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Introduction

Inverted, loose or short-circuited wires represent 95% of all common network cabling faults. This test set will allow you to identify and remedy most of these failures. The test set also allows a quite accurate measurement of each link's length.

The ABI-TT1008S00 test set consists of a main tester equipped with an LCD diagnostic display and a remote identifier.

The main tester provides a test signal which is put in sequence on all the pins of the RJ45 or Coax jack and the proper correspondence with the pins of the remote identifier is verified.

On the display one can see if the wires are properly connected, inverted, open circuit or short circuited. The length of each wire pair can be read from the display.

The different characteristics of different makes of cables can be taken into account by a calibration function: starting from a reference cable with known length, up to four different calibrations can be stored in memory and recalled when testing the specific brand or type of cable.

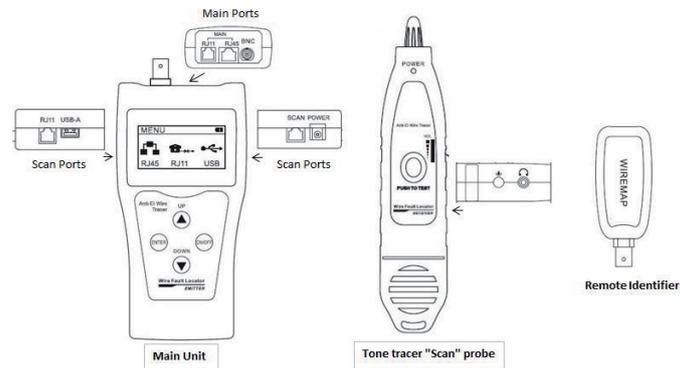
The **ABI-TT1008STR** test set has the same main unit and remote identifier but also a tone tracer device. The main unit sends a beeping tone (scan) onto a RJ45, RJ11, USB or Coax cable. At the far end of the cable with the tone signal can be identified in a bundle of cables by probing with the tone tracer probe, which will pick up the tone and amplify it when close to the cable. This is very handy when proper numbering of the cables in the bundle is lacking. An earpiece allows working in noisy conditions. The tracer probe is fitted with two LED lights to illuminate the working spot close up.

The test set is compatible with UTP, FTP, STP, F2FTP, telephone pairs and coaxial links.

The master unit and the tracer probe are both powered by a 9V alkaline battery.

The test set comes in a handy carrying pouch.

LAYOUT of the Test Devices



Main unit:

MAIN connectors on the top are transmitter ports for Wiremap and Link Length testing (RJ45, RJ11, Coax).

SCAN connectors on the side are for Tone Tracing (RJ45, RJ11, USB) and act as local identifier ports (RJ45, RJ11) for Wiremap testing.

User interface: Push buttons and Display on the front side.

Remote identifier:

Is used only for Wiremap testing of RJ45 and Coax

! Not to be connected during Link Length testing or Tone tracing!

Tone Tracer scan probe (only in kit ABI-TT1008STR)

On the front a push button to activate the Tone receiver, a slide volume control and a Led indicator that the tone receiver is active.

On the side a ON/OFF button to switch on the LED lamps.

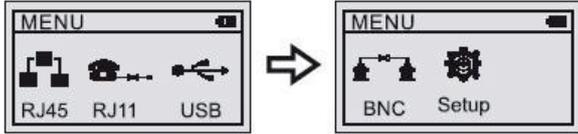
! Warning: prolonged use of the LED lamps shortens the battery life !

On the side: a stereo jack to connect the earphones

STARTUP

Press the ON/OFF button

The main unit will boot and self-test, after about 5 seconds the main interface menu screen is displayed:

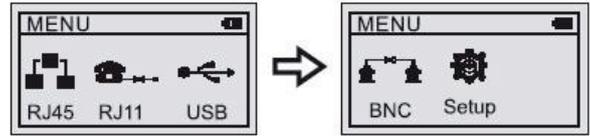


You can navigate between RJ45 > RJ11 > USB > BNC > Setup by using the UP and DOWN buttons (Up=left, Down = Right)
Choose a connector type and press ENTER to open a submenu.
The tests that are possible and the 5 main functions available in the submenus are listed in the table below:

| | Wiremap test | Wiremap test | Link Length test | Length Calibration | Cable tracing |
|------|-----------------------|-------------------|------------------|-----------------------|--------------------|
| | Local Identifier | Remote Identifier | | &Calibration memories | ABI-T1 008STR only |
| | (both ends available) | (installed cable) | | | |
| RJ45 | Yes | Yes | Yes | Yes | Yes |
| BNC | Yes | Yes | Yes | Yes | Yes |
| RJ11 | Yes | No | No | No | Yes |
| USB | No | No | No | No | Yes |

We will explain hereafter the working of the devices in the 5 different functionalities.

WIREMAP testing

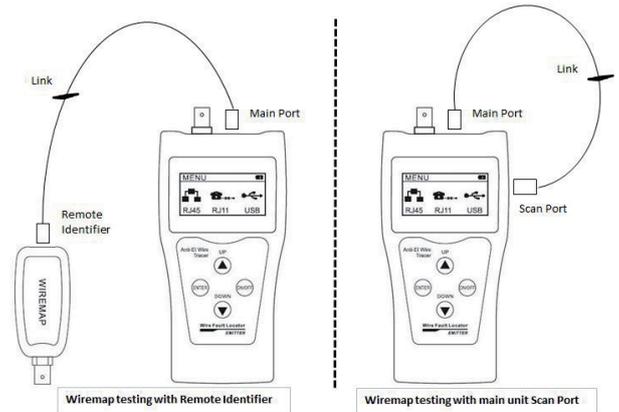


In the main menu, choose a connector type and press ENTER. We will use RJ45 as example to explain the operation.

Choose RJ45 on the display and press ENTER.

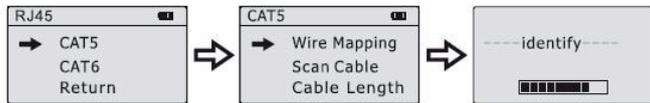
Connect the nearby end of the link to the TOP RJ45 (Main) connector

Connect the far end of the link to the Remote Identifier RJ45 connector (installed cable) or to the RJ45 on the side of the main unit = Scan port .



The next choice one can make is between CAT5 and CAT6 links and then between Wiremap testing, Tone tracing of a cable in a bundle and Length measurement.

Choose Wire Mapping and press ENTER

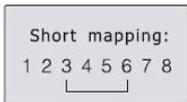


The main unit now sends a signal down each wire of the RJ45 interface in sequence, either to the Remote Identifier or to the local Scan port.

You will now see on the display a status of the link:

Situation 1: Short circuit

If there is a short circuit anywhere in the link or the connectors, it will be shown on the display as follows:

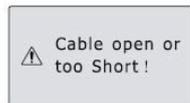


The display indicates a short circuit between pins 3 and 6 of the RJ45.

Press any key to return to the main menu.

Solve the short circuit before doing any retesting.

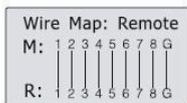
Situation 2: Cable open or too short



If the far end of the link is not plugged into either the Remote Identifier or the local Scan port, following message will be displayed:

Situation 3: Cable connection is correct

When a cable link is properly connected and the wire mapping is done correctly, the following message will show on the display:



"M" stands for Main unit (the near-end sending side)

"R" stands for the Remote identifier (far end receiving side)

"G" stands for Ground (shielded cable with continuity of the shield between near and far end)

Situation 4: Open circuit at the far end of the cable

If one (or more) of the link wires is not connected to the Remote Identifier at the far end of the cable, the following message will show on the display:



"M" stands for Main unit (the near-end sending side)

"R" stands for the Remote identifier (far end receiving side)

"X" stands for an open circuit

Since most network cables are composed of pairs, faults will be shown simultaneously on both pins of a pair (here pins 4 and 5)

Situation 5: Open circuit at the near end of the cable (Scan port)

In case you are testing with the local Scan port (of the main unit), and there is an open circuit at the near end of the link, the following message will show on the display:



"M" stands for Main unit (the near-end sending side = Top side sending port)

"S" stands for Scan port (the far end receiving side)

"X" stands for an open circuit

Situation 6: Open circuit in the middle of the cable (Scan port)

In case you are testing with the Scan port (of the main unit), and there is an open circuit somewhere in the middle of the link, the following message will show on the display:



"M" stands for main unit (the near-end sending side = Top side sending port)

"S" stands for Scan port (the far end receiving side)

"X" stands for an open circuit

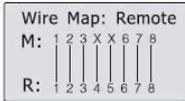
Since the fault is situated somewhere in the middle section, you can try to perform a cable length measurement to locate where the wire is broken. Please refer to the section "Link Length" testing

of this manual.

To get the best possible result, please measure from both ends. This will allow you to even out measurement inaccuracies.

Situation 7: Open circuit in the middle of the cable (Remote Identifier)

In case you are testing with the Remote Identifier port, and there is an open circuit somewhere in the middle of the link (e.g. on pin pair 4 and 5), the following message will show on the display:



"M" stands for main unit (the near-end sending side)

"R" stands for the Remote Identifier (far end receiving side)

Wiremap testing of RJ11 links (only possible with RJ11 Scan port)

In the MAIN MENU choose RJ11 on the display and press ENTER.

Connect the nearby end of the link to the TOP RJ11 (Main) connector.

Connect the far end of the link to the RJ11 on the side of the main unit = Scan port.



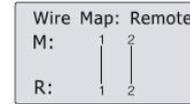
When a 6-wire telephone cable link is properly connected and the wiremapping is done correctly, the following message will show on the display:

Wiremap testing of COAX links (only possible with Remote Identifier)

In the MAIN MENU choose BNC on the display and press ENTER

Connect the nearby end of the link to the TOP BNC coaxial (Main) connector

Connect the far end of the link to the BNC connector of the Remote Identifier.



When a coaxial cable link is properly connected and the wire mapping is done correctly, the following message will show on the display:

The testing of a coaxial link is quite similar to the testing of an RJ45 link as described before, so please refer to the section on RJ45 testing for information.

LINK LENGTH testing

WARNING: Link length testing always has to be done with the FAR END OPEN: no Remote Identifier or Scan port connected !

In the MAIN MENU, choose between RJ45 or BNC and press ENTER.

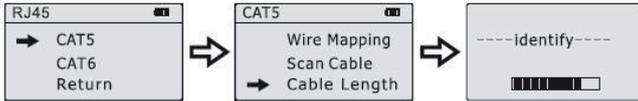
We will use RJ45 as example to explain the operation.

Choose RJ45 on the display and press ENTER.

Connect the nearby end of the link to the TOP RJ45 (Main) connector.

Do not connect the far end of the link.

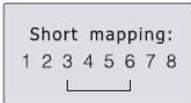
You can now choose between CAT5 or CAT6 and then Cable Length to start the measurement.



Note: the Length measurement is based on the speed at which a electrical pulse travels down the wires and is reflected back. There can be a huge difference in speed depending on the type (Cat5, Cat6, etc) and the brand/make of cable. Therefore we advise to use the dynamic calibration function of the equipment before measuring length. Please refer to the following section for this.

Situation 1: Short circuit

If there is a short circuit anywhere in the link or the connectors, it will be shown on the display as follows:



The display indicates a short circuit between pins 3 and 6 of the RJ45.

Press any key to return to the main menu.

Solve the short circuit before doing any retesting.

Situation 2: Normal pairing and successful length test

| | | |
|---|------|--------|
| 1 | Open | 105.0m |
| 2 | Open | 105.0m |
| 3 | Open | 105.0m |
| 4 | Open | 105.0m |

When a cable link is properly connected and the wire mapping is done correctly, the following message will show on the display:

| | | |
|---|------|--------|
| 5 | Open | 105.0m |
| 6 | Open | 105.0m |
| 7 | Open | 105.0m |
| 8 | Open | 105.0m |

To see the next pair's lengths, just scroll down by pressing the DOWN button.

Press ENTER to return to the MAIN MENU.

Likewise a Coaxial cable can be tested for length by choosing BNC from the MAIN MENU.

| | | |
|---|------|-------|
| 1 | Open | 10.1m |
| 2 | Open | 10.1m |

The message for a successful coaxial cable test is shown here:

Link length calibration - Calibration memories

To obtain precise length measurements from RJ45 or coaxial cables, it is recommended to calibrate the main unit against a reference length of cable of the chosen brand and type.

This reference cable length should be more than 10m.

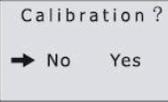
Calibration value and storage

Insert the reference cable in the Main top-side RJ45 or BNC port.

Choose RJ45 or BNC from the MAIN MENU.

Choose CALIBRATION from the MAIN MENU.

You now see following message:



Choose Yes and press the ENTER button

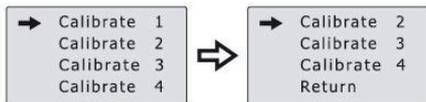
You now see the following message:



Now press the UP or DOWN buttons to adjust the value shown on the display to the exact length of the reference cable, then press ENTER to save the value under heading Calibration 1, Calibration 2, ... Calibration 4.

Using stored Calibration values (Data Loading)

Go to the MENU selection "LOAD DATA" and select one of the four stored Calibration values, corresponding to the chosen cable brand and type.



You can now test for cable length, the unit will use the Calibration value as reference and adapt the test results accordingly.

CABLE TONE TRACING (= SCAN Cable)

This functionality is only possible if you purchased the **ABI-TT1008STR** test set which has the Tone trace probe included.

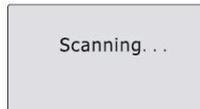
In the Tone tracing mode, the main unit sets a signal on the Scan port (ports on the side of the main unit). This signal is sent down the cable and can be picked up by approaching the cable with the Tone tracing probe. When the tone is detected, the probe emits an intermittent "Beep-Beep-Beep" sound. This feature makes it easy to identify a single cable within a bundle of cables.

The Tone tracing function is available for RJ45, RJ11, USB and Coaxial links.

Connect the link that you want to trace to the corresponding Scan port (on the side of the unit). The BNC connector of the main unit is used for both wiremap, length and scan functions.

In the MAIN MENU select the connector type and then the function CABLE SCAN by pressing ENTER.

The following message shows on the interface:



As long as this message is shown the main units sends a tracing tone down the cable.

To trace the right cable, use the Tone Tracing probe and press the central button on the front "push to scan". Approach the cable with the tip of the probe. When you are in the vicinity of the cable carrying the tone, you will hear a "Beep-Beep-Beep" sound.



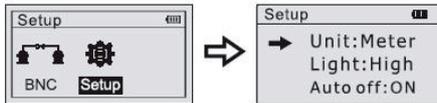
The sensitivity of the probe can be adjusted up or down with the slide control "SEN" . In case several cables are reacting to the tone probe, it helps by reducing the sensitivity of the probe downwards to only react to the right cable.

The Tone trace probe is equipped with a pair of LED lamps close to the tip. This makes it easy to work and identify cables in poorly lit areas. The LED lamps are switched on/off by the button on the side of the probe.

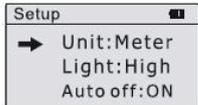
Please be careful when putting the probe away to switch off the lamps, otherwise the probe battery will quickly drain empty.

SETUP

Choose SETUP from the MAIN MENU, you will see following message:



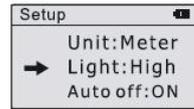
Unit:



Press ENTER repeatedly to toggle between Meter, Feet or Yard as unit of length measurement

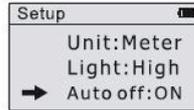
Use the UP/DOWN buttons to go to the other setup functions

Light:



Press ENTER repeatedly to toggle between High, Medium or Low on the display, you will immediately see the level of backlight change.

Auto off:



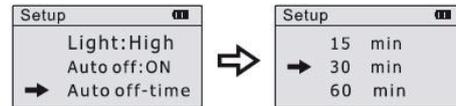
Press ENTER repeatedly to toggle between Auto off: ON and OFF

In the ON position, the unit switches off after a certain time that can be set in the next menu item.

In the OFF position, the unit stays on until you manually switch it off. This will drain the battery if you forget to switch off the unit manually. It is therefore recommended to leave the unit in the Auto off: ON mode

Auto off-time:

Press UP/DOWN buttons to choose the desired time for automatic turning off from preset values 15, 30, 60 or 120 minutes.



| | | ABI-TT1008S00 | ABI-TT1008STR |
|--------------|--------------------------|---------------|---------------|
| RJ45 | WIREMAP (pins) | 12345678G | 12345678G |
| | UTP | ✓ | ✓ |
| | FTP | ✓ | ✓ |
| | STP | ✓ | ✓ |
| | Inversions | ✓ | ✓ |
| | Open | ✓ | ✓ |
| | Short | ✓ | ✓ |
| | LENGTH | 1-1000m | 1-1000m |
| | Length Calibration | ✓ | ✓ |
| | Calibration Memories | 4 | 4 |
| | TONE SCAN | ✗ | ✓ |
| RJ11 | WIREMAP (pins) | 123456 | 123456 |
| | TONE SCAN | ✗ | ✓ |
| COAX (BNC) | WIREMAP (pins) | 12 | 12 |
| | TONE SCAN | ✗ | ✓ |
| | LENGTH | 1-1000m | 1-1000m |
| | Calibration Memories | 4 | 4 |
| USB | TONE SCAN | ✗ | ✓ |
| DISPLAY | BACKLIGHT | ✓ | ✓ |
| | UNITS (meter/feet/yards) | m/ft/yrds | m/ft/yrds |
| | Auto on/off timer | ✓ | ✓ |
| BATTERIES | | 9V | 2x 9V |
| CARRYING BAG | | ✓ | ✓ |
| WEIGHT | (kg) | 0,5 | 0,6 |
| Package size | (cm) | 23x13x8 | 23x18x8 |
| Testleads | RJ45-RJ45 (15cm) | ✓ | ✓ |
| | RJ11-RJ11 (15cm) | ✓ | ✓ |
| | RJ11-crocodiles (15cm) | ✓ | ✓ |
| Earpiece | | ✗ | ✓ |

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www.abitana.com
www.abitanadirect.com
info@abitana.com
Tel +32 (0)2 412 00 60