



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°C) (For type B, stated accuracy only applies between 400 & 1650°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°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: 30V (In sink mode)

General:

EMC Approval: EN61326: 1997

Immunity: Annex A Industrial

Response Time: 300mSec typical

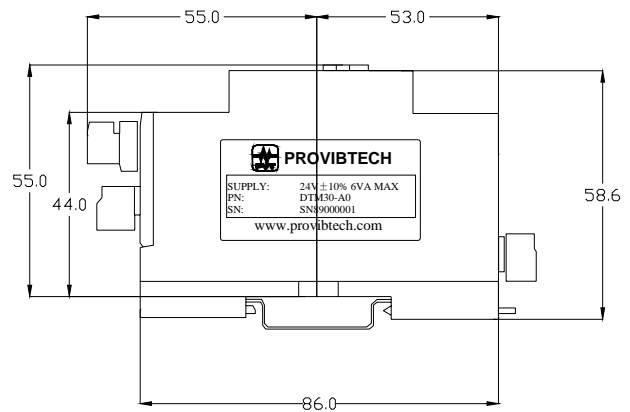
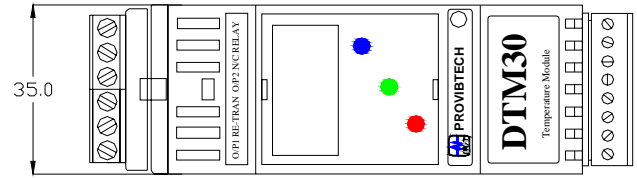
Isolation: $500\text{V AC I/P}\sim\text{O/P}\sim\text{PSU}$

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

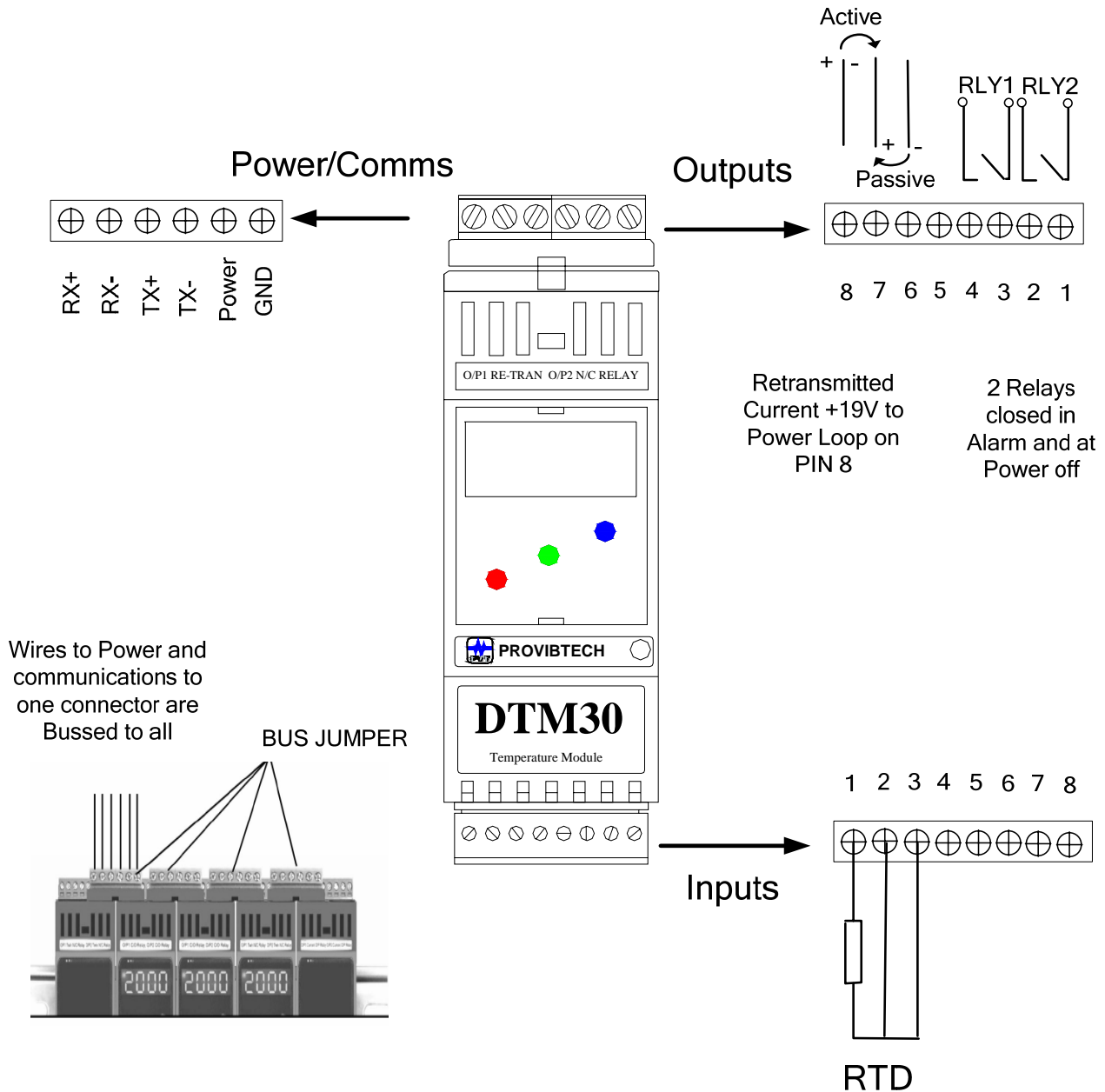
Power converter with isolation. It converts $95-250$ VAC into 24VDC and is capable of powering up to five DTM modules.



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DTM30 System Installation

DTM30 Field-Wiring Diagram for RTD



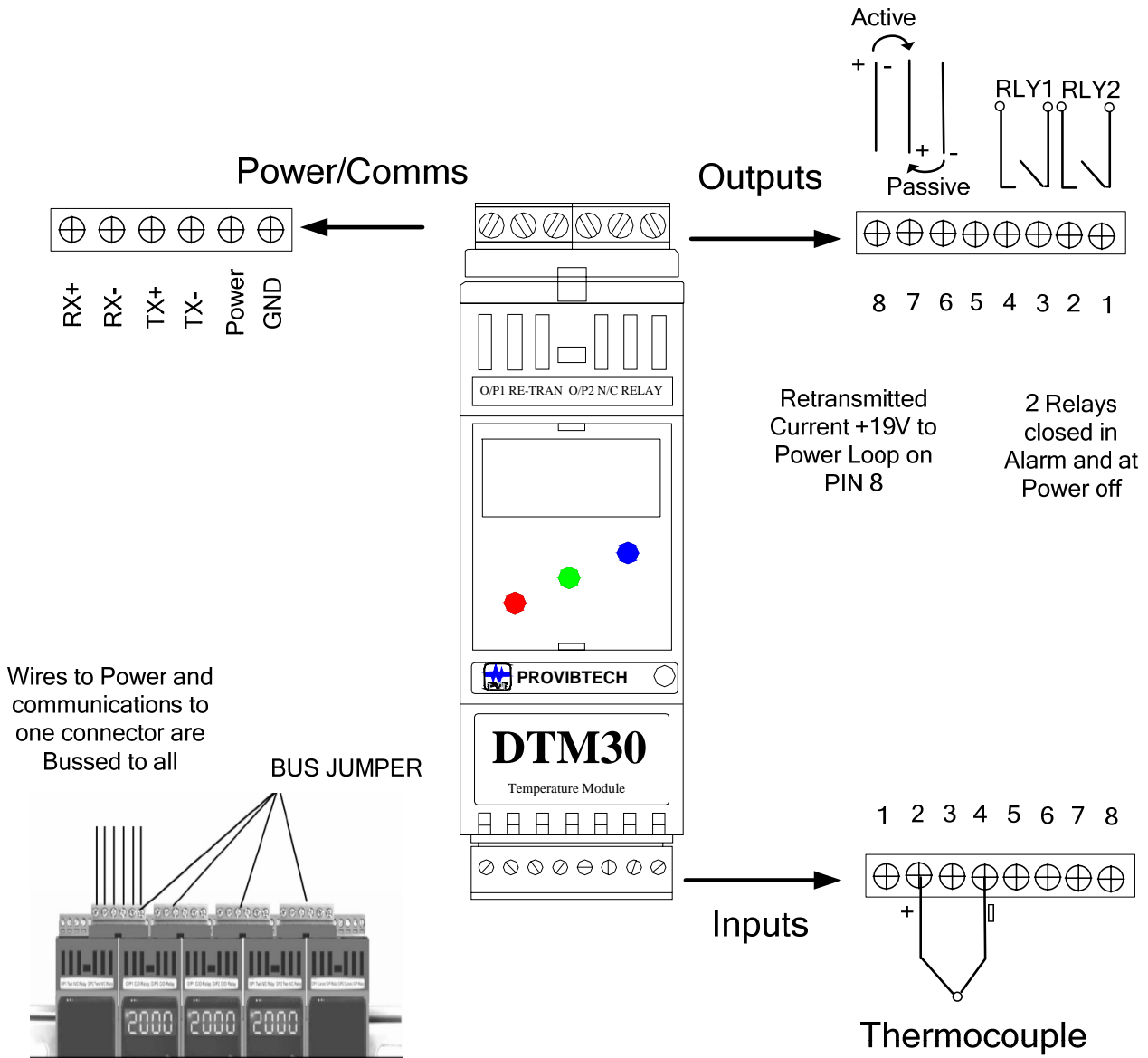
Note:

- ✓ 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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