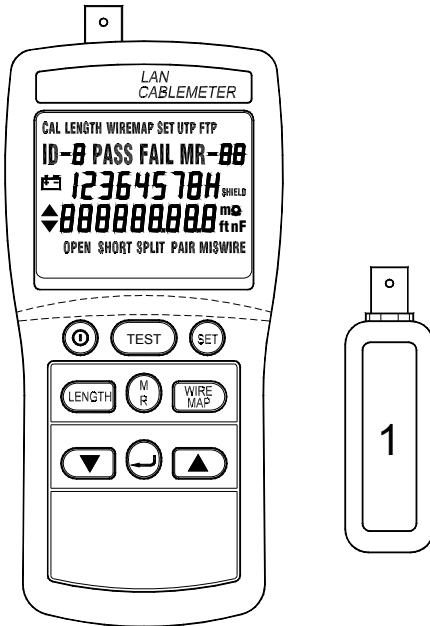


# LAN CABLETESTER

elma<sup>e</sup>46

## INSTRUCTION MANUAL



### I. INTRODUCTION

The LAN Cable Tester is an easy and effective cable tester with the ability to identify cable failures, check wiring, and measure cable length in the UTP (Unshielded twisted pair cable), FTP (Foil – screened (shielded twisted pair cable) cables, and COAX (coaxial cable) cables.

It not only identifies wiring faults, such as open wires, shorted wires, miswires and split pairs, but also tests up to 8 different cables at one end. A stored cable library provides quick access to common cable types.

#### U.S. Pat. No. Des. 446,135

The Cable Tester comes with :

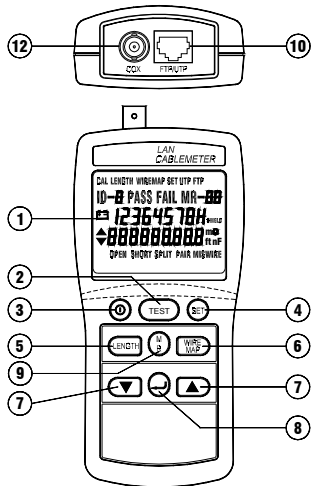
- ⇒ One remote identifier #1
- RID46-234 (Optional for #2, #3 & #4)
- RID46-5678 (Optional for #5, #6, #7 & #8 )
- ⇒ One patch cable RJ-45 to RJ-45 30 cm long.
- ⇒ RJ45-RJ45 female coupler/connector.
- ⇒ Instruction manual.
- ⇒ Carrying case & 6 pcs “AAA” 1.5V Battery.

#### CAUTION

The tester only connects to inactive cables. The input is protected to withstand low voltages, prolonged connection to active telephone lines and networks may damage the tester.

[http://www.else.sk/product.php?id\\_product=2373](http://www.else.sk/product.php?id_product=2373)

### II. PRODUCT PROFILE



### ① LCD Display :

Custom large size LCD. For more information, press ▼▲ key to display the additional information.

② **TEST key** : Test the attached cable and indicate a pass or failure information base on the specified parameters for the selected cable.

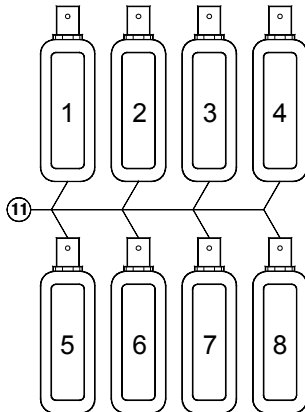
③ **Power key** : On or Off.

④ **SET key** : Access to cable selection, cable calibration, and other test tool settings.

⑤ **LENGTH measurement key** : Measure the length of each pair of twisted pair cable or coaxial cables in meters or feet and tests for anomalies.

⑥ **WIREMAP test key** : T0 display wiring connections, opens, shorts, and split pairs.

⑦ **▼▲keys** : Scroll through a selection of choices or multiple displays.



⑧ **↵ ENTER key** : Enter a selection into the test tool and move to the next setting selection.

⑨ **M (Memory), R (Read) key** : Data memory and read ( 99 sets ).

⑩ **RJ45 jack** : Standard 8-pin modular jack for connecting UTP and FTP cable.

⑪ **Remote Identifiers #1 ~ #8.**

⑫ **BNC connect for connecting coaxial cables.**

## III. SPECIFICATIONS

Cable Length Measurements

Range : 1.0 to 350m (2-999 ft)

Accuracy : 5% + 1m (5% + 3ft)

Cables > 150 meters : 10% + 1m (10% + 3 ft)

Resolution : Measurement Unit in Feet :

Cables < 100 ft : 0.5 ft , Cables > 100 ft :1ft

Measurement Unit in Meters.

Cables < 100 meter : 0.5m , Cables > 100 meters :1m

Failures Detected

SHORTS

Range of short detection : 0 to 350m ( 0 to 999ft)

Accuracy of distance to a short (Assumes short is 0Ω)

UTP/FTP : 7% + 3m (7% + 10ft)

Coaxial Cables : 10% + 10m (10% + 30ft)

## OPENS

Range of open detection : 0 to 350m (0 to 999ft)

Accuracy of distance to an open :

UTP/FTP : 10% + 1m (10% + 3 ft)

## SPLIT PAIRS

Range of detection : 2 to 350m (6 to 999ft)


Split pair part of the cable must be at least 2 meters (6ft) in length and greater than 10% of the total cable length.

## COAX Termination Measurements

Any loop resistance value between 5 and 350Ω is interpreted as a termination resistance. Resistance value below 5Ω is considered shorts and resistance value greater than 350Ω is not displayed.

## General Specifications

Power : Six AAA size 1.5V batteries.

Low Battery Indication : Display shown "  ".

Battery Life : 100 hours.

Auto Power off : 5 minutes, (When there is no key activity).

Remote Cable Identifiers : #1 (#2 to #4 and #5 to #8 are optional).

Input Protection : 50V DC.

LAN Input Connectors : RJ45, BNC.

## Environmental Conditions :

Operating : 0 to +40°C < 80%RH / Storage : -20 to +60°C < 70%RH

Dimensions : Cable Tester 150 x 72 x 35mm

Remote identifier 60 x 23 x 22mm

Weight : Cable Tester 215g / Remote identifier 35g

## IV. SETUP SELECTIONS

The setup mode allows to select and calibrate cable characteristics.

Once changed, these settings are stored and remain in the tester even when tester is turned off.

Setup items :

Select cable type ( UTP, FTP or COAX ).

Select a cable category.

Select a wire size.

Calibrate cable length.

Enable or disable the Beeper for ON (PASS) and OFF (FAIL).

Setup procedure :

1. Press SET key.

2. Press  $\downarrow$  enter key to set up through the selections.


3. Press  $\blacktriangledown$   $\blacktriangle$  keys to select the desired setup condition.

4. Press  $\downarrow$  enter key to store the setting and move to the next setup selection, or press SET key to exit the setup mode.

**Power-up selection :** Select length measurement units between feet

( ft ) and meters (m).

Power-up setup procedure :

1. Turn off the tester, press and hold down LENGTH key, then press and hold down  power key, until display show "

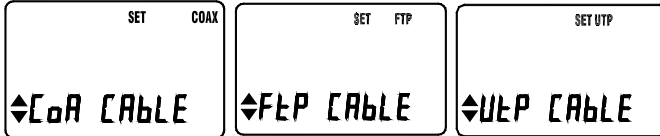
**LEN Unit**."

2. Press  $\blacktriangledown$  or  $\blacktriangle$  keys to the desired length units.

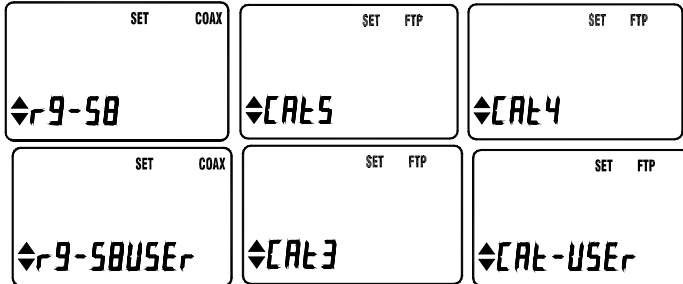
3. Press  $\downarrow$  enter key to store the unit (ft/m) and exit this mode.

## Selecting a Cable Type Procedure

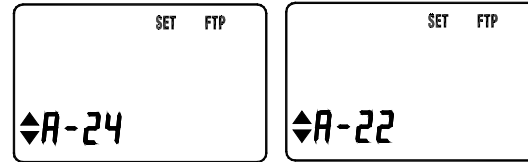
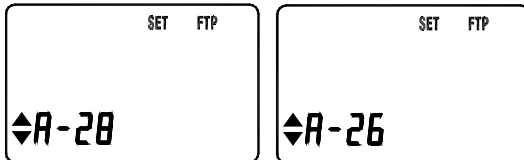
1. Press SET key to enter setup mode.
2. Press ▼▲key until the desired “cable” type is displayed, then press ↵ enter key.



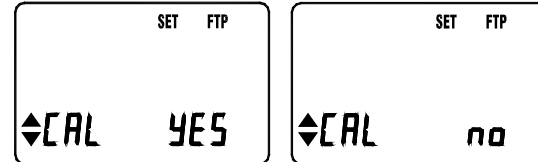
3. Press ▼▲keys until the desired “category” is displayed, then press ↵ enter key.



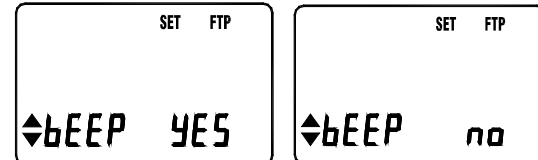
4. Press ▼▲key until the desired “wire size” is displayed, then press ↵ enter key.



5. Press ▼▲key to choose proceeding or not proceeding the “CAL” function, then press ↵ enter key.



6. Press ▼▲key until the desired “bEEP” is enable or disable, then press ↵ enter key.



7. Press SET key to exit this mode.

## V. CALIBRATING CABLE LENGTH

The cable characteristics parameter is now defined by the factory settings for the cable selected. But cables are coming from different batches or manufacturers the characteristic variances will be at up to 20%, to cause deviations in length measurement. To obtain more accurate measurements, calibrate the tester to the specific cable under test.

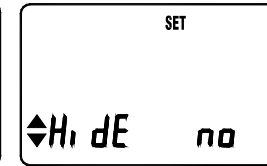
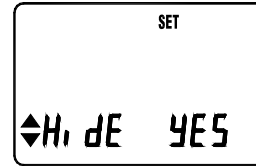
For proper calibration connect the cable under test directly to the tester not through a patch cable. To calibrate the tester to the currently selected cable, perform the following procedure.

1. Select cable type under test.
2. Connect a good cable of known length ( $> 15\text{m}$  and  $\leq 100\text{m}$ ) to the appropriate tester connector.
3. Press SET key, then press  $\downarrow$  enter key until the display shows "CAL CABLE".
4. Press  $\blacktriangledown\blacktriangle$  key until "YES" is displayed, then press  $\downarrow$  enter key.
5. Press SET key to show cable length, press  $\blacktriangledown\blacktriangle$  key to adjust the cable length to the exact length.
6. Press  $\downarrow$  Key. These cable parameters are stored and will remain in memory even if the test tool is turned off. All future measurements for this cable type are compared to these new parameters until another cable is selected or another calibration is performed.

### Note :

#### 1. Hidden calibrating cable length mode.

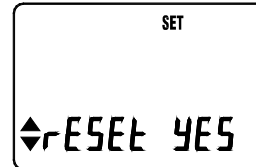
- ① Press  $\odot$  key to turn off the meter.
- ② Press and hold down  $\blacktriangledown$  and  $\blacktriangle$  keys then press  $\odot$  key to turn on the meter, until LCD shows " $H_i dE$ ".



- ③ Press  $\blacktriangledown$  key to cycle display "YES" or "no".
- ④ Select "YES" and press  $\downarrow$  key to enter the calibration mode.
- ⑤ Otherwise, please select "no" then press  $\downarrow$  key to escape.

#### 2. Reset to factory default.

- ① Press  $\odot$  key to turn off the meter.
- ② Press and hold TEST &  $\blacktriangledown$  keys then press  $\odot$  key to turn on the meter, until LCD shows "rESEt".



- ③ Press  $\blacktriangle$  key to cycle display "YES" or "no".
- ④ Select "YES" and press  $\downarrow$  key to enter the reset mode.
- ⑤ Otherwise, please select "no" then press  $\downarrow$  key to escape.

## VI. OPERATING

### A). Test Cables

The TEST function tests the attached cable based on the cable's compliance with the parameters stored in the tester for the selected cable. To test a cable, perform the following procedures.

1. Select cable type under test.
2. Connect the cable under test to the appropria connector on

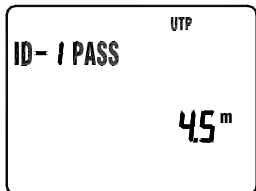
the tester.

3. Press TEST key.

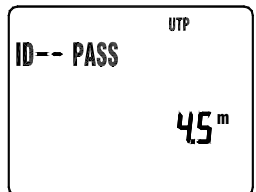
The tests are performed depend on whether a remote identifier unit (ID) is connected to the end of the cable or not.

FAILURES DETECTED	NO remote unit	with remote unit
Short	⊗	⊗
Open (nearend)	⊗	⊗
Open (farend)		⊗
Length	⊗	⊗
Split pair	⊗	⊗
Mis wire		⊗

For twisted pair cables, when the tester checks for a cable remote identifier unit (ID) at the other end of the cable and a pass condition exists, the LCD will display the following information.

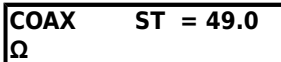


Good cable, cable remote unit ID#1 detected.



Good cable, no cable remote unit detected or the tester may not sense the remote unit.

If testing coaxial cable with a termination, the tester displays the total resistance of the cable wires and the termination.



Only coaxial cables must be unterminated for the tester to display the cable's length. If a coaxial cable is open looks just like an unterminated cable, then a length measurement that is less than the known cable length would indicate a possible open in the cable.

The tester if a failure is detected, additional information can be viewed with the ▼/▲keys. The failure messages refer to individual wires rather than pairs of wires. The TEST mode failure messages are described in following tables.

#### Test failures (without remote unit)

FAILURE	DISPLAY	DESCRIPTION
Short (UTP/FTP)		Display shorted wires and most likely distance to the short.
OPEN		Display open wires and the open whether it is at the near or far end of the cable.
Split Pair		Display wire pairings that are incorrect based on the cable selected.

A short greater than 0Ω, will cause display a length greater than the actual distance to the short. The tester uses 0Ω to calculate distance to a short.

### Test Failures with remote unit

FAILURE	DISPLAY	DESCRIPTION
Miswire		Display the incorrect wiring of the end connectors.
Open		Display the broken wire and the distance to the break.
Pair Length		Indicate that the length of the pairs within a cable are abnormal different.
Split Pair		A portion of the cable assembly has split pairs or a poor quality cable.

### B). Cable Length Measurement

The tester measures the length of both twisted-pair. If the tester is not calibrated to the cable under test, then factory default cable characteristics are used to compute the length.

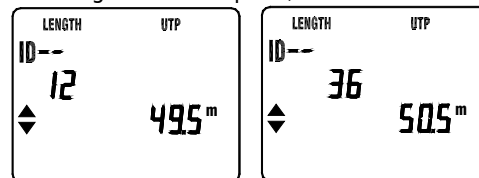
If a more accurate length measurement is desired, refer to “CALIBRATING CABLE LENGTH” described on this manual.

Before a length measurement is made, the tester performs “Test Cables” described in this manual to prevent any cable failures from corrupting the length measurement.

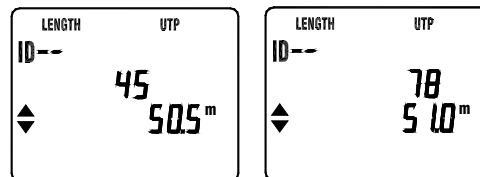
Cable length measure procedure.

1. Select cable type under test.
  2. Connect the cable and test to the appropriate connector on the tester.
  3. Press LENGTH key.
  4. Use ▼or ▲key to scroll selection multiple displays.
- The information that is displayed depends on the type of cable selected. For twisted pair cable, each pair has corresponding length measurement.

A 5% difference in length between pairs, is uncommon.



For 50m UTP

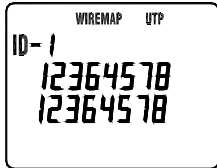


### C). WIRE MAP CHECKING

Use the tester wiremap function and remote identifier unit (ID), to determine the wiring status of both the near end and far end of the cable.

Wire Map measure procedure.

1. Select cable type under test.
2. Connect the cable under test to the appropriate connector on the tester.
3. Press WIRE MAP key.



Good cable with remote unit

Wire Map Failure Using remote unit (ID).


FAILURE	DISPLAY	WIRING	DESCRIPTION
Short (near end)			Alternately display an "s" with actual wire number of each wire shorted.
Open			Alternately display "o" with the number of each open wire.
Miswire			Displays the wiring detected by the test tool and flash the wire numbers involved in the anomaly.

## VII. DATA MEMORY AND READ OPERATING

1. Press MR key each time, stores one set logged data in memory, LCD shows M and memory location numbers (01 to 99). If no test data can not perform this mode.
2. Press MR key for 3 seconds to enter the read memory data mode, LCD shows R and memory location numbers, additional information can be viewed with the ▲/ ▼key.
3. Press ↓ key to scroll through the logged readings.
4. Press MR key again to exit READ mode, LCD will show "Out r EAD".
5. Erase the memory of datalogger.
  - ① Press ⏻ key to turn off the meter.
  - ② Press and hold down MR key then press ⏻ key to turn on the meter, until LCD shows "dEL", press ▲▼ key to cycle display "YES" or "NO", select "YES" and press ↓ key to cleared all memory.

## VIII. MAINTENANCE

1. Cleaning :  
Periodically wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Clean and dry as required.
2. Battery replacement :

When LCD display shows "  ", the power of battery has already been in-sufficient to support an accurate test. At this moment replace it with new battery from the battery compartment.

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