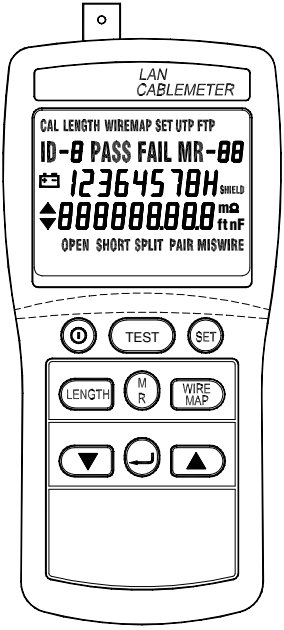
User Manual
RS PRO 48
stock number: 462-9267

EN



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CONTENTS

1. INTRODUCTION

The LAN Cablemeter is an easy to use and effective cable test instrument with the ability to identify cable failures, check wiring, and measure cable length of 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

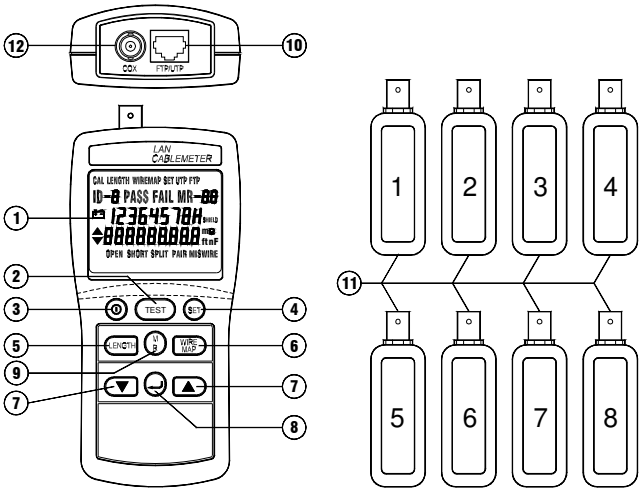
The Cable Tester comes with:

- ⇨ One remote identifier #1
  RID46-234 (Optional for #2, #3 & #4)
- ⇨ 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 Batteries.

CAUTION

The instrument is designed for connection to inactive cables. The input is protected to withstand low voltages, but prolonged connection to active telephone lines and network cabling may damage the tester.

2. 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 pass or failure information based on the specified parameters for the selected cable.

③ ⏻ **Power key:** Turns the instrument On or Off.

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

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

⑥ **WIREMAP test key:** To 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 instrument and move to the next setting selection.

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

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

⑪ **Remote Identifiers #1 ~ #8.**

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

3. 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 metres (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 a short 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℃ < 80%RH / Storage: -20 to +60℃ < 70%RH

Dimensions: Cable Tester 150 x 72 x 35mm

Remote identifier 60 x 23 x 22mm

Weight: Cable Tester 215g / Remote identifier 35g

4. SETUP SELECTIONS

The setup mode allows the user to select and calibrate the instrument for particular cable characteristics.
Once set, these parameters are stored and remain in the instrument memory even when it is turned off.

Setup items:

1. Select a cable type (UTP, FTP or COAX).
2. Select a cable category.
3. Select a wire size.
4. Calibrate the cable length.
5. Enable or disable the Beeper for ON (PASS) and OFF (FAIL).

Setup procedure:

1. Press the "**SET**" key.
2. Press the ↵ enter key to step through the selections.
3. Press either the ▼ or ▲ keys to select the desired setup condition.
4. Press the ↵ enter key to store the setting and move to the next setup selection, or press the "**SET**" key to exit the setup mode.

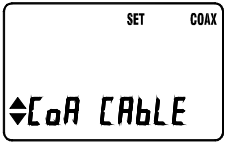
Power–up selection: Select length measurement units between feet (ft) and metres (m).

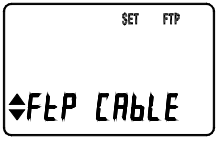
Power–up setup procedure:

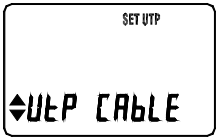
1. Turn off the instrument, press and hold down the "**LENGTH**" key, then press and hold down the ⏻ power key, until the display show "▲▼LEn Unit".
2. Press either the ▼ or ▲ keys to select the desired length units.
3. Press the ↵ enter key to store the unit (ft/m) and exit this mode.

Selecting a Cable Type Procedure:

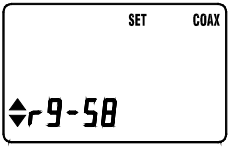
1. Press the "**SET**" key to enter setup mode.
2. Press either the ▼ or ▲ key until the desired "cable" type is displayed, then press the ↵ enter key.

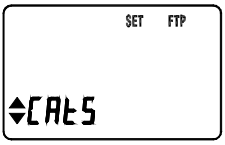


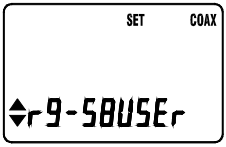


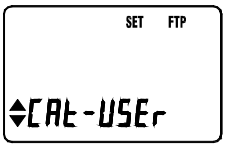


3. Press either the ▼ or ▲ keys until the desired "category" is displayed, then press the ↵ enter key.

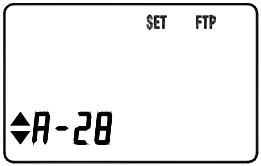


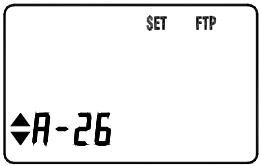


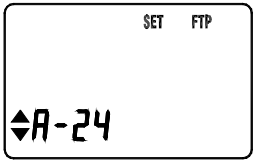


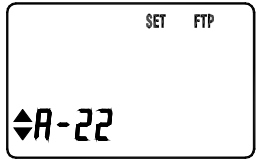


4. Press either the ▼ or ▲ key until the desired "wire size" is displayed, then press the ↵ enter key.

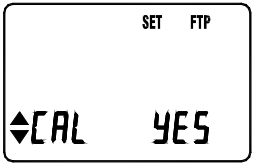


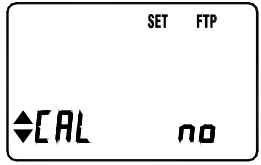




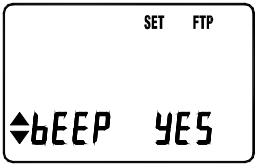


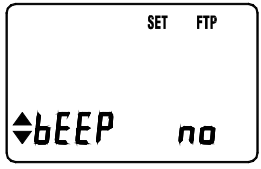
5. Press either the ▼ or ▲ key to choose to preceed or not preceed tests with the "CAL" function, then press the ↵ enter key.





6. Press either the ▼ or ▲ key to enable or disable "bEEP", then press ↵ enter key.





7. Press the "**SET**" key to exit this mode.

5. CALIBRATING CABLE LENGTH

The characteristic cable parameters are now determined for the particular cable selected. Cables from different batches or manufacturers may have characteristic variations of up to 20% from the nominal published specifications. These variations will in turn 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.

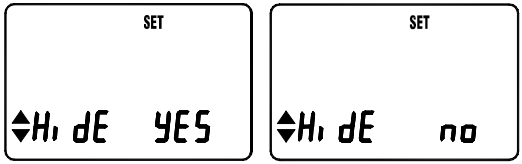
1. Select cable type under test.
2. Connect a good cable of known length (> 15m and ≦100m) to the appropriate tester connector.
3. Press "**SET**" the key, then press the ↵ enter key until the display shows "**CAL CABLE**".
4. Press either the ▼ or ▲ key until "YES" is displayed, then press the ↵ enter key.
5. Press the "**SET**" key to show cable length. Press the ▼ or ▲ key to adjust the cable length to the exact length as measured.
6. Press the ↵ key. The cable parameters are now stored and will remain in memory even if the instrument is turned off. All future measurements for this cable type are compared to these newly stored parameters until another cable is selected or another calibration is performed.

Note:

1. Hidden calibrating cable length mode.

① Press ⏻ key to turn off the meter.

② Press and hold down the ▼ and ▲ keys then press the ⏻ key to turn on the meter, until LCD shows "HI dE".



③ Press the ▼ or ▲ key to cycle display through "YES" or "no".

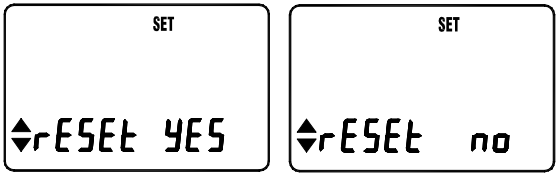
④ Select "no" and press the ↵ key to enter calibration mode.

⑤ Select "YES" then press the ↵ key to escape without entering calibration mode.

2. Reset to factory default

① Press the ⏻ key to turn off the meter.

② Press and hold the "**TEST**" & ▼ keys then press the ⏻ key to turn on the meter, until LCD shows "rESEt".



③ Press the ▲ key to cycle the display through "YES" or "no".

④ Select "YES" and press the ↵ key to enter reset mode.

⑤ Select "no", then press the ↵ key to escape without resetting.

6. OPERATING

A). Test Cables

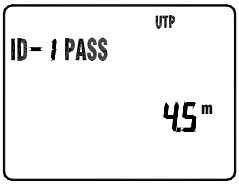
The TEST function tests the attached cable based on the cable's compliance with the parameters stored in the tester for the selected cable. To test a cable, perform the following procedures.

1. Select cable type under test.
2. Connect the cable under test to the appropria connector on the tester.
3. Press "**TEST**" key.

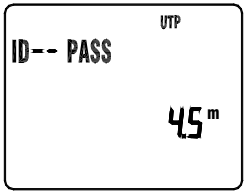
The tests performed depend on whether a remote identifier unit (ID) is connected to the end of the cable or not.

FAILURES DETECTED	NO remote unit	with remote unit
Short	√	√
Open (near-end)	√	√
Open (far-end)		√
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.

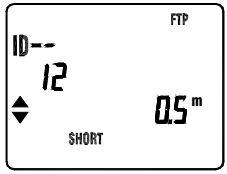
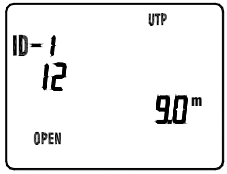
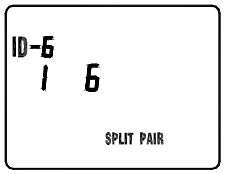
If testing coaxial cable with a termination, the tester dispalys the total resistance of the cable wires and the terminetion.

COAX ST = 49.0 Ω

Coaxial cables must be unterminated for the tester to display the cable's length. A coaxial cable with a break in a conductor looks just like an unterminated cable. A length measurement of less than the known cable length would indicate a possible open-circuit in the cable.

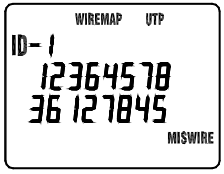
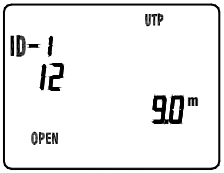
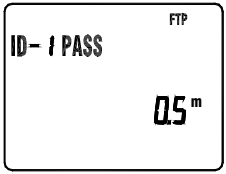
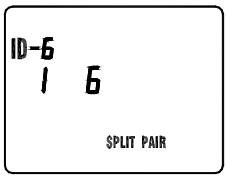
If a failure is detected by the instrument, additional information can be viewed with the ▼ & ▲ keys. The failure messages refer to individval wires rather than pairs of wires. The TEST mode failure messages are described in following tables.

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, the distance to the break and whether it is at the near or far end of the cable.
Split Pair		Display incorrect wire pairings based on the selected cable type.

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
Mis wire		Display the incorrect wiring of the end connectors.
Open		Display the broken wire and the distance to the break.
Pair Length		Indicates 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 Measurment

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

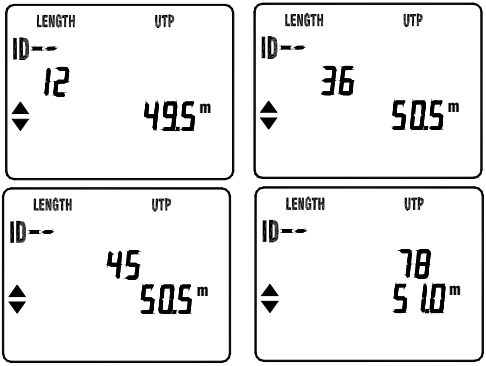
Cable length measurement procedure.

1. Select cable type under test.
2. Connect the cable to the appropriate connector on the instrument and perform a cable test.
3. Press the “**LENGTH**” key.
4. Use ▼ or ▲ key to scroll selection multiple displays.

The information displayed depends on the type of cable selected. For twisted pair cable, each pair has a corresponding length measurement.

A 5% or greater difference in length between pairs is unusual and may indicate a fault.

For 50m UTP

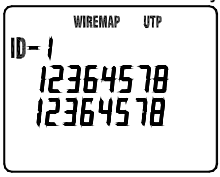


C). WIRE MAP CHECKING

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

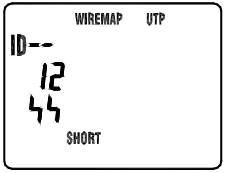
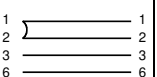
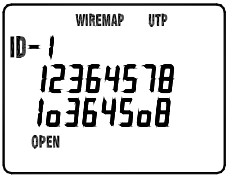
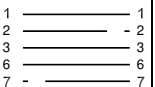
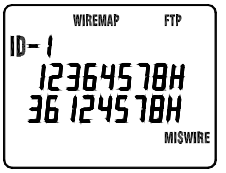
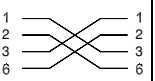
Wire Map measure procedure.

1. Select cable type under test.
2. Connect the cable under test to the appropriate connector on the instrument.
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 numbers of each wire shorted.
Open			Alternately display “o” with the number of each open-circuit wire.
Miswire			Displays the wiring detected by the instrument. The wire numbers involved in the anomaly will flash on the display.

7. SAVING AND RECALLING DATA IN MEMORY

1. Press the "**MR**" key once to store one set of data in the internal memory. The LCD shows M and the memory location numbers (01 to 99). If no test data is displayed, this function is inoperative.
2. Press the "**MR**" key for 3 seconds to enter the read memory data mode. The LCD shows R and the memory location number.

   Additional information can be viewed with the ▲ / ▼ key.
3. Press the ↵ key to scroll through the logged readings.
4. Press the "**MR**" key again to exit READ mode. The LCD will show "**Out r EAD**".
5. To erase the memory:

   ① Press the ⏻ key to turn off the instrument.

   ② Press and hold down the "**MR**" key then press the ⏻ key to turn the instrument on. When the LCD shows "**dEL**", press the ▲ or ▼ key to cycle the display through "YES" or "nO". Select "YES" and press the ↵ key to clear all memory locations.

8. 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 the LCD display shows "  ", the batteries have insufficient power to operate the instrument correctly and must be replaced. Remove the battery compartment cover and replace all 6 cells with new ones. Refit the battery compartment cover. Dispose of the removed cells in compliance with local regulations.

3. When the meter will not be in use for the long period of time, please remove the batteries out of meter to prevent the possibility of battery fluid leakage damage.

Limited Warranty

This meter is warranted to the original purchaser against defects in material and workmanship for 3 years from the date of purchase. During this warranty period, RS Components will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction. This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling.

Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. RS Components shall not be liable for loss of use of the instrument or other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you. For full terms and conditions, refer to the RS website.

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