R5330

REED INSTRUMENTS

Advanced Cable Locator

WARRANTY 1 YEAR WARRANTY

Instruction Manual

REED Instruments
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Introduction

Thank you for purchasing your REED R5330 Advanced Cable Locator. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured in an ISO 9001 facility and has been calibrated during the manufacturing process to meet stated product specifications. If a certificate of calibration is required please contact the nearest authorized REED distributor or authorized Service Center. Please note an additional fee for this service will apply.

Safety

- Do not use the instrument if it appears damaged.
- Do not use the instrument on networks on which the voltage or category exceeds those specified in this manual.
- Comply with all conditions of use, including temperature, relative humidity, altitude, degree of pollution, and place of use.
- Before each use, check the condition of the insulation on the leads, housing, and accessories. Any item on which the insulation is deteriorated (even partially) must be set aside for repair or scrapping.
- Only use leads and accessories supplied. Using leads or accessories of a lower voltage or category reduces the voltage or category of the combined instrument + leads (or accessories) to that of the leads/accessories.
- All troubleshooting and metrological verifications must be done by certified personnel.
- Wear suitable personal protective equipment when hazardous voltages may be accessible in the installation where the measurement is being conducted.
- Store the instrument in a clean, dry, cool place. Remove the batteries before any prolonged period of non-use.

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- Never attempt to repair or modify your instrument. Dismantling your product, other than to replace batteries, may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center.

Features

- LCD screens display signal strength, transmission code, and voltage presence
- Coded transmission for increased precision
- Audible and visual signal strength indicators with variable tone
- Adjustable sensitivity
- Backlit LCD
- Integrated flashlight supports applications in low lit environments
- Built-in non-contact voltage detector
- Low battery indicator and auto shut-off

Included

- Transmitter
- Receiver
- In-line Test Leads
- Alligator Clips
- Lantern-Tip Test Probes
- Ground Rod
- Batteries
- Carrying Case

Specifications

Transmitter

External Voltage	8 to 480V
External Voltage Frequency	50 to 60Hz
External Voltage Accuracy	±(2.5% rdg. +3 dgt.)
External Voltage Voltage Detection	480V AC/DC
External Voltage Over Voltage Category	CAT. III 480V
Output Signal Frequency	33kHz
Display	LCD
Backlit Display	Yes
Adjustable Sensitivity	Yes (3 levels)
Fuse Protection	Yes (F0.6A 600V)
Replaceable Leads	Yes
Magnetic Hanging Strap Compatible	Yes (R5900 sold separately)
Auto Power Off	Yes
Power Supply	6 x AA Batteries
Low Battery Indicator	Yes
Battery Life	10 hours
Storage Temperature	-4 to 140°F (-20 to 60°C)
Operating Temperature	32 to 104°F (0 to 40°C)
Operating Altitude	≤6561' (2000m)
Overvoltage Category	CAT. III 600V
Product Certifications	CE, UKCA, RoHS
Dimensions	7.4 x 3.8 x 1.9" (189 x 96 x 48mm)
Weight	18.6oz (528g)

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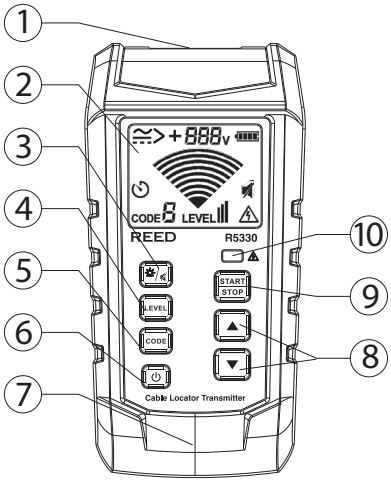
Receiver

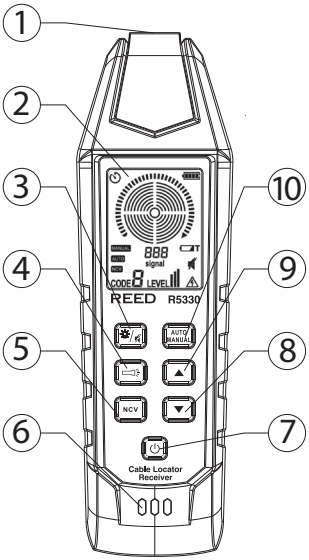
Output Signal Frequency	33kHz
Detection Depth	Single Pole: (0 to 2.5m) Double Pole: (0 to 0.5m) Voltage Detection: (0 to 0.4m)
Analog Bargraph Display	Yes
Adjustable Sensitivity	Yes (3 levels)
Non-Contact Voltage Detector	Yes (80-1000V, 50/60Hz)
Built-in Flashlight	Yes
Auto Power Off	Yes
Power Supply	6 x AAA Batteries
Low Battery Indicator	Yes
Battery Life	15 hours
Storage Temperature	-4 to 140°F (-20 to 60°C)
Operating Temperature	32 to 104°F (0 to 40°C)
Operating Altitude	≤6561' (2000m)
Product Certifications	CE, UKCA, RoHS
Dimensions	8.9 x 2.7 x 1.5" (226 x 68 x 38mm)
Weight	12.5oz (354g)

Instrument Description (Transmitter)



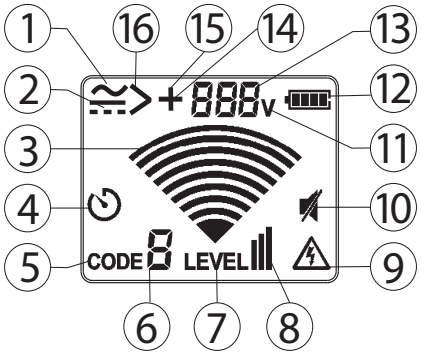
1. Input/Output Terminals
2. LCD Display
3. Backlight/Mute Button
4. Level Setting Button
5. Code Setting Button
6. Power Button
7. Buzzer
8. Up/Down Buttons
9. Start/Stop Signal Transmission Button
10. ELV Indicator Light

Instrument Description (Receiver)



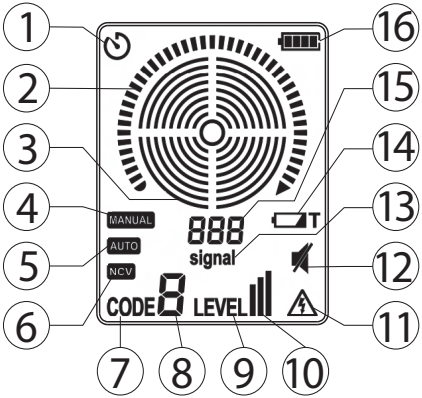
1. Non-Contact Voltage (NCV) Sensor
2. LCD Display
3. Backlight/Mute Button
4. Flashlight Button
5. Non-Contact Voltage (NCV) Button
6. Buzzer
7. Power Button
8. Down Button
9. Up Button
10. Auto/Manual Mode Button

Display Description (Transmitter)



1. AC Power Supply Indicator
2. DC Power Supply Indicator
3. Signal Status Indicator
4. Auto-Power OFF Indicator
5. Code Indicator
6. Current Code Value Indicator
7. Transmission Level Indicator
8. Transmission Strength Indicator
9. High Voltage Indicator
10. Mute Indicator
11. Voltage Indicator
12. Battery Status Indicator
13. Measured Voltage (≥8V)
14. Warning Indicator (Activated when the red port is connected to DC negative, black to positive. (-))
15. Warning Indicator (Activated when the red port is connected to DC positive, black to negative. (+))
16. Indicates connection to AC/DC power supply over 480V.

Display Description (Receiver)



1. Auto-Power OFF Indicator
2. Analog Bar Graph
3. Sensitivity Level Indicator
4. Manual Mode Indicator
5. Auto Mode Indicator
6. NCV Mode Indicator
7. CODE Indicator
8. Receiver Code Indicator
9. LEVEL Indicator
10. Transmission Strength Indicator
11. High Voltage Indicator
12. Mute Indicator
13. Signal Indicator
14. Receiver Battery Status Indicator
15. Relative Signal Indicator
16. Battery Status Indicator

Operating Instructions

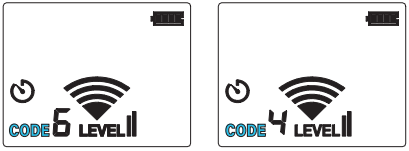
Power ON/OFF

Press and hold the POWER button for 2 seconds to turn the transmitter ON or OFF.

Transmitter Device Settings

Setting Transmitter Code

1. When the transmitter is powered on, the default code is set to 5.
2. To change the code settings, the transmission must be off. If signal transmission is enabled, press the **START/STOP** button to stop it.
3. Press the **CODE** button until the code symbol flashes.
4. Use the Up/Down buttons to select a code (0-7).



5. Press the **CODE** button again to save selection and resume normal operation.

Setting Transmitter Level

1. The default signal transmission strength is III (3).
2. To change the level settings, the transmission must be off. If signal transmission is enabled, press the **START/STOP** button to stop it.
3. Press the **LEVEL** button until the level symbol flashes.
4. Use the Up/Down buttons to adjust the signal strength (I, II, or III).

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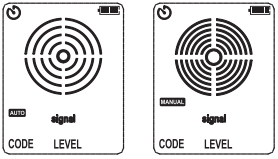
5. Press the **LEVEL** button to save selection and resume normal operation.

Receiver Device Settings

Setting Receiver Code

1. When the receiver is powered on, the receiver defaults to AUTO scanning mode.
2. Press the **AUTO/MANUAL** button to switch the device to MANUAL scanning mode, with a reception level set to 6.



Auto Mode **Manual Mode**

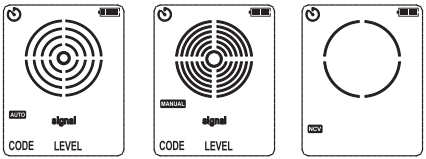
Note: While in AUTO scanning mode, you can also switch to MANUAL mode by pressing the Down button. The default reception sensitivity in MANUAL mode is 6. While in MANUAL scanning mode with the reception sensitivity set to 8, press the Up button to return the device to AUTO scanning mode.

Adjusting the Reception Sensitivity in Manual Mode

1. While in MANUAL mode, press the Up and Down buttons to increase or decrease the sensitivity. Sensitivity can be adjusted from 0 to 8.
2. Once the sensitivity is set to 8, pressing the Up button again will switch the device to AUTO mode.

Selecting NCV Mode

1. When the receiver is powered on and set to either AUTO or MANUAL mode, press the **NCV** button to activate NCV mode.



Auto Mode **Manual Mode** **NCV Mode**

2. To exit NCV mode and return to AUTO mode, press the **NCV** button again.

Turning Flashlight ON/OFF

Press the Flashlight button to turn the flashlight on the receiver/transmitter ON or OFF.

Backlight

Press the Backlight/Mute button to turn the LCD Backlight on the receiver/transmitter ON or OFF.

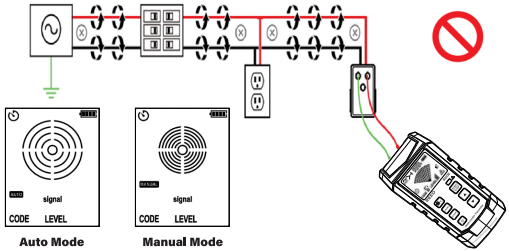
Enabling/Disabling Audible Beep

Press and hold the Backlight/Mute button for 2 seconds to turn the audible beep on the receiver/transmitter ON or OFF.

Optimizing Signal Detection with Independent Grounding

To ensure accurate cable tracking and avoid interference caused by opposing electromagnetic fields, it is crucial to use independent grounding when connecting the transmitter. Electromagnetic fields are generated around the conductor by the signal from the transmitter and detected by the receiver. A stronger and clearer signal makes cable tracking more efficient.

When the transmitter is connected to two adjacent conductors (such as the live and neutral wires in Romex cable, highlighted below), the signal travels through one conductor and returns through the other in the opposite direction. This creates opposing electromagnetic fields around the two conductors, which can partially or fully cancel each other out. This counteraction makes it difficult, or sometimes impossible, to track the cable.



Auto Mode **Manual Mode**

To avoid this issue, independent grounding should be used. The transmitter's red test lead should be connected to the live wire of the circuit being tracked, while the black test lead should be connected to an independent ground point, such as a water pipe, grounding spike, building metal structure, or a ground connection from a different circuit, as highlighted below. It is important to note that the independent ground must not be part of the same circuit as the conductor being measured.

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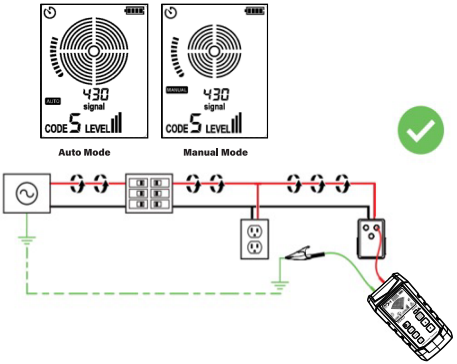

When connected correctly and the live wire is energized, the transmitter's LCD will display the AC or DC symbol, along with the corresponding voltage and polarity (for DC). Independent grounding prevents the counteraction of electromagnetic fields by isolating the live wire from adjacent conductors. This ensures the strongest possible signal for accurate cable tracking.

Track Energized and De-Energized Cables

1. Connect the black and red test leads to the transmitter. Polarity does not need to be considered for this step.
2. Plug the outlet converter into the power outlet. Then, connect the red test lead to the energized live wire on the load side of the system. The signal will only be generated between the power supply and the load side that is connected to the transmitter, as highlighted below.

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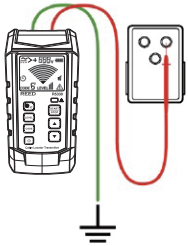
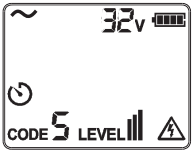


3. Attach the black test lead to an independent grounding source, such as a metal structure of the building, a metal water pipe, or the grounding wire of an independent circuit.

Note: When applied to a GFCI-protected circuit, this method will trigger the GFCI. For more information on this scenario, please refer to the "Special Applications" section. To track cables within a GFCI-protected circuit, see "Tracking the Cable of a GFCI-Protected Circuit" for details.

4. Power on the transmitter.
5. Verify the connection of test leads. For circuits with a voltage exceeding 30V AC/DC, the warning indicator will appear on the LCD, as highlighted below.



6. For circuits that are de-energized or have a voltage below 30V AC/DC, the warning symbol will not appear on the LCD, as highlighted below.

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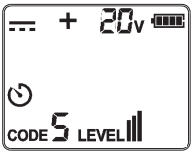
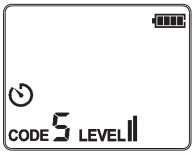


Note: Ensure connections are made using the independent grounding method as described in the "Optimizing Signal Detection with Independent Grounding" section.

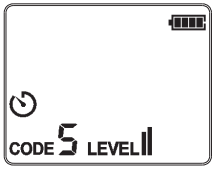
7. By default, the transmission strength is set to level III (default code: 5).

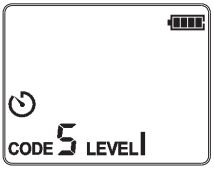


Note: For more accurate cable tracing, reduce the transmission strength to level II or I (as shown below). For detailed instructions on adjusting the transmission strength, see the "Setting Transmitter Level" section.

Reducing the signal level helps to minimize coupling with nearby cables or metal objects, preventing false signals. Avoid oversaturation of the receiver due to a wide signal coverage area at higher levels.

Use transmission strength level I only for precise and detailed cable tracking. It is not recommended for locating cables deeply buried or embedded in walls.

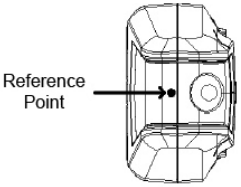




Using the R5330 Receiver in Automatic Scanning Mode

The automatic scanning mode of the R5330 receiver is designed for detecting conductors at greater distances. In this mode, the receiver adjusts its sensitivity based on the current signal strength, preventing issues caused by overly strong or weak signals. While automatic scanning mode provides rapid tracking capabilities, it has slightly lower precision than manual mode. Therefore, for precise cable location, it is recommended to switch to manual mode.

1. While in automatic scanning mode, use the sensor to scan for signals and begin tracking the detected cable.
2. For best results when tracking an energized conductor, align the dot screen printing on the sensor's top surface with the direction of the conductor as shown below.



3. If not aligned correctly, the receiver may fail to detect the signal or display incorrect codes.

4. To confirm the cable's direction, rotate the receiver 90 degrees. The signal strength will reach its peak when the cable is correctly aligned with the dot screen printing.

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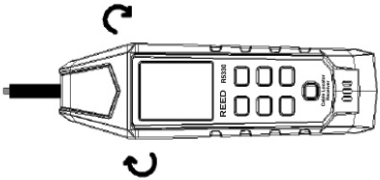


For optimal performance and to minimize signal interference, ensure that the distance between the receiver and the transmitter, along with its test lead, is at least 3 feet (approximately 1 meter). This separation helps to reduce potential interference, allowing for a clearer and more accurate signal detection.

5. Based on the detected signal, the receiver automatically recognizes if the cable is energized, which is shown on the LCD. No manual adjustments are needed to determine the cable's energy status.

Using the R5330 Receiver in Manual Scanning Mode

The manual scanning mode is ideal for accurately locating cables or identifying faults. In this mode, the user can manually adjust the receiver's sensitivity to achieve precise signal readings, enhancing detection accuracy.

1. While in manual scanning mode, use the sensor to identify the cable by locating the point of maximum signal strength.
2. Adjust the sensitivity regularly to keep the signal within an optimal range, ideally between 300 and 600 on the display as shown below.

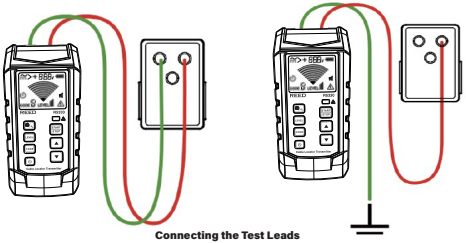
3. Use the UP and DOWN buttons to fine-tune sensitivity as needed.
4. If the signal strength is too high, lower the transmission level to settings II or I. For detailed instructions on adjusting the transmission strength, see the "Setting Transmitter Level" section.
5. To maximize accuracy when tracking an energized conductor, align the dot screen printing on the sensor's top surface with the direction of the conductor.

Note: Misalignment may result in no signal detection or incorrect code readings.

6. To verify the cable's direction, rotate the receiver 90 degrees. The signal strength will peak when the conductor is aligned with the dot screen printing.
7. The receiver will automatically indicate if the detected cable is energized by displaying ⚠ on the LCD. No additional manual settings are needed for this function.

Identifying Circuit Breakers and Fuses (Energized and De-Energized)

To identify circuit breakers accurately using the R5330 receiver, rely on signal strength and code accuracy to determine the correct breaker. When locating a circuit breaker, a simple, direct connection to the live and neutral wires is sufficient, as conductors at the breaker panel operate independently. If the conductors are spaced several inches apart, there is minimal risk of signal interference or counteraction. For cases where both breaker identification and cable tracking are needed, using independent grounding is recommended to enhance signal clarity for precise tracking. Additionally, connecting directly to the live and neutral wires will not interfere with or trip GFCI-protected circuits, allowing for safe operation in such environments.



Connecting the Test Leads

Transmitter Connection Options:

Connect the transmitter directly to either the live or neutral wire. Note: Due to mutual signal interference, cable tracking for circuit breaker location may not be effective with this method.

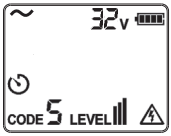
Independent Grounding:

Connect the red test lead to the energized live wire on the load side of the system. This generates a signal between the power supply and the outlet connected to the transmitter.

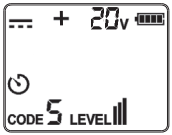
Connect the black test lead to an independent grounding point. Suitable grounding points include metal building structures, metal water pipes, or the grounding wire of an independent circuit.

Using the R5330 Transmitter

1. Power on the transmitter.
2. Verify the connection of test leads. For circuits with a voltage exceeding 30V AC/DC, the warning indicator will appear on the LCD, as highlighted below.

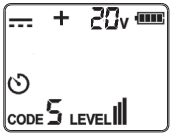


3. For circuits that are de-energized or have a voltage below 30V AC/DC, the warning symbol will not appear on the LCD, as highlighted below.



Note: Ensure connections are made using the independent grounding method as described in the "Optimizing Signal Detection with Independent Grounding" section.

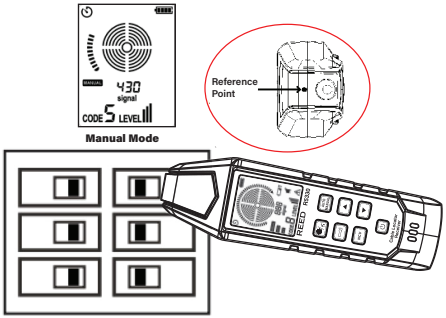
4. By default, the transmission strength is set to level III (default code: 5).



To improve accuracy in locating the cable, adjust the transmission strength to level II. Lowering the signal level reduces interference with adjacent cables and metal objects, minimizing the risk of ghost signals. A lower signal level also prevents the receiver from being overwhelmed by a strong signal over a large area.

Using the R5330 Receiver

1. While in manual scanning mode, position the receiver so that the dot screen printing at the top aligns with the circuit breaker.



2. Scan each circuit breaker randomly, passing over them multiple times to observe signal strength displayed on the LCD. Continue scanning until you locate the circuit breaker with the strongest signal.
3. Adjust the receiver's sensitivity by pressing the UP/DOWN buttons to maintain accuracy and prevent interference from overly strong signals.

Note: The design, height, and internal contacts of circuit breakers may affect signal accuracy. For best results, consider opening the circuit breaker panel and scanning directly over the conductor rather than the breaker itself.

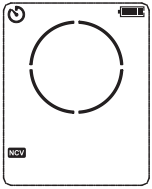
4. If multiple circuit breakers show a signal, continue scanning over the indicated breakers until only one is identified accurately.
5. The receiver will automatically indicate if the detected cable is energized as shown below.

NCV Mode and Passive Tracking

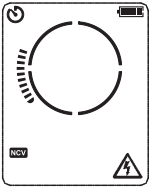
The NCV (Non-Contact Voltage) mode allows the receiver to detect and track energized cables without a transmitter. This mode is useful for determining if a cable is live or for passive tracking of cable location. The receiver can detect AC voltage between 80V and 1000V (50–60Hz) even when no current is flowing through the cable.

Note: Always verify that the circuit is energized using a separate tester before conducting any operation on the circuit.

1. Power On the receiver.
2. While in cable tracking mode, press the **NCV** button to switch the receiver to the NCV Detection Function. If already in NCV mode, press the **NCV** button to toggle the receiver to AUTO Mode for cable tracking.
3. Use the receiver's sensor to scan the area where you suspect the cable is located. Observe the signal strength displayed on the receiver and identify the area with the highest signal level.
4. To confirm if the cable is live, bring the receiver's sensor close to the cable.
5. If the cable is energized, the receiver will detect and display this information.



Voltage Not Detected in NCV Mode



Voltage Not Detected in NCV Mode

Special Applications

Tracking Cable of GFCI-Protected Circuit

When using the R5330 transmitter on GFCI-protected circuit, connecting to an energized circuit with independent grounding may trigger the GFCI protection. For GFCI-protected circuits, follow these methods:

Method 1: Bypass the GFCI Circuit (For Energized GFCI-Protected Outlets Only)

1. Remove the outlet's protective panel.
2. Attach the red test lead to the connection screw between the energized live wire and the outlet using an alligator clip.
3. Connect the black test lead to an independent grounding point.
4. Perform tracking as per the instructions for automatic and manual scanning modes.

Method 2: Track without Independent Grounding (For GFCI-Protected Outlets and Circuit Breakers)

1. Connect the transmitter test lead directly to both the neutral and live wires.
2. Track in either automatic or manual scanning mode.

Note: This method may cause signal coupling, which can weaken the signal strength. If the signal is too weak for tracking, proceed to Method 3.

Method 3: De-energize the Circuit (For GFCI-Protected Circuit Breakers)

1. Switch off power to the circuit.
2. Connect the transmitter to the conductor as outlined in the "Track Energized and DE energized Cables" section.
3. Track the circuit in automatic or manual scanning mode.

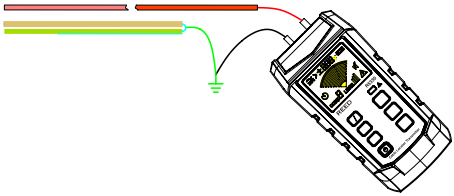
Identifying Breakpoints/Opens in Cables

Using precise tracking mode, you can accurately locate breakpoints in cables, even if they are embedded in walls, floors, or ceilings.

continued…

1. Ensure the cable is de-energized.
2. Connect the transmitter and perform tracking as outlined in the "Track Energized and DE energized Cables" section.
3. For optimal results, ground all parallel de-energized cables using the black test lead.

The tracking signal will transmit along the cable's metal conductor until it reaches a breakpoint. Follow the cable with the receiver to identify where the signal stops. To confirm the fault location, move the transmitter to the opposite end of the cable and repeat the tracking. If the signal stops in the same place, you have identified the breakpoint.



4. Alternatively, connect two R5330 transmitters (with different codes) to each end of the cable. Track the cable with the receiver; if the signal changes to the code of the second transmitter as you pass over a location, then you have found the fault.

Note: If the fault is not immediately found, reduce the LEVEL setting of the transmitter, then retry the process. For high-resistance breakpoints (impedance over 50kΩ), the signal may continue through the fault, but larger currents may be blocked. In such cases, the instrument may not detect the partial open circuit unless it is fully open.

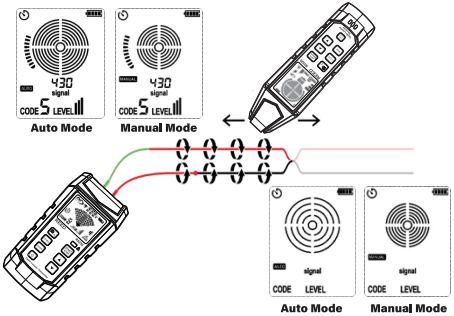
5. For multi-transmission tracking, adjust the LEVEL setting to II or I as necessary to reduce interference. Lower LEVEL settings help in accurately pinpointing the fault location, particularly when mutual interference is present.

Identifying Shorts in Cables

A shorted cable will often trigger the circuit breaker. Before testing, ensure the cable is disconnected, with conductors at both ends isolated from each other and other conductors or loads. Disconnect the power if there are any residual charges.

1. Attach the test lead of the transmitter to the circuit.
2. Power on the transmitter and ensure the LEVEL setting is at III.
3. Set the receiver to automatic or manual scanning mode. Track the cable and follow the signal until it stops, which indicates the potential fault location. To confirm the short location, move the transmitter to the opposite end of the cable and repeat the tracking. If the signal again stops at the same location, you have identified the short.

Note: This method may be affected by signal counteraction, resulting in a relatively weak signal. Factors such as cable winding and the permittivity of the surrounding medium can affect locating depth. If a fault cannot be located, reduce the transmitter's LEVEL setting and retry the process. If the fault remains undetectable after lowering the LEVEL, the short circuit may be partial rather than complete. Typically, a short-circuit point can be located if the impedance is less than 20Ω.



Tracking Cables in Metal Pipes

The receiver cannot penetrate metal pipes to detect cable signals, as the metal shields the tracking signal. Note that the receiver can detect cables in non-metallic conduits. For tracking cables in metal pipes, follow the steps highlighted below:

1. Begin tracking in automatic or manual scanning mode.
2. Open the junction box and use the receiver's sensor to identify which cable within the box has an active signal.
3. Move to the next junction box along the circuit to continue tracking.

Note: If a signal is applied directly to the conduit, it will transmit through all branches of the metal piping. Consequently, the receiver will not be able to determine the specific path of the conduit.

Tracking Shielded Cables

Standard tracking methods may not work for shielded cables. To effectively track a shielded cable, follow these steps:

Ground the far end of shielded cable

1. Power on the transmitter, which defaults to LEVEL III.
2. Disconnect the grounding from the near end of the shielded cable, then connect the shielded layer to the V+ terminal on the transmitter using a test lead.
3. Connect the transmitter's COM output to an independent grounding point.
4. Set the receiver to automatic or manual scanning mode and begin tracking the shielded cable.

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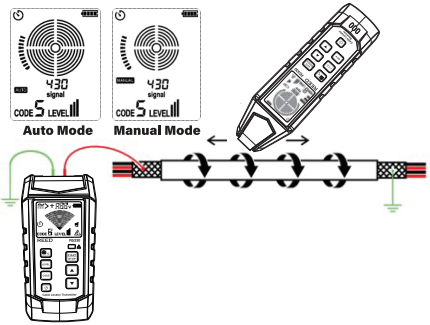
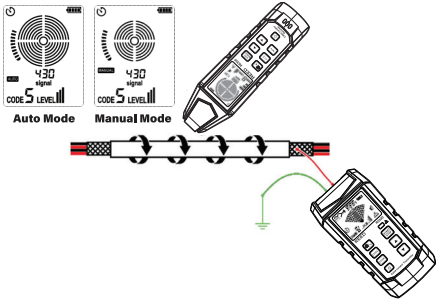


Disconnect the Far End of Shielded Cable from Grounding

To track a shielded cable with the far end disconnected from grounding, follow these steps:

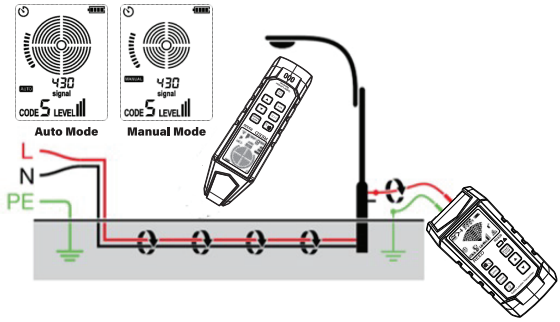
1. Set the transmitter to LEVEL II after powering it on.
2. Disconnect the grounding from the near end of the shielded cable, and connect the shielded layer to the V+ terminal of the transmitter using a test lead.
3. Connect the COM output of the transmitter to an independent grounding point.
4. Set the receiver to automatic or manual scanning mode and begin tracking the shielded cable.



Tracking Underground Wires

The R5330 can be used to track both energized and de-energized cables buried underground. The tracking procedure is the same as for cables located on walls or floors, but independent grounding is required for accurate results.

1. Power on the transmitter; it will default to LEVEL III. Connect the transmitter and receiver as highlighted in the "Identifying Breakpoints/Opens in Cables" section.



Identifying a Specific Cable in a Cable Harness

To accurately identify a single cable within a cable harness, follow these steps:

2. Connect the transmitter. If connecting to an energized cable, ensure it is connected on the load side.
3. Set the receiver to cable tracking mode.
4. Isolate one cable at a time. Alternatively, you can use multiple R5330 transmitters with different codes (up to 8 transmitters simultaneously). For this method, reduce the LEVEL setting to II or I to minimize crosstalk. Each transmitter should be connected to a different cable.
5. Separate the cable from others in the harness, and use the receiver's sensor to scan each one. The cable with the strongest signal is the correct one.

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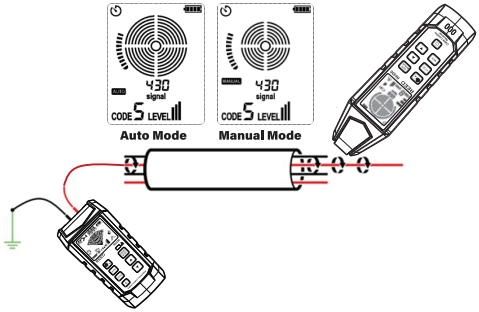
6. Adjust the receiver sensitivity as needed using the UP and DOWN buttons.



Drawing a Circuit Diagram Using Test Lead Connections

Note: These steps apply only to de-energized circuits.

1. Switch the circuit breaker to the OFF position.
2. Set up the transmitter and receiver to automatic or manual scanning mode.
3. Use the receiver's sensor to scan the outlet panel and any cables connected to the load.
4. Identify all cables, outlets, and loads with relatively strong signals as indicated by the receiver. These are the components connected to the circuit breaker.

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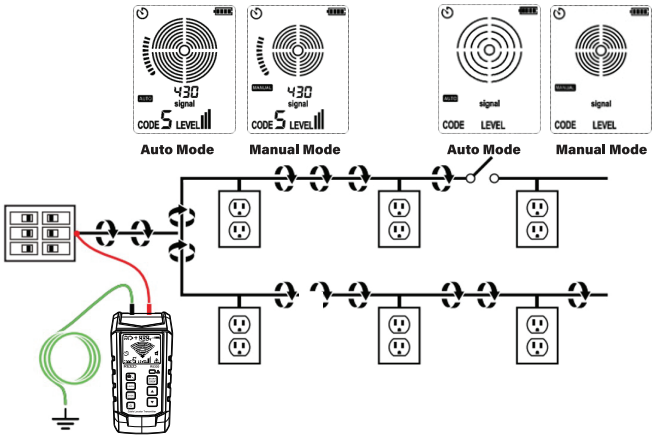
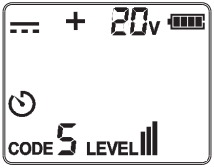


External Voltage Measurement

1. Ensure the transmitter is powered on. If the voltage source is sensitive to interference, stop signal transmission as needed.
2. Connect the red test cable with probe (or red side of a polarized plug) to the V+ port on the transmitter.
3. Connect the black test cable with probe (or black side of a polarized plug) to the COM port on the transmitter.
4. If the voltage is DC and the positive pole is connected to the V+ port, the V+ polarity will display as "+" as shown below.



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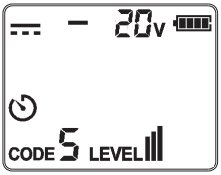
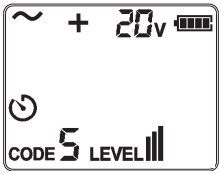
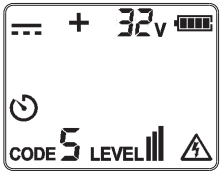
5. If the voltage is DC and the positive pole is connected to the COM port, the V+ polarity will display as "-" as shown below.



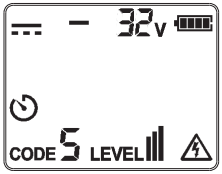
6. For AC voltage, the display will show the AC reading as shown below.



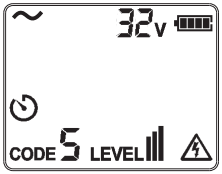
7. If the voltage is greater than 30 V, displays will appear as below.



DC voltage (>30V) measurement



DC voltage (<-30V) measurement



AC voltage (>30V) measurement

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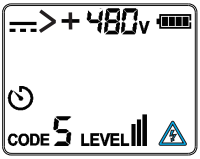
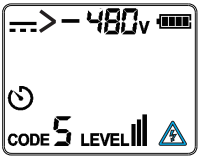
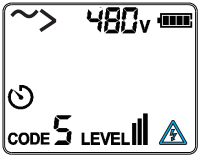
8. If the voltage is greater than 480V, the displays will appear below.



DC voltage (>480V) measurement



DC voltage (<-480V) measurement



AC voltage (>480V) measurement

Extra Low Voltage (ELV) Function

If a voltage over 25 V is applied to the port while the transmitter is off, the ELV indicator light will illuminate. The light's brightness increases with voltage up to 480V DC/AC (50/60Hz).

Transmitter Battery Replacement

When the low battery icon appears on the LCD, the batteries must be replaced.

1. Ensure the transmitter is powered off and disconnect all test leads from circuits.
2. Use a screwdriver to loosen the screws on the battery compartment.
3. Remove the battery cover.
4. Insert 6 AA batteries.
5. Replace the battery cover and secure it with the screws.

Receiver Battery Replacement

When the low battery icon appears on the LCD, the batteries must be replaced.

1. Ensure the receiver is powered off and disconnected from all circuits.
2. Use a screwdriver to loosen the screw on the battery compartment.
3. Remove the battery cover.
4. Insert 6 AAA batteries.
5. Replace the battery cover and secure it with the screw.

Applications

- Field troubleshooting and wiring diagnostics
- Verification of electrical installations
- Trace powered and unpowered wires, cables, and conductors in walls, ceilings, floors, and underground
- Identify breaks, short circuits, and interruptions (open-circuits) in cables, conductors, and underfloor heating systems
- Detect faults in floor radiant heating systems and locate short circuits
- Locate and trace metallic water pipes, heating radiators, and buried metallic conductors
- Identify and trace fuses, circuit breakers, and branch circuits within distribution panels
- Perform underground circuit tracing and fault location in electrical circuits
- Find constricted sections in non-conductive pipes (e.g., plastic)
- Sort and identify conductor pairs

Product Care

To keep your instrument in good working order we recommend the following:

- Store your product in a clean, dry place.
- Change the battery as needed.
- If your instrument isn't being used for a period of one month or longer please remove the battery.
- Clean your product and accessories with biodegradable cleaner. Do not spray the cleaner directly on the instrument. Use on external parts only.

Product Warranty

REED Instruments guarantees this instrument to be free of defects in material or workmanship for a period of one (1) year from date of shipment. During the warranty period, REED Instruments will repair or replace, at no charge, products or parts of a product that proves to be defective because of improper material or workmanship, under normal use and maintenance. REED Instruments total liability is limited to repair or replacement of the product. REED Instruments shall not be liable for damages to goods, property, or persons due to improper use or through attempts to utilize the instrument under conditions which exceed the designed capabilities. In order to begin the warranty service process, please contact us by phone at 1-877-849-2127 or by email at info@reedinstruments.com to discuss the claim and determine the appropriate steps to process the warranty.

Product Disposal and Recycling

Please follow local laws and regulations when disposing or recycling your instrument. Your product contains electronic components and must be disposed of separately from standard waste products.

Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@reedinstruments.com.

Please visit **www.REEDInstruments.com** for the most up-to-date manuals, datasheets, product guides and software.

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