AMPROBE®

## UAT-600 Series

# Underground Utilities Locator

**Accurately and safely pinpoint underground utilities before you dig**

Accidentally hitting a utility line during a project can lead to costly repairs and create hazardous public safety situations. Digging in the wrong place can also lead to unnecessary delays and costs for your project, and ultimately, your company. Avoid this disruption with the rugged and durable Amprobe UAT-600 Series, designed to accurately pinpoint underground utilities and buried services.

Designed for electricians with a CAT IV 600 V rating, the locating kits come complete and ready for use with a Transmitter, Receiver, test lead kit, batteries and additional fuses, all in a mobile, protective duffle bag.

The UAT-620 kit also includes a Signal Clamp for transmitting a signal when it is not possible to make electrical contact with the cable to be traced. For applications where ground fault locating is required, use the UAT-600 Transmitter in combination with the optional A-Frame accessory.

## What sets the UAT-600 Series apart is its CAT IV 600 V safety rating.

### Unparalleled Safety

**Stop compromising time and safety.**

What truly sets the UAT-600 Series apart from other underground locators is its CAT IV 600 V safety rating. This allows you to safely connect the Transmitter directly to an energized line up to 600 V in a CAT IV environment.

Previously, if a crew needed to trace a specific electrical line by transmitting a signal through it, the line had to be de-energized first, adding time and reducing productivity.

## Features and Highlights

- **Multiple tracing modes** allow you to locate and trace energized and de-energized utilities in a variety of applications
- **The intuitive Transmitter automatically chooses** the correct locating function based on the connected accessory and includes selectable 8/33 kHz frequencies
- **The Receiver's high-contrast display** allows for clear viewing in full sunlight and features an automatic backlight for shaded and dark areas
- **Rated CAT IV 600 V,** ensuring safety when working with energized cables
- **Semi-automatic gain control** quickly detects tracing signal and allows precise adjustment of the receiver sensitivity
- **Accurate depth measurement to 20 ft,** detect and trace utilities buried up to 100 ft deep
- **Rugged, durable construction:** water and dust resistant to IP54 and drop proof to 3.28 ft (1 m)
- **Use the Signal Clamp** to induce a signal without making electrical contact (UAT-620)
- **Ground fault locating** with the optional A-Frame accessory
- **Comes as a complete kit,** ready for use


**AF-600 A-Frame Accessory***
Ground Fault Locator
See page 2 for specifications
*(Not included in the UAT-610 and UAT-620 Kits)

CAT IV 600 V

**UAT-620**
Underground Utilities Locator Kit

### Safety Certification

**All Amprobe tools, including the Amprobe UAT-600 Series, are rigorously tested for safety, accuracy, reliability, and ruggedness in our state-of-the-art test lab.** In addition, Amprobe products that measure electricity are listed by a 3rd party safety lab, either UL or CSA. This system assures that Amprobe products meet or exceed safety regulations and will perform in a tough, professional environment for many years to come.

AMPROBE®

# AF-600 A-Frame GroundFaultLocator

**Save time and money by pinpointing leakage points**

Ground faults are a common problem with electrical cables. Find any fault with the AF-600 A-Frame cable ground fault locator, specifically designed for use with the Amprobe UAT-600 Series.

Set up the UAT-600-T Transmitter to apply a fault find signal to the utility under test, the AF-600 A-Frame receives the signal and locates the place of the fault. The AF-600 will pinpoint where a cable metal conductor (either a sheath or a metallic conductor of the wire) touches the ground and can also detect other conductors to ground faults such as pipeline coating defects.


**AF-600-A-Frame**
Ground Fault Locator

## Features and Highlights

- **Identify any point of leakage** around a cable
- **Locate cable and wire** ground faults, sheath faults or pipeline coating defects, where the utility is in direct contact with the ground
- **Find the exact point** where metal is touching the ground and power is leaking, ie, a shield is rusted or a rubber buffer is broken, creating noise on a cable
- **Advanced technology and digital signal processing** makes pinpointing process fast, accurate and clear:
  - **Compass guidance** with numeric fault field strength indicates the direction of the fault
  - **Distance sensitive left and right arrows** guides the user to precisely follow the path of the buried utility
  - **Automatic gain control** quickly detects tracing signal and precisely adjusts the A-Frame sensitivity
  - **Adjustable volume controls**

## Specifications

| | AF-600 A-Frame |
|---|---|
| **Tracing mode** (de-energized) | 8 kHz |
| **Locating mode** | Ground fault locating |
| **Sensitivity** (typical) | Cable locate mode at 1 meter depth: 10 uA<br>Fault locate mode: up to 2 MΩ fault |
| **Display backlight** | Automatic |
| **Audio indication** | Speaker indicates left/right by pulsed/continuous tone |
| **Compatible transmitter** | UAT-600-T Transmitter |
| **Display** | 1.28 in, 128 x 128 BW outdoor LCD display with auto backlight |
| **Update rate** | Instantaneous |
| **Operating temperature and humidity** | -4 °F to 122 °F (-20 °C to 50 °C), ≤90% RH |
| **Storage temperature and humidity** | -40 °F to 140 °F (-40 °C to 60 °C), ≤90% RH |
| **Operating altitude** | < 6561 ft (< 2000 m) |
| **Pollution degree** | 2 |
| **Water and dust resistance** | IP54 |
| **Drop proof** | 3.28 ft (1 m) |
| **Power supply** | (6) 1.5 V AA alkaline batteries |
| **Auto power off** | 15 minutes idle |
| **Battery life** | Approx. 60 hours at 70 °F (21 °C) (Typical) |
| **Certifications** | |
| **Safety compliance** | IEC 61010-1, CSA/UL 61010-1 |
| **Size (H x W x L)** | Approx. 14 x 9 x 4.7 in (355 x 230 x 120 mm) |
| **Weight** | Approx. 4.2 lb (1.9 kg) (batteries installed) |

**AF-600 A-Frame includes:** A-Frame Receiver, (6) 1.5 V AA (IEC LR6) Batteries, Carrying Case, User Manual


The AF-600 comes complete with batteries and a carrying case

Clearly view the LCD display in bright sunlight

Pinpoint fault location by using the AF-600 with the UAT-600 Transmitter

AMPROBE®

**SC-600**
Signal Clamp

## SC-600 Signal Clamp

**(included in the UAT-620 Kit only)**

The Signal Clamp accessory provides an efficient and safe method of applying a locate signal to a cable, enabling the Transmitter to induce a signal through the insulation into the wires or pipes. The clamp works on low impedance closed circuits only.

| | SC-600 Signal Clamp |
|---|---|
| **Measurement category** | **CAT IV 600 V** |
| **Operating voltage/current** | 0 to 600 V, 100 A max. |
| **Operating frequency/ tracing modes** | 33 kHz and 8 kHz |
| **Signal voltage output (nominal)** | "23 V rms at 8 kHz<br>30 V rms at 33 kHz" |
| **Operating temperature and humidity** | -4 °F to 122 °F (-20 °C to 50 °C), ≤90% RH |
| **Storage temperature and humidity** | -40 °F to 140 °F (-40 °C to 60 °C), ≤90% RH |
| **Operating altitude** | < 6561 ft (< 2000 m) |
| **Pollution degree** | 2 |
| **Water and dust resistance** | IP54 |
| **Drop proof** | 3.28 ft (1 m) |
| **Certifications** | |
| **Safety compliance** | "IEC 61010-1, IEC 61010-2-033<br>CSA/UL 61010-1, CSA/UL 61010-2-033" |
| **Size (H x W x L)** | Approx. 11.6 x 7.1 x 1.4 in (295 x 180 x 37 mm) |
| **Weight** | Approx. 1.9 lb (0.85 kg) |

**TL-UAT-600**
Test Leads Kit

## Test Leads Kit

**(included in the UAT-610 and UAT-620 Kits)**

| | TL-UAT-600 Test Leads Kit |
|---|---|
| **Measurement category** | **CAT IV 600 V** |
| **Operating voltage and current** | Test leads: 600 V, 10 A max.<br>Clips : 600 V, 10 A max. |
| **Leads length** | 11.5 ft (3.5 m) |
| **Compatible transmitter** | UAT-600-T Transmitter |
| **Operating temperature and humidity** | -4 °F to 122 °F (-20 °C to 50 °C), ≤90% RH |
| **Storage temperature and humidity** | -40 °F to 140 °F (-40 °C to 60 °C), ≤90% RH |
| **Operating altitude** | < 6561 ft (< 2000 m) |
| **Pollution degree** | 2 |
| **Water and dust resistance** | IP54 |
| **Drop proof** | 3.28 ft (1 m) |
| **Certifications** | |
| **Safety compliance** | IEC 61010-031<br>CSA/UL 61010-031 |
| **Size (H x W x L)** | Approx. 9 x 3.5 x 3.1 in (230 x 90 x 80 mm) |
| **Weight** | Approx. 1.1 lb (0.5 kg) |

**TL-UAT-600 Test Leads Kit includes:** Black test lead with detachable black alligator clip, Red test lead with permanently attached red alligator clip, Ground stake

AMPROBE®

Trace an individual utility by connecting the transmitter directly with the test leads

The Transmitter will automatically change modes based on which accessory is plugged in

The Receiver's high contrast LED screen is easy to read in full sunlight

## Main applications

- **Locate** energized 50/60 Hz cables carrying current
- **Identify the location of all metallic utilities:** pipes*, energized and de-energized cables
- **Trace** individual pipes* or cables (energized or de-energized)
  ***Tracing of non-metallic pipes and conduits** is possible after inserting metal fish tape or cable

## **Two passive modes** using only the UAT-600-R Receiver

- **Passive power mode** (50/60 Hz) – tracing energized lines conducting current (no Transmitter necessary)
- **Passive radio mode** (RF) – using surrounding radio waves to trace underground utilities (no Transmitter necessary)

## **Three active modes** using the UAT-600-T Transmitter

- **Induction** - the Transmitter will automatically start to radiate a signal around it using an internal antenna, used for tracing individual cables where there is no access to the line to connect test leads or a clamp
- **Direct connection with test leads** - the most reliable method to trace individual cable or a pipe
- **Clamp** (Included in the UAT-620 kit, optional for the UAT-610 kit) - provides an efficient and safe method of applying a locate signal to a cable, where it is not possible/safe to gain access to a cable for making an electrical contact

## Special applications

- **2 frequency options:** 8 kHz and 33 kHz
- **Locate** non-metallic pipes and sewer lines
- **Take depth** and current measurements
- **Measure** voltage, resistance and output current
- **Advanced locating with two people**
- **Locate** ground faults with the AF-600 A-Frame accessory

## Customers who use Amprobe Underground Locators

- **Commercial and Residential Construction Contractors**
- **Water, Gas and Electric Installation & Repairs Crews**
- **Pipe Laying Contractors**
- **Cable TV & Telecommunication Companies**
- **Electricians & General Contractors**

# Features

| | UAT-600-R Receiver | UAT-600-T Transmitter | SC-600 Signal Clamp |
|---|---|---|---|
| **Measurement category** | **CAT IV 600 V** | **CAT IV 600 V** | **CAT IV 600 V** |
| **Operating voltage/current** | 0 to 600 V | | 0 to 600 V, 100 A max. |
| **Operating frequency/tracing modes** | Active tracing: 33 kHz and 8 kHz<br>Passive tracing: 50/60 Hz and Radio | **Energized circuit**<br>Induction mode: 33 kHz<br>Direct connection modes: 8 kHz and 33 kHz<br>Clamp mode: 8 kHz and 33 kHz<br>**De-Energized circuit**<br>Induction mode: 33 kHz<br>Direct connection modes:<br>8 kHz, 33 kHz, A-Lo/A-Hi<br>A-Frame: 8 kHz<br>Clamp mode: 8 kHz and 33 kHz | 33 kHz and 8 kHz |
| **Locating modes** | Peak and Null | – | – |
| **Depth measurement and accuracy** | Up to 20 ft<br>4 in to 10 ft: ± 3 %<br>10 ft to 20 ft: ± 5 % | – | – |
| **Display backlight** | Automatic | Yes | – |
| **Audio indication** | Increasing closer to the signal | Fast beeps showing the better signal is applied | – |

AMPROBE®

## Specifications

| | UAT-600-R Receiver | UAT-600-T Transmitter | SC-600 Signal Clamp |
|---|---|---|---|
| **Transmitting mode power output** | – | Max. 3 watts | - |
| **Output voltage** | – | Max. 50 V rms | - |
| **Output current** | – | Max. 250 mA rms, constant current in 5 steps | - |
| **Signal voltage output (nominal)** | – | – | 23 V rms at 8 kHz<br>30 V rms at 33 kHz |
| **Mains voltage measurement** | – | 0 V to 600 V, 50 Hz to 60 Hz<br>Resolution: 1 V<br>Accuracy: ± 10% | – |
| **Resistance measurement**<br>(De-energized circuit) | – | 0 Ω to 999 kΩ<br>Range: 0 Ω to 999 Ω (resolution: 5 Ω)<br>Range: 1 kΩ to 999 kΩ (resolution: 1 kΩ)<br>Accuracy: ± 10% | – |
| **Output hazardous voltage warning** | – | ≥ 30 V rms | – |
| **Mains hazardous voltage warning** | – | ≥ 30 V rms | – |
| **Sensitivity adjustment**<br>(gain control) | Yes | – | – |
| **Sensitivity at 1 m (typical)** | Power: 2 mA<br>Radio: 20 µA<br>8 kHz: 5 µA<br>33 kHz: 5 µA | – | – |
| **Display** | 4.3 in, 320 x 240 BW outdoor LCD display with auto backlight | LCD display (LED backlight)<br>2.4 in x 1.3 in | – |
| **Update rate** | Instantaneous | Current (mA): 10 ms<br>Voltage (V): 15 ms<br>Resistance (Ω): 330 ms | – |
| **Operating temperature and humidity** | -4 °F to 122 °F (-20 °C to 50 °C), ≤90% RH | | |
| **Storage temperature and humidity** | -40 °F to 140 °F (-40 °C to 60 °C), ≤90% RH | | |
| **Operating altitude** | < 6561 ft (< 2000 m) | | |
| **Pollution degree** | 2 | | |
| **Water and dust resistance** | IP54 | | |
| **Drop proof** | 3.28 ft (1 m) | | |
| **Power supply** | (6) 1.5 V AA alkaline batteries | (8) 1.5 V D cell alkaline batteries | – |
| **Auto power off** | 15 minutes idle | - | – |
| **Battery life** | Approx. 35 hours at 70 °F (21 °C) (Typical) | Approx. 16 hours at 70 °F (21 °C) (Typical) | – |
| **Overload protection** | – | 600 V rms<br>Fuse FF 500 mA, 1000 V, IR 30 kA,<br>6.3×32 mm | – |
| **Certifications** | | | |
| **Safety compliance** | IEC 61010-1, IEC 61010-2-033<br>CSA/UL 61010-1, CSA/UL 61010-2-033 | IEC 61010-1, IEC 61010-2-033<br>CSA/UL 61010-1, CSA/UL 61010-2-033<br>IEC 61010-031, CSA/UL 61010-031<br>(test leads) | IEC 61010-1, IEC 61010-2-033<br>CSA/UL 61010-1, CSA/UL 61010-2-033 |
| **Size (H x W x L)** | Approx. 11.9 x 4.7 x 30.7 in<br>(302 x 120 x 779 mm) | Approx. 14 x 9 x 4.7 in<br>(355 x 230 x 120 mm) | Approx. 11.6 x 7.1 x 1.4 in<br>(295 x 180 x 37 mm) |
| **Weight** | Approx. 4.2 lb (1.9 kg) (batteries installed) | Approx. 7.0 lb (3.2 kg) (batteries installed) | Approx. 1.9 lb (0.85 kg) |

AMPROBE®

# UAT-600 Series Kits and Accessories

**UAT-620**
Underground Utilities
Locator Kit

**UAT-610**
Underground Utilities
Locator Kit

## UAT-600 Series Kit contents

| | UAT-610 | UAT-620 |
|---|---|---|
| **UAT-600-R Receiver** | 1 | 1 |
| **UAT-600-T Transmitter** | 1 | 1 |
| **CC-UAT-600 Carrying Case** | 1 | 1 |
| **TL-UAT-600 Test Leads Kit*** | 1 | 1 |
| **FP-UAT-600 Replacement Fuse** | 2 | 2 |
| **User Manual** | 1 | 1 |
| **Quick Reference Guide** | 1 | 1 |
| **1.5 V AA (IEC LR6) Batteries (Receiver)** | 6 | 6 |
| **D-Cell Batteries (Transmitter)** | 8 | 8 |
| **SC-600 Signal Clamp** | – | 1 |

***TL-UAT-600 Test Leads Kit includes:**
- Black test lead with detachable black alligator clip
- Red test lead with permanently attached red alligator clip
- Ground stake

## Optional Accessories

| | Description |
|---|---|
| **AF-600*** | A-Frame ground fault locator to pinpoint ground faults where current is leaking to ground |
| **TL-600-25M** | Extension test lead, 80’ (25 m) |

***AF-600 A-Frame includes:**
- A-Frame Receiver
- (6) 1.5 V AA (IEC LR6) Batteries
- Carrying Case
- User Manual