



ET390

INSTRUCTIONS
INSTRUCCIONES
INSTRUCTIONS

DIGITAL CIRCUIT BREAKER FINDER

SPANISH TITLE

FRENCH TITLE



ENGLISH
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1391063 REGULATORY DRAFT 05/26

ENGLISH

GENERAL SPECIFICATIONS

- Operating Voltage:** 85V to 135V AC, 50/60Hz
- GFCI Operating Voltage:** 102V to 132V AC, 50/60Hz
- Operating Altitude:** 6562' (2000m)
- Relative Humidity:** <90% non-condensing
- Operating Temp:** 32° to 122°F (0° to 50°C)
- Storage Temp:** -4° to 122°F (-20° to 50°C)
- Dimensions (transmitter docked in receiver):**
12" x 2" x 1.36" (305 x 51 x 35mm)
- Weight (transmitter, receiver, and batteries):** 7.2oz (204g)
- Batteries:** Transmitter: 2× AAA Alkaline (included)
Receiver: 3× AAA Alkaline (included)
- Auto-Power Off: Receiver:** After 3 minutes of inactivity.
Transmitter: After 3 minutes of inactivity, disabled when connected to live outlet
- Standards:** Conforms to UL STD 1436, 61010-1, 61010-2-30.
Certified to CSA STD C22.2 # 160, 61010-1, 61010-2-30.
- Drop Protection:** 6.5' (2m)
- Ingress Protection:** IP40 dust resistant
- Pollution Degree:** 2
- FCC/IC ID:** Transmitter: FCC ID: 2A128-ET390T
IC: 21655-ET390T
Receiver: FCC ID: 2A128-ET390R
IC: 21655-ET390R

Specifications subject to change.

SYMBOLS ON BACK OF TESTER

	Risk of electric shock		This product has been independently tested by Intertek and meets applicable published standards.
	Warning or Caution		
	Read Instructions		WEEE - Battery disposal



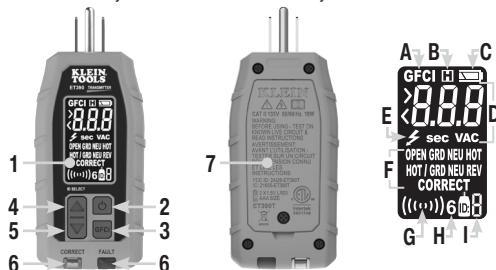
FEATURE DETAILS

NOTE: No user-serviceable parts inside.

TRANSMITTER

- Transmitter LCD
- Power Button
- GFCI Test Button
- Up Button
- Down Button
- Circuit Condition Indicators
- Transmitter Battery Cover

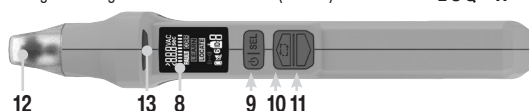
- A** GFCI Indicator
B Data Hold Indicator
C Battery Status Indicator
D Numeric Values
E Hazardous Voltage Indicator
F Wiring Condition Indicators
G LoRa Connectivity
H "6 Mode" Indicator
I Channel ID



RECEIVER

- Receiver LCD
- Power/SEL Button
- Up Button
- Down Button
- Sensing Tip
- Circuit Condition Indicator
- Receiver Battery Cover
- Numeric Values
- Signal Strength Indicator

- L** Battery Status Indicator
M Fault Indicator
N Learn Mode Indicator
O Locate Mode Indicator
P LoRa Connectivity
Q "6 Mode" Indicator
R Channel ID
S Mute Indicator
T "CORR" (Correct) Indicator



	LCD WILL DISPLAY					LED	VOLTAGE*
	"CORRECT"	"OPEN GRD"	"OPEN NEU"	"OPEN HOT"	"HOT/GRD REV"	"HOT/NEU REV"	"OPEN GRD NEU"
WIRED CORRECTLY	■	□	□	□	□	GREEN	LINE VOLTAGE
OPEN GROUND	■	■	□	□	□	RED	NO VOLTAGE
OPEN NEUTRAL	■	■	■	□	□	RED	NO VOLTAGE
OPEN HOT	■	■	■	■	□	RED	>30V VOLTAGE
DUAL OPEN (NEUTRAL & GROUND)	■	■	■	■	■	RED	NO VOLTAGE
REVERSED HOT/GROUND	■	■	■	■	■	RED	NO VOLTAGE
REVERSED HOT/NEUTRAL	■	■	■	■	■	RED	NO VOLTAGE

*Expected voltage reading on LCD based on the indicated wiring condition.

NOTE: If the detected voltage is low (30-85V AC) or high (135-150V AC), the red indicator will illuminate. It is possible to have the red indicator (indicating low or high voltage) and the green indicator (indicating correct wiring) illuminated simultaneously.

⚠ WARNINGS

To ensure safe operation and service of the meter, follow these instructions. Failure to observe these warnings can result in severe injury or death.

- Prior to use, always verify tester operation by testing on a known live and correctly wired electrical outlet.
- DO NOT use if the tester appears damaged in any way.
- The tester is intended for indoor use only.
- The tester is designed for use with 120V AC electrical systems. DO NOT connect to higher voltage electrical supplies.
- Other equipment or devices attached to the circuit being tested could interfere with the tester, clear the circuit before testing.
- If using accessories to connect to bare wires ensure that the circuit is not energized before inspecting, applying, or removing the transmitter.
- Exercise extreme caution around energized, bare wires, especially when working in or around an open breaker panel.
- This tester detects only common wiring problems. ALWAYS consult a qualified electrician to resolve wiring problems. This tester WILL NOT:
 - indicate quality of ground.
 - indicate two hot wires in a circuit.
 - detect a combination of multiple wiring faults.
 - indicate reversed ground and neutral.

OPERATING INSTRUCTIONS

POWER ON/OFF

Transmitter: Press and hold the Power Button to power on. Press and hold the Power Button to power off.

Receiver: Press the Power/SEL Button to power on. Press and hold the Power/SEL Button to power off. The receiver will automatically power off after 3 minutes of inactivity.

PAIRING

1. Power on the transmitter and select ID 1 through 3.
2. Power on the receiver and select ID of transmitter. Wireless icon will illuminate solid when connection is established.
3. To connect to additional transmitters, repeat steps 1 & 2.

NOTE: Each transmitter ID must be unique.

NOTE: For fastest pairing, power on all transmitters and set their IDs before powering on the receiver. Every 30 seconds, the receiver will search for new transmitters available to pair. To manually search for new transmitters, press the Up Button for 3 seconds.

"6 MODE"

To use up to 6 transmitters, power on the receiver and transmitters in "6 Mode".

1. Hold the Down and Power/SEL Button buttons on the receiver for 5 seconds upon power-on. You can now search for up to 6 transmitters.
2. Hold the Down and Power/SEL Button buttons on each transmitter for 5 seconds to unlock IDs 4 thru 6. You can now set IDs 1 thru 6 on transmitters, and search 1 thru 6 on receiver.

NOTE: Pairing and searching of IDs is longer on this mode. The "6 Mode" Indicator (H) will display to confirm "6 Mode" is in use.

OPERATING INSTRUCTIONS

USING RECEIVER FOR OUTLET DIAGNOSTICS

1. Pair the transmitter to the receiver (see PAIRING section).
2. The Circuit Condition Indicator (M) will display "CORRECT" or "FAULT" for wiring condition on the Receiver. Specific fault will display on the transmitter.
3. To perform a remote GFCI test, press and hold the Up and Down buttons on the receiver for 5 seconds. GFCI will trip on the transmitter, and the receiver will display the trip time and pretest voltage. After 10 seconds, the voltage will read "OV".

WIRING CONDITION TEST

⚠ Prior to use, always verify tester operation by testing on a known live and correctly wired electrical outlet.

With the tester powered on and inserted into the outlet, the Hazardous Voltage Indicator (E) will appear, and one of the Circuit Condition Indicators will illuminate. If the "FAULT" (red) indicator illuminates, unplug the tester to read voltage (D) and wiring condition (F). The Data Hold Indicator (B) will illuminate and the transmitter will retain the information on the LCD for 10 seconds after removal from the outlet unless connected to another active circuit.

⚠ If the tester indicates that the circuit is not wired correctly, consult a qualified electrician.

NOTE: Conditions NOT indicated include, but are not limited to, quality of ground, multiple hot wires, reversal of neutral and ground conductors, and combinations of defects other than dual open neutral and ground.

NOTE: All appliances or equipment on the circuit being tested should be unplugged to help reduce the possibility of erroneous readings.

GFCI TEST

NOTE: Prior to using this tester, refer to the GFCI device's user manual for device-specific operational information.

NOTE: All appliances or equipment on the circuit being tested should be unplugged to help reduce the possibility of erroneous readings.

NOTE: NOT designed for testing 30mA ground-fault devices.

Insert the transmitter into the electrical outlet. One of the Circuit Condition Indicators will illuminate.

⚠ If the tester indicates that the outlet is not wired correctly, DO NOT attempt to test the GFCI device. Consult a qualified electrician.

If the Circuit Condition Indicators indicate that the circuit is functioning properly, press the GFCI Test Button on the transmitter to test the GFCI device. The tester will create a 6mA to 9mA ground fault to trip the GFCI device. If successful, the LCD will toggle between the pre-test voltage and time to trip the breaker for 10 seconds. After 10 seconds, the tester will display OPEN GRD/NEUTRAL, and ">30 VAC" or "OPEN HOT" until the GFCI is reset. If the circuit remains energized, or if ">6 sec" appears on the LCD (1), the device being tested may be miswired, may not be installed correctly, or may not be functioning correctly. **Consult a qualified electrician.**

NOTE: When testing GFCI devices installed in 2-wire systems (no ground wire), ET390 may falsely indicate that the GFCI is not functioning properly. If this occurs, recheck the operation of the GFCI device using its onboard test and reset buttons. This will confirm whether the device is functioning properly.



OPERATING INSTRUCTIONS

FINDING CIRCUIT BREAKERS

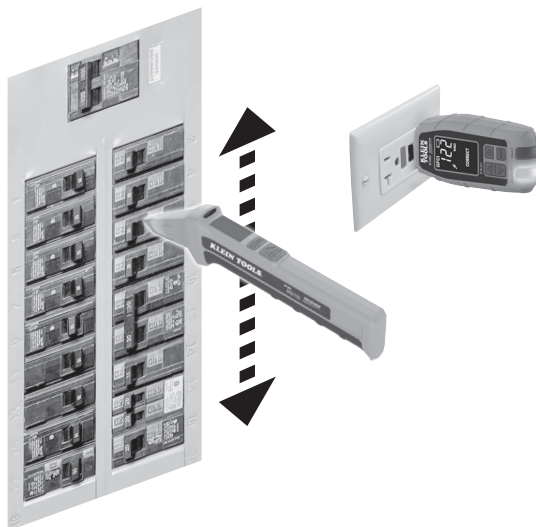
Insert the transmitter into the electrical outlet. One of the Circuit Condition Indicators will illuminate. If the transmitter indicates that the outlet is energized and correctly wired, prepare to scan the breakers in the breaker panel with the receiver.

NOTE: Plug the transmitter directly into the outlet. An indirect connection through an extension cord, surge protector, or other similar equipment may interfere with functionality.

⚠ If the tester indicates that the outlet is not wired correctly, cease testing and consult a qualified electrician.

1. Power on the receiver. Before approaching the electrical panel, press the Power/SEL Button once to enter LEARN mode. Position the Receiver's Sensing Tip perpendicular and as close as possible to the breakers in the panel and slowly scan all breakers in the panel once, ignoring any audible or visual indications as the receiver "learns" the panel.
2. Press the Power/SEL Button again to enter LOCATE mode and scan all breakers a second time. When the breaker connected to the circuit with the transmitter is approached, audible beeps will sound, the Circuit Condition Indicator will illuminate red, and the green indicator in the Sensing Tip will turn off, indicating that the correct breaker has been located.

NOTE: Resetting the receiver erases prior scanning data stored from a previously 'learned' panel. Always reset the receiver away from the electrical panel to ensure that electrical signals are not being sensed during the reset operation.

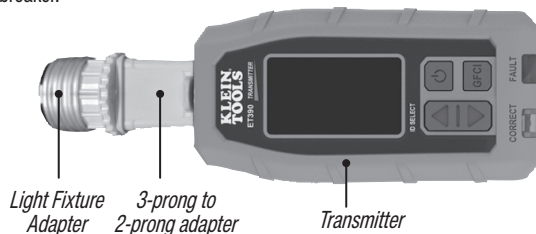


OPERATING INSTRUCTIONS

CONNECTING TO OTHER FIXTURES USING OPTIONAL ACCESSORIES (CAT. NO. 69411, NOT INCLUDED)

LIGHT SOCKETS

Screw the light socket adapter into an empty light socket. Connect the transmitter to the 3-prong to 2-prong adapter, and plug into the light fixture adapter. The Wiring Condition Indicator (F) will indicate an open ground condition if the light socket is energized. Follow the instructions in the FINDING CIRCUIT BREAKERS section to find the correct circuit breaker.



BARE WIRES

The transmitter may be connected to bare wires using the outlet-to-alligator clips wire adapter. Carefully attach the alligator clips the correct wires. Insert transmitter into the outlet on the wire adapter. The indicators on the transmitter will communicate an open ground wiring condition if the wires are energized. Follow the instructions in the FINDING CIRCUIT BREAKERS section to find the correct circuit breaker.

⚠ Exercise extreme caution when working around energized bare wires.



BATTERY REPLACEMENT

When the Battery Status Indicator (C) or (L) on the transmitter or receiver indicates low battery  the batteries must be replaced.

The same process applies to both:

1. Loosen the screw on the Battery Cover or open/remove cover.
2. Remove and properly dispose of exhausted batteries.
3. Install new AAA alkaline batteries, noting proper orientation.
4. Close/replace the Battery Cover or and tighten screw, taking care not to over-tighten.



CLEANING

Be sure units are turned off and wipe with a clean, dry lint-free cloth. **Do not use abrasive cleaners or solvents.** Take care to keep the sensor lens clean at all times. If required, loose debris may be removed from lens using clean compressed air. Lens may also be cleaned using a soft cloth or cotton swab with water or rubbing alcohol only. Lens must be allowed to completely dry prior to use.

STORAGE

Remove batteries when tester will not be used for a prolonged period of time. Do not expose to high temperatures or humidity. After a period of storage in extreme conditions exceeding the limits mentioned in the General Specifications section, allow the tester to return to normal operating conditions before using.

COMPLIANCE

FCC COMPLIANCE

⚠ This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC RF EXPOSURE STATEMENTS:

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

COMPLIANCE

IC NOTICE TO CANADIAN USERS:

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions: This device may not cause interference. This device must accept any interference, including interference that may cause undesired operation of the device.

WARRANTY

www.kleintools.com/warranty

DISPOSAL / RECYCLE

Do not place equipment and its accessories in the trash. Items must be properly disposed of in accordance with local regulations. See www.epa.gov/recycle for additional information.



CUSTOMER SERVICE

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The ET390 transmitter injects a pulsed signal at a frequency of 120 Hz onto the live and neutral loop. This is an intentionally applied low-frequency carrier signal. When the ET390 receiver is brought close to a circuit breaker, its antenna picks up the pulsed signal from the transmitter at the corresponding frequency. The signal is then processed to identify the correct breaker—this constitutes the basic function of a circuit breaker finder.

The long-range wireless LoRa communication on both transmitter and receiver (915 MHz) serves two main purposes:

- When different transmitters with unique IDs are plugged into outlets at various locations (supporting up to 6 transmitters), the receiver's LoRa function allows the user to select which transmitter to connect to. This enables the selected transmitter to inject the carrier signal onto the circuit, while the others remain silent. In this way, the receiver can sequentially connect to all transmitters on the circuit, allowing multiple breakers to be located in a single pass.
- Through the LoRa link, remote data exchange and receiver-controlled transmitter status management are made possible. Additionally, information shown on the transmitter's screen can be displayed in real time on the receiver, providing convenient remote monitoring and access for the user.

FRANÇAIS

CONFORMITÉ FCC ET IC

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.