

New
32 & 64 Input
Models

Scanivalve Corp. 

Model DTS3250

Digital Temperature Scanner

Data Sheet No. G550

Universal Thermocouple Scanner

Features

- Accepts type E, J, K, N, R, S, T, and B
- Engineering Unit output, °C, °F, °R, or K
- Ethernet TCP/IP protocol "network ready"
- 10 samples/channel/second
- 50 - 60 Hz noise rejection
- Open thermocouple test
- 1000 Vdc input isolation
- LabView® driver and OPC server
- 16, 32, and 64 channel

General Description

The DTS3250 series temperature acquisition system represents the next generation of intelligent thermocouple scanning. Model DTS3250, Digital Temperature Scanner, accepts 16, 32, or 64 pairs of thermocouple inputs. It incorporates RAM, Integral Low Pass Filters, 22 bit A/D converters, and a microprocessor, in a rugged stand alone module.

An isothermal block is incorporated for the Uniform Temperature Reference (UTR) for each 16 channel input. NIST thermocouple tables for standard thermocouple types are stored in flash memory. The microprocessor uses these look-up tables to convert mV inputs to Engineering Units. Temperature data are output in °C, °F, °R, K, millivolts and counts.

The DTS3250 accuracy for types E, J, K, N, and T is $\pm .25^{\circ}\text{C}$ to $\pm 0.5^{\circ}\text{C}$ depending on the thermocouple type and the useful temperature range. (Refer to accuracy table.)

Multiple standard thermocouple types may be used with one intelligent thermocouple scanner, Model DTS3250.



*DTS3250/32 Channel
(shown)*

Applications

The DTS3250 Digital Thermocouple Scanner is ideal for use in turbine engine, diesel engine, and compressor test cells, as well as other industrial environments such as boiler and oven temperature monitoring. The module has a stainless steel enclosure with a locking lid for input terminal access. The standard DTS is insulated, rugged, and splash resistant. Also included as standard are environmental shock mounts.

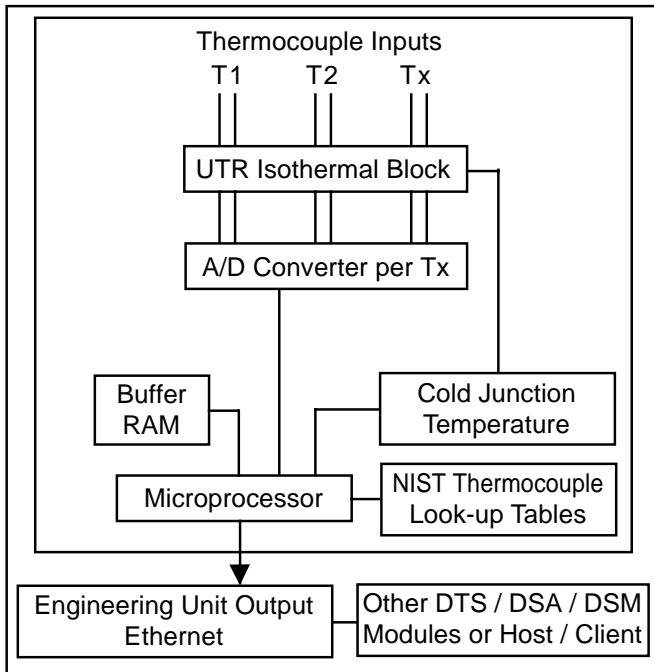
The 64 channel DTS3250 modules are optionally available with a 19 inch rack mount kit.

The DTS3250 Intelligent Scanner is typically mounted in close proximity to the test article, thus minimizing thermocouple wire lengths. Shorter thermocouple wires not only reduce errors, but also lower costs due to the elimination of extension cables. Field calibrations can be used to modify coefficients which can also improve end to end accuracy.

The standard DTS3250 module accepts two wire or three wire shielded thermocouples.

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LabView® is a registered trademark of National Instruments.

DTS3250 Module



DTS3250 Network/Firmware

DTS3250 modules accept software commands via Ethernet TCP/IP protocol. The DTS3250 temperature acquisition may be controlled with a hardware or software scan trigger.

Each DTS module has a unique factory set 48 bit MAC address. When running TCP/IP protocol, the DTS3250 modules support ARP (Address Resolution Protocol) to enable the client/host to determine the relationship between the IP address and the Ethernet address. The IP address is user assignable.

All Scan and calibration variables are configured through software by the user. This includes number of frames per scan, number of averages per frame, sampling speed, etc.

The DTS3250 firmware includes an open thermocouple test. Diagnostic tests may be performed using Ethernet communication. New firmware versions can be upgraded via FTP.

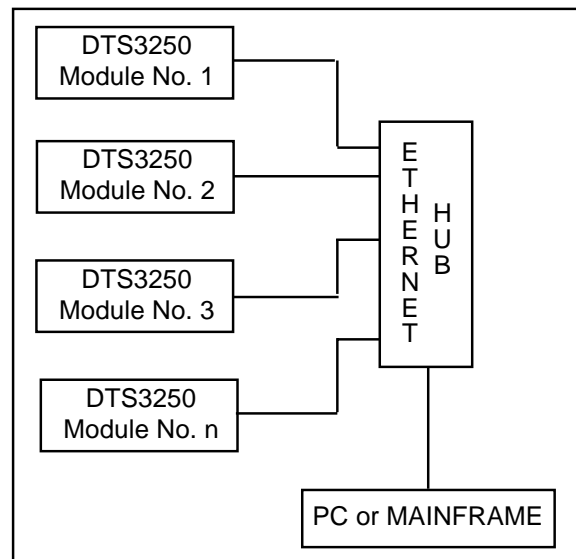
Temperature Measurement

There are a number of standardized thermocouple types available on the market. Each has different properties, which makes them suitable for specific temperature ranges and media.

Accuracy of a thermocouple measurement is highly dependent upon the reference junction connection, its material, installation techniques, and temperature.

The DTS3250 intelligent thermocouple scanner measures the mV signal from the thermocouples and compensates for the temperature of the cold junction.

NIST mV-temperature tables for each type thermocouple listed in this brochure are stored in the DTS3250 flash memory. This table is broken down into increments of .1°C. The DTS3250 microprocessor utilizes the compensated EMF and the NIST look-up table for conversion to engineering units. Temperature data are then output via Ethernet with TCP/IP protocol.



The DTS3250 intelligent scanner is compatible with all DSA3000, DSA3200 and DSM3200 series products on one network.

DTS3250 System / Specifications / Ordering

DTS3250 System Network

The DTS 3250 module interfaces directly to a PC, host computer, or Ethernet network. DSA modules, DTS modules, or third party devices may be connected on one network.

Direct communication can be made with ASCII commands via Windows® hyperterminal or Telnet.

A LabView® driver as well as an OPC server are available.

Specifications

Inputs (Px): 16, 32, or 64 pairs of 6-32 brass screw terminals plus shields or optional panel jack connectors

Thermocouple Types:

screw terminal: E, J, K, N, R, S, T, and B
panel jack option: E, J, K, and T

DTS3250 Accuracy:

Accuracy Table		
Thermocouple Type	Accuracy over Full Operating Range	Accuracy at Constant Ambient
E, J, K, N, and T	±0.5°C	±0.25°C
R and S	±2.0°C	±1.0°C
B	±4.0°C	±2.0°C

UTR Accuracy: ±0.1°C

A/D Resolution: 22 bit

Scan Rate: 10 samples/channel/second (rate dependent on 16, 32, or 64 type.)

Operating Temperature:

	Std unit	with optional heater
16Tx	-10 to 60°C	-30 to 60°C
32Tx	-5 to 60°C	-30 to 60°C
64Tx	-5 to 60°C	N/A

Communication: Ethernet 10baseT
RS-232 (configuration only)

Output: °C, °F, °R, K, mVolts, or Counts

Communication Protocol: TCP/IP or UDP

Mating Connector

Type:

10BaseT Power: Bendix PTO6A-8-4S
RS232/Trigger: Bendix PTO6A-8-3S, 3 pin female
Bendix JTO6RE8-6S-SR, 6 pin female

Power: (21–36Vdc)

Standard—No heater:
16Tx: .52 Amps @ 28Vdc
32Tx: .83 Amps @ 28Vdc
64Tx: 1.45 Amps @ 28Vdc

With Optional Heater:

16Tx: 1.6 Amps @ 28Vdc
32Tx: 4.8 Amps @ 28Vdc

External Trigger:

6.5 mA at 9 Vdc minimum leading edge sensing

Weight:

Screw terminal-16 Tx: 13.00 lbs (5.9 kg)
Panel jack option-16 Tx: 12.00 lbs (5.45 kg)
Screw terminal-32 Tx: 14.0 lbs (6.36 kg)
Panel jack option-32 Tx: 13.5 lbs (6.13 kg)
Screw terminal-64 Tx: 25.0 lbs (11.35 kg)
Panel jack option-64 Tx: 24.0 lbs (10.9 kg)

Input/Output Isolation:

1000 Vdc

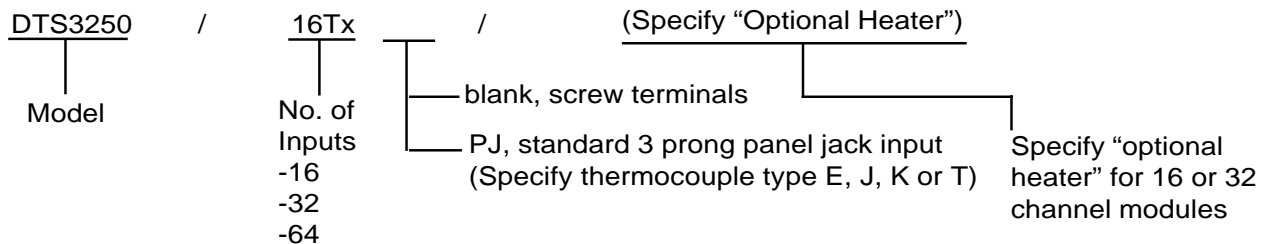
CE Mark

Standards: ‡ IEC 1000-4.2, 1000-4.3, 1000-4.5

*System accuracy specifications are valid after a one hour warm up period. Accuracy does not include Thermocouples, Thermocouple Extension Wire, or Panel Jack Connector option.

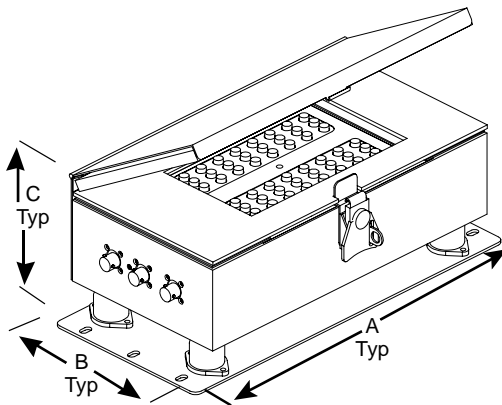
‡CE Mark certification applies to screw terminal version only.

Ordering Information

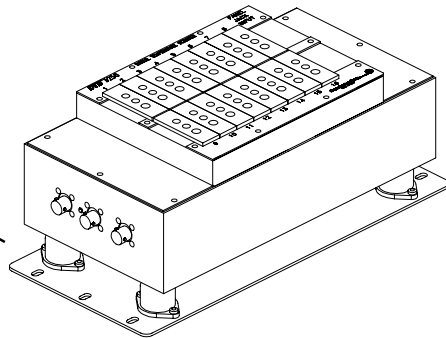


For 64 channel rack mount kit, order 21195-1.

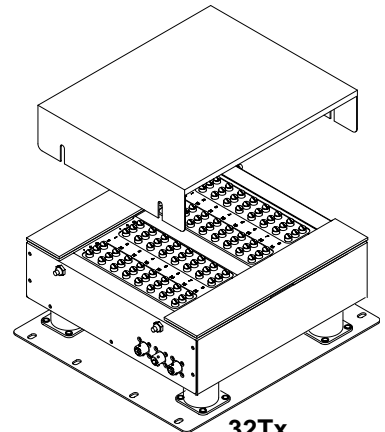
DTS3250 Dimensions



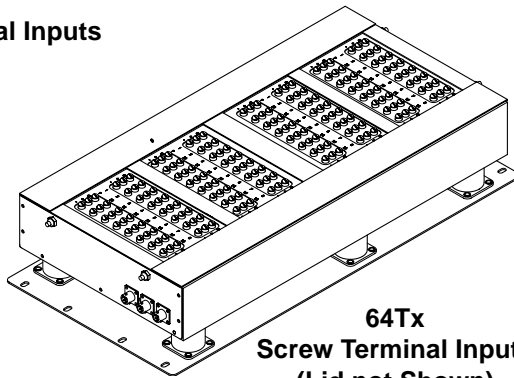
**16Tx
Screw Terminal Inputs**



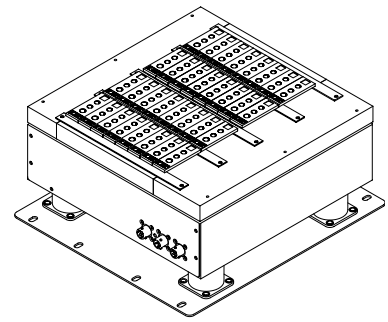
**16Tx
Panel Jack Connector Inputs**



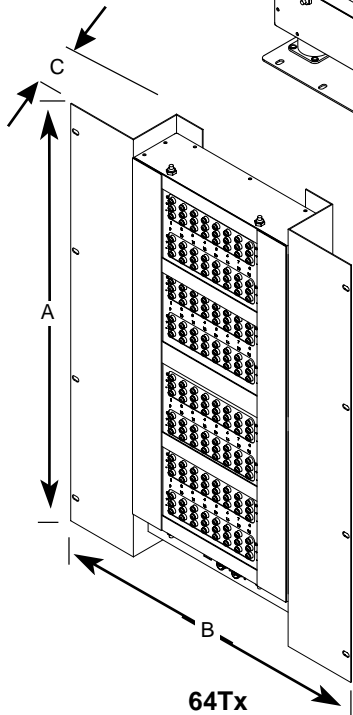
**32Tx
Screw Terminal Inputs**



**64Tx
Screw Terminal Inputs
(Lid not Shown)**



**32Tx
Panel Jack Connector Inputs**



**64Tx
19" Rack Mount Screw
Terminal Inputs**

Model DTS 3250	Dimensions (inches) Mounting Plate			Dimensions (cm) Mounting Plate		
	A (Length)	B (Width)	C (Height)	A (Length)	B (Width)	C (Height)
16Tx-screw terminal:	13.5	6.19	5.12	34.29	15.72	13.00
16Tx-panel jack:	13.5	6.19	5.34	34.29	15.72	13.00
32Tx-screw terminal:	12.0	10.75	5.58	30.48	27.31	14.17
32Tx-panel jack:	12.0	10.75	5.71	30.48	27.31	14.50
64Tx-screw terminal:	23.32	10.75	5.58	59.23	27.31	14.17
64Tx-panel jack:	23.32	10.75	5.71	59.23	27.31	14.50
64Tx-rack mount screw terminal:	24.0	19.00	4.00	60.96	48.26	10.16

Specifications are subject to change without notice.

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