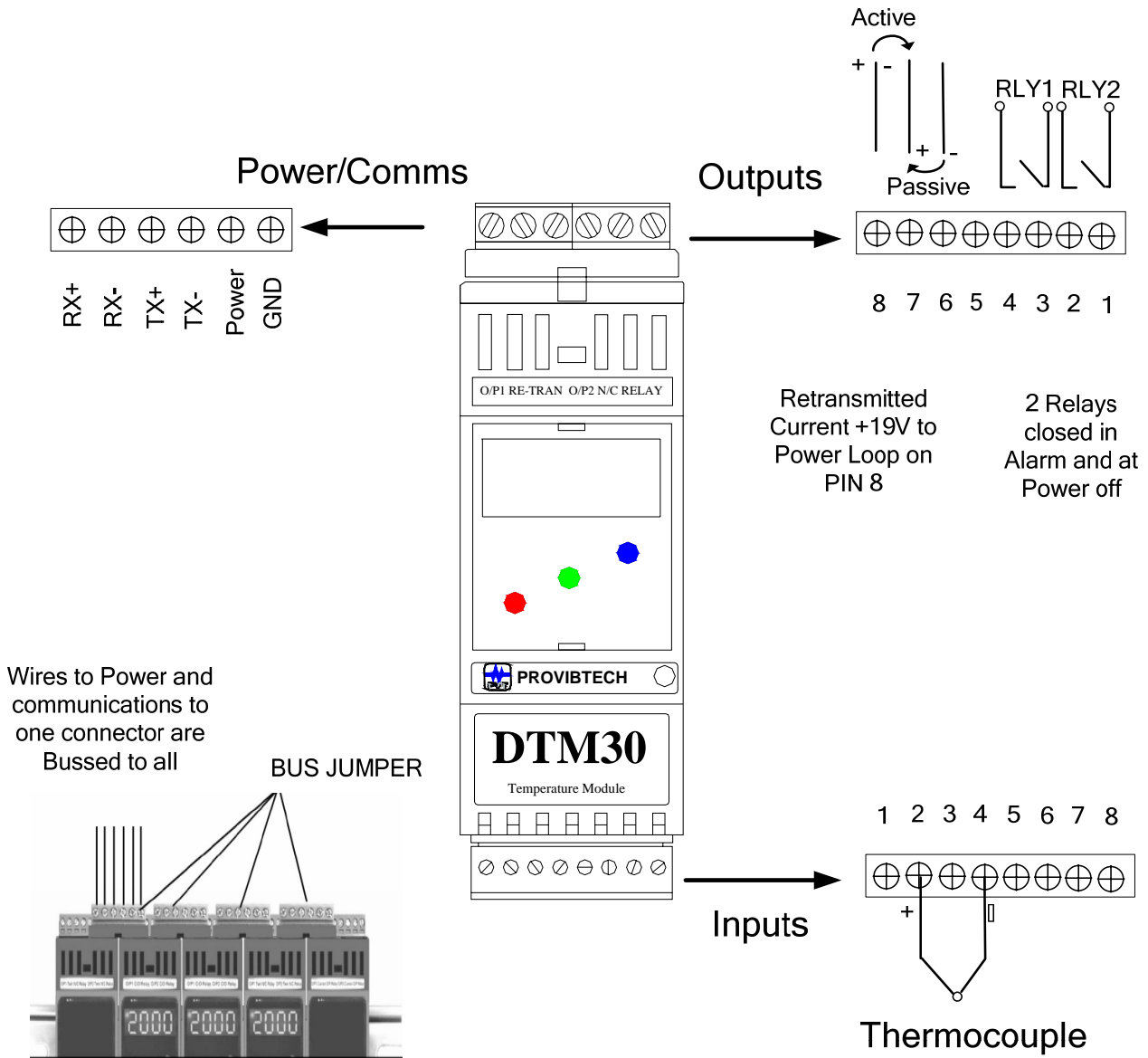
**Note:**

- ✓ DTM30 is provided with a unique 'BUS JUMPER' system for quick wiring of communications and power connections. To use the Bus Jumper, disconnect all power supply/communications connectors and place them so that they connect between the two units. Wiring to one connector then connects to all units.



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## DTM30 Field-Wiring Diagram for Thermocouple



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- ✓ DTM30 is provided with a unique 'BUS JUMPER' system for quick wiring of communications and power connections. To use the Bus Jumper, disconnect all power supply/communications connectors and place them so that they connect between the two units. Wiring to one connector then connects to all units.