AMPROBE®

A Fluke Company

2018-2019 Vol.#1

# Focus Products Catalog





**Tested by Fluke Labs**

Safety certified by

More than 500 products worldwide

Ordered and supported through Fluke

AMPROBE®
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Flip to the special insert to

# See the Newest Products!

AT-6000 **Advanced Wire Tracer Series**
IRC-110 **Thermal Imaging Camera**




## No Hassle Warranty

**No waiting. No shipping charges.**

Amprobe is committed to delivering the highest quality test and measurement products and provides a 1 year warranty with most products. The length of the product warranty is stated in the user manual that comes with each product, which can be downloaded from **amprobe.com**.

To better serve you, in the unlikely event that an Amprobe product requires warranty service, Amprobe authorizes over-the-counter product exchange from the authorized Amprobe distributor for which the product was purchased, within 30 days from the date of purchase for products with a list price up to $500. For products with a list price greater than $500 or for issues encountered after the first 30 days but within the warranty period, please contact the Amprobe Service Department at 1-877-AMPROBE for warranty services.

# How Well Do You Know Your Power?

**With tools this smart it's suprisingly easy**

**New!**

IRC-110
**Thermal Imaging Camera**

**New!**

AT-6000
**Advanced Wire Tracer Series**

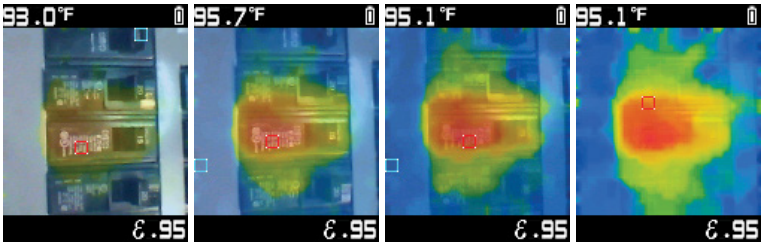
# Thermal imaging technology for the professional

The Amprobe IRC-110 thermal camera, designed for the professional, is rugged with point-and-shoot functionality to give you a visual heat map image for quick and accurate identification of temperature related issues. Troubleshoot electrical connections, motors, HVAC and electrical, and insulation leaks around buildings to identify potential energy savings.

## Features

- **Infrared heat map image blending** at 0%, 25%, 50%, 75%, and 100%
- **Three selectable color palettes** (grey scale, hot iron and rainbow)
- **Center-point temperature measurement** and focus free
- **IR measurement** 20:1 Distance to Spot ratio
- **Adjustable emissivity** from 0.10 to 1.00
- **Auto off function**
- **Selectable °F and °C**
- **Intuitive joystick navigation** to on-screen menu and settings
- **Hot and cold markers** instantly identifies hottest and coldest spots

## Infrared heat map image blending




**Blending Mode** 25% **Blending Mode** 50% **Blending Mode** 75% **Blending Mode** 100%

## Specifications

| Features | IRC-110 |
|---|---|
| Built-in digital camera | • |
| Infrared heat map overlay | Five blending modes: 0%, 25%, 50%, 75%, 100% |
| Color palettes | Grey Scale, Hot Iron, Rainbow |
| Field of view | 33 ° x 33 ° |
| Focus system | Focus free |
| IR temperature range | 14 °F to 932 °F (-10 °C to 500 °C) |
| Distance to Spot ratio (D:S) | 20:1 |
| Emissivity | 0.10 to 1.00 |
| Display resolution | 0.2 °F/0.1 °C |
| Hot and cold markers | • |
| Center point marker | • |
| Temperature units | Selectable °F/°C |
| Accuracy | ± 4 °F (± 2 °C) or ± 2% |
| Display size | 1.77 in Color TFT |
| Screen resolution | 20,480 pixels |
| Battery life | 8 hours |
| Auto power off | User-adjustable |

**Included Accessories:** Wrist strap, batteries, user manual


**IRC-110**
Thermal Imaging Camera

# Fully automatic breaker and fuse identification


## Four Tracing Modes

**Quick Scan Wire Tracing** allows for quick wire detection at a longer distance

**Precision Wire Tracing** precisely pinpoints wires or faults located behind walls, floors, or ceilings

**Breaker Identification** has an automatic sensitivity feature that allows for quick and easy breaker locating

**Non-Contact Voltage Detection** utilizes passive tracing without the transmitter to verify if a wire is Energized

**AT-6000-R** Receiver

**AT-6000-T** Transmitter

## Specifications

| | | AT-6020 | AT-6030 |
|---|---|---|---|
| Standard Features | Traces energized and de-energized wires | • | • |
| | Locates energized and de-energized breakers and fuses | • | • |
| | Finds shorts and opens | • | • |
| | Signal clamp attachment | • | • |
| | Non-contact voltage detection | • | • |
| Advanced Features | "Scan and Locate" breaker finder | • | • |
| | Two frequency modes for optimal tracing in energized (6 kHz) and de-energized (33 kHz) circuits | • | • |
| | Three power modes (high, low and loop) for peak performance | • | • |
| | Receiver display | Color 2.5 in LCD | Color 2.5 in LCD |
| | Hot Stick attachment adapter | • | • |
| | Rechargeable Batteries | • | • |

## Included in Wire Tracer Kits

| | AT-6020 | AT-6030 |
|---|---|---|
| AT-6000-R Receiver | • | • |
| AT-6000-T Transmitter | • | • |
| TL-6000 Test Lead and Accessory Kit | • | • |
| CC-6000 Hard Carrying Case | • | • |
| User Manual | • | • |
| 12 - Rechargeable Batteries (not installed) | – | • |
| 3 - Battery Chargers | – | • |
| CT-400 Signal Clamp | – | • |
| 12 - 1.5 V AA (IEC R6) Batteries (not installed) | • | – |

AT-6020 Advanced Wire Tracer Kit

AT-6030 Advanced Wire Tracer Kit

# AT-6000
# Advanced Wire Tracer Series

**Trace energized and de-energized wires**

**Indentify the single correct breaker**

**Sort bundled wires**

**The AT-6000 series**, available in two different kits, combines a receiver and powerful transmitter to locate energized and de-energized wires, breakers, and fuses.

**The AT-6000-R Receiver** detects the signal in wires and cables using two methods: active tracing method (with the Transmitter) and passive tracing method (without the Transmitter). In hard-to-reach areas, the Receiver's Tip Sensor can be used to trace wires in corners, tight spaces and junction boxes.

**The AT-6000-T Transmitter** works on Energized and De-energized circuits up to 600 V AC/DC in Category I through Category III electrical environments and features high signal, low signal, and loop modes. The Breaker Identification feature identifies the one correct breaker or fuse with the highest recorded signal, thus eliminating the confusion of multiple false positives common with older technology tracing tools.

**The CT-400 Signal Clamp** (optional for AT-6020, included with AT-6030) is used for applications where is no access to the bare conductors by enabling the AT-6000-T Transmitter to induce a signal into a wire through the insulation. Whether you're a novice user or an expert, this Amprobe advanced wire tracer kit will help you get the job done fast.

## Specifications

| | AT-6000-R Receiver | AT-6000-T Transmitter | CT-400 Signal Clamp |
|---|---|---|---|
| **Measurement Category** | CAT III 600 V | | CAT IV 600 V, CAT III 1000 V |
| **Operating voltage** | 0 to 600 V AC/DC | | 0 to 1000 V AC |
| **Operating frequency** | Energized: 6.25 kHz<br>De-Energized: 32.768 kHz | | Wire tracing: 32.768 kHz<br>AC current measurement: 45 Hz to 400 Hz |
| **Hazardous voltage detection** | See NCV detection | > 30 V AC/DC | – |
| **Signal indications** | Numeric, bar graph display and audible beep | LEDs and audible beep | – |
| **Response time** | Tip Sensor (energized/de-energized): 500 ms<br>NCV: 500 ms<br>Battery voltage monitoring: 5 sec | Line voltage monitoring: 1 sec<br>Battery voltage monitoring: 5 sec | Instantaneous |
| **Current output of signal (typical)** | – | **Energized circuit:**<br>HI mode: 60 mA RMS<br>LO mode: 30 mA RMS<br>**De-energized circuit:**<br>HI mode: 130 mA RMS<br>LO mode: 40 mA RMS<br>Loop mode: 160 mA RMS | 1 mA/A for AC current measurement with multimeter |
| **Signal voltage output (nominal)** | – | **De-energized circuit:**<br>LOW: 29 V RMS, 120 Vp-p<br>HIGH: 33V RMS, 140 Vp-p<br>**With CT-400:**<br>loop model: 31 V RMS, 120 Vp-p | **De-energized circuit:**<br>2.4 V RMS, 24 Vp-p |
| **Range detection (open air)** | **Tip sensor (Energized):**<br>Max distance via air: up to 20 ft (6.1 m)<br>Pinpointing: approx. 1.97 in (5 cm)<br>**Tip sensor (De-energized):**<br>Max distance via air: up to 14.7 ft (4.5 m)<br>Pinpointing: approx. 1.97 in (5 cm)<br>**NCV detection (40 to 400 Hz):**<br>Max. sensitivity: 90 V up to 6.56 ft (2 m)<br>Min. sensitivity: 600 V up to 0.39 in (1 cm) | – | – |

# AT-3500 **Underground Cable/Pipe Locator System**

Keep productivity high and operational costs low with the AT-3500. This rugged, economical solution helps locate underground energized and de-energized wires, cables and pipes. Great for parking lot and airport lighting applications, it precisely pinpoints buried services with exceptionally fast sound and meter response.

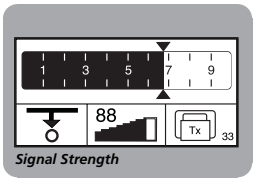
- **Precisely pinpoint buried cables and wires**
- **Three testing modes for best accuracy:**
  - **Passive power (50 Hz / 60 Hz)**
  - **Passive radio (RF)**
  - **Active T-3500 signal generator with induction mode directly connected to the cable with test leads or optional clamp**
- **Proven 33 kHz frequency for most locating applications**
- **Avoid lines at utility construction sites with highly sensitive power and radio modes**
- **Take depth measurements up to 16' (4.9 m)**
- **Backlit multiple-segment digital display with audible alerts to show and tell location of buried cables**
- **Semi-automatic gain control for fast signal location and control**


**AT-3500**

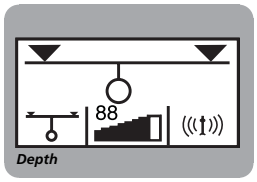
| FEATURE | AT-3500 |
|---|---|
| **Depth Measurement** | 16 ft (4.9 m) |
| **Passive Tracing Frequencies** | 50 Hz / 60 Hz |
| **Transmitter Frequency** | Single, non-adjustable |
| **Receiver Active Frequencies (Hz)** | 32.768 kHz |
| **Receiver Passive Frequencies (Hz)** | Range 1: radio 15 kHz to 23 kHz<br>Range 2: power network 50 Hz / 60 Hz; optionally 100 Hz<br>(can be adjusted by Amprobe service personnel) |
| **Receiver Depth Display Accuracy** | Range 1: radio +/- 20%<br>Range 2: power network +/- 20%<br>Range 3: transmitter +/- 5% (>5 m (6 ft),<br>+/- 20% (<5 m (15 ft) |
| **Receiver Depth Range** | Maximum 16 ft (4.9 m) |

**INCLUDED ACCESSORIES:** Receiver, transmitter, connection cables, ground stake, carrying case, user manual, batteries (installed)

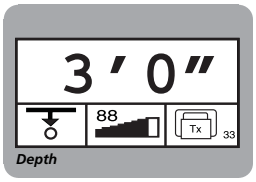
CAT III 600 V




*Signal Strength*




*Depth*




*Depth*

## Recommended Accessories

**SC-3500** Signal Clamp
**MLS55-3** Pipe Transmitter


## Identify Underground Cables, Pipes & Wires

The Amprobe AT-3500 discovers the location of underground pipes, cables, and wires. Its innovative design allows the AT-3500 to measure depths up to or exceeding 16 feet. The transmitter operates at a 33 kilohertz (kHz) frequency signal, which provides the most reliable results for most locating applications. The Amprobe AT-3500 also comes with a connection cable and alligator clip for connecting the transmitter to the buried pipe, cable, or wire to be traced.

## Expert Features for Any Situation

The AT-3500 can be used in different modes for optimal tracing in any situation. The passive power mode locates energized wires with a 50/60 Hz frequency and does not require a transmitter. The receiver alone detects electromagnetic fields emitted by buried energized lines conducting currents. Passive radio mode does not require a transmitter and uses the receiver to detect radio waves coming from cellular towers, radio stations, etc. that are picked up and carried by underground metal objects, such as cables or pipes. The inductive active mode uses the transmitter to wirelessly induce a signal into a buried pipe, cable, or wire. The receiver then detects the signal carried by the buried utility, which enables tracing. In active direction connection mode, the transmitter is connected to the buried utility with test leads (provided there is an available access point to the utility). The transmitter then sends a signal across the wire or pipe, which enables tracing. The AT-3500 can even trace non-metallic pipes that do not conduct a tracing signal. Some of these pipes have embedded metal trace that will conduct signal for tracing. In active inductive or direct connection modes, the AT-3500 can also be used to trace other-nonmetallic pipes by using existing metal wires inside the pipe or inserting metal fish tape into the pipe.

For detailed specifications go to **amprobe.com**

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# AT-7000 **Advanced Wire Tracer**

Get accurate results in minutes with new features and technologies that simplify wire tracing and breaker identification. The Receiver's patented Smart Sensor™, with its innovative new antenna design and advanced signal processor, clearly displays the location and orientation of energized wires in walls, floors and ceilings on the large color TFT LCD screen. The powerful Transmitter utilizes two optimal frequencies for both energized and de-energized wire and breaker tracing, delivering consistently accurate results for novice users and experts alike. The new Scan and Locate feature clearly identifies the one correct breaker or fuse, eliminating the confusion from multiple false positive readings, common in older technology tracing tools.

**AT-7000-R**
Receiver

**AT-7000-T**
Transmitter

**SC-7000**
Signal Clamp

- **Traces wires in walls, ceilings, floors and corners**
- **Locates breakers and fuses**
- **Pinpoints shorts and opens**
- **High resolution 3.5" TFT LCD color display**
- **Three power modes**
  - "High" power mode for normal circuits
  - "Low" power mode for precision tracing in difficult areas
  - "Clamp" power mode provides a boosted signal using signal clamp
- **Two automatically selected frequency modes for optimal tracing on energized and de-energized circuits**
- **Clamp-on attachment (SC-7000) for inducing signal into wires without access to bare conductors**
- **Embedded help screens make set-up easy and error free**

| | Features | AT-7020 | AT-7030 |
|---|---|---|---|
| Standard Features | Traces energized and de-energized wires | • | • |
| | Locates energized and de-energized breakers and fuses | • | • |
| | Finds shorts and opens | • | • |
| | Non-contact voltage detection | • | • |
| Advanced Features | Smart Sensor™ - wire position and direction indicator | • | • |
| | "Scan and Locate" breaker finder | • | • |
| | Two frequency modes for optimal tracing in energized (6 kHz) and de-energized (33 kHz) circuits | • | • |
| | Three power modes (high, low and clamp) for peak performance | • | • |
| | High resolution 3.5" TFT LCD color display | • | • |
| | Hot Stick attachment adapter | • | • |
| | Battery chargers and rechargeable batteries | | • |
| | Signal clamp attachment | | • |

| KIT CONTENTS | | AT-7020 | AT-7030 |
|---|---|---|---|
| **AT-7000-R** | Receiver unit with Smart Sensor, Tip Sensor and color TFT LCD display | • | • |
| **AT-7000-T** | Transmitter with two transmission frequencies (6 kHz and 33 kHz) and three power modes (high, low, clamp) | • | • |
| **TL-7000** | Test Lead Set with alligator clips (Black & Red), 30 ft. grounding lead, power cord, plug adaptors and light socket adapter | • | • |
| **CC-7000** | Custom Amprobe hard carrying case that securely holds transmitter, receiver, signal clamp, test leads and accessories | • | • |
| **SC-7000** | Signal Clamp accessory for inducing a signal into wires without access to bare conductors | *(optional)* | • |
| **HS-1** | Three-way magnetic hanger for AT-7000-T transmitter, allowing for convenient hanging of unit, placement on belt or as a stand | *(optional)* | • |
| **Additional Accessories** | | | |
| | Battery chargers (3) | – | • |
| | Rechargeable AA batteries (10) | – | • |
| | AA Batteries (10) | • | – |

**INCLUDED ACCESSORIES:** Refer to the "Kit Contents" table above

CAT IV 300 V

★★★★★
**TOP RATED**
***"Great Tracer"***
*"I still have a lot to learn about this kit but am very satisfied with my purchase and it will be a very useful tool for years to come."*

*"This circuit breaker tracer works perfectly but you MUST follow the instructions. The unique auto-calibration system ensures that the correct breaker is identified every time without any false indications."*

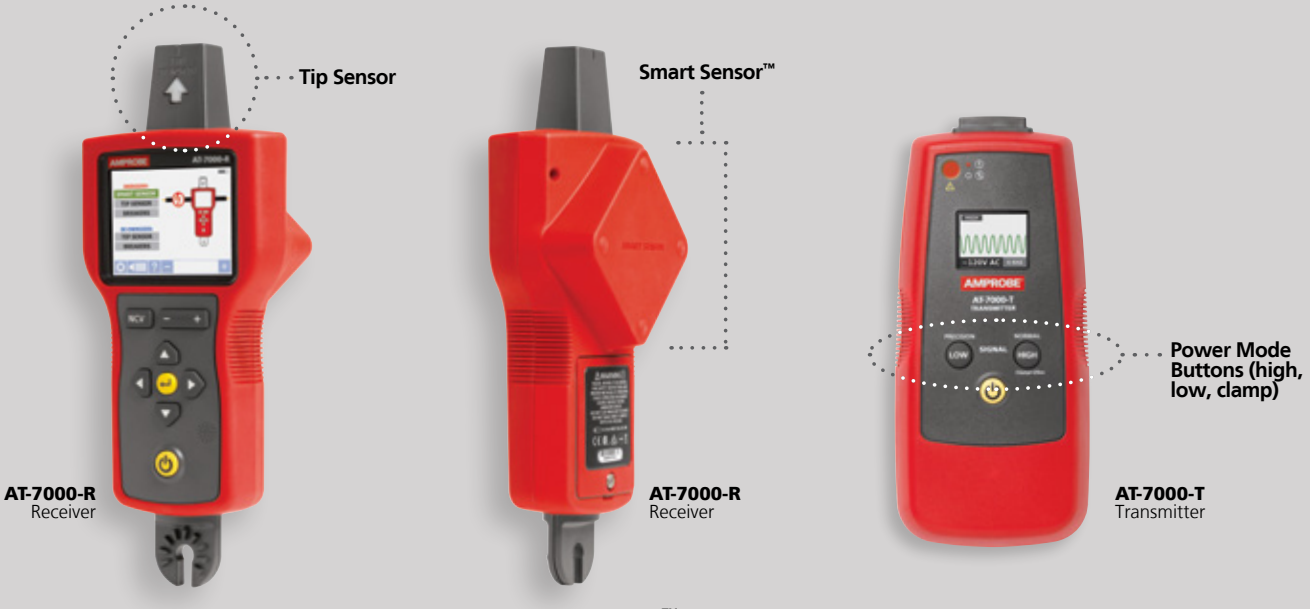
**- AT-7000 customer reviews**

**AT-7020**

**AT-7030**

# Wires and breakers can't hide.

AT-7000 **Advanced Wire Tracer**




## Tip Sensor

The shape of the tip sensor allows tracing in hard to reach areas, corners & tight spaces, as well as precise circuit breaker and fuse identification. By utilizing two different types of antennas (inductive coil and capacitive), the tip sensor enables optimal tracing results of both energized and de-energized circuits, which are automatically selected by operating mode.

## Smart Sensor™

Quickly and easily determine the precise direction and location of energized wires in walls, floors and ceilings with the patented Smart Sensor™. Combined with a fast signal processor that measures small changes in the detected signal multiple times per second, this new technology provides unmatched precision and ease of use for tracing energized wires.

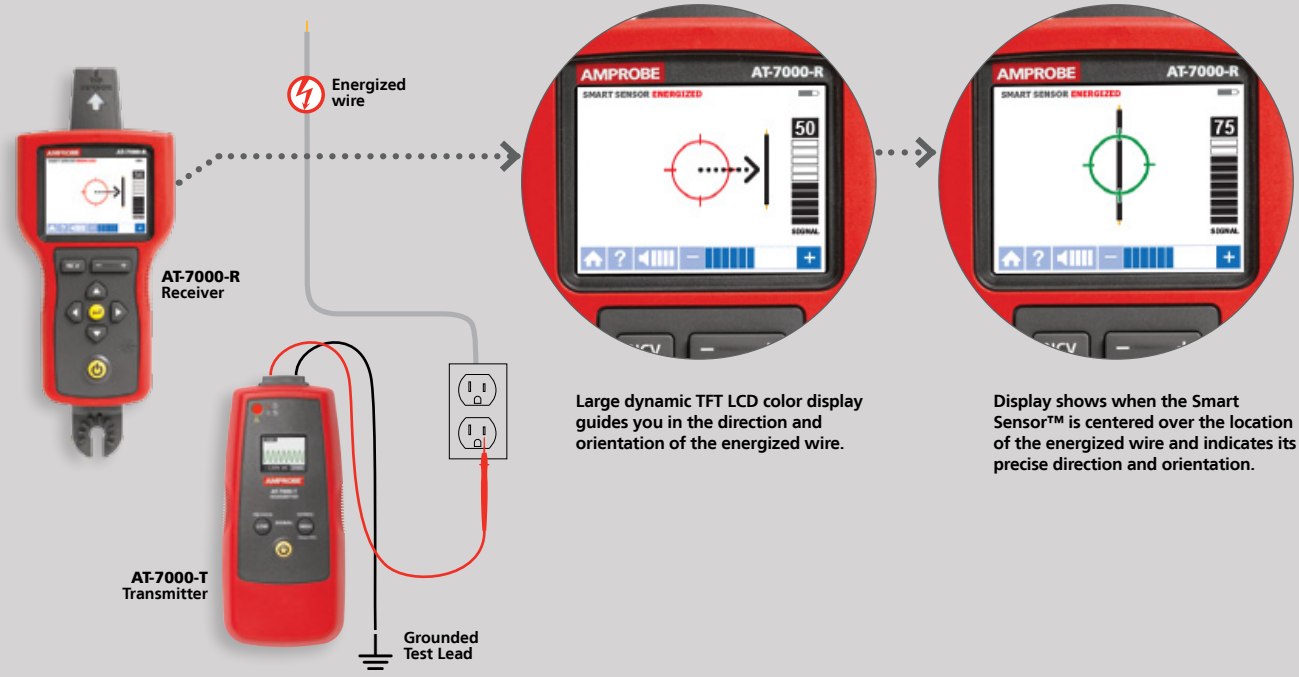
## AT-7000-T Transmitter

Featuring three power modes high, low, and clamp, and two output frequencies (6kHz and 33 kHz), the AT-7000-T incorporates the best technologies available for optimal wire tracing and breaker identification on both energized and de-energized circuits. The AT-7000-T automatically sets the frequency based on detected voltage, and prompts users to set the power level based on their application. The color TFT LCD screen displays the detected voltage, frequency output and power mode.

**Quick and Easy Wire Tracing with the Smart Sensor™**

# Tracing Wires in Walls, Ceilings and Floors

Tracing wires can be a challenge. The Amprobe AT-7000 makes tracing energized wires easier and more accurate than ever before. The Smart Sensor's™ patented sensor array and advanced signal processor provides instant feedback of wire location and direction on the large TFT LCD color display. Easily determine the direction and orientation of wires in walls, floors and ceilings up to 2 in/5 cm accuracy.




**Large dynamic TFT LCD color display guides you in the direction and orientation of the energized wire.**

**Display shows when the Smart Sensor™ is centered over the location of the energized wire and indicates its precise direction and orientation.**

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# CT-100 **and** CT-326-C **Current Tracers**

For tough industrial applications, we recommend these heavy-duty current instruments to trace live wires buried underground or hidden behind walls up to 4' (1.2 m) deep.

CT-326-C

- **Performs tests without having to interrupt power**
- **Locates breakers, neutral and ground lines**
- **Locates and traces wires in walls, floors, conduit, computer cables, etc.**
- **Pinpoints shorts and ground faults**
- **Does not interfere with sensitive electronic equipment**

| FEATURES | CT-100 | CT-326-C |
|---|---|---|
| **Traces energized wires and locates breakers without interrupting power** | 9 V → 300 V AC/DC | 9 V → 300 V AC/DC |
| **Traces non-energized wires (continuity and grounded wire) and pinpoints shorts & ground faults** | T-100 Transmitter & 9 V batteries | Transmitter & 9 V batteries |
| **Digital filter to assure accuracy in noisy industrial environments** | – | • |
| **Sensitivity settings** | 3 | 12 |

**INCLUDED ACCESSORIES:** User manual, transmitter, receiver, connection cables, carrying case

BT-250

# BT-250 **Circuit Breaker Tester**

Identify circuit breakers quickly and efficiently, count on this durable and dependable tracer. Designed for use in residential and light commercial environments.

- **Works on all electrical systems from 90 to 250 V AC**
- **Meets the latest code requirement**
- **Automatic sensitivity adjustment**
- **Extremely accurate reading always finds the right breaker**

| FEATURES | BT-250 |
|---|---|
| **Voltage Range** | 90 V → 250 V |
| **Frequency Range** | 40 Hz → 70 Hz |

**INCLUDED ACCESSORIES:** User manual, transmitter, receiver, carrying case, connection cable, light fixture adapter, batteries (installed)

Electrical Safety CAT II 250 V

c UL us

# Navigator™ CAT IV Power Quality Clamp Meters

These power quality clamp meters measure power and power factor, total harmonic distortion, individual harmonics, as well as AC/DC voltage, current, capacitance, inrush current analysis and phase sequence. The low pass filter enables voltage and current measurement on variable frequency drives. The Navigator™ joy stick allows quick selection of the numerous measurement features on the large LCD display. The meters are built for rugged industrial environments with CAT IV 600 V/CAT III 1000 V safety rating.

- **THD** (total harmonic distortion) and individual harmonics 1-25
- **Power (KW) and power factor (0-1)** indicates electrical usage and system efficiency
- **True-RMS** provides accuracy and dependability
- **Low pass filter** for variable frequency drives
- **Inrush current measurement** for motors
- **Phase rotation indication**
- **MAX/MIN** and smart data hold
- **Peak hold**
- **Auto flashlight** when clamping
- **Large backlit display** with analog bar graph
- **Overmold body absorbs shock** – drop-proof to 4 ft (1.2 m)

ACDC-54NAV

Joystick control detail

| FEATURE | ACD-50NAV | ACD-51NAV | ACDC-52NAV | ACDC-54NAV | BEST ACCURACY |
|---|---|---|---|---|---|
| AC Current | 100.00 A, 600.0 A | | | 100.00 A, 1000.0 A | +/- (1.5% rdg + 5 LSD) |
| DC Current | – | – | 100.00 A, 600.0 A | 100.00 A, 1000.0 A | +/- (1.5% rdg + 5 LSD) |
| AC Voltage | 100.00 V, 1000 V | | | | +/- (1.0% rdg + 5 LSD) |
| DC Voltage | 100.00 V, 1000 V | | | | +/- (0.7% rdg + 2 LSD) |
| Resistance | 1.0000 kΩ, 10.000 kΩ, 100.00 kΩ | | | | +/- (1.0% rdg + 3 LSD) |
| Frequency | 20.0 Hz to 10 kHz | | | | +/- (0.5% rdg +3 LSD) |
| Capacitance | 4.000 µF, 4000 µF | | | | +/- (1.9% rdg + 8 LSD) |
| DCµA | – | 1000.0 µA | – | – | +/- (1.7% rdg + 2 LSD) |
| Temperature | – | -50°F → 1832°F (-50°C → 1000°C) | – | -50°F → 1832°F (-50°C → 1000°C) | +/- (1% rdg + 1°C) |
| THD (Total Harmonics Distortion) | 0.1% → 100.0% | | | | +/- (3.0% rdg + 10 LSD) |
| Individual Harmonics | 1 → 25 | | | | – |
| Power | 10 kW → 600 kW | | | 10 kW → 1000 kW | ±(A, error×V, reading + V, error×A, reading) |
| Power Factor | -1.00 → 1.00 | | | | +/- 3 degrees |
| Accommodates Conductors | Up to 1.45" (37 mm) in diameter | | | Up to 1.60" (40 mm) in diameter | |

**INCLUDED ACCESSORIES:** Test leads, user manual, batteries (installed), thermocouple (ACD-51NAV and ACDC-54NAV only)

DUAL RATED Electrical Safety CAT IV 600 V CAT III 1000 V

★★★★★
**TOP RATED**

***"An electrician's must have!"***

*"Union Electrician Local 601 for 15 years now. I have been using this meter for 2 years now and I have to say to say it is an electrician's must have! it does everything you could need and a little more. My tools make me money, and this meter has made me a lot!! A+++"*

**ACDC-54NAV customer review**

## Navigate Through Any Job

| | | |
|---|---|---|
| **Industrial Electricians** | **Motor Testing** Use inrush current to test motors capacitance, start up capacitors, and phase rotation and three-phase systems<br>**Power Quality** Quickly determine the efficiency of an electrical system by measuring power factor and working power measurements. Check for harmful harmonics while performing daily system checks<br>**Transformers** The ideal tool for maintenance and installation of transformers and advanced equipment | **ACDC-52NAV**<br>**ACDC-54NAV** |
| **Facilities Maintenance** | **System Monitoring** Assess and monitor the condition of various systems and advanced equipment such as power quality analyzers<br>**Performance Testing** Verify system efficiency and quickly troubleshoot issues to minimize costly downtime by performing load studies, and motor testing system checks | **ACD-50NAV** |
| **HVAC Technicians** | **System Monitoring.** Maintain large, complex HVAC systems in factories, data centers, hospitals and commercial buildings<br>**Performance Testing.** Best tool for technicians who need the following critical measurements during HVAC system checks and repairs:<br>• **Capacitance for checking startup capacitors**<br>• **Microamps for verification of the flame sensors**<br>• **Temperature for checking cooling/heating performance**<br>• **Inrush current for verification of the compressor motor**<br>• **Low-pass filter to allow measurement of the variable frequency drives** | **ACD-51NAV** |

### Recommended Accessories

**TL35B**
Test Leads

**ELS2A**
AC Line Splitter

For detailed specifications go to **amprobe.com**

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# DM-5 **Power Quality Analyzer**

Poor power quality is costly – not only can it drive up energy bills with excessive power usage, but equipment failure or damage caused by poor power quality is expensive and time-consuming to diagnose and repair. Productivity and process also suffer with faulty equipment or unscheduled outages. The new Amprobe DM-5 Power Quality Analyzer allows you to easily and quickly discover the source and magnitude of power quality issues.

At half the size of previous models, the compact DM-5 brings speed and efficiency to power quality jobs ranging from routine maintenance to in-plant troubleshooting of individual machinery and power distribution panels. Built for use in even the largest facilities, the DM-5 is safety tested to meet the world's most prestigious safety standards and is rated to CAT IV 300 V, CAT III 600 V, CAT II 1000 V.


**DM-5**
Power Quality Analyzer

- **Simultaneously measures power, harmonics, waveform, power quality** (voltage: 3-channel, current: 4-channel)
- **Measures single and three-phase power system with 10 selectable wiring connection settings**
- **Test parameters voltage, current, active/reactive/apparent power, PF and frequency all on one screen**
- **Quick start mode, wiring check and auto current sensor detection for quick, accurate measurements**
- **Automatic recording with memory for up to 1,000 parameters at user defined intervals**
- **Includes thin flex current sensor with user selectable input ranges of 300 A, 1000 A, or 3000 A**
- **Energy consumption check: Trend and demand graphs for easy view**
- **Power quality events: Swell, Dip, Interruption, transients, Inrush current, and flicker**
- **Real-time remote monitoring on compatible PC and Android devices via Bluetooth communication**
- **Comes complete with measurement accessories, PC software, and large carrying case**

**CT-53**
Flex Current Sensor

| Features | DM-5 Power Quality Analyzer |
|---|---|
| **Wiring connection** | 1P2W, 1P3W, 3P3W, 3P4W |
| **Measurements and parameters** | Voltage, current, frequency, active power, reactive power, apparent power, active energy, reactive energy, apparent energy, power factor (cos ø), neutral current, demand, harmonics, quality (swell/dip/interruption, transients/overvoltage, inrush current, unbalance rate), capacitance calculation for PF correction unit, flicker |
| **Voltage (rms)** | Range: 600.0 / 1000 V<br>Accuracy: ±0.2% + 0.2%f.s.(sine wave, 40 Hz to 70 Hz)<br>Allowable input: 1% to 120% of each range (rms). 200% of each range (peak)<br>Display range: 0.15% to 130 % of each range<br>Crest factor: 3 or less, Sampling speed of voltage transient: 24 µs, Input impedance: approx. 1.67 MΩ |
| **Current (rms)** | Accuracy: ±0.2% + 0.2%f.s. + accuracy of flex current sensor (sine wave, 40 Hz to 70 Hz)<br>Allowable input: 1% to 110% of each range (rms). 200% of each range (peak)<br>Display range: 0.15% to 130 % of each range<br>Crest factor: 3 or less, Input impedance: approx. 100 kΩ |
| **Swell / dip / interruption** | Range: same as Voltage (rms)<br>Accuracy: ±1.0% of nominal voltage<br>Threshold value: In percentage of nominal voltage value |
| **Power and energy** | CT-53 flex current sensor (3-ch): max. 6000 kW<br>CT-500 flex current sensor (1-ch): max. 1000 kW<br>Active power accuracy: ±0.3% + 0.2%f.s. + accuracy of flex current sensor (PF 1, sine wave, 40 Hz to 70 Hz)<br>Influence of power factor: ±1.0% (PF 0.5, 40 Hz to 70 Hz )<br>Wh: 0.00000 mWh to 9999.99 TWh, VAh: 0.00000 VAh to 9999.99 TVAh, varh: 0.00000 varh to 9999.99 Tvarh |
| **Power factor** | Display range: -1.000 to 0.000 to 1.000<br>Accuracy: ±1dgt against each calculated value (for sum: ±3dgt) |
| **Harmonics** | Harmonics order (n): 1 to 50th<br>Inter-harmonics order (n): 1 to 50th<br>Volts: 0.0% to 100.0%, accuracy (≥3% at 100 V nominal voltage): ±10%<br>accuracy (<3% at 100 V nominal voltage): ±0.3% of nominal voltage<br>accuracy (1000 V range): ±0.2% + 0.2%f.s<br>Amps: 0.0% to 100.0%, accuracy (≥10% to max. input range): ±10% + flex current sensor.<br>accuracy (<10% to max. input range): ±1.0% + flex current sensor<br>Watts: 0.0% to 100.0%, accuracy: ±0.3% + 0.2%f.s. + accuracy of flex current sensor (PF 1, sine wave, 50/60 Hz)<br>THD: 0.0% to 100.0%, Phase angle: 0.0° to ± 180° |
| **Flicker** | Displayed items: Pst(1min), Pst, Plt, Max Pst, Max Plt, V, time left<br>Measurement method: Complied with IEC 61000-4-30 and IEC 61000-4-15 Ed.2<br>Accuracy: Pst (max.20): ±10% according to IEC 61000-4-15 |
| **Unbalance** | Volts: 0.00% to 100.00%, accuracy: ±0.3% at 50/60 Hz, sine wave (0.00% to 5.00% according to IEC 61000-4-030)<br>Current: 0.00% to 100.00% |
| **Transient** | Approx. 40.96 ksps (every 2.4 µs)<br>Range: 50 V to 2200 Vdc<br>Accuracy: ±0.5% at 1000 Vdc |
| **Inrush current** | Range: same as Current (rms)<br>Accuracy: ±0.4% + 0.4%f.s. + accuracy of flex current sensor<br>Threshold value: In percentage of the measurement range |
| **Capacitance** | Range: 0.000 nF to 9999 F, 0.000 kvar to 999 kvar |

**INCLUDED ACCESSORIES:** Test leads with alligator clips (4), US power cord, CT-53 flex AC current clamp, CT-500 flex AC current clamp, SD card, user manual, PC software, batteries

CAT IV 300 V | CAT III 600 V | CAT II 1000 V

# How Well Do You Know Your Power?

**The New** DM-5 **Power Quality Analyzer** is the most compact high performance power quality analyzer in its class.

**Wireless access for remote checks**

Bluetooth®

**Large, full-color screen with step-by-step Quick Start Guide**

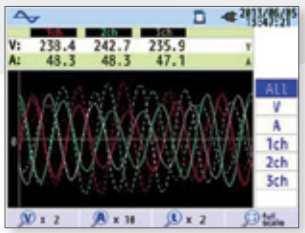
**High performance processor for accurate, detailed data recordings**


## Quick Guide to Viewing Measurements

**Press the indicated buttons to view real time readings. You can do this before, during or after recording.**

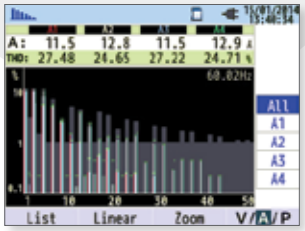
### Waveform

Read waveforms of voltage and current per CH with a colored graph



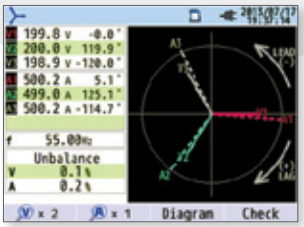
### Harmonic Analysis

Read harmonic components of voltage and current per CH with a colored graph



### Vector and Wiring Check

- Read vectors of voltage and current per CH on a large, color LCD screen
- Perform wiring checks

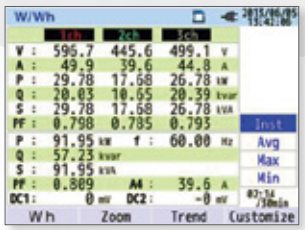


### Configure advanced functions

such as nominal voltages and transient limits or check for available memory by pressing the **SET UP** button

### Inst / Integration / Demand

- Display average/min/max instantaneous values of current/voltage/active power/ apparent power/reactive power
- View integration values by switching screens
- Check demand values with the preset target



For detailed specifications go to **amprobe.com**

AMPROBE®
A Fluke Company

# ACD-14-PRO **Dual Display 600 A TRMS Clamp Multimeter**

The ACD-14-PRO offers a complete range of measuring functions for both HVAC and electrical applications featuring a large backlit LCD dual display, capable of simultaneously displaying voltage and amps. The ACD-14-PRO includes TRMS, low pass filter, inrush current, frequency, resistance, capacitance, temperature, DC microamps, Amp-Tip and non-contact voltage detection. The Amp-Tip function allows for precise measurement of current down to the tenth of an amp for reliable, accurate current measurement of both large and small diameter wires. The low pass filter allows measurement of current and voltage on variable frequency drives (motors with speed controlled by frequency).


**ACD-14-PRO Dual Display**
600 A TRMS Clamp Multimeter

- **Large LCD with dual display that can display voltage and amps concurrently**
- **True-RMS for accurate voltage measurements in noisy environments**
- **Low pass filter for current and voltage measurements on variable frequency drives**
- **Amp-Tip function for precise low current measurement down to 0.1 amp**
- **HVAC applications with temperature**
- **DC microamps, capacitance, inrush current and temperature**
- **Non-contact voltage detection (NCV)**
- **Audible continuity and diode test**
- **Data hold**
- **Auto ranging**
- **Auto power off**
- **Low battery indicator**

| FEATURE | ACD-14-PRO |
|---|---|
| **AC Voltage** (Digital Low-Pass Filter, True-RMS) | Range: 0.0 to 600.0 V, Accuracy: ±1.0% + 5LSD (50 to 60 Hz) |
| **DC Voltage** | Range: 0.0 to 600.0 V, Accuracy: ±1.0% + 5LSD |
| **AC Current** (True-RMS) | Range: 0.00 to 600.0 A, Accuracy: ±1.8% + 5LSD (50 to <100 Hz)<br>±2.0% + 5LSD (100 to 400 Hz) |
| **Precise Low Current AC** (Amp-Tip) | Range: 0.00 to 60.00 A, Accuracy: ±1.5% + 5LSD (50 to 60 Hz) |
| **DC Microamps** | Range: 0.0 to 2000 µA, Accuracy: ±1.0% + 5LSD |
| **Capacitance** | Range: 200.0 µF, 2500 µF, Accuracy: ± (2.0 % + 4 LSD) |
| **Diode Test** | Range: 0.0 to 3.000 V, Accuracy: ± (1.5 % + 5 LSD) |
| **Temperature*** (Type K thermocouple)<br>*K-type thermocouple accuracy tolerances not included | Range: -40.0 to 752 °F, -40.0 to 400 °C, Accuracy: ±1.0% + 1.5 °F (-40.0 to 99.9 °F)<br>±1.0% + 2 °F (100 to 752 °F)<br>±1.0% + 0.8 °C (-40.0 to 99.9 °C)<br>±1.0% + 1 °C (100 to 400 °C) |
| **Non-Contact Voltage** | • |
| **Backlight** | • |
| **Auto Power Off** | • |

**INCLUDED ACCESSORIES:** User manual, test leads, carrying case, batteries, banana plug K-type thermocouple

CAT III 600 V

# Test Voltage and Amperage at the same time.

The ACD-14-PRO offers a complete range of measuring functions for both HVAC and electrical applications. This modern clamp meter features a large backlit LCD dual display and is capable of simultaneously displaying voltage and amps. The ACD-14-PRO is packed with features including TRMS, low pass filter, in-rush current, frequency, resistance, capacitance, temperature, DC micro-amps, Amp-Tip and non-contact voltage detection.

The Amp-Tip function allows for precise measurement of current down to the tenth of an amp for reliable, accurate current measurement of both large and small diameter wires. The low pass filter allows measurement of current and voltage on variable frequency drives (motors with speed controlled by frequency). The meter features a rubber over-mold enclosure that provides extra durability and is safety rated to CAT III 600 V.

The Amprobe ACD-14-PRO can test and display voltage and current measurements simultaneously with the large backlit LCD dual display, for voltage drop tests and other applications.

# INSP-3 **Wiring Inspector**

Verify in seconds whether a building's wiring complies with electrical code. Save time and money by testing more efficiently and identifying issues crucial to the safety and performance of an electrical system.

- **Large display shows all relevant test data, no scrolling or switching screens needed**
- **Find faulty wiring that needs repair without removing outlet cover plates or panel covers, including:**
  - **Faulty splices and connections**
  - **Incorrect wiring**
  - **Undersized wiring**
  - **Faulty or incorrectly wired AFCIs / GFCIs**
  - **Incorrect line voltage**
  - **Poor ground quality**
- **Verify performance of electrical systems with user selectable 10, 15 and 20 amp loads**
- **Flashing screen clearly indicates incorrect wiring or voltage drop test failure**
- **Test without tripping circuit breakers or blowing fuses**
- **Check grounding for safety and ability to support sensitive electronic equipment**


**INSP-3**

| FEATURE | INSP-3 | BEST ACCURACY |
|---|---|---|
| **Load** | Constant 10, 15 or 20 amp simulation regardless of line voltage | – |
| **Operating Voltage** | 95 V AC → 140 V AC | +/- 2% + 2 LSD |
| **GFI Trip** | 6.0 mA nominal to trip GFI, 30 mA to trip RCD | – |
| **AFCI Trip** | Up to 8, 120 AMP pulses within 1/2 second period | – |

**INCLUDED ACCESSORIES:** Power cord, battery (installed), user manual, carrying case

# ST-101B / ST-102B **Socket Testers**

Easily check and confirm proper wiring of electrical receptacles with the Amprobe ST-101B and ST-102B Receptacle Testers. Quickly test sockets and confirm wiring and operation of AC outlets with the ST-101B and confirm that GFCI breakers are properly wired for protection with the ST-102B.

- **Confirm proper wiring and operation of AC socket**
- **Easy-to-read lights indicate common wiring problems**
- **The trip test to confirm that GFCI protection is working properly (ST-102B only)**
- **For use on 110-125 V AC**

**ST-101B**

**ST-102B**

| FEATURES | ST-101B | ST-102B |
|---|---|---|
| **AC Voltage** | 110 V → 125 V | 110 V → 125 V |
| **GFCI** | – | • |



**INCLUDED ACCESSORIES:** Instruction sheet

For detailed specifications go to **amprobe.com**

AMPROBE®
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# TIC 300 PRO **High Voltage Detector**

Rugged and reliable for utility, industrial, heavy manufacturing and mine safety applications, the Amprobe TIC 300 PRO with VolTect™ detects voltages in low, medium and high voltage applications with bright visual and loud audible alerts.

- **Utility tool for checking transmission lines, power distribution equipment, down power lines, fuses and load break connectors**
- **Lower voltage setting for checking voltage presence in breaker panels, breakers, power outlets and wiring**
- **Verifies presence of voltage from 30 V AC to 122,000 V AC (122 kV)**
- **MSHA certified and intrinsically safe**
- **Push button functionality for ease of use with PPE gloves**
- **Visual and audible voltage indication**
- **Self-test verifies tester works properly**
- **Ergonomic design with a convenient handle**
- **Drop-proof to 6' (1.8 m)**

Best Seller


**TIC 300 PRO**

**TIC 410A**
Hot Stick
(Extends to 57")

| FEATURE | TIC 300 PRO | TIC 410A |
|---|---|---|
| **VolTect™ Non-Contact Voltage Detection** | 30 V AC → 1500 V AC<br>1500 V AC → 122,000 V AC (with Hot Stick TIC 410A) | – |
| **57" length** | – | Hot stick is 33" and extends to 57" |
| **Voltage** | | Up to 121 kV |

**INCLUDED ACCESSORIES:** CC-300 PRO carrying case, user manual, batteries (installed)

United States Department of Labor
MSHA
Mine Safety and Health Administration

★★★★★
**TOP RATED**
***"Easy to use, durable, affordable."*** *"Excellent product, works great under any conditions, very durable, can easily survive the occasional drop from the truck or bucket."*

*"This is a great replacement for the old tic tracers the line crews were using. The line crews love them! Great replacement for the money!"*

**- TIC 300 PRO customer reviews**

# Is it Hot or Not?

## Why utility crews trust the Amprobe TIC 300 PRO

Feedback from a major US utility and the 30 underground crews who serve a North American city

In every truck, on every trouble call, there's one tool crews reach for first to ensure their safety: the TIC 300 PRO. It's the go-to tool for underground crews servicing secondary power lines for a large Northeastern US utility company. Approximately three hundred TIC PRO 300 tools are currently in use throughout their system.

The crew's work takes them down manholes under historic cities where the infrastructure is aging, and the problems are frequent. Whether they're working on 120 V, 240 V or 5 kV or greater, on cables, transformers, or switches, they begin each job by checking for live power with the TIC 300 PRO non-contact voltage detector. Every crew carries at least one unit and they use it daily, often multiple times each day.

Lights flash and the TIC 300 PRO beeps with increasing frequency as it nears a source of electricity, leaving technicians no doubt whether the source is live or not.

The crews like how simple the TIC 300 PRO is to use even with heavy gloves and full PPE on. They push one button to turn the unit on, another to select low or high range setting. After two decades of using TIC product line, the crews know it, trust it, and feel safe – it is exactly what they need.

## Recommended Accessories

**TIC 410A**
**Hot Stick for the TIC 300 PRO**
Safely check voltages up to 122 kV with the Hot Stick and the TIC 300 PRO. Hot stick is 33" and extends to 57".

**CC-300 PRO Carrying Case**
(Replacement part)

# MO-100 **Milliohmmeter**

Spot potential failures fast with the portable, battery powered MO-100. Check for opens or shorts in motor windings, generators and transformers. Test heating elements and wire-to-wire resistance in critical electrical connections.

- **Accurate four terminal measurement down to 100 µΩ without test leads resistance compensation**
- **Three test currents with over-temperature protection for measurement precision**
- **Protection against inadvertent connection to overvoltage**
- **Potential lead resistance, current lead resistance checks**
- **Indicates measurement errors due to temperature or connection problems**
- **Auto-hold and auto-off features**
- **Lightweight, robust and compact**
- **"O-Ring" sealed enclosure**


MO-100

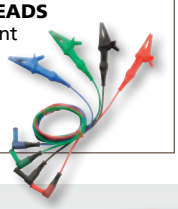
| FEATURE | MO-100 |
|---|---|
| Measuring Ranges | 0 → 200.0 mΩ in steps of 100 µΩ<br>0 → 2000 mΩ in steps of 1 mΩ<br>0 → 20.00 Ω in steps of 10 mΩ<br>0 → 200.0 Ω in steps of 100 mΩ<br>0 → 2000 Ω in steps of 1 Ω |
| Test Current | 1 mA (2000 Ω range)<br>10 mA (20 Ω / 200 Ω ranges)<br>100 mA (200 mΩ / 2000 mΩ ranges) |

**INCLUDED ACCESSORIES:** User manual, test leads, batteries (installed)

*9.8" (L) x 7.5" (W) x 4.3" (D)*
*(250 mm x 190 mm x 110 mm)*

**Recommended Part**

**MO-100-LEADS**
Replacement Test Leads



# AM-420 **Residential Digital Multimeter**

Designed for in home repair and electrical testing applications, the AM-420 Digital Multimeter accurately measures voltage in receptacles, switches, extension cords and light fixtures. Use the continuity function to easily troubleshoot light bulbs and fuses. This compact tools is designed for in-home repair and electrical testing applications, including measuring presence of voltage in electrical sockets, extension cords, batteries and other electrical circuits up to 250 V.

- **Measures AC/DC voltage, DC current and resistance**
- **Audible continuity and diode test**
- **Battery test (1.5 V and 9 V)**
- **Data hold**


| FEATURE | AM-420 | BEST ACCURACY |
|---|---|---|
| AC Voltage | 200.0 / 250V | +/-(1.5% rdg + 4 LSD) , @ 45 Hz to 400 Hz, 2 V to 200 V |
| DC Voltage | 200 mV, 2.000 / 20.00 / 200.0 / 250 V | +/-(1.2% rdg + 2 LSD) , @ 200 mV to 200 V |
| DC Current | 200.0 µA, 2.000 / 20.00 / 200.0 mA | +/-(1.2% rdg + 5 LSD) , @ 200 µA to 20 mA |
| Resistance | 200.0 Ω, 2.000 / 20.00 / 200.0 kΩ | +/-(1.5% rdg + 5 LSD) , @ 200 Ω to 200 kΩ |
| Continuity | • | |
| Diode Test | • | |
| Battery Test | 1.5 V, 9 V | +/-(5.0% rdg + 1 LSD) |
| Data Hold | • | |

**INCLUDED ACCESSORIES:** Batteries (installed), user manual

# PK-110 **Electrical Test Kit**

Amprobe's PK-110 Electrical Test Kit offers three electrical testers with testing functions suitable for a variety of residential applications. The kit includes the **AM-420 Digital Multimeter**, **ST-102B Socket Tester with GFCI** and **VP-1000 Non-Contact Voltage Detector**. From identifying voltage presence in outlets and switches to confirming proper wiring of regular and GFCI protected outlets, the PK-110 kit boasts all the features needed to perform quick and safe electrical tests.

### VP-1000 Non-Contact Voltage Detector

- **AC voltage detection**
- **Visual voltage Presence alert**

### ST-102B Socket Tester with GFCI

- **Tests standard and GFCI outlets**
- **Verifies proper wiring**
- **Detects five different wiring faults**
- **CSA listed for safety**


**PK-110 Test Kit**
AM-420, VP-1000, ST-102B

| FEATURE | VP-1000 | ST-102B |
|---|---|---|
| Operating Voltage | 90 Vac → 1000 V AC, 50/60 Hz | 110 – 125 V AC, 50 – 60 Hz |

**INCLUDED ACCESSORIES:** User manuals for AM-420, VP-1000 and ST-102B, all batteries (installed)

For detailed specifications go to **amprobe.com**

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# LM-100 **and** LM-120 **Light Meters**

These portable, easy-to-use digital light meters measure interior illumination levels from fluorescent, metal halide, high-pressure sodium or incandescent sources. Switch off, reduce or increase the output level of lighting fixtures. Reduce the energy burden of the building by significantly increasing the efficiency of its lighting system.

LM-100

- **Measure in lux or footcandles, front panel switchable**
- **Simple, one-handed operation**
- **Silicon photodiode sensor and filter for accuracy and high-resolution**
- **Analog DC voltage output to operate with chart recorder or data logger (LM-120 only)**
- **Zero adjustment (LM-120 only)**
- **Auto power-off to save battery life**

| FEATURES | LM-100 | LM-120 |
|---|---|---|
| **Ranging** | Manual | Automatic / Manual |
| **Illumination Sensor** | Silicon photodiode and filter | |
| **Range Lux** | 20, 200, 2000, 20000, 200000 | |
| **Range Footcandles** | 20, 200, 2000, 20000 | |
| **Calibration Point** | 2854 °K Cosine Angular corrected per JIS C 1609:1993 and CNS 5119 general A class | |
| **Data** | Data hold | Data hold, min/max |

**INCLUDED ACCESSORIES**: Batteries (installed), carrying case, user manual

LM-200LED

# LM-200LED **Light Meter**

This professional tester accurately measures light output of LED sources for all visible light ranges.

- **Lux or footcandle measurement units, user selectable**
- **Data hold**
- **Max recording captures highest light measurement**
- **Measuring lights source include all visible ranges**
- **Accurate measurements with spectral response close to CIE luminous spectral efficiency**
- **Angled light cosine correction**
- **Extendable wire (approximately 5' (1.5 m)**
- **Measurements according to JISC1609:1993 and CNS 5119 general A class specifications**

| FEATURE | LM-200LED | BEST ACCURACY |
|---|---|---|
| **LED Light Measurement** | 200, 2000, 20000, 200000 lux | +/- 3% (Calibrated to standard incandescent lamp 2856° K) and corrected LED day white-light spectrum. |
| | 20, 200, 2000, 20000 footcandle | |

**INCLUDED ACCESSORIES**: User manual, battery (installed), carrying case

SM-20-A

# SM-10 **and** SM-20-A **Sound Meters**

These sound meters meet the measurement needs of safety engineers, health, industrial and safety offices as well as quality control. Use them to check compliance with safety regulations and perform acoustic analysis. They use two different weighting filters required by the IEC 651 and ANSI S1.4 Type 2 for audio filtering.

- **A-weighting for general noise sound level**
- **C-weighting for measuring sound level of acoustic material control in various environments**
- **Display with 0.1dB steps on a 4-digit LCD**
- **Slow (1 sec) and fast (125 ms) response settings to check peak and average noise levels**
- **PC interfaces (SM-20-A only)**

| FEATURES | SM-10 | SM-20-A |
|---|---|---|
| **Microphone** | 1/2" Electret condenser microphone | |
| **Standard Applied** | IEC 651 Type 2, ANSI S1.4 Type 2 | |
| **Dynamic Range** | 50 dB | |
| **Time Weighting** | FAST (125 mS), SLOW (1 sec) | |
| **Frequency Range** | 31.5 Hz ➞ 8 kHz | |
| **Measuring Level Range (Auto Range)** | A-Weighting: 30 dB ➞ 130 dB<br>C-Weighting: 35 dB ➞ 130 dB | |
| **Data** | Data hold | Min/max |
| **Internal Memory** | – | 14000 records |

**INCLUDED ACCESSORIES:** Carrying case, user manual, battery (installed), USB cable download and software CD (SM-20-A only)

## SM-CAL1 **Sound Meter Calibrator**

This instrument generates the fixed sound level signals needed to calibrate sound level meters.

- **Two output levels: 94 dB and 114 dB**
- **Output frequency: 1000Hz**
- **Fits 0.5" microphones**
- **Easy one-handed operation**
- **Low battery indicator**
- **CE: conforms to ANSI S1.40 – 1984 and IEC942 – 1988 Class 2**

**INCLUDED ACCESSORIES**: Battery (installed), user manual


**SM-CAL1**

## MT-10 **Moisture Meter**

Measure the moisture content of wallboard, wood, mortar, plaster or other building materials to identify areas of water damage or harmful mold growth. Check wood or concrete flooring before installation, wood during drying or before woodworking.

- Three-color LED indicates moisture severity
- Backlight makes display visible in dim areas

**INCLUDED ACCESSORIES:** User manual, battery


**MT-10**

## TACH20 **Tachometer**

Measure rotational speed of motors, conveyor belts and other moving or rotating systems with these handheld tachometers. The TACH20, our top-of-the-line tachometer, includes six adapters, a surface speed wheel for contact RPM measurement and an infrared beam for non-contact measurements.

- **Built-in memory function automatically stores maximum, minimum and average values as well as the last measurement displayed**
- **Easy to select units and mode functions**
- **Select RPM using infrared beam or adapter: m/min, m/sec, ft/min, ft/sec, in/min, m, ft and in**
- **Auto power-off function**

| FEATURE | TACH20 |
|---|---|
| **Rotation (Non-Contact)** | 1 min → 99999 min |
| **Rotation (Contact)** | 1 min → 19999 min |
| **Surface Speed (Contact)** | 0.10 → 1999 m/min<br>0.40 → 6550 ft/min<br>4.00 → 78700 in/min<br>0.10 → 33.30 m/sec<br>0.10 → 109 ft/sec |

**INCLUDED ACCESSORIES:** Batteries (installed), user manual, reflective tape, carrying case, adapters

**Recommended Accessories**

| | |
|---|---|
| **TACH-20-KIT1** | **Tip, Wheel, Shaft, Funnel and Reflective Tape** (TACH20 Replacement part) |
| **TACH-20-ADPT** | **Adaptor For TACH20** (Replacement part) |


**TACH20**

## TH-1 **Compact Probe Style Relative Humidity Meter**

Slip this little meter in your pocket and be ready for quick temperature and humidity checks.

- **Displays relative humidity and temperature simultaneously**
- **Measure wet bulb and dew point**
- **Precision capacity relative humidity sensor with twistable protective cap**
- **Selectable °F and °C**
- **Stores min/max readings for comparisons**
- **Data hold**

| FEATURE | TH-1 |
|---|---|
| **Temperature – Internal Sensor** | -44°F → 122°F<br>(-20°C → 50°C) |
| **Relative Humidity** | 10 → 95% |
| **Dew Point Temp** | • |
| **Wet Bulb Temp** | • |

**INCLUDED ACCESSORIES:** Carrying case, user manual, battery


**TH-1**

For detailed specifications go to **amprobe.com**

AMPROBE®
A Fluke Company

# CO2-100 **Handheld Carbon Dioxide Tester**

Get instant feedback on carbon dioxide levels up to 9,999 ppm while you check the air quality compliance of hospitals, schools, offices, or production floors.

- **Large, easy-to-read triple LCD display of CO2, temperature and relative humidity**
- **Selectable display of dew point and wet bulb**
- **High performance low-drift sensor designed with NDIR (Non-Dispersive Infrared) waveguide technology**
- **Backlight for working in dim areas**
- **TWA (time-weighted average) display for an 8-hour period**
- **15 minutes STEL (short-term exposure limit) value**
- **Audible alarm threshold setting by carbon dioxide level**
- **Data hold, min/max, average functions**
- **Long term drift compensation for accurate readings**

CO2-100

| FEATURE | CO2-100 |
|---|---|
| CO2 | 0 → 9999 ppm |
| Temperature Range | 14°F → 140°F (-10°C → 60°C ) |
| RH Range | 0% → 95% |
| DP (Dew Point Temp.) | -4°F → 139.8°F (-20°C → 59.9°C) |
| WB (Wet Bulb Temp.) | 24.8°F → 139.8°F (-5.0°C → 59.9°C) |
| Resolution | 1 ppm - $CO_2$ concentration, 0.1°C / °F - Temp, 0.1%RH - Humidity |

**INCLUDED ACCESSORIES:** Batteries (installed), user manual, carrying case, power adapter (CO2-200)

★★★★★
**TOP RATED**

***"Consistent calibration and fast updating."***

*"I use this tool to check environmental $CO_2$ conditions in theaters and in the field. The range is good with humidity readings that went to 3% in Colorado sub-alpine desert and $CO_2$ readings that topped the 9,999 ppm limit in productions."*

***- CO2-100 customer reviews***

CM-100

# CM100 **Carbon Monoxide Meter**

This compact meter measures the presence of carbon monoxide and warns you when it exceeds safe levels.

- **Alarm is preset to 25 ppm to warn about possible danger**
- **Adjustable CO warning levels: 25, 30, 35, 45, 50, 70, 100 and 200 ppm**
- **Backlight for viewing in dim areas**
- **Auto power-off to save batteries**
- **Self-test feature**
- **Dual digital backlit display**

| FEATURE | CM-100 |
|---|---|
| Range | 0 ppm → 999 ppm |
| Resolution | 1 ppm |

**INCLUDED ACCESSORIES:** User manual, batteries (installed)

RLD-1

# RLD-1 **Refrigerant Leak Detector**

Troubleshoot air conditioning systems quickly and accurately with the RLD-1. State-of-the-art technology makes it easy to precisely pinpoint a wide variety of halogenated refrigerant leaks.

- **Detects R-134a, R-404a, R-407c, R-410a, R-22, Freon and other refrigerants**
- **Sensitive gas sensor and advanced digital signal processing for high accuracy**
- **Built-in suction pump for precise sensor response**
- **Tri-color LED display and audio clearly indicate leaks**
- **High-Medium-Low (H/M/L) leak sensitivity selector**
- **Automatic zero and background compensation**
- **Low battery indication**
- **Ambient concentration reset**

| FEATURE | RLD-1 |
|---|---|
| Detectable Gases | R-134a, R-404a, R-407c, R-410a, R-22, Freon |
| R-22, 134a Sensitivity | H - 3g/year, M - 15g/year, L - 30g/year |
| R-404a, 407c, 410a Sensitivity | H - 4g/year, M - 20g/year, L - 40g/year |
| Alarm Method | Buzzer, Tricolor LED bar Indicator |
| Power Usage | 2 C size (3V DC) Alkaline Batteries |
| Snake Tube Length | 15.5" (40 cm) |

**INCLUDED ACCESSORIES**: Batteries (installed), user manual, carrying case, leak check bottle, AC adapter

## Recommended Accessories

**RLD-1 SENSOR** **Replacement Sensor** (Replacement part)

# GSD600 **Gas Leak Detector**

Detect dangerous methane or propane leaks that can lead to explosions and gas poisoning. With its five-level LED and audible alarms, the GSD600 helps you assess whether the area is safe or needs to be vented. The frequency of the beeping increases with the concentration of the gas, allowing you to pinpoint the source of the leak in piping or appliances. The display provides an accurate measurement of the presence of gas in the area.

- **Detects combustible gases**
- **Quickly identifies and pinpoints gas leaks for closed piping systems**
- **Automatic calibration feature level LED alarm: >40, >80, >160, >320, and >640 ppm**
- **Mute function and LED alerts for quiet areas**
- **Built-in earphone jack (earphones not included) for loud environments**
- **Flexible probe to access difficult measurement areas**
- **Auto power-off**

**Best Seller**

GSD600

| FEATURE | RANGE |
|---|---|
| **Methane** | 40 ppm ➞ 640 ppm |
| **Propane** | 35 ppm ➞ 580 ppm |
| **Sensitivity** | 35 ppm (propane) |

**INCLUDED ACCESSORIES:** Battery (installed), carrying case, user manual

★★★★★

**TOP RATED**

***"This thing really works."***

*"the Amprobe GSD600 found a leak at the furnace shut-off valve, I tightened nut and that was fixed."*

**- GSD600 customer reviews**

# TX900 **Microwave Leak Detector**

For domestic and commercial appliance engineers who service microwave ovens, the TX900 verifies if the oven operates in accordance with current standards and regulations.

- **Measures for wave leakage and tests oven power**
- **8 dipole sensors to detect plane wave signals of any polarization**
- **Temperature compensation for accurate readings regardless of ambient temperature changes**
- **Analog bar graph**
- **Compact, ergonomic design**
- **Low battery indicator**
- **Auto-zero**

TX900

| FEATURES | TX900 |
|---|---|
| RF Power Sensing Range | 0 mW/cm² ➞10 mW/cm² |
| Nominal Detecting Frequency | 2.45 GHz |
| Resolution | 0.1 mW/cm2 |
| Step Input Response | < 1 sec |

**INCLUDED ACCESSORIES:** 2 x 500 ml plastic beakers, spirit (alcohol) glass thermometer, battery), carrying case, user manual

# TMULD-300 **Ultrasonic Leak Detector with Ultrasonic Transmitter**

In areas where leaking gases are not sufficiently pressurized, there is no ultrasonic sound to detect. With the ultrasonic transmitter, an area can be "pressurized" with the ultrasonic sound waves, making it easy to detect cracks and leaks.

- **Same features as ULD-300**
- **Transmitter "pressurizes" an area with ultrasonic sound**
- **Check door or trunk seals for air tightness, or windshields for water tightness**

**Recommended Accessories**

**UT-300** **Ultrasonic Transmitter (ULD-300)**
(Replacement part)

**ULD-300-KIT1**
**Adapter Kit For ULD-300:**
**TEA-1 Flexible tubing adapter**
**PB-1 power parabola**
**HP-1 headphone**
**TE-1 tubular extension**
(Replacement part)

**INCLUDED ACCESSORIES**: Flexible tubing adapter, tubular extension, carrying case, power parabola, headphone, batteries (installed), UT-300 transmitter

TMULD-300

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# TMA5 **Mini Vane Anemometer**

This pocket-sized tool gives you an easy way to measure air flow, temperature and humidity in the HVAC systems of residential, commercial or industrial buildings.

TMA5

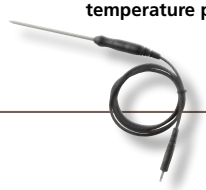
- **Measures air velocity, temperature and ambient temperature (in °F or °C), humidity, dew point, wet bulb, wind chill**
- **Simple, two-button operation**
- **Selectable wind units: mph, ft/m, Knt, m/s, km/h, BF**
- **Maximum wind speed display**
- **Data hold**
- **Auto power-off with disable feature**
- **Low battery indication**
- **Ergonomic design with wrist strap**
- **External temperature probe included**

| FEATURES | TMA5 |
|---|---|
| **Wind Speed Range** | 0.5 → 44.7 mph, 60 → 3937 ft/m, 0.4 → 38.8 knt, 1.1 → 20.0 m/s, 0.7 → 72.0 km/h, 1 → 8 BF |
| **Air Temperature Range** | 32°F → 122°F (0°C → 50°C) |
| **External Temperature Range** | -4°F → 158°F (-20°C → 70°C) |
| **Air RH% Range** | 5% → 95% RH |
| **Wind Speed Response** | averaging every 2 seconds |
| **Temperature Response Time** | 60 seconds (typical) |
| **Air RH% Response Time** | 60 seconds (typical) |
| **Wind-Chill Display** | • |
| **Dew Point Temperature** | • |
| **Wet Bulb Temperature** | • |

**INCLUDED ACCESSORIES:** Battery (installed), user manual, external temperature probe, ergonomic wrist strap

## Recommended Accessories

**TPK-60** **K-type external temperature probe**



# TMA-20HW **and** TMA-21HW **Hot Wire Anemometers**

Hot wire anemometer technology eliminates bearings and rotating parts to make these meters durable and measurements stable and accurate. It's the simple, safe way to monitor indoor air quality and measure air flow and temperature in residential, commercial and industrial air conditioning systems.

TMA-21HW

- **Highly accurate thermometer with 0.1% basic accuracy for precise measurements**
- **4 ft. fast response telescopic probe for use in hard to reach places**
- **Measures air flow volume in CFM, CMM**
- **Instant, Avg, 2/3 Vmax Flow Measurements**
- **Velocity m/s, ft/min, knots, km/hr, mph.**
- **Relative humidity and temperature measurement** (TMA-21HW only)
- **Data hold & Maximum / Minimum with Time stamp**
- **Data Memory and Real function (99 sets)**
- **512KB auto data-logging capacity** (TMA-21HW)
- **USB interface** (TMA-21 only)
- **Wet bulb and dew point**
- **Large backlit LCD display with 5 parameters**
- **Auto Power ON / OFF setting**

| FEATURES | TMA-20HW | TMA-21HW | BEST ACCURACY |
|---|---|---|---|
| **Air Flow** | 0.10 m/s → 30.00 m/s<br>0.2 km/hr → 110.0 km/hr<br>10 ft/min → 6000 ft/min<br>0.10 knots → 59.0 knots<br>0.12 MPH → 68.00 MPH | | +/- 3% of rdg +/-1% FS |
| **Air Flow Volume** | 0.000 CFM → 999900 CFM<br>0.000 CMM → 999900 CMM | | +/- 3% |
| **Temperature** | – | - 4 °F → 140 °F<br>(-20 °C → 60 °C) | +/- 0.9°F (+/- 0.5°C) |
| **Relative Humidity** | – | 0.0 → 100 % | +/- 3% |
| **Data-logging via USB** | – | • | – |
| **Wet Bulb / Dew Point** | – | • | – |

**INCLUDED ACCESSORIES**: Batteries (installed), hard carrying case, user manual, USB cable and PC software (TMA-21HW only)

# TMA40-A **Anemometer, Relative Humidity and Temperature**

Measure air velocity (FPM) or air volume (CFM), relative humidity and temperature with just one tool. A large digital display with backlight and flexible measurement vane makes measuring easy in difficult areas. Measures up to 99 points and logs up to 2400 measurements.

- **Flexible measurement vane for accessing difficult areas**
- **Measures air velocity (fpm), air volume (cfm), relative humidity, and temperature**
- **Measure up to 99 points**
- **Data logging up to 2400 data points**
- **Optional PC interface for charting or analysis**
- **Large digital display with backlight**

TMA40-A

| FUNCTION | RANGE | RESOLUTION | ACCURACY |
|---|---|---|---|
| Air Velocity | 0.4 to 32 m/s (1.3 to 105 ft/s) | 0.1 m/s (0.1 ft/s) | +/- 3% |
| Air Volume | 0 → 99999 (cfm/cmm) | 0.1 CMM - 1 CFM | +/- 3% |
| Temperature | -4°F → 158°F (-20°C → 70°C) | 0.1°F (0.1°C) | ± 0.6°C (± 1°F) |
| Relative Humidity | 0 → 100% | 0.1% | +/- 3% @ 77°F (25°C) |

**INCLUDED ACCESSORIES**: Carrying case, battery (installed), user manual, optional PC interface for charting or analysis

★★★★★

**TOP RATED**

***"Great tool."***

*"The Amprobe TMA40-A is a great tool for air flow measurement. It does dew point, wet bulb, dry bulb, air speed, and air velocity. Great tool for troubleshooting duct problems."*

**- TMA40-A customer reviews**

# TMA10A **Anemometer with Flexible Precision Vane**

The essential tool for HVAC technicians, the TMA10A measures air velocity or volume (CFM), plus temperature. Just enter surface area type for accurate airflow measurements.

- **Large dual display for viewing airflow or velocity measurement including temperature**
- **Long flexible cord to access remote vanes**
- **Continuous moving average for up to 2 hours**
- **Air velocity average for up to 8 points**
- **Multi-point air flow (cfm) average**
- **PC interface for charting or analysis**
- **Min/max/average reading on a single point**
- **Data hold**
- **Auto power-off function**

TMA10A

| FUNCTION | RANGE | BEST ACCURACY |
|---|---|---|
| **Air Velocity** | 0.40 → 25.00 m/s | +/- 2% of full scale |
| | 125 → 4900 ft/min | +/- 2% of full scale |
| **Air Flow** | 0.01 → 99.99 $m^3$/sec | 0 → 9.999 m |
| | 1 ft → 9999 cfm | 0 → 9.999 ft |
| **Air Temperature** | 32°F → 122°F (0°C to 50°C) | +/- 1.5°F (0.8°C) |

**INCLUDED ACCESSORIES:** Carrying case, battery (installed), user manual, optional PC interface for charting or analysis

★★★★★

**TOP RATED**

***"Does all that is asked of it! It is highly accurate and results are repeatable."***

**- TMA10A customer review**

**Recommended Accessories**

**TMA10A** **USB Download Cable and Software CD**

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# TMD-56 **Thermometer**

The professional choice for HVAC technicians, electricians and research, industrial process, and quality control applications, this thermometer offers dual inputs for easy super-heat and sub-cool temperature measurements. Monitor and track temperatures, the multi-logging thermometer features real-time clocks with a calendar, user-selectable recording intervals, and easy data recall using up and down keys.

TMD-56

- **°F/°C selectable**
- **Dual input: T1, T2, T1-T2**
- **Audible alert with Hi/Lo settings for out-of-range measurements**
- **Min/max with elapsed time, average, relative, hold functions**
- **Time and relative settings**
- **In-field thermocouple offset adjustment**
- **Robust holster protects the instrument**
- **Auto power-off saves batteries**
- **Download data to PC via USB**
- **Data capture: 256 samples with real-time data**
- **Data logging: 16 sets, maximum 16,000 data points**
- **Thermocouple offset adjustment**
- **Record, max, min, max-min, average, relative zero and hold functions**
- **Audible alerts with Hi/Lo setting**
- **Resolution 0.1°F/1°F (0.1°C/1°C)**

| FEATURE | TMD-56 |
|---|---|
| Thermocouple Type | K |
| Basic Accuracy | 0.05% |
| Number of Parameters on the Display | 3 |
| Real Time Clock - Wireless Beeper with Setting | • |
| Data Capture | 256 Samples |
| Data Logger | 16000 Points |
| PC Interface | USB |

| THERMOCOUPLE TYPE | TEMPERATURE RANGE |
|---|---|
| K-TYPE | -328°F → 2501°F (-200°C → 1372°C) |
| J-TYPE | -346°F → 2192°F (-210°C → 1200°C) |
| T-TYPE | -328°F → 752°F (-200°C → 400°C) |
| E-TYPE | -346°F → 1832°F (-210°C → 1000°C) |
| R-TYPE | 32°F → 3212°F (0°C → 1767°C) |
| S-TYPE | 32°F → 3212°F (0°C → 1767°C) |
| N-TYPE | -58°F → 2372°F (-50°C → 1300°C) |

**INCLUDED ACCESSORIES:** USB cable and software, user manual, 2 K-type thermocouples, batteries (installed)


TR200-A

# TR200-A **Temperature/Relative Humidity Data Logger**

One compact unit monitors both temperature and humidity and records it on your PC using the USB interface. Amprobe software included.

- **Record sample interval timing, start/stop, date, time, Hi/Lo alarm threshold, and units**
- **Visible LED warnings alert you to air quality problems**
- **IP-65 rating for dust and moisture**
- **Wall mountable**

**INCLUDED ACCESSORIES:** Batteries (installed), user manual, PC software CD and USB cable

TR300

# TR300 **Temperature/Relative Humidity Data Logger**

Wall-mountable, self-standing, or tripod mountable, this data logger configures to your application.

- **Temperature, relative humidity, dew point or web bulb measurements with real-time date/hour stamp**
- **Audible and visual alerts help you monitor IAQ conditions**
- **Stores up to 16,000 readings**
- **Records data to a PC with USB cable and Amprobe software included**
- **Programming on-screen or from the PC**

| FEATURES | TR200-A | TR300 |
|---|---|---|
| Dual Display LCD | – | • |
| Air Temperature Reading | 14°F → 140°F, (-10°C → 60°C) | -4°F → 158°F, (-20°C → 70°C) |
| Temperature Accuracy | +/- 1°F (+/- 0.6°C) | +/- 1°F (+/- 0.6°C) |
| RH Reading | 0.0 to 99.9% | 0 to 100% |
| RH Accuracy | +/- 3% at 77°F (25°C) | +/- 3% from 10 - 90% |
| Recording | 16000 | 16000 |
| Dew Point Reading | – | • |
| On Screen Programmable | – | • |
| Software Programmable | • | • |

**INCLUDED ACCESSORIES:** Batteries (installed), user manual, PC software CD and USB cable

# SOLAR-100 Power Meter

Optimize the placement of solar systems and analyze window efficiency with the SOLAR-100. Measure solar output and calculate overall energy and efficiency.

- **Windows performance testing: calculate and verify heating or heat reduction caused by direct sunlight**
- **Research the location of solar panels or solar water heaters**
- **Measures solar power and transmission**
- **Power mode measures incident solar radiation**
- **Transmission mode calculates the percentage of solar power transmission through materials such as windows**
- **Convenient display with remote sensor technology**
- **Selectable measurement units (W/m2 or BTU/ft2xh)**
- **Min/max function identifies locations with maximum or minimum power**
- **Also useful for physics and optical laboratories, meteorology, agriculture**

Solar-100

| FEATURE | SOLAR-100 |
|---|---|
| Solar Power | Up to 2000 W/m², 634 BTU/(ft2xh) |
| Max/Min | • |
| Data Hold | • |

**INCLUDED ACCESSORIES:** Battery (installed), carrying case, user manual

★★★★★

**TOP RATED**

***"A great instrument."***

*"This is an excellent device for quick measurements of irradiance out in the field. I was surprised that it can measure BTUs as well as headlight brightness and window tint.*

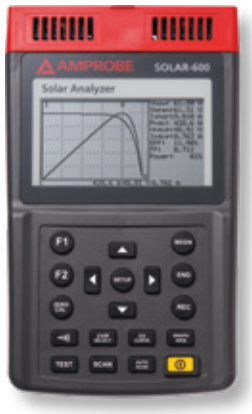
*It can also demonstrate the advantages of tracking and the effects of cloud cover. Great value for the money."*

**- SOLAR-100 customer reviews**

# SOLAR-600 Solar Analyzer

Install, maintain, troubleshoot and evaluate the efficiency of solar panels with these professional analyzers. The SOLAR-600 also offers real-time data logging and PC downloads for further analysis.

- **Determine the proper inverter size and optimum power output position of panels**
- **Identify broken or worn-out cells**
- **I-V curve test with cursor for solar cells**
- **Maximum solar power (Pmax) search by auto-scan**
- **Maximum voltage (Vmaxp) at Pmax**
- **Maximum current (Imaxp) at Pmax**
- **Voltage at open circuit (Vopen)**
- **Current at short circuit (Ishort)**
- **I-V curve with cursor**
- **Calculation of panel efficiency (%)**
- **Manual single point test**
- **Real time datalogging and PC download**




SOLAR-600

| FEATURE | SOLAR-600 |
|---|---|
| DC Voltage | 0.000 V → 9.999 V, 10.00 V → 60.00 V |
| DC Current | 0.01A → 9.99 A, 10.0 A → 12.0 A |
| DC Current Simulation | 0.01 A → 9.99 A, 10 A → 12 A |
| Power | 0 W → 720 W |
| Efficiency | • |
| Scan Delay | 0 mS → 3000 mS |
| Alarm | • |
| Solar Panel Area | 0.001 m2 → 9999 m2 |
| Standard Light Source | 10 W/m2 → 1000 W/m2 |
| Data Storage Memory | 99 records |
| Data Logging | • |

**INCLUDED ACCESSORIES:** User manual, AC adapter, USB cable and software CD, rechargeable battery pack (installed), test leads, carrying case

**Recommended Accessories**

**SOLAR-BAT1** **Rechargeable Lithium Battery SOLAR-600** (Replacement accessory)

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# R-115S **Remcon Momentary Switch Relay (3-wire)**
# RC-120S **Remcon Closet Light Relay (2-wire)**

When you need low-voltage control circuits for safe operation in industrial and process control environments, choose these low-voltage relays with built-in transformers. Each unit operates independently, so you can install one relay and operate it with as many switches as needed or control multiple relays with a single switch.

- **Uses light 22 gauge wire, saving the time and expense of pulling Romex or armored cable**
- **Simplifies wiring – no need to wire back to separate low voltage transformers**
- **Operates silently so you can install relays at the fixture instead of at a remote location**

R-115S

Best Seller

RC-120S

| FEATURE | R-115S | RC-120S |
|---|---|---|
| AC Voltage | 105 V → 125 V | |
| AC Current | Up to 6.5 A (1/4 HP max motor load at 120 V) | |
| Frequency | 60 Hz | |
| Safe Control Switching, Maximum | 10 V DC 10 milliamps | |

UL LISTED

## Recommended Accessories for use with Amprobe clamp meters including the Navigator™ CAT IV Power Quality Clamp Meters

ELS2A

## ELS2A **AC Line Splitter**

Measure the current on a 2-wire or 3-wire power cord up to 15 A without having to cut off the plug and separate the conductors, or open electrical boxes on 120 V lines. Use with any Amprobe clamp meter.

- **Two measurement loops, 1X and 10X for increased sensitivity**
- **Built-in voltage measurement jacks to check for voltage sags and surges**
- **Rated for 120 V, 15 Amps**

TL35B

## TL35B **AC Test Leads**

These standard 40" leads are compatible with all Amprobe clamp meters and multimeters that have a standard input terminal.

- **Includes two lead wires, two threaded test probe tips and two alligator clips**
- **Polyvinyl chloride (PVC) insulation**
- **Threaded alligator clips have 0.60" jaw opening and teeth that grip the conductor to provide a more secure, hands-free connection than probe tips**

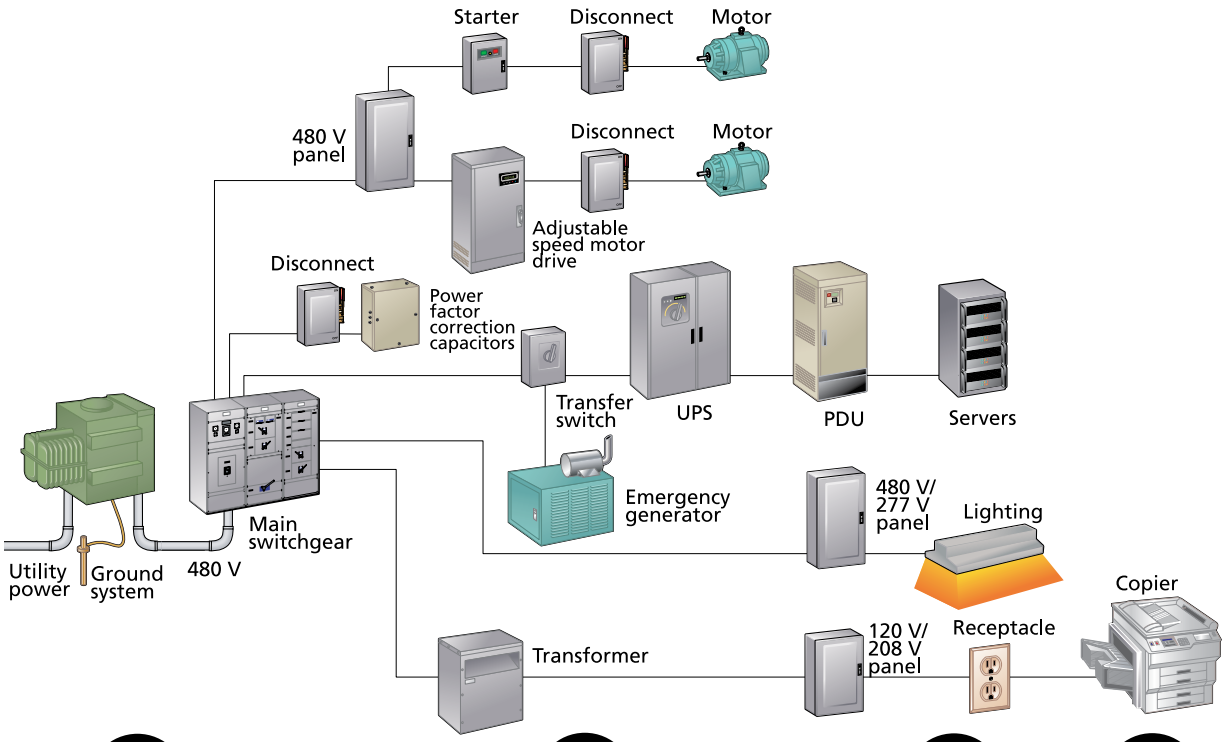
Electrical Safety CAT III 1000 V CE

# Safety Reference Guide

## International safety standards

Test equipment must be designed to protect people who work in the high-voltage, high-current environments. In order to prevent injury, the International Electrotechnical Commission (IEC) develops international general standards for safety of electrical equipment for measurement, control and laboratory use. The most current standard 61010 specifies overvoltage categories for electrical distribution systems. The category rating increases based on the closeness to the power source and a higher level of user protection that is required from test equipment.

## Proposed Energy Regions*




**CAT IV**
Three-phase at utility connection, electricity meters, outside and service entrance

**CAT III**
Three-phase distribution, large building lighting systems, distribution panel devices

**CAT II**
Appliances, portable tools

**CAT I**
Electronics, signal level single-phase receptacle loads

** Category ratings per IEC 61010-1*
*Category boundaries may not be exact*

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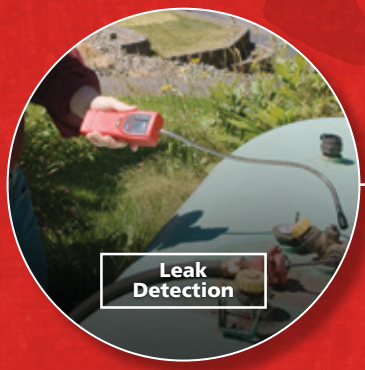
# Focus Products Catalog







**Amprobe®**
Division of Fluke Corp.
6920 Seaway Blvd.
M/S 143F
Everett, WA 98203 USA
amprobe.com
**P** 877-AMPROBE (267-7623)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