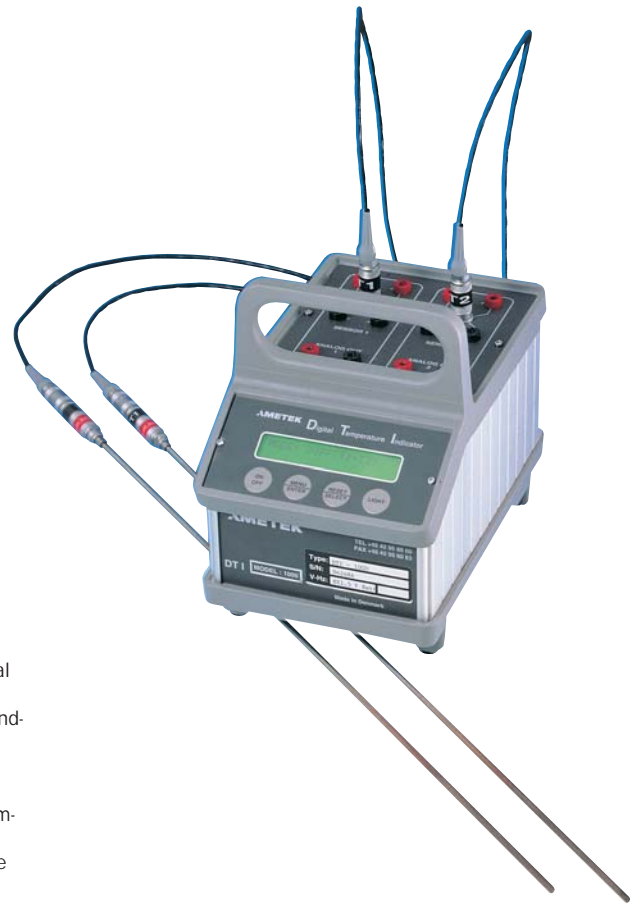


NEW Ametek/Jofra Precision Digital Temperature Indicator/Thermometer

- Precision Instrument for Temperature Calibration and Validation
- Precise Digital Thermometer
- Works With Jofra STS Probes or Custom Curves
- Combine With A Temperature Source for Accurate Calibrations
- Use with Reference Sensor for Validation of Other Sensors
- High Accuracy 0.014°C (0.025°F)
- Resolution 0.1 - 0.01 or 0.001
- True-Ohm Measuring Principle
- Dual Channel Inputs A and B, with Differential Value A-B, Peak Hold, ETC.
- Range -200°C to 750°C (-328°F to 1,382°F)
- Battery or Mains Adapter Supply
- RS-232 Interface as Standard
- Scaleable Analog Output
- Calibration and Datalogging PC Software Included (DOS)
- Security Features Prevent Unauthorized Change to Sensor Coefficients
- Available Carrying Case and Power Cable



The **AMETEK Model DTI Series Digital Temperature Indicators** are precision digital thermometers 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.

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, for example adjustable analog output to adapt the signal to your recorder, readout of minimum/maximum temperatures, measuring of differential temperatures and temperature logging.

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 TRANSCAT, a National Accredited Laboratory.

Specifications and Ordering Information

Mfg#	75-DTI100	75-DTI1000
Range:	-200 to 750°C (-328 to 1382°F)	
Accuracy:	±0.014°C / 0.025°F	
Stability:	±0.00222°C / 0.004°F / 4 mK	
Resolution:	0.1, 0.01°C or F – user selectable	0.1, 0.01, 0.001°C or F – user selectable
Probe connections:	Banana jacks	LEMO plug or banana jacks
Engineering units:	°C, °F, °K, and W	
Input channels:	1	2
Analog output:	No	Yes
Analog range:		-0.5 to 3.75 VDC
Analog output accuracy:		±0.004 VDC
Analog output resolution:		±0.001 VDC
Analog output load:		Minimum 10 KΩ
Communications:	RS232 with software	
Display:	2 line – alphanumeric – 20 characters	
Power:	(8) AA alkaline batteries – line voltage adapter available	
Size / Weight:	8.9 x 5.5 x 7.7" HWD / 4.9 lb	
Order #	MP21040T	MP212040T-1
Price		

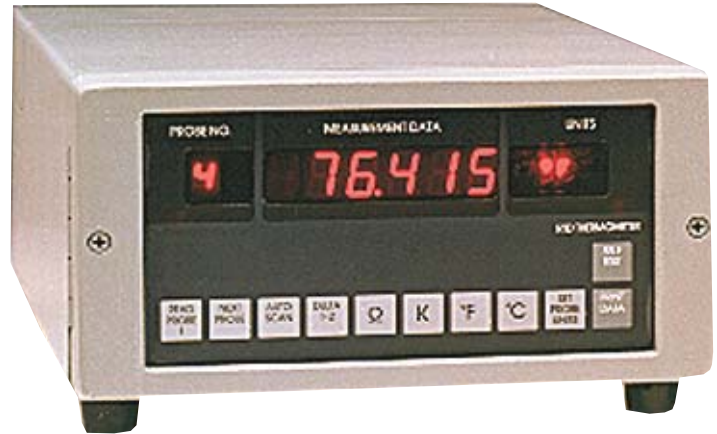
Each Unit Includes: Indicator, batteries, RS232 cable, software for testing and for calibration of temperature calibrators, reference and user's manuals, and manufacturer's NIST traceable certification

Ordering Information

Order #	Description	Price
MP60-PK-DTI-CASE	Carrying case for DTI	
MP60D019	Mains adapter – 9 VDC/200 mA – 115 VAC – USA/Japan	
MP60D017	Mains adapter – 9 VDC/200 mA – 230 VAC – Europe	
MP60D018	Mains adapter – 9 VDC/200 mA – 230 VAC – UK	

NEW Azonix Precision RTD Thermometer

- Up to Four Probe Inputs to Measure, Compare, or Check Your Data with Reference Resistors
- Measurement Range: -200 to +800 Degrees C
- Resolution: 0.001 Degrees C Over Full Range
- One Part Per Million Resolution Via Proprietary Multi-Slope A/D Converter
- Accuracy: Better than 0.01 degrees C Over Full
- Use Three or Four Wire Probes, SPRT's, PRT's, or RTD's from 25 ohms to 100 ohms
- Ro Delta T Measurement at the Touch of a Button
- Measure all Probes Automatically with the Built-in Autoscan Function
- Choice of Linearizations: By Probe Alpha only, ITS-90, IPTS-68, or Callendar-Van Dusen
- Display Data in Degrees C, Degrees F, Kelvin, or Ohms
- Analog Output Option: 1mV/degrees C for Probe #1
- Includes ITS-90 Temperature Standard
- Print and Log Data with the RS232C



A12001-1 ▲

Temperature Test Instruments

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Azonix's new A1011 features a resolution of 0.001 degrees C and an accuracy of 0.01 degrees C over the full temperature range and also provides for programmable probe parameters. The A1011 is capable of providing probe resistance to a resolution of one part per million. It also computes advanced floating-point mathematical algorithms, displays data in all common engineering units and prints this data upon command. Each of the four probes can be individually linearized based on these choices: Either Ro is entered and alphas are selected from 385, 390, 3916, or 392; or Ro, alpha, beta, delta, and A4 and C4 are entered when IPTS-68 or the Callendar-Van Dusen linearization is selected.

Specifications

Signal Input	
Configuration:	Isolated and Floating input for each channel, four channels maximum.
Input Range:	-199.999 to 850.000 degrees C
Input Protection:	+/-130Volts
Isolation(CMV):	600V minimum, 1000V typical
Sensor Open:	Display shows all dashes
Gain Tempco:	1PPM/ degrees C typical, 2PPM/ degrees C maximum
Zero Stability:	Autozero, +/-0.1uV/ degrees C typical
CMRR:	Greater than 160dB typical
Analog Output (For probe#1 only)	
Configuration:	Isolated and Floating output
Output Resolution: 1mV per 1.0 degrees C	
Accuracy:	0.05% typical, 0.1% minimum
Environmental & Physical	
Temperature Range:	Operating 0 to +60 degrees C Storage -40 degrees C to +85 degrees C
Relative Humidity:	0 to 95% Noncondensing
Size:	4.5"H x 8"W x 13"D, Bench Top with tilt stand
Weight:	16 lbs. Approximately

Ordering Information

Order #	Mfg#	Description	Price
MPA1011-RS-XX-2RT41-P110	Model A1011,	Two Inputs, 4 wire 100Ω RTDs and RS-232	
MPA1001-RS-AO-2RT41-P110	Model A1011,	Two Inputs, 4 wire 100Ω RTDs, RS232 and Analog Out	
MPA1013-RS-XX-3RT41 -P110	Model A1011,	Three Inputs, 4 wire 100Ω RTDs	
MPA1013-RS-AO-3RT41 -P110	Model A1011,	Three Inputs, 4 wire 100Ω RTDs, RS232 and Analog Out	

Additional configurations and options available upon request. Note: Probes are not included and must be ordered separately

Accessories

Order #	Mfg#	Description	Price
MPA12001-1	A12001-1	Laboratory Grade Probe, 4 wire 100Ω RTD	
MPTPCASE1	TPCASE1	Case to Hold two (2) probes	

Hart Scientific Precision Thermometers

Our best selling precision thermometer now has a thermistor version

- RTD and Thermistor Versions
- $\pm 0.004^{\circ}\text{C}$ Accuracy for RTDs
- Up to $\pm 0.002^{\circ}\text{C}$ for Thermistors
- Battery Packs Available

These precision thermometers fill the gap between ultra high precision (and priced) laboratory thermometers, and general purpose hand-held models. They can be paired with a wide variety of sensors to create a system accurate enough to calibrate process sensors and liquid in glass thermometers. Used in conjunction with one of our baths or dry block calibrators, they create a complete temperature calibration system.

5800T RTD Thermometer

The 5800T can be used with either 100 or 25 Ω Pt sensors. It can read the standard "385" industrial grade RTD with no programming. For greatest accuracy, select one of our lab grade probes and enter constants for the individual probe. You can do it easily through the front panel. Display measurements with 0.001 $^{\circ}$ resolution in your choice of $^{\circ}\text{F}$, $^{\circ}\text{C}$, $^{\circ}\text{K}$, or resistance in ohms. Readout accuracy is up to $\pm 0.004^{\circ}\text{C}$. As with any precision thermometer, you must add probe uncertainty to determine total system accuracy.

24202T Thermistor Thermometer

If you need higher accuracy in a limited temperature range, the 24202T delivers it in a thermistor readout. Thermistors have a relatively narrow range (0 to 100 $^{\circ}\text{C}$), but are sturdier than RTDs, and respond more quickly to changes. Within their limited range their accuracy is superior to that of an RTD, and the sensors are less expensive. Typical accuracy of the 24202T is up to $\pm 0.002^{\circ}\text{C}$, resolution is 0.0001 $^{\circ}$. Again, you must add in probe uncertainties to determine system accuracy.

Battery Power Option

If you want freedom from power cords, we offer both models with DC power and battery packs. The battery pack provides 6 to 8 hours of operation, and is about the size of a cellular phone.

Each Unit Includes: Manufacturer's certificate of calibration.



5800T



Hart has a Hand-held precision thermometer!

See page G21

Specifications

	5800T	24202T
Range:	-200 $^{\circ}\text{C}$ to 962 $^{\circ}\text{C}$	Any thermistor range
Sensor Type:	Pt 25 Ω to 100 Ω	Thermistor
Characterizations:	ITS-90, IPTS-68 Callender Van Dusen R_0 , α , δ , and β	Steinhart-Hart thermistor polynomial Callender Van Dusen R_0 , α , δ , and β
Accuracy:	$\pm 0.004^{\circ}\text{C}$ @ -100 $^{\circ}\text{C}$ $\pm 0.006^{\circ}\text{C}$ @ 0 $^{\circ}\text{C}$ $\pm 0.009^{\circ}\text{C}$ @ 100 $^{\circ}\text{C}$ $\pm 0.012^{\circ}\text{C}$ @ 200 $^{\circ}\text{C}$ $\pm 0.018^{\circ}\text{C}$ @ 400 $^{\circ}\text{C}$ $\pm 0.024^{\circ}\text{C}$ @ 600 $^{\circ}\text{C}$	$\pm 0.002^{\circ}\text{C}$ @ 0 $^{\circ}\text{C}$ $\pm 0.004^{\circ}\text{C}$ @ 50 $^{\circ}\text{C}$ $\pm 0.010^{\circ}\text{C}$ @ 75 $^{\circ}\text{C}$ $\pm 0.020^{\circ}\text{C}$ @ 100 $^{\circ}\text{C}$
Probe Connection:	4-wire via 5-pin DIN connector	
Interface:	RS-232 standard, IEEE optional	
Size/Weight:	5.6 x 7.1 x 2.4"/2.2 lbs	

See our selection of compatible RTD and Thermistor probes.

You can find them on pages G35-G36



Ordering Information

Order #	Mfg #	Description	Price
MP5800T	1502	Precision RTD Thermometer	
MP5800T-DC	1502/2502 & 9313	Precision RTD Thermometer with Power Option and Battery	
MP24202T	1504	Precision Thermistor Thermometer	
MP24202T-DC	1504/2502 & 9313	Precision Thermistor Thermometer with Power Option and Battery	
MP5802T	2506	IEEE Interface, Field Installable	
MP5803T	2505	Spare DIN Connector	
MP9934	9934	LogWare Software	
MP5805T	2508	Serial Cable Kit	

Hart Scientific Precision 4-Channel Thermometer

- Four Channels for PRTs, Thermistors, and Thermocouples
- Simple Menu System Guides You Through Internal Set-Up and Memory Options
- Displays 8 User-Selected Data Fields From any Channel
- Displaying Measurements in °C, °F, K, Ohms, or mV
- Connectors Accept Bare Wire, Spade Lug, Banana or Mini
- Resolution from 0.01 to 0.0001
- Logs up to 10,000 Readings with Date and Time Stamps
- Battery Provides 15 Hours of Continuous Operation
- Eleven Logging Intervals from 1 Second to 60 Minutes
- High Speed Mode Allows Measurements of 10/sec



▲ 1529T

Display

You can also select any eight items to view on-screen. Choose statistical functions such as averages, standard deviations and spreads, probe information such as probe type and serial number, T1-T2 functions using inputs from any two channels or utility functions such as the date, time, and battery power level. You can even save up to ten screen configurations for easy recall.

Communications

The memory and communications capabilities of the Chub-E4 make it perfect for benchtop thermometry, on-site measurements, lab calibration work, and remote data logging. Optional software packages from Hart make this one of the most powerful thermometers on the market.

With battery power and memory to store up to 10,000 measurements (including date and time stamps), the 1529 has plenty of data logging capability. Store 100 individual measurements or any number of automatic log sessions (up to 10,000 readings), each tagged with an identifying session label.

Specifications

	RTD	Thermistor	Thermocouple
Inputs:	100 or 25 Ohm PRT	YSI-400/Steinhart-Hart	B, E, J, K, N, R, S, T, and Au-Pt
Accuracy:	±0.004°C at -100°C ±0.009°C at +100°C	±0.0025°C at 25°C	±0.35°C at 600°C (Type J) (not including T/C)
Power:	100 to 240 volts, DC power from 12 to 16 volts, or off its internal NiMH battery for eight hours between charging. NiMH battery charges in less than three hours and lasts through 500 charge/recharge cycles		

Ordering Information

Order #	Mfg #	Description	Price
MP1529T-4RTD	1529	Precision Thermometer with 4 RTD/Thermistor Inputs	
MP1529T-4TC	529	Precision Thermometer with 4 Thermocouple Inputs	
MP1529T-2RT	1529	Precision Thermometer with 2 RTD/Thermistor and 2 T/C Inputs	
MP1529T-CS	1529T-CS	Rugged Case for 1529 and 12" Probe	
MP9935-M	9935-M	Multichannel LogWare Multi User	
MP9935-S	9935-S	Multichannel Logware Single User	

Temperature Test Instruments

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NEW Hart Scientific Temperature Sensor Calibration Software

- Fully Automated Calibration of RTDs, TCs, Thermistors, and Many Heat Sources
- Calibrates up to 100 Sensors at up to 40 Points
- Performs Coefficient Calculations and Generates Tables and Reports
- Includes Optional Integration with Fluke's MET/TRACK® Database

With Hart's 9938 MET/TEMP II Software, you simply place your test sensors in a heat source, connect them to a readout, and enter your setup data into your PC. Sometime later, hit your print button, take the reports out of your printer and file them. Automatically created from your setup data and test results, calibration reports conform completely to the requirements of ANSI/NCSL Z540-1. It's fast, it's accurate, and it's complete.

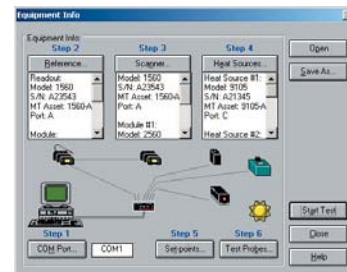
MET/TEMP II software can be used with any Hart thermometer readout, and it controls any combination of Hart dry-wells and baths. Choose from more than 9 readouts and 40 heat sources to calibrate up to 100 sensors automatically. Whether you need 1 mK accuracy for advanced metrology work or 1°C accuracy for industrial sensors, Hart has the equipment to fit your application. It also provides quick and accurate generation of sensor coefficients and tables.

MET/TEMP II allows you to track the serial numbers, model numbers, calibration dates, and recall dates of all test equipment and sensors under test. Optionally, this data may be synchronized with information in your MET/TRACK database.

MET/TEMP II runs on Windows 9x/ME/2000/NT/XP, and includes a context-sensitive, online help system.

This software package tests thermocouples, RTDs, SPRTs, thermistors, and even liquid-in-glass thermometers. You can select as few as 1 or as many as 40 temperatures at which to test your sensors.

Each Package Includes: CD-ROM, RS-232 multiplexer box, adapter, and PC cable



Ordering Information

Order #	Mfg #	Description	Price
MP9938T	9938	MET/TEMP II Software	
MPLIC-9938	LIC-9938	License for MET/TRACK Database	

Hart Scientific Precision Hand-Held Thermometer

Hand-held standards-grade thermometer reads RTDs and thermistors

The smallest and most affordable standards-level thermometers available, with accuracy and functions previously found only in more-expensive bench or lab units. They are ideal for field reference work in conjunction with a dry block or calibration bath, or for comparison testing of installed sensors.

- Provides RTD Accuracy to $\pm 0.025^{\circ}\text{C}$, Thermistor to $\pm 0.005^{\circ}\text{C}$
- Log Up to 10,000 Readings (1522T Only)
- Unique Connector Stores Probe Cal Data
- Reads Multiple Curves
- Resolves Values to 0.001°C with Accuracy Maintained
- Features Min/Max Storage and Display, Plus Hold and Delta Functions

The 1521T offers true standards thermometry, reads 25- to 100-ohm RTDs in three curves and all types of thermistors. Probes attach through Hart's new "INFO-CON" connector, which lets you change probes without reprogramming. INFO-CON stores all critical information about each probe you use: It automatically recognizes the probe, and downloads the appropriate calibration constants and conversion type. Also checks stored cal-recall date to verify it's not expired. You can override this function to use a single, dedicated probe. When you buy a new Hart probe or have one recalibrated, the probe data is pre-loaded into the INFO-CON memory. Attach your own probe easily and program the connector right from the 1521/22.

Add Datalogging Capability

The 1522T has all of the identical features of the 1521T, plus the ability to log up to 10,000 readings. There are two data acquisition modes—"Auto Logging" and "Demand Logging."

Auto Logging can store the value, unit of measure, date, and time of each measurement. You can record continuously, or stop and record in up to 25 different data labels up to 10,000 values.

Once that limit is reached, recording stops and will not overwrite, preserving your early measurements. Select a pre-created label before recording and the logged data will be saved in this file.

Demand Logging allows up to 100 individually selected measurements. Once again, you can select the data label you would like the measurement to be stored under.

Software

Add the LogWare software to make easy work of your data management. Easily download the data to your PC. You can record and view your readings in real-time as data, create a graph, or apply alarms to see if your measurements have exceeded specific values.

Thermometer uses menu system for easy access to all functions, and calibration and sensor-programming functions are password protected. Min/Max stores lowest and highest readings since last reset, Hold freezes and stores current reading (up to 10,000 can be stored for later recall), and Delta computes the difference between the current reading and a reference value you choose.



1521—The FIRST truly hand-held standards-grade thermometer on the market today

Specifications

Sensor Type	Pt25 to Pt100 RTDs	Thermistors
Temperature Ranges:	-200 to +962°C	Sensor dependent (see "Resistance Range")
Resistance Range:	0 to 400Ω	0 to 500 kΩ
Characterizations:	ITS-90, IEC-751 (DIN 385), Callendar-Van Dusen	Steinhart-Hart thermistor polynomial, YSI 400 (2252Ω)
Temperature Accuracy: (meter only)	From $\pm 0.025^{\circ}\text{C}$ at -200 to +100°C to $\pm 0.15^{\circ}\text{C}$ at 800 to 962°C	From $\pm 0.005^{\circ}\text{C}$ at 0 to 50°C to $\pm 0.02^{\circ}\text{C}$ at 75 to 100°C
Resolution:	0.1° to 0.001°, selectable	
5627 RTD Sensor Accuracy:	$\pm 0.05^{\circ}\text{C}$ at 0°C	
5610 Thermistor Sensor Accuracy:	$\pm 0.01^{\circ}\text{C}$ at 0°C	
Excitation Current:	0.5 mA	
Display:	6-digit, 7-segment LCD with 16-character x 1-line alphanumeric display	
Operating Temp. Range:	0 to 40°C	
Power Supply:	Three AA rechargeable batteries, 7.5 VDC, or AC adapter	
Size/Weight:	7.75 x 4.2 x 1.5" HWD (20 x 11 x 4 cm)/1 lb (0.4 kg)	

Each Unit Includes: Rechargeable batteries and AC adapter/charger, RS-232 PC cable, and manufacturer's NIST-traceable certificate.

Ordering Information

Order #	Mfg #	Description	Price
MP1521T	1521	Precision RTD/Thermistor Thermometer (Readout only)	
MP1522T	1522	Precision RTD/Thermistor Thermometer (Logging)	
MP5627-9-INF	5627-9-INFOCON	RTD Industrial Probe, 9 x 3/16" OD, -200 to 500°C w/ INFO-CON	
MP5610-9-INF	5610-9-INF	Thermistor Probe, 0 to 110°C, w/ INFO-CON	
MP9934	9934	Logware Software	
MP9-321	9321	Soft Carry Case	
MP9318	9318	Carrying Case, fits 1521 & 12" Probe	

NOTE: Order probes separately.