



Model DTI Series Digital Temperature Indicator

- Precise Digital Thermometer $\pm 0.014^{\circ}\text{C}$*
- Temperature Range: -328 to 1382°F (-200 to 750°C)*
- 4-Wire True Ohm Measurements*
- Dual Channel Inputs*
- RS232 Serial Data Communications and Calibration Software*
- Easy-to-Read Display Indicates Sensor Identification and Characteristics*
- Security Features Prevent Unauthorized Changes to Sensor Coefficients*

PRODUCT DESCRIPTION

The AMETEK Model DTI Series Digital Temperature Indicators are precision digital thermometers ideal for general industry and laboratory use. Two models are available: the DTI 100 General Purpose Indicator and the DTI 1000 recommended for demanding laboratory applications.

True Ohm Measurement

The Model DTI Series indicators have been designed on the basis of the most current DC measuring techniques in combination with powerful microprocessor technology. To achieve high accuracy, the measuring principle used by DTI indicators is True Ohm Measurement to eliminate the EMF of cables, sockets and sensors. True Ohm Measurement is a proven method to achieve the correct compensation of the errors induced by thermal effects.

DTI 100 Indicator - General Purpose

The DTI-100 indicator uses a high precision Pt-100 sensor with a temperature resolution up to 0.01°F (0.01°C). Accuracy is $\pm 0.025^{\circ}\text{F}$ ($\pm 0.014^{\circ}\text{C}$) and short term stability is $0.004^{\circ}\text{F}/4\text{mK}$. The DTI-100 indicator is ideal for general applications.

DTI 1000 Indicator - Laboratory Applications

For more demanding applications, such as those required in the laboratory, AMETEK recommends the DTI-1000 indicator. This instrument also features a Pt-100 sensor but with temperature resolution up to 0.001°F (0.001°C). The unit also features an analog output channel with an adjustable analog range of -0.5 to 3.75V . Analog output accuracy is $\pm 0.004\text{V}$ and output resolution is $\pm 0.001\text{V}$. Both units are ideal for portable use in the field or as a benchtop device.

Documentation and Verification of Measuring Data

Common to both the DTI-100 and DTI-1000 indicators is an RS232 serial data communication interface. This allows the DTI indicators to be serially connected to a personal computer for data storage and reporting. Features are included within the DTI for making measuring and documenting much easier, e.g., adjustable analog output to adapt the signal to your recorder, readout of minimum/maximum temperatures, measuring of differential temperatures and temperature logging.

Simplified Operation

The DTI Series indicators feature an easy-to-read LCD display and dedicated function keys. All operations are performed from the instrument's front panel.

An ON/OFF key automatically initiates a self-test routine and the display indicates tested parameter results plus the date of the last calibration.

The MENU/ENTER key includes intelligent prompts that guide the user through setup and operation. From here, the user can specify temperature mode, measuring units, resolution and sensor identification and coefficients.

Certification

A traceable certificate is supplied with all DTI indicators. This certificate covers an 8-point calibration traceable to NPL in England. As an option, you may request to have your DTI calibration performed by a National Accredited Laboratory.

FUNCTIONAL SPECIFICATIONS

Model DTI-100 Digital Temperature Indicators

Temperature Range
-263 to 1382°F (-164 to 750°C)

Resolution
0.01°F (0.01°C)

Measuring Units
°F, °C, °K and W

Accuracy^{1, 2}
±0.025°F (+0.014°C) ±1 digit

Stability (Short Term)
0.004°F/4mK

Response Times	
Resolution	Response Time
0.1	1 Second
0.01	2 Seconds

Input Channels
2

Termination
Banana Plugs

Model DTI-1000 Digital Temperature Indicators

Temperature Range
-263 to 1382°F (-164 to 750°C)

Resolution
0.001°F (0.001°C)

Measuring Units
°F, °C, °K and W

Accuracy^{1, 2}
±0.025°F (+0.014°C) ±1 digit

Stability (Short Term)
0.004°F/4mK

Response Times	
Resolution	Response Time
0.1	1 Second
0.01	2 Seconds
0.001	7 Seconds

Input Channels
2

Termination
LEMO or Banana Plugs

Analog Output
1

Analog Range
-0.5 to 3.75V

Analog Output Accuracy¹
±0.004V

Analog Output Resolution
±0.001V

Analog Output Load
Minimum 10KW

Notes

- ¹ Specified at 95% confidence interval k=2, over full range, includes calibration uncertainty
- ² Excludes 1 Least Significant Digit
- ³ Measured value when using sensor coefficients supplied with sensor

COMMON SPECIFICATIONS

Serial Data Interface

RS232C

Display

Two Lines, 20 character alphanumeric
Green backlight LCD

Power Supply

9Vdc, 200mA

Power Supply Batteries

8 x 1.5V (Type AA)

Battery Life

50 hours typically without light

Operating Temperature

32 to 122°F (0 to 50°C) Max. at 90% R.H.

Storage Temperature

-4 to 140°F (-20 to 60°C) max. at 90% R.H.

Dimensions (L x W x H)

8.9 x 5.3 x 7.7-inches (225 x 135 x 195mm)

New Weight

4.9 lbs (2.2kg)

SENSORS

Sensor Type

Platinum Pt 100

Temperature Range

-13 to 572°F

Accuracy ^{1, 3}

±0.047°F

Alpha Value

0.00385

Cable

4-wire, Shielded 6 feet (2 meters)

Terminators

LEMO Socket or Banana Plugs

Sensor Length

6-, 10, 14- or 20-inches (150, 250, 350, 500mm)

Diameter

0.16-inch (4mm)

Immersion Depth

Minimum 3.125-inch (79mm)

Material

Iconel

Response Time (Water)

t= 30 seconds

Calibration

ITS-90 or IPTS-68

Notes

All sensors are certified by a National Accredited Laboratory, stating sensor coefficients. Sensors are thermally cycled before calibration to minimize future drift. The Sensors are calibrated in five calibration points against a standard reference sensor.

ORDERING INFORMATION

MODEL DTI DIGITAL TEMPERATURE INDICATOR

Order Number	Description
	Base Number and Range
75-DTI 100	DTI 100 Digital Temperature Indicator, complete
75-DTI 1000	DTI 1000 Digital Temperature Indicator, complete

Accessories	Description
60D016	Mains Adaptor, 9Vdc 200mA, 115V
60D017	Mains Adaptor, 9Vdc, 200mA, 230V
60D018	Mains Adaptor, 9Vdc, 200mA, 230V UK
60D019	Mains Adaptor, 9Vdc, 200mA, 115V Japan
65-PK-DTI-CASE	ALU Carrying Case
EXT.DTI CAL.1	System Certificate DTI Only
EXT.DTI CAL.2	System Certificate DTI and 1 Sensor
EXT.DTI CAL.3	System Certificate DTI and 2 Sensors
75-PT100-LL-150	6-inch (150mm) Probe with 2 meter (6 foot) cable, lemo plugs
75-PT100-LL-250	10-inch (250mm) Probe with 2 meter (6 foot) cable, lemo plugs
75-PT100-LL-350	14-inch (350mm) Probe with 2 meter (6 foot) cable, lemo plugs
75-PT100-LL-500	20-inch (500mm) Probe with 2 meter (6 foot) cable, lemo plugs
75-PT100-LCABLE	6-foot (2m) cable for Probe with lemo plugs