

CableMaster 600/650

Full-Color Cable Testing and Report Management

DESCRIPTION

- Displays length measurement for each pair in feet or meters using TDR technology
- Detects presence of PoE and mode of PoE per IEEE 802.3af/at with load test for voltage drop
- Detects and reports current link speed and link capabilities for active Ethernet drops, up to 1 Gbps
- Link light to identify location on a hub/switch/router port
- Tests Ethernet cable configuration and verifies connectivity while conducting tests for opens, shorts, miswires, split pairs, and reverses
- Generates selectable tones on selected pins for use with tone tracers
- Supports up to 8 testing & ID remotes for network & telephone cables
- Supports up to 20 network & coax ID-only mapping remotes
- View saved cable tests
- Full color graphical wire-mapping
- Ability to define cable name, save cable tests, and print all results (cable testing & network testing)
- Multilingual (English, French, Spanish, German)



USER MANUAL

CableMaster 600/650

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ABOUT THIS MANUAL

The Cable Master 600/650 combines the functions of a high-end cable tester and length-measurement device. It identifies link status, link capability, and detects PoE. All of this is done in full color with internal memory to save your results.





Feature	Function
TDR technology	Measures cable length and distance to faults
High-resolution color display	Easy viewing in any environment
Color wire map per TIA568A/B codes	Makes data visualization, detection, and saving
USB, RJ45 and coaxial connectors	Tests network and coaxial cables Easy-to-export results via USB
Tone Generation	Traces cable runs and locates faults by sound
Remotes	Verifies connectivity at the opposite end of a cable and provides identification
Active Network Tests	Detects and reports current link speed and link capabilities for active Ethernet drops, up to 1 Gbps
PoE Detection	Detects presence of PoE and mode of PoE per IEEE 802.3af/at with load test for voltage drop
Save and View Test Results	Tests results can be named, saved, and viewed on the unit
Active Network Tests	Detects and reports current link speed and link capabilities for active Ethernet drops, up to 1 Gbps
Cable Master 600/650 PC Application	Provides the ability to upload or download test results for saving, viewing, or printing

CableMaster 600/650

SAFETY INFORMATION

To ensure safe operations of the Cable Master 600/650, follow instructions carefully and observe warning and caution messages in this manual. Failure to observe warnings can result in severe injury or death and can damage the equipment.

Table 3. Safety Information

Notification	Definition
	<ul style="list-style-type: none">• The Cable Master 600/650 is designed for use on cabling systems with or without voltage.• The Voltage! icon turns on when the voltage exceeds Safety Extra Low Voltage (SELV) rating of 60 Volts peak AC or DC.• Internal components are protected up to 400 Volts peak AC or DC.• Operating the Cable Master 600/650 when a voltage source exceeds 60 Volts peak AC or DC may pose a safety hazard for the user.
	Do not place equipment and its accessories in the trash. Items must be properly disposed of in accordance with local regulations.
	It is not recommended to use the Cable Master 600/650 when the Voltage! icon is present.
	Compliance with EU directives

CABLEMASTER 600/650 DESCRIPTION



CableMaster 600/650

INCLUDED IN THE KIT

CableMaster 600







1 network/tel testing and ID remote
6xAA batteries,
2 RJ45 cables,
micro USB cable, pouch

CableMaster 650



1 CableTracker CT15 tone probe,
8 network/tel testing and ID remotes,
1 cable assembly RJ45 to alligator clips,
1-20 coax ID remotes,
6xAA batteries,
9 RJ45 cables,
micro USB cable,
pouch

REMOTES

Remotes	Description
	Coax and Network Remote Set: #1-5, F-Conn Coupler with foam holder
	Coax Remote Set: #1-20 coax ID; includes foam holder
	Network and Telephone Testing/ID Remote Set: #1-8
	Network ID Only Remote Set: #1-20 includes foam holder

LCD SCREEN

The Cable Master 600/650 features a full-color graphic LCD screen. Press any of the four soft keys (blue) below the on-screen icon to select that function. Alternately, you can use the side or up/down arrows to scroll to your selected on screen function and press enter (the center arrow).

Types of Faults

Several possible error conditions on the cable are detected and displayed on screen of your Cable Master 600/650.

Cable Fault	Description
Miswire	Cable's wire connection does not follow cabling standards.
Open	Wire connection is not continuous throughout cable length.
Short	A pair has a high resistance fault. This occurs when the wires are making contact with each other due to damage or improper termination.
Split	A cable can be wired with correct continuity but not with correct pairing. This most often happens when the cable is terminated consistently at both ends but in the
Length	Displays the pair lengths found. Length discrepancies may be determined by these results.
Network Connectivity	Displays network connectivity which allows the user to determine if it is different than expected.
PoE	Displays results in red if voltages are lower than expected.

CableMaster 600/650

OPERATIONS

Follow instructions carefully and pay attention to warning and caution symbols. Failure to observe warnings can result in severe injury, death, and damage to the Cable Master 600/650 tester.


On/Off

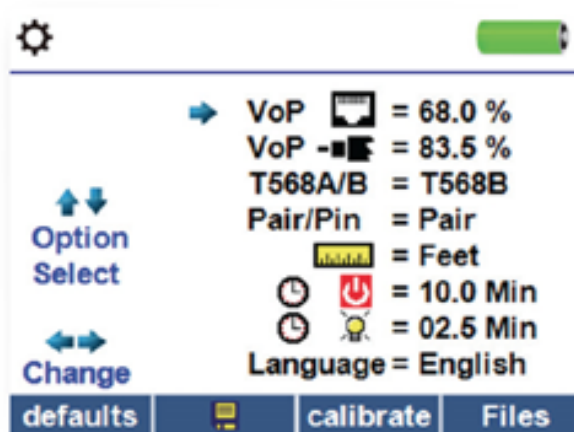
Turn unit On/Off—press the red button  to activate the Cable Master 600/650 or turn it off.


Automatic Power Down

The Cable Master 600/650 automatically turns off to conserve battery power if no input or activity is performed on the device. See “setup” to adjust the length of time before automatic power down.

SETUP

From the main screen, press the blue button on the far right below the “setup” symbol . Use the up and down arrow buttons to scroll through the Setup menu and to select an option.



- Use the up and down button to navigate through the settings.
- Use the right arrow button to select setting.
- Use the up and down arrow button to change the selected setting.
- Press the enter button  to accept your changes.
- Press the left arrow to unselect a setting.

CHANGING A SETTING

RJ45 VOP

Set the Vop to be used to measure RJ45 cable.

Coaxial Vop

Set the VoP to be used to measure coaxial wiring configuration to TIA568A or

TIA568A/TIA568B

Set the RJ45 TIA 568B wiring standard

Pair/Pin

Pair/Pin can be changed to test the RJ45 from Wire Order to Pair Order

Meters/Feet

Set the length measurement to be displayed in Meters and Feet

Power Off Timeout



Set the desired automatic timeout from 00.5-99.9 minutes

LCD Dimmer Timeout



Set the desired automatic timeout from 00.5-99.9 minutes

Language

Set the desired language from English (default), German, Italian to Spanish or French

Tone Generator Timeout

Set the desired automatic timeout 00.5-99.9 minutes.

PoE Test

Turn the PoE test On or Off. Turning the PoE off will allow the Cable Master 600/650 to detect a network without running a PoE test.

- Press the “Calibrate” softkey to calibrate the Cable Master 600/650. This will calibrate the Cable Master 600/650 at 0 ft. No cables should be connected to the Cable Master 600/650 when performing a calibration.
- Press the Save soft key to save your options.
- **Note: If only temporary change is desired, do not press the save button. If the save button is not pressed, the previous settings will be restored once the unit is powered off.**
- To restore factory default values, press the defaults soft key.
- To view saved files, press the Files soft key.

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CABLE TESTING

CABLE TESTING GUIDELINES

The Cable Master 600/650 tests coax, network, and phone cables to detect possible faults, measure cable lengths, show wire pairing and examine a cable's physical/electrical properties.

Important Notes:

- RJ jacks for data and phone share internal connections on the Cable Master 600/650. Connect just one RJ cable at a time.
- You cannot connect an RJ and coaxial cable at the same time.
- If testing RJ cables, remove any coax cable adapters

SAFETY NOTES

The Cable Master 600/650 is designed for use on cables with voltage below 60V. Do not plug the device into a source with voltage above 60V. Connecting the device to live AC power can damage the unit and pose a safety hazard.

Poorly terminated RJ plugs can damage the jacks on the Cable Master 600/650.

Inspect all RJ plugs before inserting them into the Cable Master 600/650. Make sure you insert the plug into the appropriate jack of the remote or device.

Cable contacts should be recessed into the plastic housing of the receiving jack. Don't plug a six-position phone plug into an eight-position data jack on a remote or remote device.







LENGTH TESTING

Cable Master 600/650 measures cable length and length to faults using Time Domain Reflectometry (TDR). Velocity of Propagation (VOP) is the TDR measurement of the speed of the reflected waveforms compared to the speed of light. VOP values can vary among cable types, lots, and manufacturers. In most cases, these differences are minor and may be disregarded.

CABLE TESTING WITH REMOTES

#1-8 Network/Tel Cable Master 650 remotes are used to verify connectivity at the opposite end of a cable and provide an ID. The 1-20 Coax remotes are used to provide an ID.

HOW TO PERFORM A CABLE TEST

- Power on the Cable Master 600/650.
- Connect a network, coax, or telephone cable to the appropriate connector on the top of the Cable Master 600/650.
(Warning! Do not plug an RJ11 cable directly into the Cable Master 600/650. A standard RJ11 cable will damage the Cable Master 600/650's RJ45 jack)
- Press the enter button to display the cable test menu. The Cable Master 600/650 will automatically perform a test upon entering the cable test menu.
- To test coax or telephone cable, press the coax or telephone soft key.  
If a remote is NOT being used (one ended test), the Cable Master 600/650 will test the length of each pair, opens, shorts, or split pairs. Performing a one ended test will not verify connectivity on the opposite end of the cable.
- If a remote is being used, connect the remote to the opposite end of the cable.
- To calibrate the VOP, connect a known length of cable to the Cable Master 600/650 and press the up/down/left/right buttons to increase or decrease the VOP. Press the left and right buttons to select and change the VOP one digit at a time.
- While adjusting the VOP, press the test button until the desired length of the cable is displayed.
- To save the calibrated VOP, enter the settings menu and press the Save soft key (note: your adjusted VoP will be displayed next to the RJ45 or Coax icon).
- Press the green test button or the loop mode soft key  to perform additional  tests.
- To save a cable test, press the save icon .
- Use the arrow buttons and the enter button to name the cable test file.
- Press the Save icon  to save the cable test file.

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NETWORK / POWER OVER ETHERNET (POE) TESTING

Power over Ethernet or PoE describes a specification which allows passing of electrical power along with data on Ethernet cabling.

There are two standardized specifications the IEEE 802.3af, and IEEE



802.3at also known as PoE+. The first provides a maximum 12.95 Watts, and the second provides a maximum of 25.5 W.

PoE also has two modes A and B. Mode A uses pins 1 and 2 for the positive voltage and pins 3 and 6 for the negative voltage. Mode B uses pins 4 and 5 for the positive voltage and pins 7 and 8 for the negative voltage.

The Cable Master 600/650 tests to see if either PoE or PoE+ is present. If it is detected It then activates it and tests the voltage under minimum and maximum current load, and displays the result. The Cable Master 600/650 will also display which PoE mode is found.

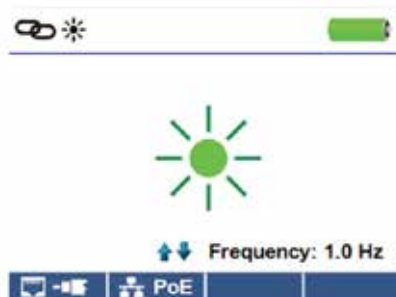
While PoE is activated, the Cable Master 600/650 also communicates and displays the Link Status and Link Capability status.



PoE	
Link Capability	Link Flow Control
10Base-T	Full / Half Duplex
100Base-TX	Full / Half Duplex
Connected at	
100 Base-TX	PoE A 12.95W Max
MDI FDX	57.9 V Min Load
	56.5 V Max Load

- Power on the Cable Master 600/650
- Connect the Cable Master 600/650 to a switch or active network jack.
- Use the left or right arrow button to select the Network/PoE icon and press the enter button or press the Network/PoE soft key.
- The Cable Master 600/650 will automatically detect and display link capability, connection speed, PoE mode and PoE Min/Max voltages.
- To perform a Network Test only, press the PoE soft key. 
- To save the PoE data, press the Save soft key. 
- Use the arrow buttons and the enter button to name the PoE file.
- Press the Save soft key to save the PoE file.

LINK LIGHT

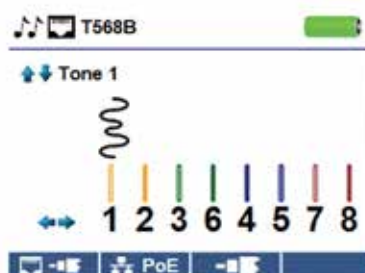
The Link Light test is used to help identify a hub or switch port.




- Power on the Cable Master 600/650.
- Connect the Cable Master 600/650 to an active Network cable or port.
- Press the Network/PoE soft key  then press the Link Light soft key.
- The Link Light will automatically begin upon entering the Link Blink menu. 
- The Link LED above the LCD screen will flash at the same cadence as the port light.
- Use the up and down arrows to adjust the transmit frequency to suit the switch characteristics.


TONE GENERATOR

Tone generation is used to trace cable runs and locate faults by sound. Selection of this mode emits a cadence from the Cable Master 600/650 through the connected cable. The tone is detected by a tone tracer probe (Cable Tracker probe), sold with the CableMaster 650 or separately.



- Power on the Cablemaster 600/650.
- Use the left or right arrow buttons to select the tone generator icon  and press the enter button.

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- The CableMaster will automatically activate the tone generator upon entering the tone generator menu.
- Connect your cable to either the RJ45 jack or coax connector located on the top of the Cable Master 600/650.
- To switch between network and coax cables, press the coax cable/ RJ45 soft key .
- Press the up or down arrow buttons to select tone cadences 1 thru 4.
- Press the left or right arrow buttons to select which pin or pair to place the tone.
- Use a tone probe (Cable Tracker) alongside the cable or at the end of the cable to hear an audible tone.


CABLE MASTER 600/650 PC SOFTWARE

The Cable Master 600/650 PC Software gives you the ability to view, save and print cable and network test results on your computer. This application can also update your Cable Master 600/650's firmware.

To install the Cable Master 600/650 PC Software

- Go to <http://itnetworks.softing.com/en/downloads/download-center.html> to download the Cable Tester software application.
- Save the "Cable Tester Software.zip" file to your computer's desktop. Double click on the zip file to open it.
- Double-click on "setup.exe" to begin the installation.

To view test results on your computer

- Open the Cable Master 600/650 application .
- Connect the Cable Master 600/650 to your computer with the included USB cable.
- Power on the Cable Master 600/650  . The software will display "Tester connected" at the bottom left of the screen.
- Click the "Read Cable Tester" icon to read the test results. The cable names will be displayed on the top left of the screen. The first cable name will automatically be selected and displayed at the top right.
- Click on the cable IDs on the left of the screen to view test results for that ID.
- You may delete a single test by selecting it and "Delete", or to delete the entire test list click on "Delete All Tests."

To save the cable results to your computer

- Click on “File” on the tool bar at the top left.
- Click on “Save File.” A “Save As” dialogue will appear; navigate to where you want to save the test results and click “Save.” You can also rename the file in the “Save As” dialog window. The computer software application will remember the last place you saved a file.

To read previously saved cable tests

- Click on “File,” “Open,” and select the desired test result file.
- After tests have been saved, they will automatically be reloaded the next time the Application is opened.

To write cable tests to the Cable Master 600/650

- Connect the Cable Master 600/650 to your computer using the included USB cable.
- Open the Cable Master 600/650 software application. Click on “File”, “Open”, and select the desired cable tests.
- Click on “Write Cable Tester” and the contents of the currently displayed tests will be written to the Cable Master 600/650.

To print a test

- Select the desired test.
- Click on “File,” “Print”

To create and print test results report

- First select the tests to be included in the report in the Test Results List box. To select multiple tests do one or more of the following.
- Click on a test and drag to the end of a range of tests.
- Click on the first desired test, then Shift click on the last desired test
- Press the Control Key and click on a test to add or delete it from the selected tests.
- Select “Create Report Pdf” under the File menu.
- When a Dialog box comes up, select the file name and location for the Pdf file to be saved.
- Select “Create Report Pdf” or “Create Report CSV” under the File menu.
- When the Dialog box appears, select the file name and location for the Pdf or CSV file to be saved.

Note: Columns and Rows may need to be adjusted to view all of the data when CSV files are opened with Excel.

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MAINTENANCE

Batteries

- The Cable Master 600/650 is powered by six AA alkaline batteries.
- To replace batteries, open the back cover by unscrewing the single screw with a philips head screwdriver.
- Take out the old batteries and replace. Slide the new batteries in by following the directional guidelines in the battery chamber.
- Screw the back cover back on to the Cable Master 600/650. Do not over tighten the battery back cover.

Warning: Do not use carbon batteries. Do not mix new batteries with old batteries, due to the risk of battery leakage.


Cleaning

- Use a clean, damp cloth to clean the Cable Master 600/650.
- Before cleaning, disconnect all cables from the Cable Master 600/650. Failing to disconnect cables can damage the device and cause personal injury.
- Do not use harsh cleaners, abrasives, or solvents.

Storage

- When not in use, store the Cable Master 600/650 in a dry, protective case.
- Batteries should be removed if the device is stored for a long time.
- Do not expose the Cable Master 600/650 to high temperatures or humidity. See the specifications section for temperature limits.

SPECIFICATIONS

Specification	Description
Measurement Technology	Time Domain Reflectometry (TDR) Cable Testing and ID: up to 1000 ft (305 m)
Cable Measurements	Split Pair Detection: 3 ft (1 m) to 1,000 ft (305 m) Length Measurement: 0 to 1,500 ft (457 m), \pm (5%+1ft) Supports 8 continuity and ID number remotes (RJ-45)
Power over Ethernet	Supports 20 RJ-45 and 20 F-Connector ID only remotes Tests for IEEE 802.3af and IEEE 802.3at (PoE Plus) compliant PoE Tests for classes and loads cable up to 25.5 watts
Active Ethernet	(at mode 4) Identifies Mode A or B (pairs with Pinode) cat5e/6 advertised speeds of 10/100/1000base-t half or full duplex
Maximum Voltage	Can Link to network at 10/100base-t Parameters refer to the maximum voltage that can be applied to any 2 connector pins without causing damage to the tester. <ul style="list-style-type: none"> • RJ Jack: 66 VDC or 55 VAC • F-connector: 50 VDC or VAC
Save Test Results	Stores up to 256 Cable or network tests with user
Tone Generation	Tone Frequencies: 730 Hz and 1440 Hz
Languages	English, French, Spanish, German
Battery Life	For 6 x AA, 9 VDC, 2,200 mA-hr (typical) alkaline battery: operating – 20 hours typical Battery Life Standby – 1.5 years typical (200uA max standby current) Batteries are included
Altitude	10,000 ft (3048 m) operating
Temperature	Operating: 32 to 122°F (0 to 50°C) Storage: -22 to +140°F (-30 to 60°C)
Stockage	-30 à 60 °C
Humidity	10 to 90% non-condensing
Enclosure	High-strength PC/ABS plastic with V0 rating with boot Withstands 4 foot drop on to concrete
Size	1.85"H x 3.6"W x 6.8"L (4.7 x 9.15 x 17.3 cm)
Weight	With batteries: 1 lb 2 oz (510 g)
Safety Compliances	
Warranty	1 Year

CableMaster 600/650

CUSTOMER SERVICE

CONTACTING SOFTING IT NETWORKS

For technical information and support please contact the Softing Office in your country. Please see the last page of this manual or go to <http://itnetworks.softing.com>.

ADDITIONAL ACCESSORIES

Table 8 below lists the additional accessories that are available for purchase through Softing IT Networks GmbH. Contact Softing IT Networks GmbH for more information via email info.itnetworks@softing.com.

WARRANTY

Softing IT Networks GmbH warrants that the product shall be free from defects in parts or workmanship for a period of 12 months from the date of purchase if used in accordance with Softing IT Networks GmbH operating specifications.

THIS IS THE ONLY WARRANTY MADE BY Softing IT Networks GmbH AND IS EXPRESSLY MADE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Should any parts or workmanship prove defective, Softing IT Networks GmbH will repair or replace at Softing IT Networks' option, at no cost to the Buyer except for shipping costs from the Buyer's location to Softing IT Networks. This is Buyer's SOLE AND EXCLUSIVE REMEDY under this Agreement. This warranty does not apply to products which have been subject to neglect, accident or improper use, or to units which have been altered or repaired by other than an authorized repair facility.

For European-Customers:

Return of Equipment – To return a product to Softing IT Networks GmbH, first obtain a Return Authorization number from our Customer Service by calling +49-89-45656660.

The RMA# must be clearly marked on the shipping label.

To: Softing IT Networks GmbH
Richard-Reitzner-Allee 6
85540 Haar
Germany
RMA-Nr. XXXXXX

For North American-Customers:

Return of Equipment – To return a product to Softing inc, first obtain a Return Authorization number from our Customer Service by calling +1.865.251.5252.

The RMA# must be clearly marked on the shipping label.

To: Softing Inc.
7209 Chapman Highway
Knoxville, TN 37920
USA
RMA-Nr. XXXXXX

For ASIA/PACIFIC-Customer:

Return of Equipment - To return a product to Softing Singapore PTE LTD, first obtain a Return Authorization number from Our Customer Service by calling +65-6569-6019. The RA# must be clearly marked on the shipping label.

To: SOFTING SINGAPORE PTE. LTD.
3 SCIENCE PARK DRIVE
#03-09 THE FRANKLIN
SINGAPORE SCIENCE PARK 1
SINGAPORE 118223
RMA# XXXXXXXX

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For technical information and support please contact the Softing office in your country.

<http://itnetworks.softing.com>