



LVPRO40

10Gb Multifunctional Low Voltage Cable/Network Tester



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1.Introduction

- The Cable/Network Tester analyzes wiring on phone, computer network and coax cables in one easy step.
- The large backlit LCD display maps out connections and describes wiring faults.
- The built-in tone generator and the included Video and Data remote identifiers can be used to quickly locate cables in wiring closets and patch panels.
- In addition, we have added many practical functions, you can get the voltage on telephone wire and the POE voltage, you also can locate a cable connection to a switch port by blinking the switch's Link LED and the tester will display the advertised speed of the port and the cable pairs used to transmit.
- The Cable/Network Tester measure cable distance to open or short (TDR), and perform detailed wire-mapping including Skew, Delay & Ohms.
- Measures network speed capabilities
- Store and print up to 250 Reports.
- With proper use, this tester will provide many years of reliable service.

2.Safety

WARNINGS

- Do not connect the tester to a live circuit, exposure to voltage can damage the tester.
- Do not modify or try to repair the tester, no serviceable parts are inside.
- Do not use the tester in a wet environment or during electrical storms.
- Do not use the tester near explosive gases, dust or vapor.
- Visually inspect an RJ plug before inserting it into the tester, poorly terminated plugs may damage the jacks on the tester.

Specifications

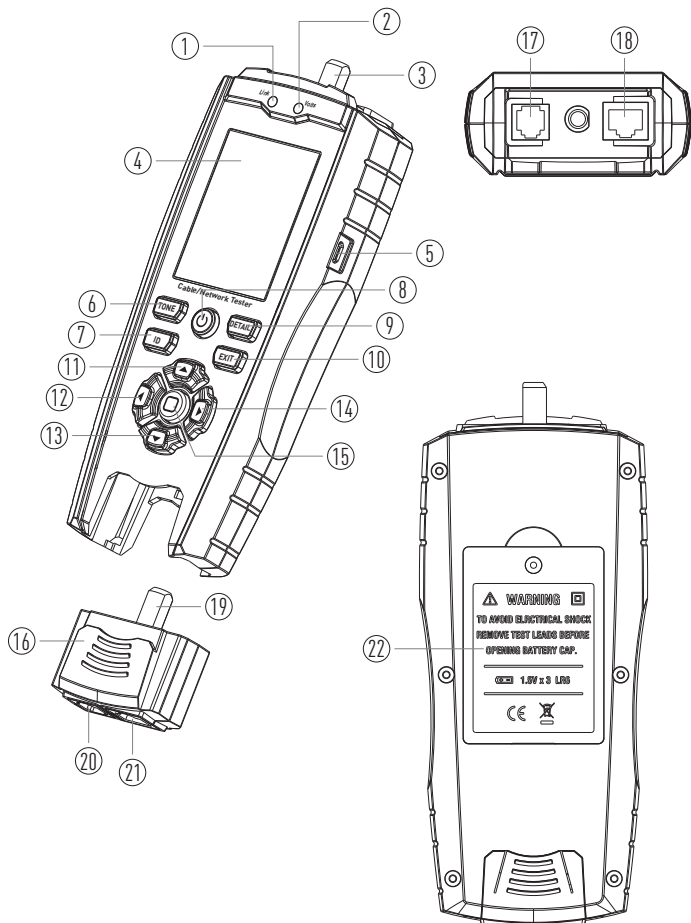
Model	LVPRO40
Operating Temperature	32 to 122°F (0 to 50°C)
Storage Temperature	-4 to 140°F (-20 to 60°C)
Humidity	10% to 90%, non-condensing
Display	2.8" Graphical Backlit Display
Maximum Voltage	100V DC or 70V AC
Batteries	(3) AA 1.5V alkaline batteries
Cable Types	Shielded and unshielded twisted pair, all cable categories, Coax, Telephone, Speaker and Alarm
Cable Testing Parameters	Opens, Shorts, Reversals, Split Pair, Wire Map, Propagation Delay, Skew, Ohms, Length and distance to fault
Length Measurement Range	1.5 to 1999ft. (0.5 to 610m)
Length Accuracy	±(2%+1m)/±(2%+3ft)
Maximum Length for Split Pair Detection	1.6 feet (0.5m)
Min RLQ	20 feet (7m)
VOP Calibration	Min cable sample 150ft (50m)
Network Speed Capability	Indicates 10M, 100M, 1G and 10G base T, Half or Full Duplex Speeds
PoE (Power Over Ethernet)	Tests for Passive PoE up to 60V; Identifies Modes A, B and 4-Pair
Tone Generation	1200Hz, 1000/1500Hz
Data Storage/# of Measurements	250
Auto Power Off (APO)	10 minutes
Dimensions	3.1" x 7.3" x 1.5" (7.82 x 18.65 x 3.78cm)
Weight	9.2oz (260g) with batteries

4. Description

4-1. Meter Description

1	Link LED	If an active port is connected, the LED will light up during the network speed test.
2	Volt LED	If the device port is connected to a high voltage, this LED will light up.
3	Video-F Connector	Port for connecting coaxial cable.
4	LCD Display	Display the operation interface and measurement results.
5	Micro USB Interface	Connect to the computer to view saved data.
6	TONE Button	Transmit analog tones on the wires of the terminated cable for positioning the wires.
7	ID Button	You can locate the wires by the remote IDs, the number that appears corresponds to the number on the Remote ID.
8	Power/Backlight Button	Short press to adjust the backlight, long press to turn off the machine when turning on.
9	DETAIL Button	Press to view more information during cable testing.
10	EXIT Button	Exit the current functional test.
11	Up Button	Use the Left/Right arrows to select the cable or cabled device that you are working with.
12	Left Button	
13	Down Button	Use the Up/Down arrows to select the specific test or the specific device to be tested.
14	Right Button	
15	OK Button	Determine actions and save results.
16	Detachable Remote	Used for testing cables.
17	Voice-RJ11/RJ12 Jack	Port is commonly used to connect phone lines.
18	Data-RJ45 Jack	Port for connecting network cables.
19	Video-F Connector	Port for connecting coaxial cable.
20	Voice-RJ11/RJ12 Jack	Port is commonly used to connect phone lines.
21	Data-RJ45 Jack	Port for connecting network cables.
22	Battery Cover	

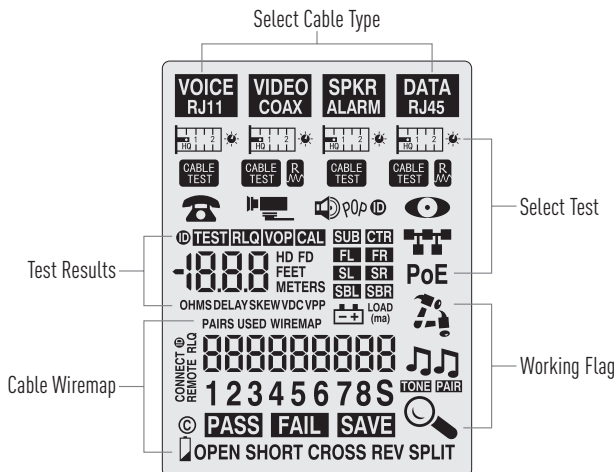
Note: If you press the **EXIT** Button and **Down** Button hold the 1 seconds, you can choose whether to turn on the buzzer.



4-2. Symbols Used on LCD Display

	Length Test	You can get the length of the cable and distance to open or short.
	VOP Adjustment Knob	The tester has adjustable VOP so you can tune the tester to the cable, most people stick to the default values.
	Cable Test	Include cable diagram, Pass/Fail, timing (delay, skew) and impedance (ohms), the wiring diagram will be displayed in the area below the LCD.
PASS		Indicates proper wiring on cable being tested.
FAIL		Indicates wiring error on cable being tested.
OPEN		Appears when one or more pairs are open.
SHORT		Indicates that two or more wires are shorted to each other.
CROSS		Appears when the tester detects a properly wired cross over cable.
REV		Indicates the connections on one or more pairs is reversed at one of the cable.
SPLIT		Appears when the tester detects the signal is split between two or more pairs.
SAVE		Save the test data.
	Return Loss Quality Test	Return Loss Quality tests for load mismatches that affect the wire's power and data transfer capability. It is a powerful quality test that should be used if quality problems are suspected with the cable. The RLQ test works with DATA cables and VIDEO cables.
		Detect central office telephone connections (48V), display voltage and cable location.
	CCTV/Vpp (peak to peak voltage) Test	CCTV systems require approximately 1Vpp to the DVR for reliable recording, it measures and displays the Vpp of video signal, perfect for quick debugging of CCTV systems.
	Speaker Popper	Locate speakers by audibly "popping" them, connect the alligator clips to the loose speaker wires using the RJ45/Clips adapter, the speaker will make and audible popping sound.
	Alarm Battery Test	Test alarm system and other backup batteries by doing a loaded battery test, better than a voltmeter test because this test places a 100mA load on the battery.

	Port Blink Cable Detection	Locate a cable connection to a switch port by blinking the switch's Link LED, the green link LED on the switch will slowly blink so you can locate the cable end, port's green link LED will blink.
	Advertised Speed/Pairs Used	Plug into any active port (computer, switch, VoIP, access point) and display its capabilities (10,100,1000 HD, FD) and the cable pairs used to transmit.
PoE	Power Over Ethernet/ Pairs Used	Detect PoE voltage and display its amplitude and location on the cable (midspan, endspan or both).
		Hammering says the test is active.
	Tone Cable Detection	Locating the far end of a cable, place a tone on the near end of the cable with the unit.
	Details available	When conducting cable testing, you can see more message, when lit, press Details glass (and use down arrow to show more results).



5.Operation

5-1.Length Test

- 1.Press the **Power** Button to turn tester on.
- 2.Connect one end of the cable to the appropriate port, located at the top of the main tester body, leave the other end of the cable unterminated.
- 3.Select the Length icon " below the test cable and press the **OK** Button to enter Length mode.
- 4.Press the **Up** Button and the **Down** Button repeatedly to select the pair of wires that should be measured, the first functional pair is chosen by default.
- 5.Press the **Left** or **Right** Buttons to switch units (feet and meters).
- 6.Read the length measurement as shown.

Note: A voice or data cable under test can be unterminated (open) or terminated by an RJ45 remote, if it is terminated by the self-storing remote, the reading will be 1 to 2 ft. greater than the actual measurement, in this case, subtract 1 to 2 ft. from the reading to obtain the actual measurement.

- When you move the cursor to the Length icon for each of the cable types, you can see the VOP value, VOP (Velocity of Propagation) is typically represented as a percentage of the speed of light, as an example, a VOP of 67% means the velocity of the cable is 67% of the speed of light, the VOP value is the foundation of length measurement accuracy.
- There are two ways to change the VOP value, each cable type has its own VOP, use the VOP Adjustment Knob icon (to the right of the Length icon) to set the length constant based on a known value (for example, as given by the cable manufacturer) (use the VOP icon) or let the unit determine the VOP of your cable by connecting a sample of the cable to the unit(use the CAL icon).
- Adjust manually ("VOP") or Calibrate ("CAL") the tester from a known length of cable (no remote connected), minimum length required 100" (35m), use the Left/Right arrows to select method you want, use the Up/Down to change the value, when you use the CAL icon, you can use the Left/Right arrows to change the value added each time, finally you can press the OK Button to save the VOP value that you set.

5-2.Cable Test

- 1.Press the **Power** Button to turn tester on.
- 2.Connect one end of the cable to the appropriate port, located at the top of the main tester body, connect the other end of the cable to the corresponding port on the remote.
- 3.Select the Cable Test icon " " below the test cable and press the **OK** Button to start the test.
- 4.Then the test result will display: Pass/Fail, Wire map, Opens, Shorts, Split Pairs, the min length of the cable, when both ends of the tested network cable are connected with shielding, "**S**" is displayed.
- 5.When the Details glass lit, press the **DETAIL** Button and use down arrow to show more results, press the **OK** Button to save the data for this measurement.
- 6.Press the **EXIT** button when done.

5-3.RLQ Test

- Return Loss Quality tests for load mismatches that affect the wire's power and data transfer capability.
 - It is a powerful quality test that should be used if quality problems are suspected with the cable.
 - The RLQ test works with DATA cables and VIDEO cables.
- 1.Connect cable to Main unit and green RLQ Remote.
 - 2.Select and start Test APP " ".
 - 3.View test results, the result is displayed as a single integer of 0, 1, or 2, "0" indicates the cable measures as if it is unterminated, "2" indicates it is perfectly terminated, Quality issues can arise in a transmission cable (Cat5/6 or coax) for a variety of reasons, including physical damage caused by crushing or bending the cable too sharply, improper termination, moisture intrusion, etc.

5-4.Phone Devices Test

Use: Detect central office telephone connections (48V), display voltage and cable location.

- 1.Connect the cable to the RJ11/RJ12 connector on the unit.
- 2.Select the Telephone APP " " and start the test.

Result: The unit scans the 6 pins and displays up to 3 pairs of central office connections; the pairs used (typically 3,4; 2,5; and 1,6); and the amplitude of voltage on each pair.

5-5.Video Devices Test

CCTV systems require approximately 1Vpp to the DVR for reliable recording, this APP measures and displays the Vpp of video signal, perfect for quick debugging of CCTV systems.

- 1.Connect the CCTV camera video output to the coax connector on the Unit.
- 2.Select the Camera icon " " and press OK.
- 3.The voltage LED will light and voltage is displayed when connecting a valid cable.

Note: The voltage display varies with the whiteness of the camera's image.

Note: The CCTV/Vpp APP can also be used to detect CATV (cable TV) signals, but some CATV signals may be too small for the unit to detect.

5-6.Speaker/Alarm Devices Test

Use these Test APPS if you are working with speakers, Dolby surround sound installations, or testing the quality of alarm batteries, the operation is the same for all APPS.

- 1.Connect the RJ45 jack to the speaker wires or alarm battery using the RJ45/alligator clips.
- 2.Select and start Test.
- 3.Hammering says it's active, EXIT returns to menu.

5-6-1.Speaker Popper

Use: Locate speakers by audibly "popping" them.

- 1.Connect the alligator clips to the loose speaker wires using the RJ45/Clips adapter included
- 2.Select the icon " " and press OK.
- 3.Result: The speaker will make an audible popping sound

5-6-2.Alarm Battery Test

- Test alarm system and other backup batteries by doing a loaded battery test, better than a voltmeter test because this test places a 100ma load on the battery.
 - 1.Use RJ45/Alligator clips to connect the battery to the RJ45 port.
 - 2.After test starts, the battery voltage will be displayed on the screen, and there is no load applied at this time.
 - 3.Pressing the **OK** Button puts a 100ma load on the battery, the icon will flash.
- For the battery to be OK, the battery voltage should remain stable after the load is applied.

5-7.Network Device Testing

Use these Test APPS if you are working with switches, NIC cards, PoE, IP cameras, VoIP phone and access points... any computerized device, the operation is the same for all APPS.

- 1.Connect the RJ45 jack to the device (use included patch cable).
- 2.Select and start Test.
- 3.Hammering says it's active, EXIT returns to menu.

5-7-1.Port Blink Cable Detection

- 1.Select the icon " " to locate a cable connection to a switch port by blinking the switch's Link LED.
- 2.The green link LED on the switch will slowly blink so you can locate the cable end.
- 3.In order to distinguish it from the flashing green light that operates normally, we provide a second flashing frequency, press the Down Arrow Button, and the green light will flash once every 5 seconds, at this point, "t2" will be displayed on the screen, the Up and Down arrows can switch the flashing frequency.

5-7-2.10/100/1000/10000Mbase-t Detection/Advertised Speed/Pairs Used

- 1.Plug into any active port (computer, switch, VoIP, access point) and select the icon " " to start the test.
- 2.Then the unit will display the advertised speed of the port (10,100,1000.,10000 HD, FD) and the cable **pairs used to transmit**

5-7-3.Power Over Ethernet/Pairs Used

- 1.Select the icon "**PoE**" to detect PoE voltage and display its amplitude and location on the cable (midspan, endspan or both).
- 2.Press the **OK** Button to start the test and the PoE voltage will display (just like a voltmeter) as are the cable pairs used (1,2 3,6 or 4,5 7,8 or both).

5-8. Tone Cable Detection

Locating the far end of a cable, place a tone on the near end of the cable with the unit and detect it on the far end with a Tone Probe (available separately).

1. Plug the cable to be "toned" into the socket.
2. Select the proper cable type and then press the **TONE** Button.
3. Choose from 3 tones (up or down arrow) and/or the pairs that you wish to tone (right arrow and select "Pair" and down arrow to scroll through pairs).
4. Detect tone on the far end using a tone probe.
5. Press EXIT when done.

5-9. Wall Jack Identifiers

Large wiring jobs end up with unlabeled runs, plugging these wall jack identifiers into each socket makes identifying the wall jack's location a snap.

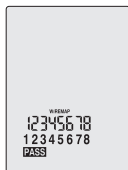
1. Connect the unidentified cable into the correct jack.
2. Press the button labeled "ID" to start the scan.
3. Press EXIT when done.

6. Wiring and Display Examples

6-1. T568B Data Cable Properly Wired

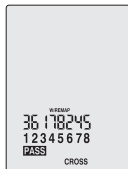
- PASS appears on the display indicating a properly wired cable.
- The pin numbers on the top row agree with the bottom row indicating proper continuity.

Note: Both the T568A and T568B wiring standard will test the same as long as the same standard is used on both ends of the cable.



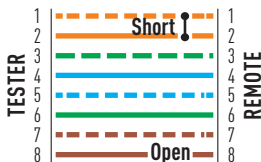
6-2. T568B Cross Over Data Cable Properly Wired

- The pairs cross over (transmit to receive and receive to transmit).
- PASS and CROSS appear on the display and the pin numbers on the bottom row indicate the corresponding cross over to the pin numbers on the top row.



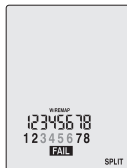
6-3. T568B Data Cable with a Shorted And Open Pair

- Pins 1 and 2 are shorted and the pair on pins 7 and 8 is open.
- FAIL, OPEN and OPEN appear on the display and the pins with wiring errors will flash, the dash will appear above the short circuit pin, and the blank will appear above the open circuit pin.



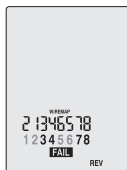
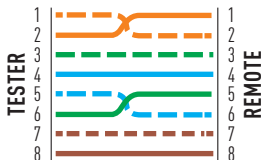
6-4. T568B Data Cable with Split pairs

- There is a split between the pairs on pins 3, 4 and 5, 6.
- FAIL and SPLIT appear on the display and the pin numbers with the split will flash.



6-5. T568B Data Cable with Reversed Pair and Crossed Connection

- The pair on pins 1 and 2 is reversed and the wires on pins 5 and 6 are crossed at one end of the cable.
- Fail will appear on the display indicating a defective cable, the pins with wiring errors will flash.
- Pins 2 and 1 shown above pins 1 and 2 indicate a reversal on the Orange pair; Pins 6 and 5 shown above 5 and 6 indicate a crossed connection.

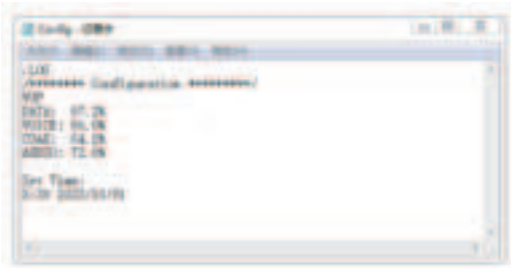


7.Data Export

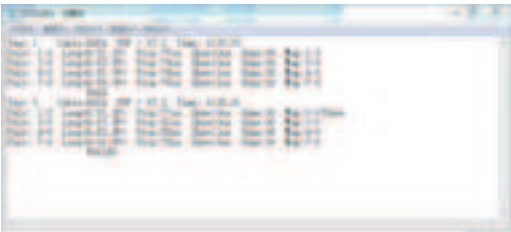
- After test is complete, press the Details button followed by the OK button to save the test, the maximum storage capacity is 250 tests.
- You can connect to the computer through a micro USB cable and display the exported data files in the folder.



- By clicking on the "Config.txt" file, you can set the VOP value of each cable and the time of the machine, save the file to save the settings.
- If you want to delete the saved data, you can directly delete the file and unplug the USB cable again.



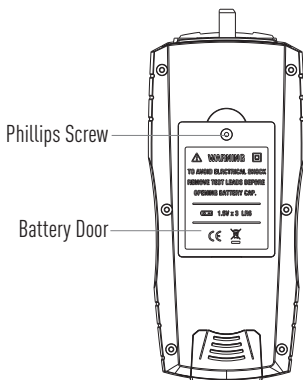
- Other files are saved results separated by dates, after clicking on it, the cable category, VOP, save time, line sequence diagram, length, delay, skew, and impedance will be displayed.



8. Battery Replacement

1. Loosen the one Phillips screw.
2. Lift the battery door compartment, allowing access to the battery compartment.
3. Replace the three AA batteries.
4. Re-assemble the meter.

Note: Do not operate the tester with the battery door removed.



9. Maintenance

This tester is designed to provide years of dependable service, if the following care instructions are performed:

- Keep the tester dry, if it gets wet, wipe it off.
- Use and store the tester in normal temperatures, temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
- Handle the tester gently and carefully, dropping it can damage the electronic parts or the case.
- Keep the tester clean, wipe the case occasionally with a damp cloth.
- Do not use chemicals, cleaning solvents, or detergents.
- Use only fresh batteries of the recommended size and type, remove old or weak batteries so they do not leak and damage the unit.
- If the tester is to be stored for a long period of time, the battery should be removed to prevent damage to the unit.

Warranty

Triplett Test Equipment and Tools extends the following warranty to the original purchaser of these goods for use. Triplett warrants to the original purchaser for use that the products sold by it will be free from defects in workmanship and material for a period of (1) one year from the date of purchase. This warranty does not apply to any of our products which have been repaired or altered by unauthorized persons in any way or purchased from unauthorized distributors or are, in our sole judgment, to injure their stability or reliability, or which have been subject to misuse, abuse, misapplication, negligence, accident or which have had the serial numbers altered, defaced, or removed. Accessories, including batteries are not covered by this warranty.

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