

USER MANUAL

LCT-500

Time Domain Reflector-meter



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ISO 9001

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LCT-500 User Manual

Time Domain Reflector-meters

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All specifications are subject to change without prior notice.

Introduction

The LCT-500 (Time Domain Reflector-meters) is a hand-held, digital, multifunction Network Cable Tester and Cable Length Meter.

The LCT-500 incorporates a tone generator and auto negotiation Port-Finder, with LCD displays the results in a pin-to-pin format; it identifies most common cable wiring faults including split pairs. LCT-500 technology provides much more accuracy to measuring cable length and locating problems from either end of a cable.

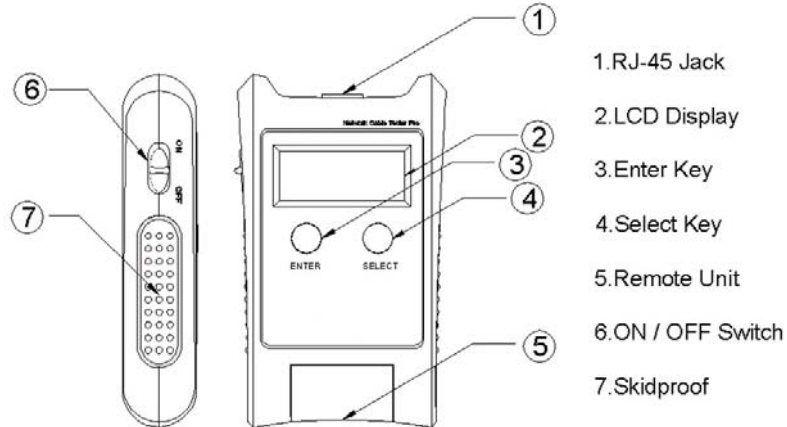
LCT-500 is compact, ergonomic, and easy to operate. Its advance functionalities and versatility make LCT-500 an ALL-IN-ONE tester suitable for professional technicians or installers.

Features:

- Incorporates TDR (Time Domain Reflector-meters) Technology
- Tests for shorts, opens, mis-wires, reversals, split pairs, and shield continuity
- Incorporates PORT-finder function to locate corresponding sockets on hub/switch
- Measures length on UTP and STP twisted pair of cable without remotes
- Has Velocity of Propagation Adjustable Calibrate ability for non-standard cables to increase measuring accuracy
- Locates problems in both meter and feet standards
- Its Tone generator sends either all or selected pin conductor/s.
- Test results displayed in pin-to-pin/wire map format
- Compatible with any twisted pair of Cat 3/4/5 and Cat 6 cables.
- Battery operated, compact and easy to use.
- Measures length of bulk cable

Contents :

- 1 LCT-500 Main Unit & 1 Remote Unit
- User Manual and Warranty & Service Information
- Carrying case * 1
- Accessories: 1 patch cable of RJ45 to 2 alligator clips
- Alkaline 1.5V AAA battery * 3 (optional)



Specifications

- Display: 122 x 32 Dot Matrix LCD (56mm x 29mm)
- Connector Type: RJ45 (Main and Remote)
- Accuracy: $\pm 2\text{m}$ less than 10m (± 6.56 Feet in less than 32.81 feet)
 $\pm 5\%$ over 10m (32.81 feet)
- Approximate test Range: 1-500m (3.28 – 1640.42 feet)
- Split pair detection minimum: 1m (3.28 feet)
- Tone Generator: 1 KHz
- Operating Temperature $0^{\circ}\text{C} - 50^{\circ}\text{C}$ ($32^{\circ}\text{F} - 122^{\circ}\text{F}$)
- Storage Temperature $-30^{\circ}\text{C} - 50^{\circ}\text{C}$ ($-22^{\circ}\text{F} - 122^{\circ}\text{F}$)
- Humidity 10%-90%
- Weight: Main unit 130g. Remote unit 15g.
- Dimensions: 82 x 138 x 32 mm
- Power source: DC 4.5V (AAA Alkaline battery x 3)
- Battery Life: Approximately 4 hours continuous use
- CE approval

LCT-500 Manual Operation

It is recommended to check the battery conditions before each use. A weak/low battery will lead to inaccurate test results.

Main buttons function:

SELECT

Use this button to change or navigate the arrow on the menu selections.

ENTER

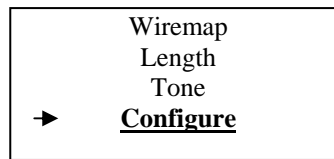
Use this button to select or choose the mode selection pointed by arrow.

Default Configuration

In order for LCT-500 to perform properly, user should set up the default configuration prior to use. This procedure is also required in order to change the standard measurements or calibration default for non-standard categories cables.

Follow this step to configure the LCT-500:

1. Turn on LCT-500
2. In about 1 second, LCT-500 will finish its self diagnosing test.
3. Press the **SELECT** button until the arrow point to “**Configure**”

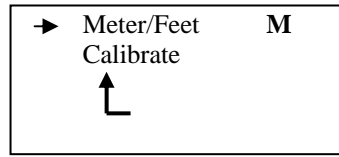


(LCT-500 Main Menu)

4. Press the **ENTER** button and view “Meter/Feet and Calibrate” menu options.

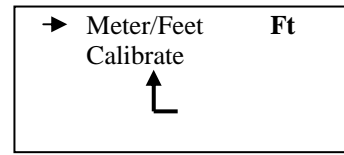
To change the default of **Meter/Feet** and **Calibration** options, continue to:

- a. On “Meter/Feet” mode and press **ENTER** to change Meter (**M**) or Feet (**F**)



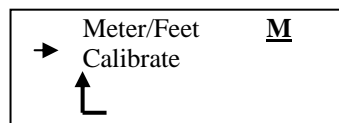
(Configure page)

or

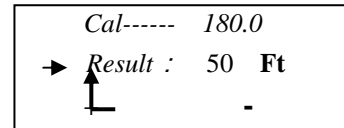


(Configure page)

- b. On Calibrate option, press **ENTER** to open the calibration mode.



(Configure page)



(Calibrate page)

Setup calibration is used to adjust the Cal— value to match with known cable length. Use this setup function for the same type of cable in order to minimize errors in length test measurement.

Calibrate page explanations:



- *Cal----- 180.0* is the adjustable increase or decrease default parameter
- *Results: 50 Ft* is the default distance
- “+ and -” is used to change the *Cal--* value increase or decrease.
- ↑ is to save and go back to the Configure page.

Using the **SELECT** button to select +

or - mode and **ENTER** to change the value.

Note: The *Calibration* increment or decrement value is based on the twist-pair's length. Actual test result will not always be identical.

3. Complete the setup procedure and save the defaults by selecting


“” and 

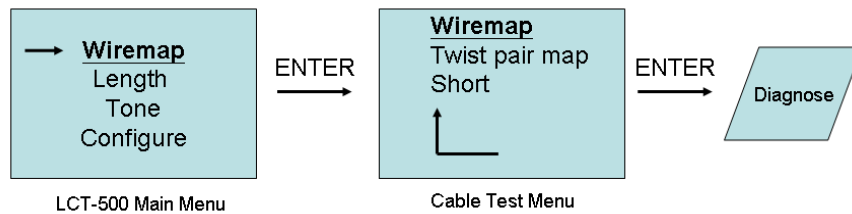
until the Main Menu is displayed.

Wiremap Test

After Cable Test diagnosis is completed, LCT-500 will display problems found in a pin-by-pin fashion, including the shield if available.

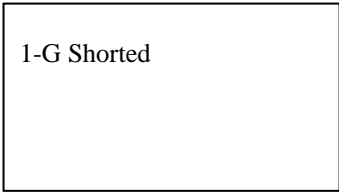
Select the **Wiremap** option from the Main Menu then select **Wiremap**

and , the diagnosis will begin on the cable attached to the LCT-500 main or remote unit.

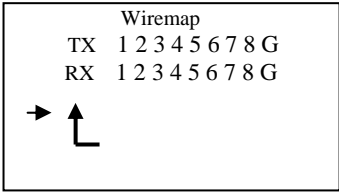


LCT-500 will display pin-to-pin results and problems found shortly after the Wiremap test procedure is completed. If there are pin/s short/s with shields layer, LCT-500 will automatically display it first.

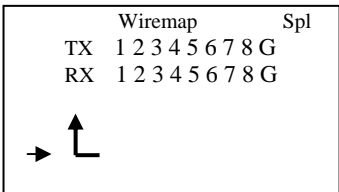
The following illustrations explain the Wiremap test procedures in detail:



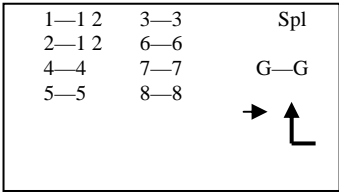
LCT-500 detects shorts from conductor 1 and shields layer shortly after Wiremap test finish.



Good cable, no fault/s detected.
 G: Ground/shield layer
 TX: Transmitting side (main unit)
 RX: Receiving side (remote unit)
 ↑ : Go back to previous page

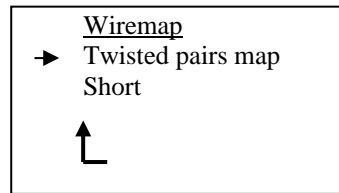


“Spl” icon shows and blinks on pin/s indicate the SPLIT PAIR/S is detected.
 *Split pair/s at minimum 1m (3.28 feet)

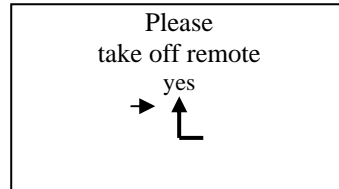



Pair 1 and 2 is shorted and the SPLIT PAIRS are detected.

The wires twisted status can be analyzed and show as map mode by selecting the **“Twisted pairs map”** option from the Cable Test Menu.



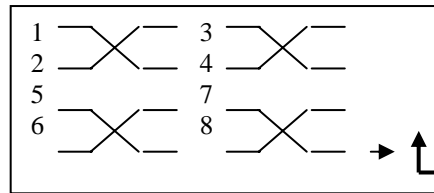
In “Twisted pairs map” mode, remote unit should be removed from the end of cables. Otherwise result will not accurate.



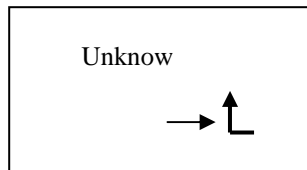
Warning will be displayed to unplug the cable from remote unit. Select “yes” to continue. Select  to continue.



No Split detects, based on TIA/EIA 568A/B Standard wiring



Split pairs on pair 2& 3
pair2 wires 34 twisted
pair3 wires 56 twisted

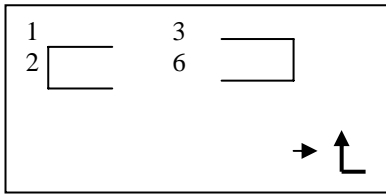


Because the cable is shorter than 1M or the twisted pairs is not standard , the twisted status unknow.


Short Location

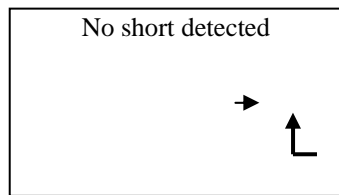
The TDR technology enables LCT-500 to show which end of cable are shorted.

Short Details function found under Wiremap menu:



(Short details display)

1. Pair 1 (1-2) shorted at near side of cable (TX)
 2. Pair 2 (3-6) shorted at far side of cable (RX)
- Select  when finished.



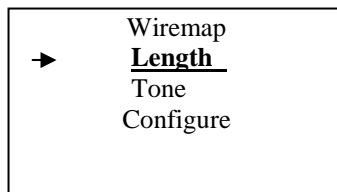
(Short details display)

There are no short pin detected.

Length Test

LCT-500 also has a built-in length test function. This feature is accommodated by TDR, and displays in standard Meter (M) or Feet (F) for its 4 pair's conductors.

Select **Length** from LCT-500 Main Menu as seen below.



(LCT-500 Main Menu)

Remote unit should not be used when testing the length of a cable. Not leaving the remote unit attached will display inaccurate results.

Please
take off remote

A warning regarding a detached cable from the remote unit will display for 2s every time prior to starting the test.

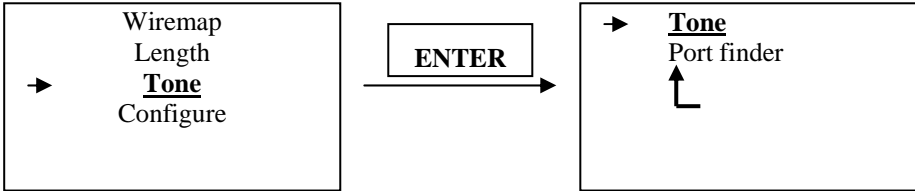
Length test results:

Pair 1 – 93.5	M
Pair 2 – 92.1	
Pair 3 – 94.0	→ ↵
Pair 4 – 95.9	

- 1. Normally, the each pair of cables will vary in lengths.
- 2. **M** for Meter, or **Ft** for Feet
- 3. Click ↵ to return to previous menu

Tone Generator

At 1 KHz of tone generator frequency, the LCT-500 can either emit an audio signal to trace all pins conductors, or on each selected pin conductor. Sending an audio signal to each pin enables technicians to identify the corresponding cable by using any cable tracer/probe.



(LCT-500 Main Menu)

(Tone Generator menu)

Select the Tone Generator options from Tone Generator menu (seen above); user will be asked to select from pin 1 to 8, or all pins to emit the signal.

Pin	1	2	3	4
	5	6	7	8
→	All pins			
	↵			

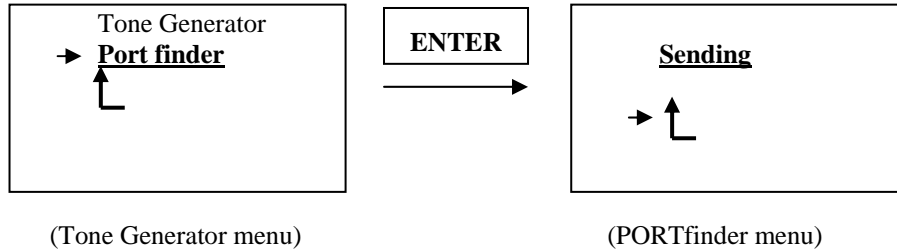
Note: Selected pin 1 to 8 or all pins will be highlighted, and can be change at anytime.
Select ↵ to stop Tone mode and return to previous menu.

*Under normal conditions Tone on All Pins will be louder than each pin/s.

Port finder

LCT-500 has distinctive features that are recommended by professionals. Today, a Portfinder is a standard built-in function for LCT-500 to identify correct ports at closet locations. The correspondent port will blink once the PORTfinder sends its auto negotiation signals through the cable. Cable labeling has just become so much easier.

To activate, locate the main unit at the wall jack or any other location that leads to closet / server room.



Sending its signals until
is selected. ↑

Bulk cable length measurement

To measure the length of bulk cable

1. To peel off the cable jacket of the Green/ Green white wires.
2. Use the attached cable in the package. (RJ45 plug to two alligator clip)
3. Plug one end of RJ45 to the Main unit and another end of two alligator clips, Green clips to the Green wire and White clips to the Green white wire.
4. Test the cable length.

Hints:

1. You can select a cable which length was known and over 10 Meters for cable calibration before the test.
2. Using the alligator clips will cause the test result to have a 5% inaccuracy rate.

WARNING:

- Store the tester in the original package is recommended.
- Do not expose the unit to extreme humidity, high temperature or direct sunlight.
- Do not open the unit or attempt to repair it, this will void the warranty.

**DAMAGE CAUSED BY INAPPROPRIATE USE OF THE DEVICE
WILL NOT BE COVERED BY THE WARRANTY.**

**Contact your distributor/retailer for service or warranty. LCT-500
products are covered by 1-year Manufacture Limited Warranty with
original proves of purchase.**

Authorized Distributor/Retailer:

Part Number: _____

Serial No.: _____

Date of purchase. : _____

CTC *union* **Network Testers**

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