

TRACKTESTER™ AMP-10

USER MANUAL



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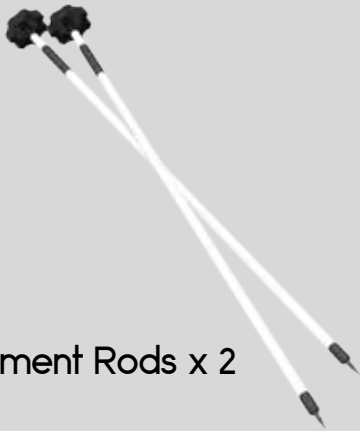
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Accessories



Carrying Case x 1



Measurement Rods x 2




Charger x1


Voltage/Resistance Switch

Selector for the measurement mode.
(voltage, resistance)

POWER Switch

Switches the device on with sound or muted.

 ≈ Powered on with sound.

 Powered on without sound.



Speaker

Measurement Rod Connector



Battery Test Button

Once pressed, the remaining charge of the battery is shown on the display.

Display

Indicates measurements.

Zero Adjustment Dial

Accurate reading can be achieved by adjusting the indicator prior to each use.

POWER LED

Lights up when power is switched on.

Charger Connector

The connection for the battery charger.

The TrackTester AMP-10 measures the conductivity of a circuit. This is calculated by using resistance/resistors. The device functions at its best with a circuit resistance of 0 - 15 ohms.

Unlike other devices, the test voltage produced by the TrackTester does not progress far in the conductor, resulting in highly accurate troubleshooting.

A short-circuit between two rails can be located and revealed accurately, within half a meter.

The reading on the scale does not indicate the electrical resistance, but the conductivity of the track circuit. When the circuit of reasonable length conducts faultlessly, the display indicates a value of 100. This can be regarded as a fully conductive circuit, or a short circuit. With a non-conducting circuit, the display shows "0".

The amplitude of the measured pulse is approximately 28 V/pp with a fully charged battery.

The device is weather-proof in its normal operating position.

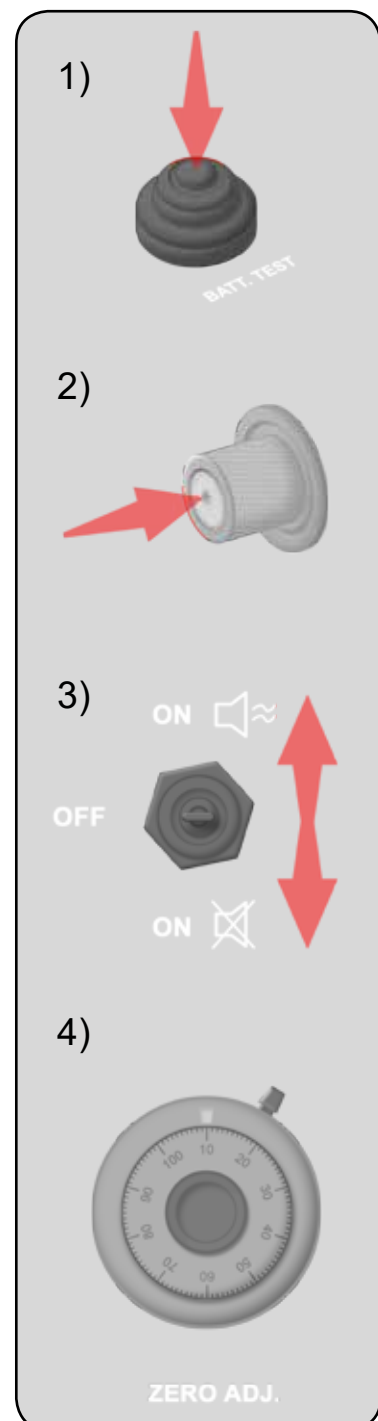
Rautatieto Oy manufactures and assembles its TrackTester devices completely in Finland.

Operation and Settings



TrackTester display.

1. Start by testing the battery charge by pushing the button "BATT.TEST". *The scale on the display is marked to indicate the limits of the operating range, 10-14V. Limit values are marked in green and red on the scale.*
2. Attach the cables of the two measurement rods to the connectors on the sides of the device.
3. Switch the device on with sound or muted. Up: ON with sound. Down: ON muted. Center: OFF. A red LED indicates when the power is on.
4. Place the tips of the rods side by side on a conductive surface to be measured. To achieve the best contact, you can turn the tips against the surface, but avoid striking them on the rail. By turning the potentiometer adjust the gauge to show the reading "100".
 - The reading "100" can only be used as a comparative value, not as an exact result. Fully conducting circuits give the maximum readout. Troubleshooting is thus looking for the best conductivity, i.e. maximum reading, which is directly comparable with the distance: the closer the short circuit, the higher the reading.
 - This is why an accurate measurement can be performed even with a low battery.



Transversal short-circuits in a track circuit

Transverse short circuits are located by moving forward a maximum of 10 meters at a time and by placing the measuring rods onto the rails. Ensure the rods' tips are placed on a clean surface devoid of rust and/or other impurities. Improve and ensure contact with the rail, by pressing and twisting the rods. Avoid striking the rods on the rail. Readings will fluctuate, if poor contact is made with the rail. Readings will increase when approaching a short circuit. Track circuit faults are located when readings are at their highest.

Checking the condition of insulation joints

- Railway switch insulation joints etc. are checked by measuring the conductivity over them. A fully functional insulation joint will not give a reading.
- Track circuits located on i.e. a bridge may reveal a short-circuit at various points between the rail and the metal frame of the bridge. If no transversal short-circuits can be found, conductivity should be measured between each rail and the hull of the bridge or any respective metal structure.

Take note of the following

The device may display incorrect reading in close proximity to cable terminals. This is due to their capacitive characteristics.

Track circuits with diodes cause high readings. This can be avoided by disconnecting the diodes from the track before measurements take place.

A track circuit with a capacitor of higher than 1 nF will cause a reading similar to that of a short-circuit.

When the device's audio indication is switched on, the user can focus on observing their surroundings. Only when the pitch increases significantly, would it be necessary for the user to look at the display.

Rapid movements of the device can lead to pitch fluctuation.

Track-circuit voltage

The track-circuit's voltage can also be checked by using the TrackTester. Voltage measurement is turned on by setting the switch to the "Voltage" position.

The meter will display both DC and AC voltage readings at 125 Hz. The maximum meter reading is 10 V. Overvoltage of less than 20 V will not damage the meter.

Note!

The TrackTester AMP-10 is not is calibrated device, and its use shall only be directional. Its properties are intended to ease troubleshooting. The TrackTester shall not be used in any adjustment measurements of a track circuits.

Warning!

Warning! The TrackTester AMP-10 shall under no circumstances be used for measuring voltages exceeding 10 V. The device is designed for measuring railway track circuits only.

Charging

The charging connection is located on the top of the unit, indicated with "RECHARGE".

When the charger is connected, the charger's red LED lights up. When the charging light starts flashing, the battery is fully charged, and the charger switches to trickle charging.

Charging the device with a charger other than the one provided should be avoided. If however, it is unavoidable, the charger output must not exceed 0.3A/14V.

Note!

The tips of measurement rods can be sharpened if necessary. The relatively steep cutting angle should be maintained to ease the penetration of rust, paint and grime.

Striking the rods against the rails may result in tips of the rods breaking and damaging the cable connections inside the rods.

Rough handling of the device shall be avoided, as this may damage the sensitive analog display.

The device is protected against a reverse voltage surge, with an internal fuse.

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TESTED

Battery

Voltage

Track

Calibrate

Raidetesteri No: _____

Tested by: _____

*Each TrackTester AMP-10 is manufactured, assembled and tested carefully by Rautatieto Oy.
We assure that the quality and reliability of each device meets the high standards of
Rautatieto OY.*



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