

# AMPROBE®

Test Equipment Depot - 800.517.8431 - 99 Washington Street Melrose, MA 02176

TestEquipmentDepot.com

# Quick Start Guide

## AT-6010 Advanced Wire Tracer

**Reliable, precise breaker identification**

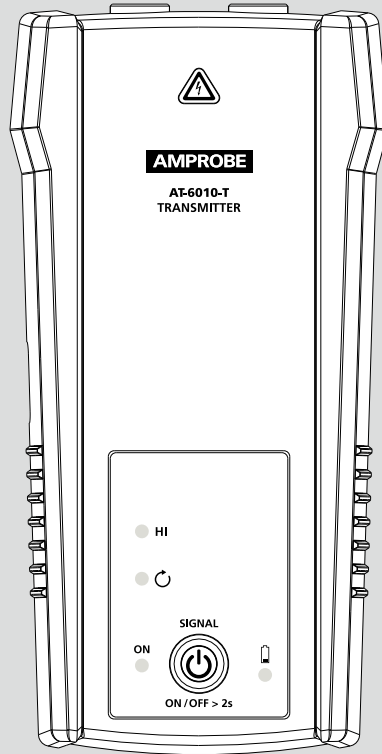
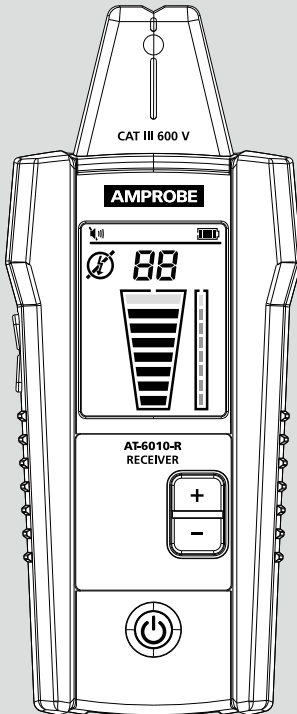
**Tested by Fluke** and safety certified by 3rd party labs



**Intuitive Transmitter** automatically senses whether the system is energized or de-energized

**Most accurate wire tracing in its class** with eight sensitivity modes

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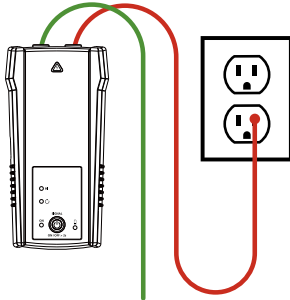
## AT-6010 Advanced Wire Tracer Special Applications:

- GFCI-protected circuit wire tracing
- Find breaks, openings, and shorts
- Trace wires in metal conduit
- Trace non-metallic pipes and conduits
- Trace shielded wires
- Trace underground wires
- Trace low voltage wires and data cables
- Sort bundled wires
- Map circuits using test leads connection
- Trace breakers on system with light dimmers
- CT-400 signal clamp (optional accessory) to improve accuracy and performance when there is no access to bare conductors

See the user manual for further instructions regarding special applications.

# Tracing Energized and De-energized Wires

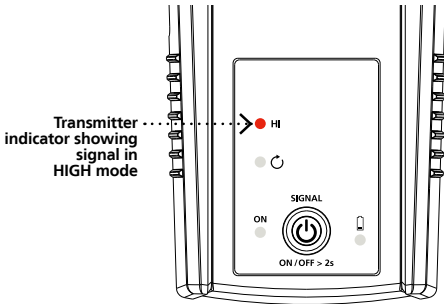
## 1 Set-up: Test Leads



Proper connection with separate ground

1. **Plug** the green and red test leads into the Transmitter.
2. **Connect** the red test lead to the wire being traced, Energized or De-energized. For receptacles, make sure to connect the test lead to the hot wire. The signal will only be transmitted between the load-side to which the Transmitter is connected and the source of power.
3. **Connect** the green wire to a separate ground.

## 2 Set-up: Transmitter

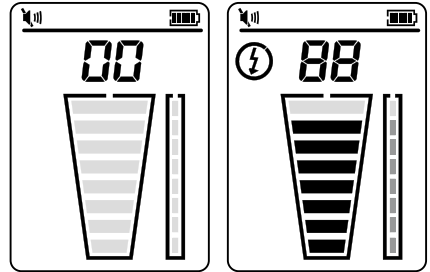


Transmitter indicator showing signal in HIGH mode

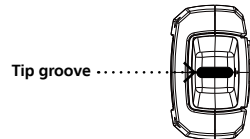
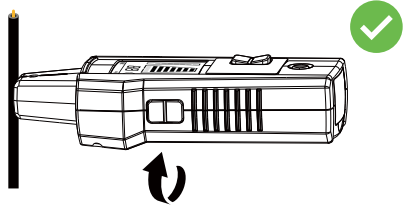
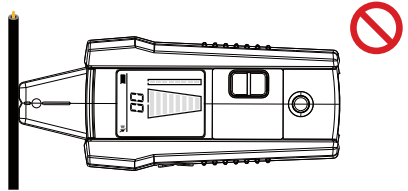
1. **Turn on** the Transmitter.
2. **Verify** that the test leads are properly connected; the red LED voltage status light should be on for circuits with voltage above 30 V AC/DC, and it should be off for De-energized circuits below 30 V AC/DC.
3. **HIGH signal mode** is automatically activated when the Transmitter is turned on.

## Receiver: Tracing Mode

Use this mode to easily follow the direction of a wire.

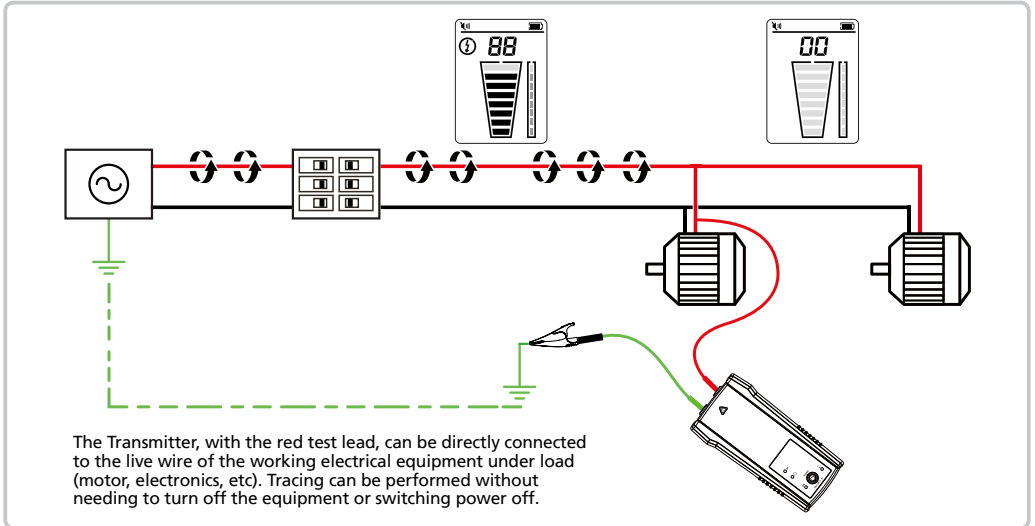


1. **Turn on** the Receiver. Tracing mode is automatically activated.
2. **Scan** the target area with the Tip Sensor to find the highest signal level, then begin tracing the detected wire. Increase or decrease sensitivity of the Receiver by pressing + or - on the keypad as necessary.



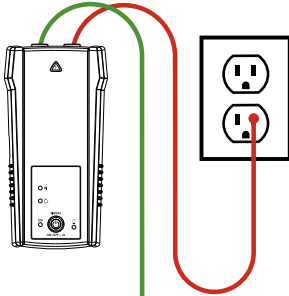
**TIP:** Align groove on the Tip Sensor with wire direction for best results while tracing Energized wires. Signal may be not detected if not properly aligned. To verify wire direction, periodically rotate the Receiver 90 degrees. Signal strength will be the highest when wire is aligned with the Tip Sensor groove.

## Connecting Transmitter to Energized working system

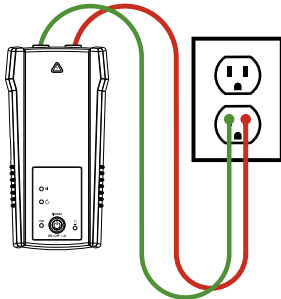


# Identifying Breakers and Fuses

## 1 Set-up: Test Leads



Proper connection with separate ground  
Separate ground connection (Preferred)



Simplified direct connection

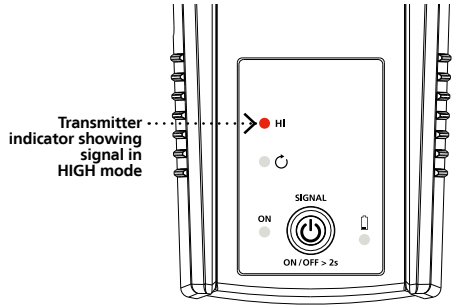
1. **Connect** the green and red test leads to the Transmitter using either simplified direct connection or separate ground connection.

**Separate ground connection** (preferred): first connect the red lead to the Energized hot wire on the load side of the system. The signal will ONLY be transmitted between the outlet to which the Transmitter is connected and the source of power.

**Simplified direct connection:** connect the test leads directly to the hot and neutral wires. While locating a breaker, wires will not be traceable as the signals will cancel each other out.

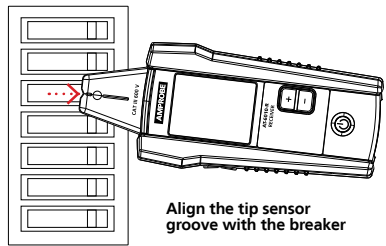
2. **Connect** the green lead to a separate ground.

## 2 Set-up: Transmitter



1. **Turn on** the Transmitter.
2. **Verify** that the test leads are properly connected; the red LED voltage status light should be on for circuits with voltage above 30 V AC/DC, and it should be off for De-energized circuits below 30 V AC/DC.
3. **HIGH signal mode** is automatically activated when the Transmitter is turned on.

## Receiver: Breaker Tracing

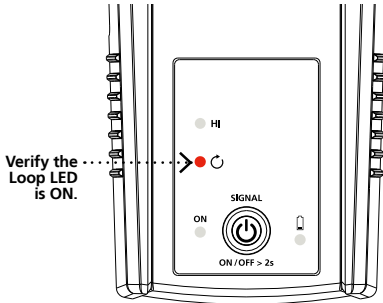


Align the tip sensor groove with the breaker

1. **Turn on** the Receiver. Tracing mode is automatically activated.
2. **Align** the groove on the Tip Sensor with the breaker lengthwise.
3. **Scan** all breakers in any order to find a breaker with the highest signal. Adjust sensitivity by pressing + or - on the keypad to show the signal strength near 50 for the breaker with the highest signal.
4. **Rescan** all breakers to find the one with the highest signal level.

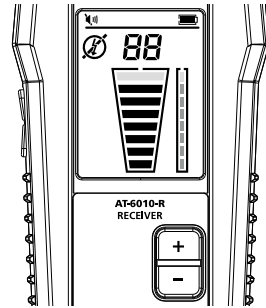
## Special Application: Finding Shorts

### 1 Set-up: Transmitter



1. **Connect** the Transmitter with the test leads to the circuit.
2. **Switch** the Transmitter to Loop mode by short press of On/Off button. Verify that the Loop LED is ON.

### 2 Set-up: Receiver

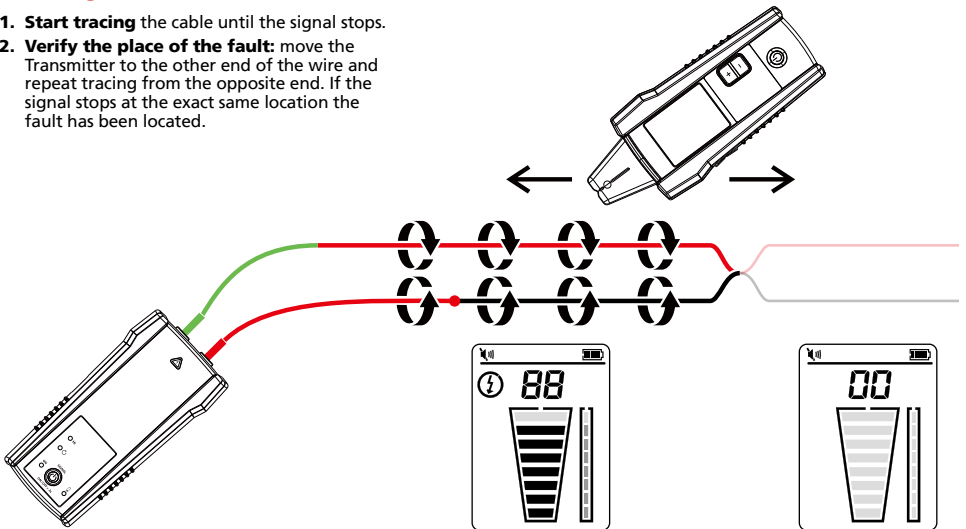


1. **Turn on** the Receiver. Tracing mode is automatically activated.

### Tracing mode:

## Tracing a cable to find shorts

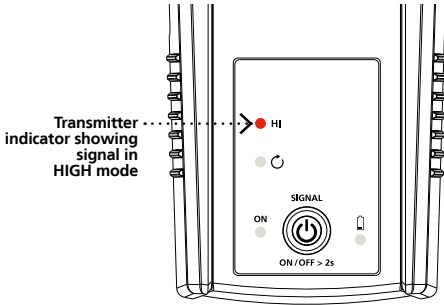
1. **Start tracing** the cable until the signal stops.
2. **Verify the place of the fault:** move the Transmitter to the other end of the wire and repeat tracing from the opposite end. If the signal stops at the exact same location the fault has been located.



**Note:** This method will be affected by signal cancellation effect. Expect a relatively weak signal.

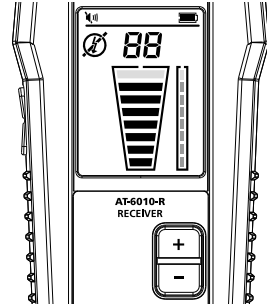
## Special Applications: Finding Breaks

### 1 Set-up: Transmitter



1. **Ensure** the wire is De-energized.
2. **Connect** the Transmitter with the test leads to the circuit.
3. **HIGH signal mode** is automatically activated when the Transmitter is turned on.

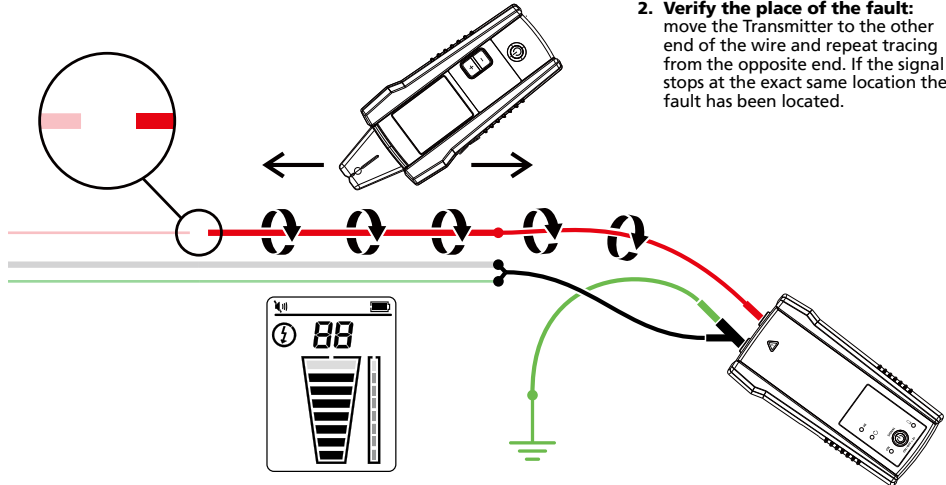
### 2 Set-up: Receiver



1. **Turn on** the Receiver. Tracing mode is automatically activated.

Tracing mode:

### Tracing a cable to find breaks or opens



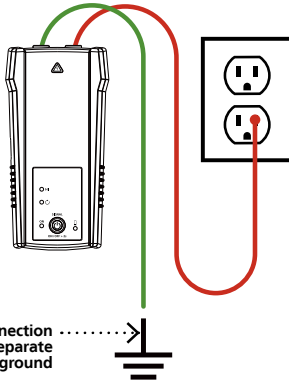
1. **Start tracing** the cable until the signal stops.
2. **Verify the place of the fault:** move the Transmitter to the other end of the wire and repeat tracing from the opposite end. If the signal stops at the exact same location the fault has been located.

**Note:** For best results, ground all De-energized wires that run in parallel with the black test lead.



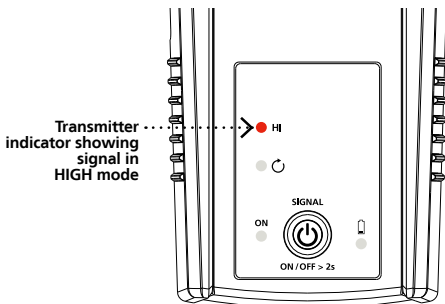
## Special Application: Metal Conduit

### 1 Set-up: Test Leads



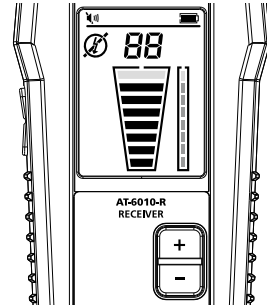
1. **Connect** the green and red test leads to the Transmitter.
2. **Connect** the red test lead to the wire being traced, Energized or De-energized. For receptacles, make sure to connect the test lead to the hot wire. The signal will only be transmitted between the load-side to which the Transmitter is connected and the source of power.
3. **Connect** the green wire to a separate ground.

### 2 Set-up: Transmitter



1. **Turn on** the Transmitter.
2. **Verify** that the test leads are properly connected; the red LED voltage status light should be on for circuits with voltage above 30 V AC/DC, and it should be off for De-energized circuits below 30 V AC/DC.
3. **HIGH signal mode** is automatically activated when the Transmitter is turned on.

### 1 Set-up: Receiver



1. **Turn on** the Receiver. Tracing mode is automatically activated.

#### Receiver:

### Tracing Wires in Metal Conduit







1. **Open** junction boxes and use the Receiver Tip Sensor to detect which wire in the junction box is carrying the signal.
2. **Move** from junction box to junction box to follow the path of the wire.

#### Important Notes:



**Applying a signal directly to the conduit** will send the signal through all the conduit branches, making tracing a particular conduit path impossible.

**The Receiver is unable to pick up the signal from a wire through a metal conduit.** The metal conduit will completely shield the tracing signal. The Receiver will be able to detect wires in a non-metallic conduit. For these applications follow general tracing guidelines.

# Specifications

	AT-6010-R Receiver	AT-6010-T Transmitter	CT-400 Signal Clamp
<b>Measurement Category</b>	CAT III 600 V	CAT III 600 V	CAT IV 600 V, CAT III 1000 V
<b>Operating Voltage</b>	0 to 600 V AC/DC	0 to 600 V AC/DC	0 to 1000 V AC
<b>Operating Frequency</b>	Energized: 6.25 kHz De-Energized: 32.768 kHz	Energized: 6.25 kHz De-Energized: 32.768 kHz	Wire tracing: 32.768 kHz AC current measurement: 45 Hz to 400 Hz
<b>Voltage Detection</b>	N/A	> 30 V AC/DC	N/A
<b>Signal Indications</b>	Numeric bar graph display and audible beep	LEDs	N/A
<b>Response Time</b>	Tip Sensor (Energized / De-energized): 500 ms Battery voltage monitoring: 5 sec	Line/phase voltage monitoring: 1 sec Battery voltage monitoring: 5 sec	Instantaneous
<b>Current Output of Signal (typical)</b>	N/A	Energized circuit: Hi mode: 60 mA RMS De-energized circuit: Hi mode: 130 mA RMS Loop mode: 160 mA RMS	1 mA/A for AC current measurement with multimeter
<b>Signal Voltage Output (nominal)</b>	N/A	De-energized circuit: HIGH: 33 V RMS, 140 Vp-p With CT-400-EUR: Loop mode: 31 V RMS, 120 Vp-p	De-energized circuit: 2.4 V RMS, 24 Vp-p
<b>Range Detection (open air)</b>	Tip Sensor (Energized): Max distance via air: up to 6.1 m (20 ft) Pinpointing: approx. 5 cm (1.97 in) Tip Sensor (De-energized): Max distance via air: up to 4.5 m (14.7 ft) Pinpointing: approx. 5 cm (1.97 in)	N/A	N/A
<b>Display size</b>	LCD 2.5 in (6.35 cm)	LEDs	N/A
<b>Display dimensions (W x H)</b>	1.45 x 1.93 in (36.72 x 48.96 mm)	N/A	N/A
<b>Display type</b>	Segment LCD	LEDs	N/A
<b>Display color</b>	Black and white	Operating mode LEDs: red Battery status LEDs: red	N/A
<b>Booting time</b>	< 3 sec	< 2 sec	N/A
<b>Backlight</b>	Yes	N/A	N/A
<b>Operating temperature</b>	-4 °F to 122 °F (-20 °C to 50 °C)		32 °F to 122 °F (0 °C to 50 °C)
<b>Operating humidity</b>	45%: -4 °F to <50 °F (-20 °C to <10 °C) 95%: 50 °F to <86 °F (10 °C to <30 °C) 75%: 86 °F to <104 °F (30 °C to <40 °C) 45%: 104 °F to 122 °F (40 °C to 50 °C)		95%: 50 °F to <86 °F (10 °C to <30 °C) 75%: 86 °F to <104 °F (30 °C to <40 °C) 45%: 104 °F to <122 °F (40 °C to <50 °C)
<b>Storage temperature and humidity</b>	-4 °F to 158 °F (-20 °C to 70 °C), <95% RH		-4 °F to 140 °F (-20 °C to 60 °C), <95% RH
<b>Operating altitude</b>	0 to 6561 ft (2000 m)		
<b>Transient protection</b>	N/A	6.00 kV (1.2/50 µs surge)	N/A
<b>Pollution degree</b>	2		
<b>IP rating</b>	IP 52	IP 40	
<b>Drop test</b>	3.28 ft (1 m)		
<b>Power supply</b>	4 x AA (alkaline)	8 x AA (alkaline)	N/A
<b>Power consumption (typical)</b>	70 mA	Hi mode: 70 mA Loop mode with Clamp: 90 mA Consumption without signal transmission: 10 mA	N/A
<b>Battery life (typical)</b>	Approx. 25 h	Hi mode: approx. 25 h Loop mode: approx. 18 h	N/A
<b>Low battery indication</b>	Yes	Yes	N/A
<b>Fuse</b>	N/A	1.6 A, 700 V, fast-acting, Ø 6x32mm	N/A
<b>Maximum conductor Size</b>	N/A	Yes	1.26 in (32 mm)
<b>Dimensions (L x W x H)</b>	Approx. 7.2 x 2.95 x 1.69 in (183 x 75 x 43 mm)	Approx. 7.2 x 3.66 x 1.97 in (183 x 93 x 50 mm)	Approx. 5.9 x 2.75 x 1.18 in (150 x 70 x 30 mm)
<b>Weight</b>	Approx. 0.6 lb (0.27 kg)	Approx. 1.25 lb (0.57 kg)	Approx. 0.25 lb (0.114 kg)
<b>Certifications</b>	   		 

## Accessory specifications

	TL-6000-INTL
Measurement Category	CAT III (test leads) CAT IV (alligator clips)
Operating Voltage and Current	1000 V, 16 A max. (red/green leads) 600 V, 16 A max. (black lead) 600 V, 10 A max. (alligator clips)
Operating Frequency	N/A
Operating Temperature	32 °F to 122 °F (0 °C to 50 °C)
Operating Humidity	95%: 50 °F to <86 °F (10 °C to <30 °C) 75%: 86 °F to <104 °F (30 °C to <40 °C) 45%: 104 °F to <122 °F (40 °C to <50 °C)
Storage Temperature and Humidity	-4 °F to 140 °F (-20 °C to 60 °C), <95% RH
Operating Altitude	0 to 6561 ft (2000 m)
Pollution Degree	2
IP Rating	IP 20
Drop Test	3.28 ft (1 m)
Dimensions	Red/black leads: 3.28 ft (1 m) Green lead: 22.97 ft (7 m) Alligator clips: approx. 3.74 x 1.77 x 0.94 in (95 x 45 x 24 mm)
Weight	Approx. 0.75 lb (0.34 kg)
Certifications	 

## Included in Wire Tracer Kits

	AT-6010-KIT
AT-6010-R Receiver	1
AT-6010-T Transmitter	1
TL-6000-INTL test lead and accessory kit*	1
CC-6010 soft carrying case	1
User manual	1
1.5 V AA (IEC LR6) battery	12

\*TL-6000-INTL test lead and accessory kit includes:

- 2 x 1 m test leads (red, black)
- 1 x 7 m test lead (green)
- 2 x Alligator clips (red, black)
- 2 x Outlet blade adapter (red, black)
- 2 x Outlet round adapter (red, black)

Optional accessories:

ADPTR-SCT Socket adapter  
HS-1 Magnetic hanger  
TL-7000-25M Test lead  
CT-400 Signal clamp

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Specifications subject to change  
without notice.