



## Model DTI Series Digital Temperature Indicator

- Precise Digital Thermometer  $\pm 0.014^{\circ}\text{C}$*
- Temperature Range:  $-328$  to  $1382^{\circ}\text{F}$  ( $-200$  to  $750^{\circ}\text{C}$ )*
- 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  $0.01^{\circ}\text{F}$  ( $0.01^{\circ}\text{C}$ ). 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  $0.001^{\circ}\text{F}$  ( $0.001^{\circ}\text{C}$ ). The unit also features an analog output channel with an adjustable analog range of  $-0.5$  to  $3.75\text{V}$ . 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.

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## 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**<sup>1, 2</sup>  
±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**<sup>1, 2</sup>  
±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 Accuracy**<sup>1</sup>  
±0.004V

**Analog Output Resolution**  
±0.001V

**Analog Output Load**  
Minimum 10KW

### Notes

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

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## 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** <sup>1, 3</sup>

±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.

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## ORDERING INFORMATION

### MODEL DTI DIGITAL TEMPERATURE INDICATOR

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

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

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## TEST AND CALIBRATION INSTRUMENTS

AMETEK is a leading global manufacturer of electrical and electromechanical products for niche markets. Listed on the New York Stock Exchange (AME) since 1930, AMETEK's annual sales are approaching \$1 billion. Operations are in North America, Europe and Asia, with about one-third of sales to markets outside the United States.

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**ISO 9001  
Manufacturer**

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