netAlly®

LINKRUNNER™ G2

Smart Network Tester

User Guide

May 29, 2019

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Contact Us

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For additional information and support, visit NetAlly.com/products/LinkRunnerG2 and NetAlly.com/Support.

Register your LinkRunner G2

Registering your product with NetAlly gives you access to valuable information on product updates, troubleshooting procedures, and other services.

To register your product, go to NetAlly.com/Registration.

Introduction



The LinkRunner G2 is an Android-based network testing and troubleshooting tool. It allows networking professionals to easily verify network connectivity and PoE functionality and to validate cabling. LinkRunner G2 can also act as a packet reflector for performance tests run by other NetAlly testers.

About this Guide

This User Guide covers all the LinkRunner G2 (LR G2) testing functionality and basic elements of the Android interface. This guide is meant for users knowledgeable about networking testing operations.

Using the PDF Reader App

A PDF reader application is pre-installed on your LinkRunner G2 device to allow easy navigation of this guide:

- Touch headings in the **Contents** list to skip to the corresponding sections.
- Tap **blue links** to go to their destinations. Underlined blue links open external websites.
- Tap the screen once to show or hide the app toolbars at the top and bottom of the Adobe Reader screen.
- Tap the screen twice to zoom in or out.
- Touch the outline icon  in the upper tool bar to view the guide outline and choose a section to read.
- Also, touch the outline icon  to access any bookmarks or comments you have saved.
- Use the search feature  to find specific terms.

Most Commonly Used Features

Touch the links below to skip to the instructions for the features listed:

"AutoTest" on page 48

"Cable Test" on page 66

"Switch Test" on page 64

"Configuring Test Settings" on page 36

"Home Screen" on page 22

"Reflector" on page 76

"VLAN Monitor" on page 79

"Capture" on page 81

"Wi-Fi Bluetooth USB Adapters" on page 96

Safety

Observe the following safety information:

Use only the AC Adapter provided or Power over Ethernet to charge the battery.

Use the proper terminals and cable for all connections.

To avoid possible electric shock or personal injury, follow these guidelines:

- Do not use the product if it is damaged. Before using the product, inspect the case, and look for cracked or missing plastic.
- Do not operate the product around explosive gas, vapor, or dust,
- There are no serviceable parts. Do not try to service the product.
- If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.

Safety Symbols

	Warning or Caution: Risk of damage to or destruction of equipment or software.
	Warning: Risk of electrical shock.
	Not for connection to a public telephone system.
	Class 1 Laser Product. Do not look into the laser.

Physical Features

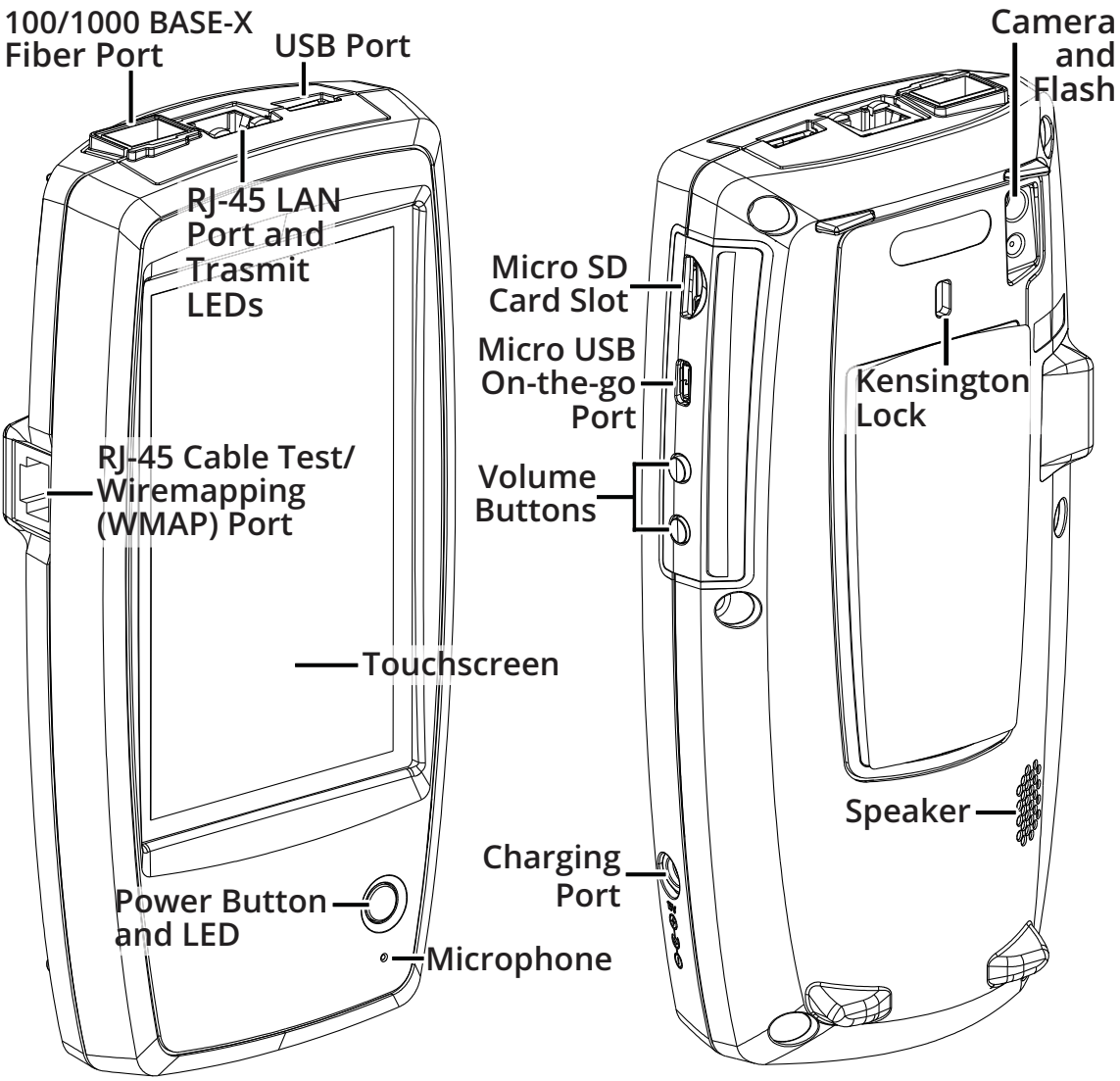
This User Guide section illustrates the ports and buttons on the LinkRunner G2 and describes charging and maintenance.





Buttons and Ports

Button and port functions are described below.



Feature	Description
100/1000 BASE-X Fiber Port	Connects to an SFP adapter and fiber cable Supports 100BASE-FX and 1000BASE-SX/LX/ZX

Feature	Description
USB Port	Connects to any USB device
RJ-45 LAN Port (10/100/1000 BASE-T)	Connects to the network using an Ethernet cable Charges the unit if PoE is available
Transmit LEDs	Green LED lit: Linked Yellow LED flashing: Activity
Cable Test/Wire Mapping Input (WMAP)	Used for patch cable testing
Power Button and LED	Glows green when the unit is powered on Glows red when the unit is charging
Charging Port	Connects to AC adapter for charging
Microphone	Allows voice input
Camera and Flash	Captures images and acts as a flashlight
Micro SD Card Slot	Used for removable storage expansion
Micro USB On-the-Go Port	Connects to a USB On-the-Go cord for communicating with a PC or USB peripheral

Feature	Description
Kensington Lock	Allows you to lock your unit
Volume Buttons	Increase or decrease the audio volume
Speaker	Produces audio

Power and Charging

The LinkRunner G2 contains a rechargeable Lithium Ion battery. You can charge your LR G2 using either AC or Power over Ethernet (PoE). The LinkRunner G2 does not charge via the USB port.

See Buttons and Ports.

Charging

To charge with AC power, plug the included AC adapter into an AC outlet, and connect it to the charging port on the device.

To charge with PoE, connect the RJ-45 port on the device to a network switch with PoE available or with a PoE injector.

NOTE: To charge via PoE, the LR G2 must be powered on or in sleep mode, and PoE must be enabled in the test settings.

Charge the battery for 4-6 hours before first use.

Powering On

- Press the power button on the front of the unit to power on the LinkRunner G2.

- When the unit is on, press the power button to put it in sleep mode.
- To shut down, hold the power button for one second until the “Power off” dialog box appears on the touchscreen, then tap **Power off**.
- To perform a hard power off (without shutting down the software), press and hold the power button for five seconds.

The first time you turn it on, the LinkRunner G2 testing application opens and begins testing your network immediately. Connect the top RJ-45 **LAN** port or **100/1000 BASE-X** Fiber port to an active network to begin receiving test results.

Maintenance

To clean the display, use a lens cleaner and a soft, lint-free cloth.

To clean the case, use a soft cloth that is moist with water or a weak soap.

⚠ **CAUTION:** Do not use solvents or abrasive materials that may damage the product.

Home and Android Interface

This section explains how to use the features of the Android home screen and user interface to navigate and organize your device.

The LinkRunner G2 interface applies many of the operations typical of any Android device. Use swiping touchscreen motions to navigate through screens and to drag down the top notification panel.

Swiping and Navigation

The navigation actions you can perform to move through screens and panels in LinkRunner G2 are the same as those you would use to navigate an Android phone or tablet.

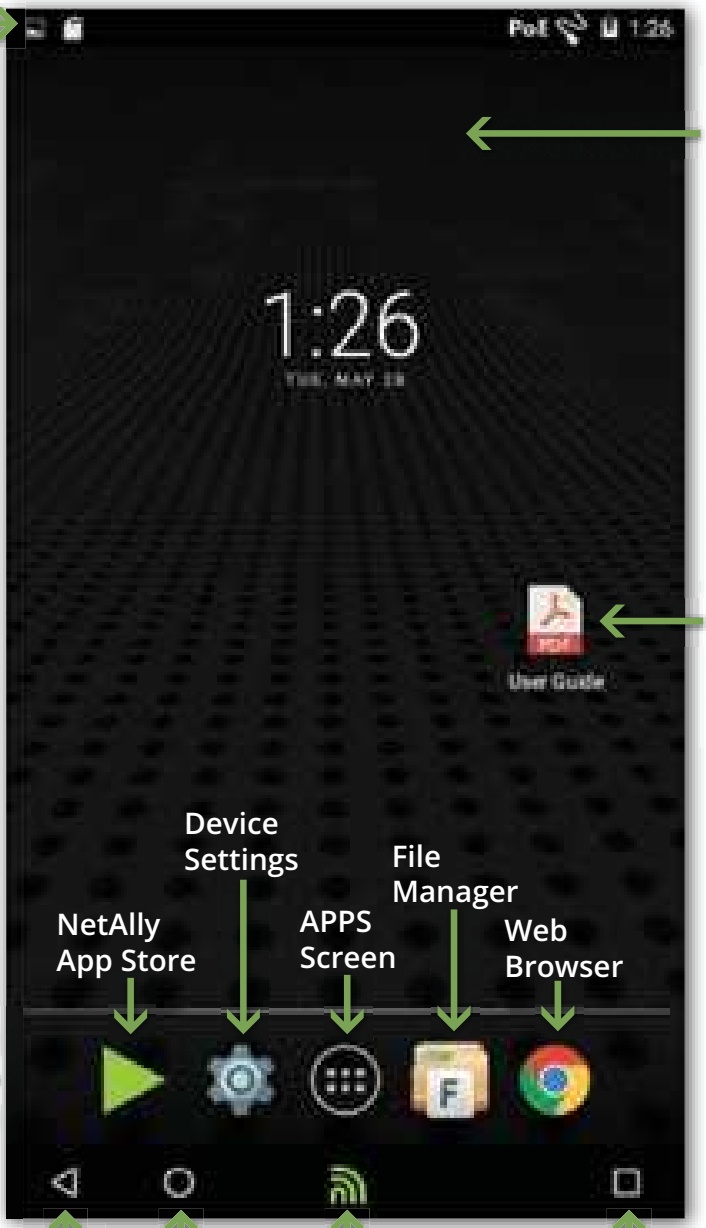
Swiping

Touch and drag your finger or "swipe" up, down, left, and right to move through pages of the Home Screen and LinkRunner G2 testing application, scroll up or down in long screens, and pull out navigation drawers and panels.

Long Pressing

Touch and hold or "long press" files or application icons to reveal additional operations. For example, you can long press a file name in the File Manager Application to show options for moving or sharing the file.

Home Screen


This is the Notification Bar. Swipe down from the top of the screen to open the Top Notification Panel.
This is the Home Screen. Swipe left and right to move through pages.
Go to the APPS Screen to add app shortcuts to your Home Screen.
Tap this icon to view the User Guide.
1:26
User Guide
Device Settings
File Manager
NetAlly App Store
APPS Screen
Web Browser
These are the default Home Screen apps. Touch to open.
Returns to the previous screen.
Returns to the Home Screen.
Opens the LinkRunner G2 testing application.
Tap to view and close all open applications.

Notification Bar

The Notification Bar across the top of the screen displays notification icons from the Android system as well as the following LinkRunner G2 specific icons:

 indicates access to Power over Ethernet for power and charging.

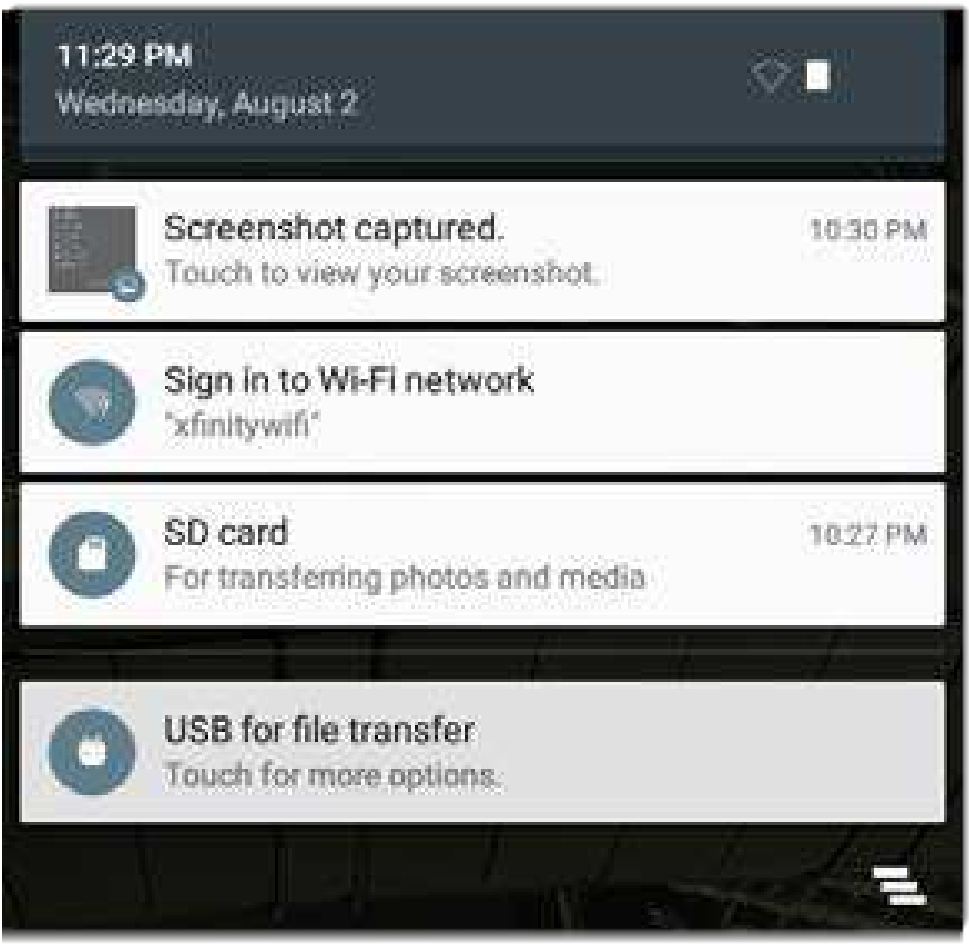
 indicates that a wired Ethernet connection is established.

Touch and swipe down on the Notification Bar to open the Top Notification Panel.

Top Notification Panel

The Top Notification Panel contains notifications from your device, such as downloaded and installed applications, inserted hardware, captured screenshots, and available updates.

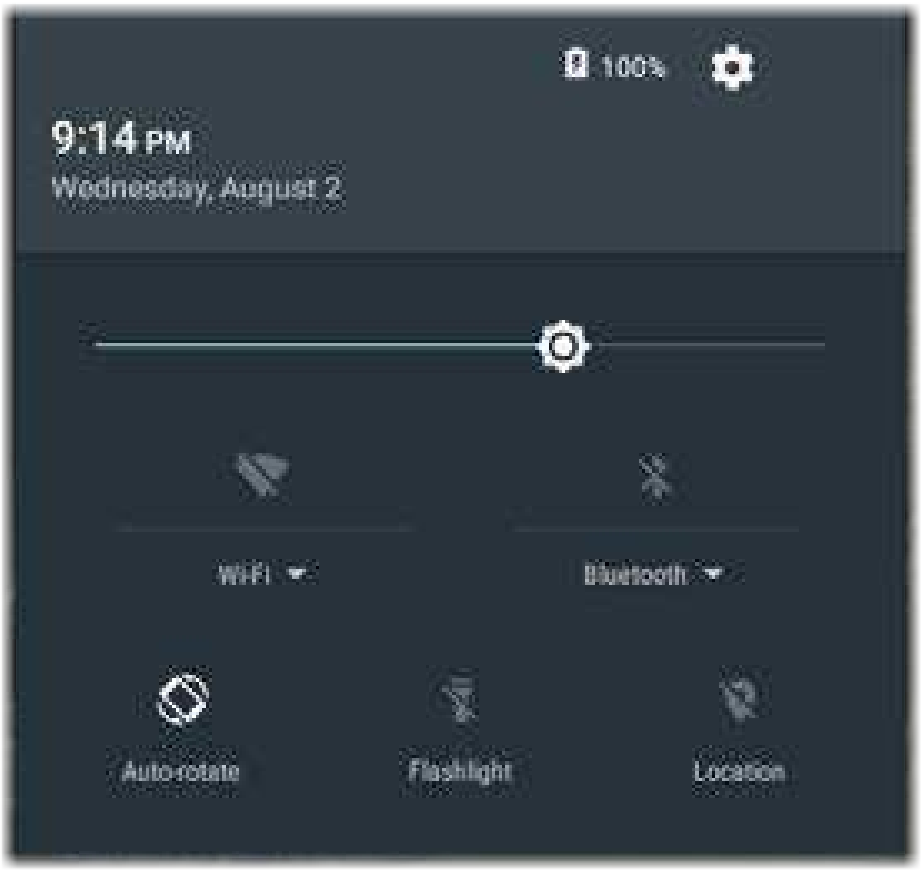
Swipe (touch and drag) down from the very top of the LinkRunner G2 screen to slide down the notification panel.



- Touch a notification to open the related app, image, device options, or perform other actions.
- Swipe left on a notification to dismiss it.
- Touch the  icon at the lower right of the panel to dismiss all notifications.

Quick Settings Panel

The Quick Settings Panel is also accessed by swiping down from the top of the screen. You can either swipe down twice, or touch the dark grey top portion of the notification panel to open it.



Touch an icon in the panel to enable or disable the corresponding feature. See Wi-Fi Bluetooth USB Adapters for more information on using the optional Wi-Fi and Bluetooth adapter accessory.

Apps

Touch the APPS button on the Home Screen to open the APPS screen.

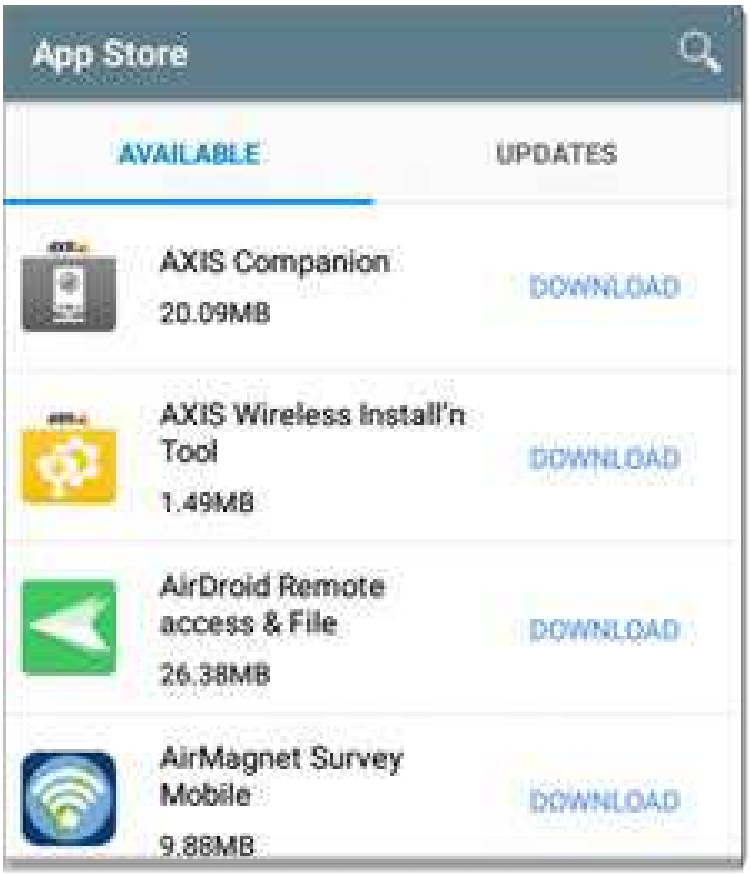


Swipe left or touch **WIDGETS** to view the WIDGETS screen.

Touch and hold (long press) an application's icon or a widget to add it to the Home Screen.

App Store

From the Home Screen or APPS Screen, open the NetAlly **App Store** to download Android applications specifically chosen to work with the LinkRunner G2 tester.

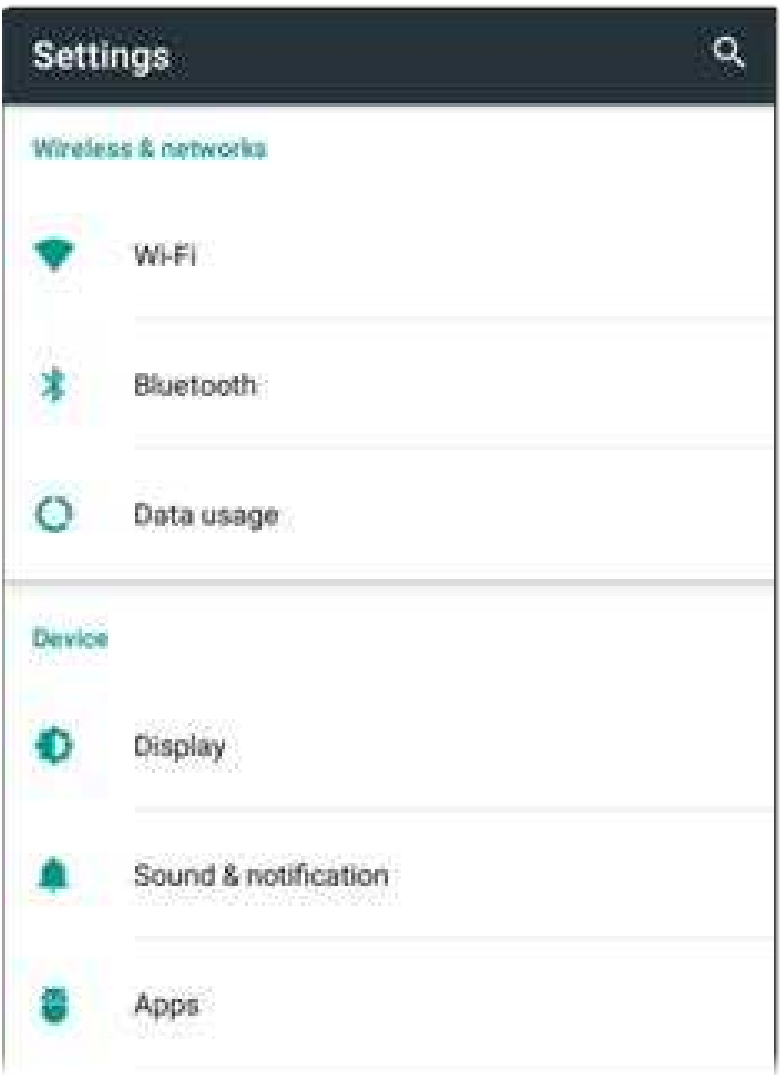


Touch the search icon to search for an App.

To request that an App be added to the App Store, visit the Apps page at Link-Live.com, and select the Floating Action Button (FAB) at the lower right corner to **Request an App**.

Device Settings

To access the Android device settings, touch the Settings icon on the Home Screen.



Use the device Settings screen to adjust the LinkRunner G2 display, sound, date/time, and language, view installed applications and memory devices, update your software, or reset to factory defaults.

Auto Power Off

Activating the Device Auto Power Off function helps to extend the LR G2's battery run time. The default Auto Power Off setting is Never.

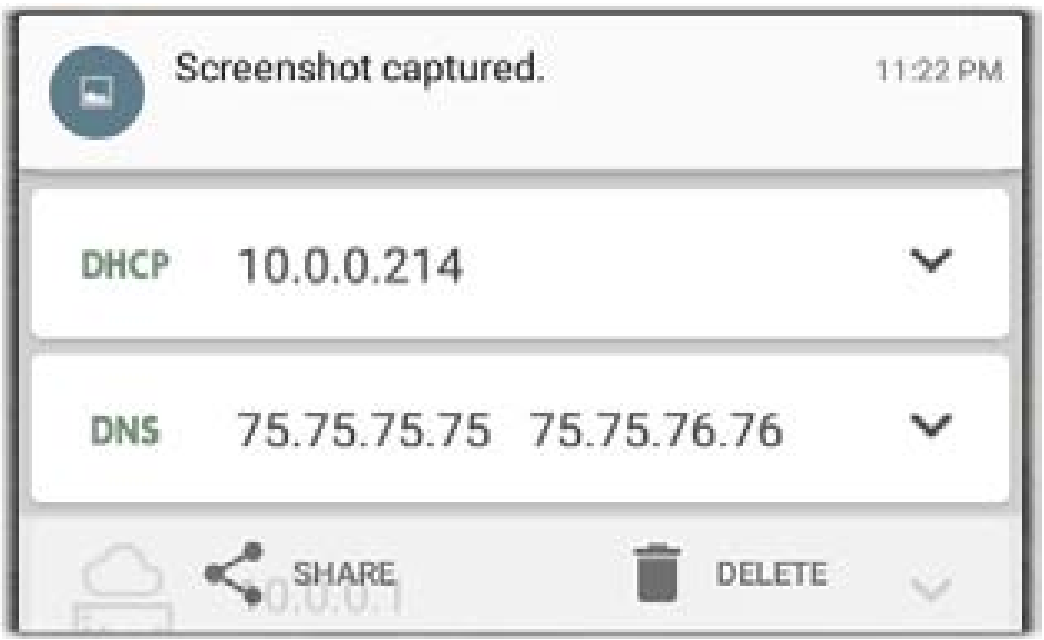
1. From the device Settings , select **Display**.
2. On the Display settings screen, touch **Device auto power off**.
3. In the pop-up dialog box, select how long you want the LR G2 to remain On with no activity occurring. The LR G2 will automatically power off after the selected period of inactivity has passed.

You can also adjust the setting that controls when the LR G2 goes into **Sleep** mode from the Display settings screen.

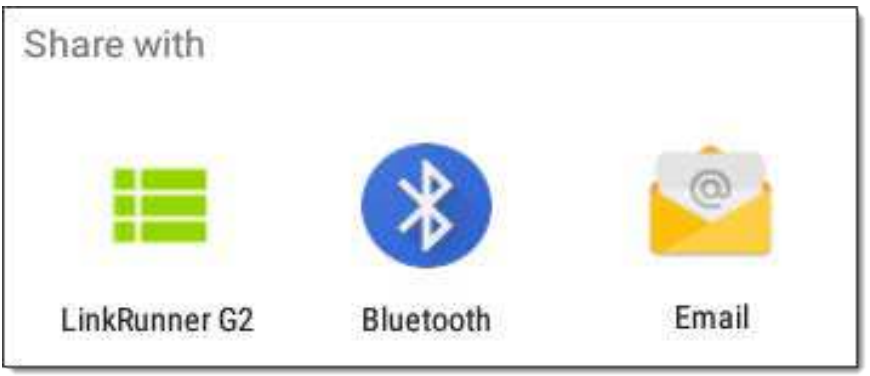
Sharing

LinkRunner G2 allows you to “share” images and files like you would on an Android smart phone. When you see the Share icon , touch it to view your configured sharing options.

This example shows a captured screenshot notification from the Top Notification Panel.



Touching **SHARE** opens the “Share with” pop-up dialog, where you can chose a sharing method, such as email, messaging, or uploading to LinkLive.



Sharing Files to Link-Live

From the "Share with" dialog box, touch the **LinkRunner G2** option to share a file to Link-Live Cloud Service along with your last test result or individually to the Uploaded Files page in Link-Live.

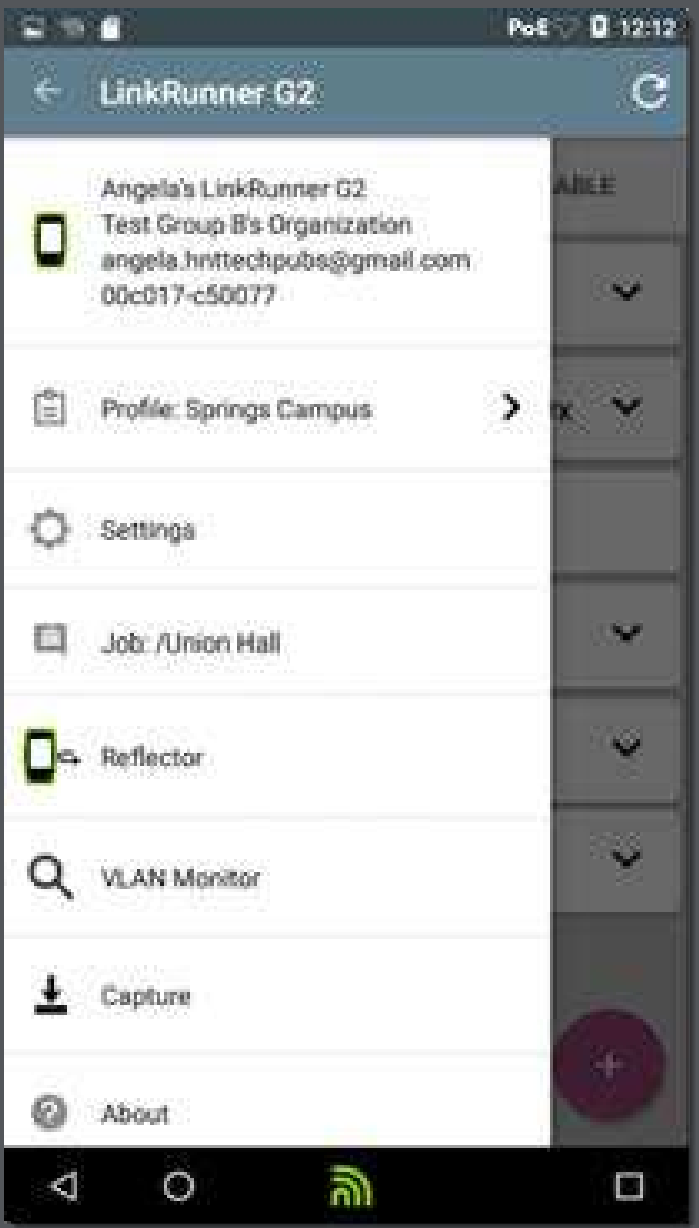


Saving a Screenshot

On the LinkRunner G2, press and hold the **Power** button and the **Volume Down** button at the same time for one second to save a screenshot of the current screen. (See Buttons and Ports for button locations.)

The LinkRunner G2 emits a beep and displays the captured screenshot notification in the Top Notification Panel when it is successful.

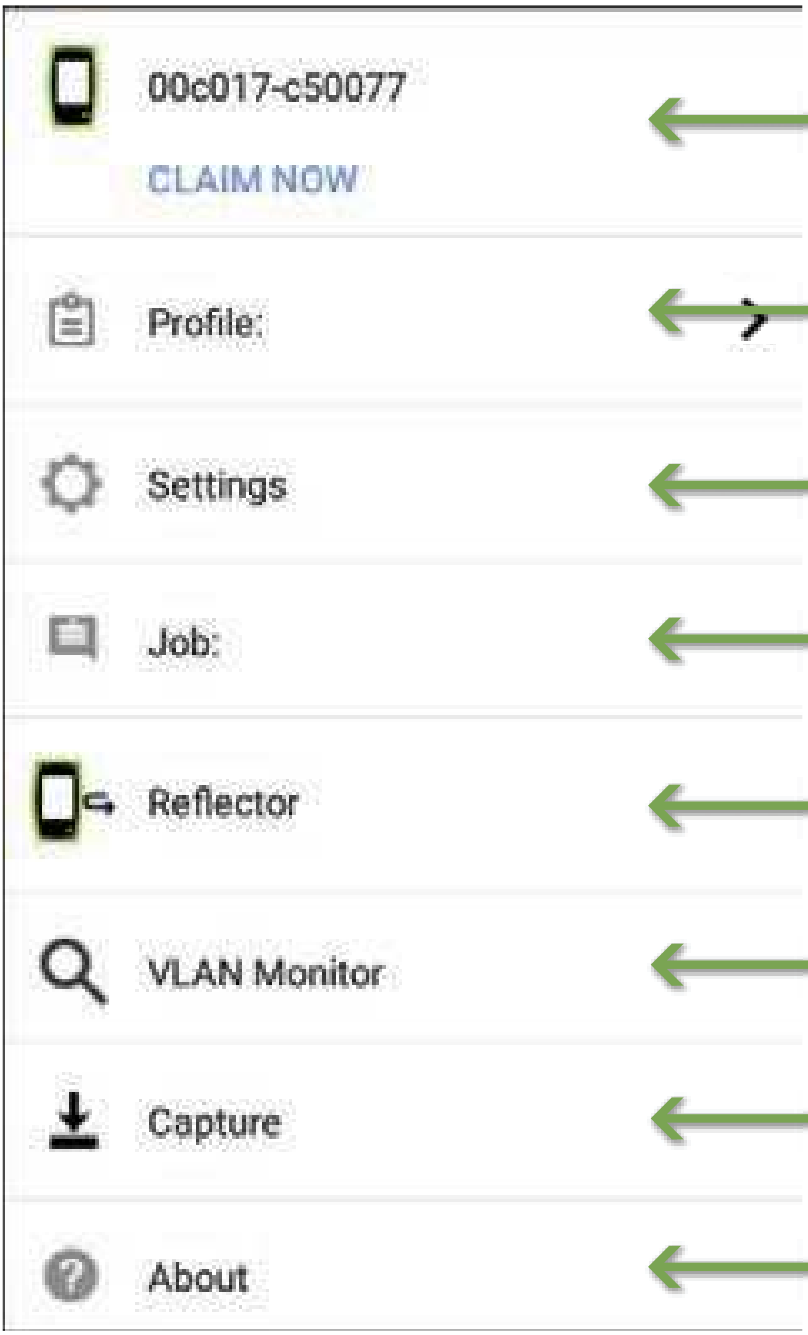
LinkRunner G2 Application Settings



This chapter describes the process for configuring test settings and saving them to a profile.

Left-Side Navigation Drawer

To access the LinkRunner G2 testing application settings, touch the navigation menu icon at the top left of the LinkRunner G2 application screen.



Once claimed to Link-Live, the unit's name and organization display here.

Tap here to open the **Profiles** screen.

Tap here to open the **Settings** screen.

Tap here to enter a new **Job** comment.

Tap here to use the **Reflector** tool.

Tap here to use the **VLAN Monitor** tool.

Tap here to use the **Packet Capture** tool.

Tap here to view information about your unit.

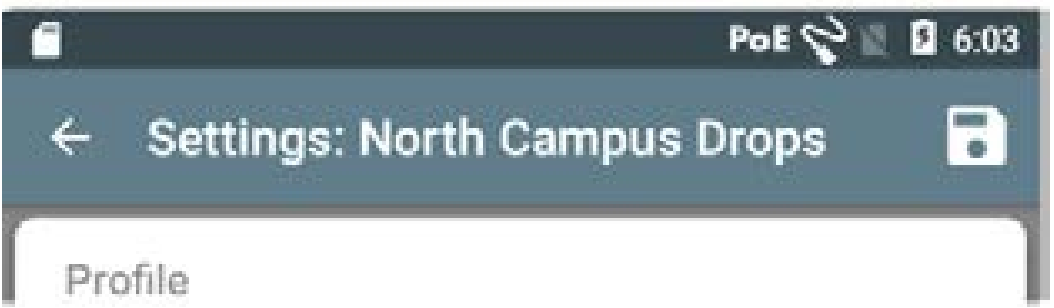
Configuring Test Settings

The LinkRunner G2 settings allow you to customize test settings for PoE, Speed/Duplex, Security, IP configuration, test targets, and other aspects of AutoTest, Switch Test, and Cable Test.

To configure testing for your network, touch the navigation menu icon at the top left of the LinkRunner G2 application screen, and then touch the Settings option.

Saving and Loading Profile Settings

The header on the Settings screen displays the name of the current Profile.

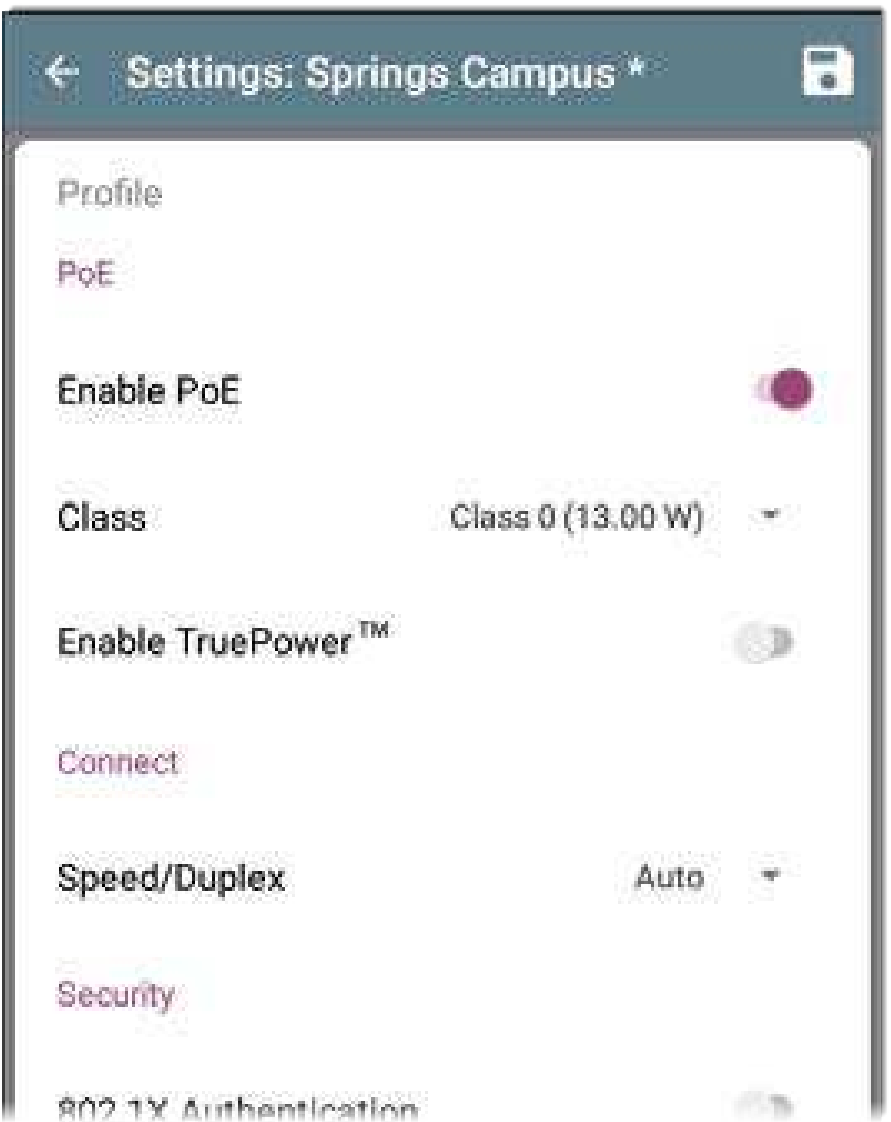


To save your settings to a Profile (and view other options), tap the save icon at the top right of the Settings screen.

To keep your revised settings without saving them to a profile, touch the back arrow icon to the left of the Settings screen header. Your new settings are applied, and an asterisk * is added to the profile name to indicate unsaved changes.

See Profiles and Jobs for more on profiles.

Test Setting Descriptions



PoE

Enable PoE: Slide the toggle switch right to enable the PoE test portion of AutoTest, and slide left to disable it.

Class: Touch the down caret ⌄ to the right of the field to select a PoE class setting to match your switch's (or PoE injector's) available class. The LinkRunner G2 supports Cisco's UPOE, which can provide up to 51 W, as well as 802.3bt classes 5-8. Select the Injector option if you are using a non-IEEE injector.

NOTE: LR G2 may not receive the total wattage advertised by your switch or injector because of power loss over the cable.

LLDP: This field appears if Class 4 (25.50 W) is selected. Class 4 LLDP must be enabled on the switch for AutoTest to detect it successfully.

NOTE: If a switch does not support LLDP and the LLDP setting is enabled on LR G2, LLDP negotiation will fail, but it will not affect the rest of the AutoTest.

Request Power (W): This field appears if the UPOE class is selected. Touch the field to open a

pop-up keyboard and enter the requested wattage.

Enable TruePower™: Slide the toggle switch right to enable the TruePower feature. TruePower validates that the Switch (PSE) and cabling can provide the requested power under load.

Connect

Speed/Duplex: Select the speed and duplex option that you want to test your network against. The default is Auto negotiation.

Security

802.1X Authentication: Slide the toggle switch right to enable 802.1X authentication.

EAP Type: This field appears if 802.1X authentication is enabled. Touch the down arrow to choose the correct type. Additional security fields, such as Username and Password, display as required.

IP

IPv6: Slide the toggle switch right to enable IPv6.

IP Configuration: Touch the down caret ⌄ to switch between DHCP and Static IP configuration. If you choose static, the IP Address, Subnet Mask, and other IP fields display. Touch each field to open a pop-up number pad and enter the addresses as needed. Touch **OK** to save them.

DHCP Option: Slide the toggle switch right to select Option 150, 43, or 60. Options 43 and 150 request the IP address of a key server, such as a VoIP TFTP server or Wireless LAN Controller. Option 60 allows the user to enter a Vendor Class Identifier string, which informs the DHCP server of the type of client.

Proxy: Slide the toggle switch right to enable Proxy settings. When proxy is enabled, the Address, Port, Username, and Password fields appear. Touch each field to open a pop-up keyboard and enter the appropriate data. Touch OK to save your entries.

Targets

You can add an unlimited number of test targets by entering the IP address or a URL and specifying either an ICMP Ping or TCP Port Open test for each target.

Address: When AutoTest runs, the LinkRunner G2 attempts to reach the target address entered in this field. The default is Google.com.

- Touch the Address field to open a pop-up keyboard and enter a new address.
- Touch the action overflow icon ⋮ to the right of the Address field to either **Delete** the target address field from AutoTest or **Duplicate** the current target address entry.

Port: This is the port the LinkRunner G2 uses to connect to the target address for a TCP Port Open test. The default is 80. Touch the Port field to open a pop-up number pad and enter a new port number. Touch OK to save it.

Ping: Slide the toggle switch right to run an ICMP Ping test to the target address. The Port field disappears when this toggle is enabled.

+ ADD TARGET: Touch to add additional target address fields.

Test

Stop After: This setting directs AutoTest to stop testing after the selected test step. The excluded test cards will not appear on the AutoTest screen.

Link-Live: Slide the toggle to the left to disable uploading of AutoTest results to Link-Live and remove the Link-Live Upload card from the AutoTest screen.

VLAN

Enable VLAN: Slide the toggle to the right to enable VLAN settings. Once enabled, VLAN ID and VLAN Priority fields appear. Touch these fields to open a pop-up number pad and enter the correct ID and priority. Touch OK to save them.

NOTE: When VLAN is enabled, the VLAN Test card appears on the AutoTest screen.

User Defined MAC

Enable User Defined MAC: Slide the toggle to the right to enable a user-defined MAC address. When enabled, the User Defined MAC field turns from grey to black.

User Defined MAC: If enabled, touch this field to open a pop-up keyboard and enter your MAC address. Touch OK to save it.

General Settings

Cable Unit: Touch the down caret ⌄ to select either meters or feet for the Cable Test unit of measurement.

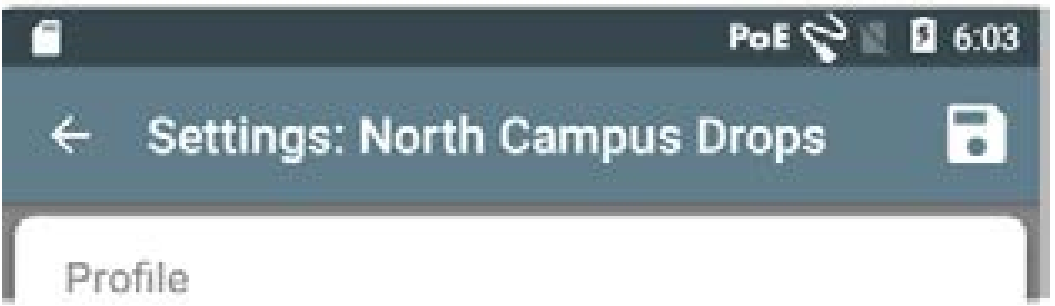
Default Settings: Tap this field to restore the LinkRunner G2 testing application to factory default profile settings. A dialog box will ask you to confirm Yes or No before it restores.

NOTE: See Restoring Factory Defaults for instructions on resetting your entire LR G2 device to factory default configuration.

Profiles and Jobs

A Profile is a saved configuration of test settings. The currently active Profile's name is displayed in the Left-Side Navigation Drawer and at the top of the Settings screen, as shown below.

The header on the Settings screen displays the name of the current Profile.



An asterisk * next to the Profile name indicates that you have adjusted settings since the Profile was last saved.

To save your settings to a Profile (and view other options), tap the save icon at the top right of the Settings screen.

Profile saving options include the following:

- **Save** saves the current settings to the currently loaded profile.
- **Save As** saves a new Profile with the current settings and opens a pop-up keyboard for

entering a new name. Touch SAVE to save the new Profile Name.

- **Load** opens the **Profiles** screen.

Profiles Screen

This screen displays a list of all the saved Profiles.

NOTE: The "Link-Live" profile is a profile created from Link-Live Cloud Service and downloaded to LinkRunner G2. A single profile can be created in Link-Live and pushed to many LinkRunner G2s.

Touch a Profile's name to load its saved settings.

Touch the overflow action icon ⋮ next to a Profile name to Delete, Rename, or Duplicate it.

If you choose to duplicate a Profile, a pop-up dialog prompts you for a New Profile Name. Touch SAVE to save the new name.

Jobs

Jobs are comments that are added to the test results uploaded to Link-Live Cloud Service. They help you organize test results.

To save a Job comment, touch the navigation menu icon at the top left of the LinkRunner G2 application screen, and then touch the **Job** field to open a dialog box and the pop-up keyboard. Touch OK to save the new Job comment.



If the Job saved on your LinkRunner G2 unit matches a named folder in your Link-Live organization, the test results are automatically sorted into that folder.

If you want to create a new folder in Link-Live and save your test results to it, simply add a forward slash **/** at the beginning of the Job name, as shown in the image on this page.

LinkRunner G2 Tests and Results

The LinkRunner G2 features a main AutoTest screen, a Switch Test screen, and a Cable Test screen. Swipe left and right to move through the three test screens.

This User Guide chapter describes each test section and its results.



AutoTest

AutoTest is a set of wired tests and measurements that run automatically when you turn on your LinkRunner G2. To run AutoTest with your unit already powered on, connect the RJ-45 port or the Fiber port on the top of the LinkRunner G2 to an active network switch. Touch the NetAlly logo at the bottom of the screen to open the LinkRunner G2 testing app.



Each individual test is presented on its own card. Tap the down caret on the right side of a card to expand and view detailed results.

The AutoTest tab header shows the number of failed tests (if any) in red and the number of warnings in yellow. In the image, the

Link test has a warning, and the DNS test has failed. The test icons also turn green, yellow, or red based on the test results.

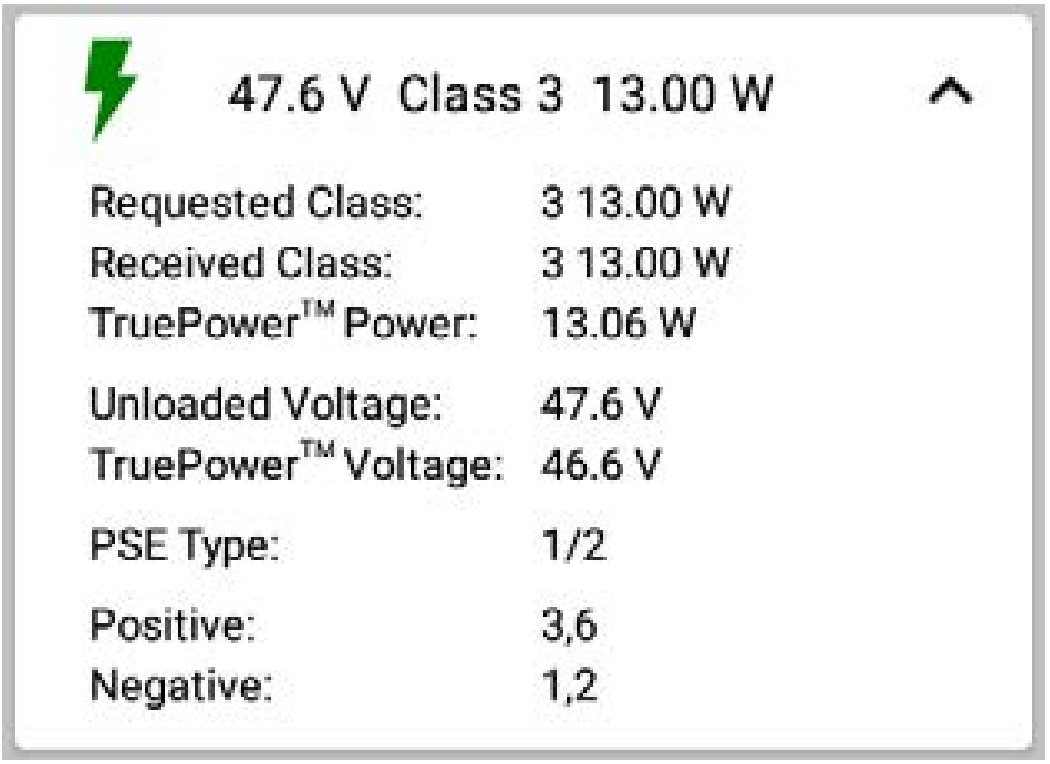
To restart testing at any time, tap the refresh icon  at the top right of the LR G2 app screen.

Test Settings are described in the LinkRunner G2 Application Settings chapter.

The following subsections describe each card in the AutoTest.

Power over Ethernet (PoE) Test

The header of the PoE Test card displays the measured Voltage, Class, and Wattage.



The PoE card displays additional TruePower™ results only if TruePower is enabled in the PoE Settings. TruePower applies a load equivalent to the selected class to mimic a Powered Device (PD).

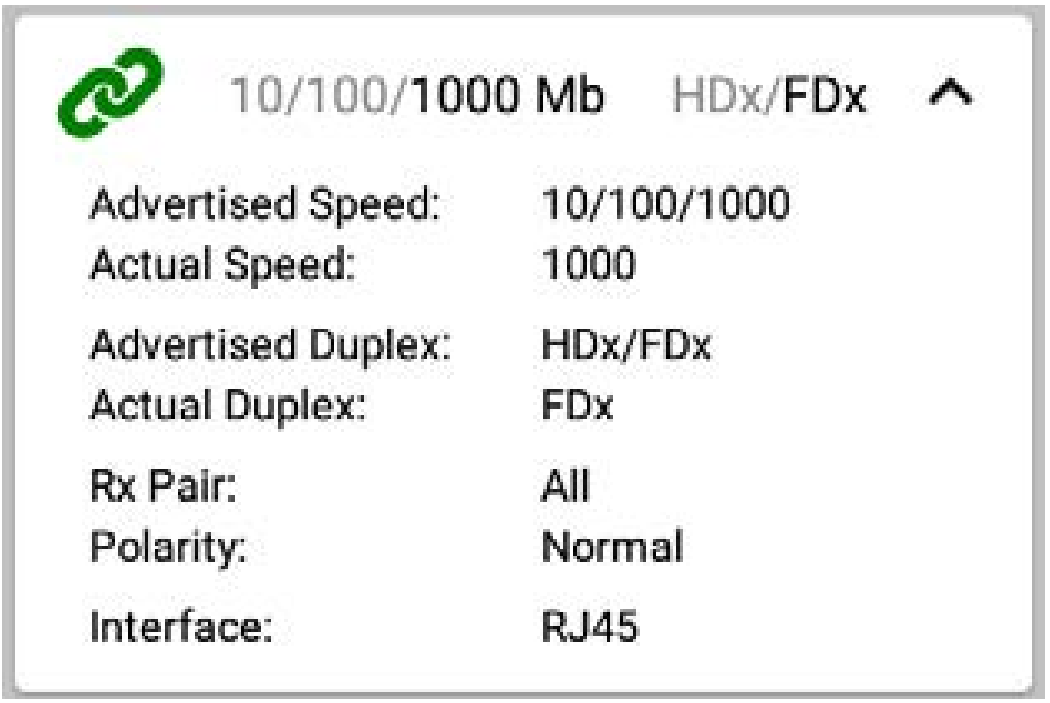
Detailed PoE Results

PoE Result	Description
Requested Class	Class selected in the PoE test settings
Received Class	Class acknowledgment received by the LR G2 from the switch
TruePower™ Power	Measured wattage with load
Unloaded Voltage	Measured voltage without load
TruePower™ Voltage	Measured voltage with load
PSE Type	Switch's advertised Power Sourcing Equipment (PSE) type. Recognized types are 1 – 4, LTPoE++, Cisco UPOE, and PoE Injectors. PSEs supporting UPOE are classified under Type 2. If the type cannot be determined, 1/2 is displayed.
Spare Pair	Status of spare pair negotiation for UPOE (true or false)
Negotiation	Negotiation type for UPOE and Class 4 (UPOE or LLDP)
Positive	Positive PoE cable pair IDs
Negative	Negative PoE cable pair IDs

Link Test

The Link Test card header displays the advertised speed and duplex in grey and the detected speed and duplex in black text.

If the Link icon turns yellow as shown on page 48, LR G2 has detected a downshift from the maximum advertised speed.



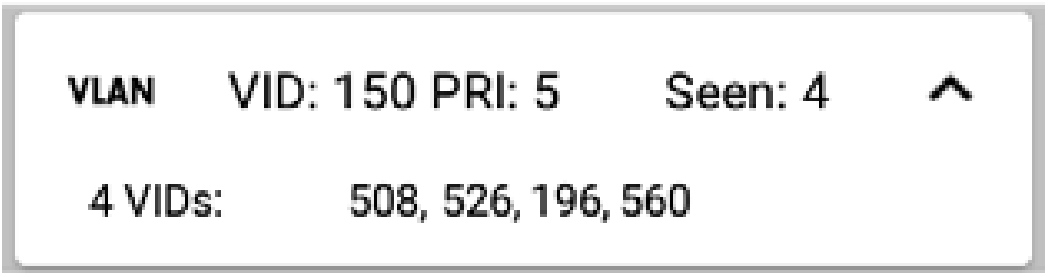
Detailed Link Results

Link Result	Description
Advertised Speed	Speed capability as reported by the switch

Link Result	Description
Actual Speed	Link speed as measured by LinkRunner G2
Advertised Duplex	Duplex capabilities reported by the switch
Actual Duplex	Duplex in use as detected by LR G2
Rx Pair	Link receive pair
Polarity	Link polarity: normal or reversed
Interface	Link interface: Copper/RJ-45 port or SFP/Fiber port

VLAN Test

The VLAN Test card only appears if VLAN is enabled in the LinkRunner G2 Application settings or if VLAN-tagged traffic is detected during AutoTest.



Detailed VLAN Results

VLAN Result	Description
VID	VLAN ID selected in the LR G2 Application settings
PRI	VLAN Priority set in the LR G2 Application settings
Seen	Number of VLANs detected during AutoTest
VIDs	VLAN IDs detected during AutoTest

Switch Test

The Switch Test card header displays the discovered switch name or simply "Ethernet" if no switch name could be discovered.



If LinkRunner G2 was unable to obtain switch information from the first AutoTest run, touch REFRESH to capture and display the next port advertisement/xDP (LLDP or CDP).

Detailed Switch Results

Switch Result	Description
Port	Discovered port name
VLAN	Discovered VLAN ID number

Switch Result	Description
Voice VLAN	Discovered Voice VLAN ID number
Name	Discovered switch's name
Model	Discovered switch's model
Address	Discovered switch's IP address
Type	Switch type: CDP or LLDP

DHCP Test

The DHCP Test card header displays the DHCP server's IP address.



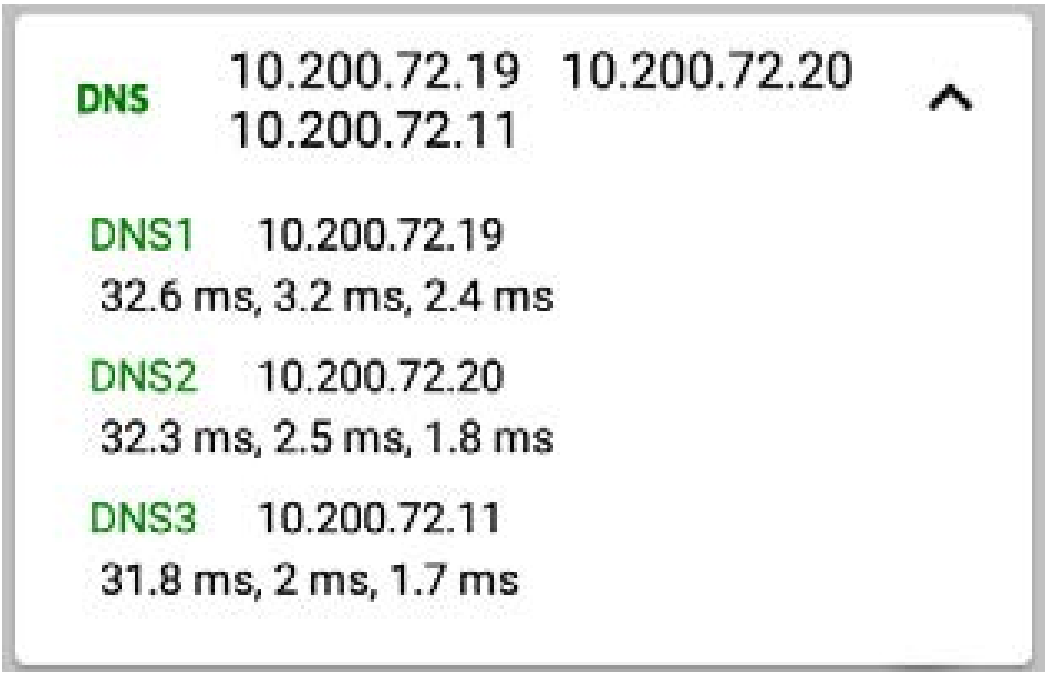
Detailed DHCP Results

DHCP Result	Description
Discover	Status of the discovery frame broadcast from LR G2
Offer time	Time between when LR G2 sent the discovery and received an address offer from the DHCP server

DHCP Result	Description
Request	Status of the address request sent from LRG2
ACK Time	Time between LR G2 sending the request and receiving the acknowledgement from the DHCP Server
Server	IP address of the DHCP server
Subnet	IP address of the subnet where LR G2 is testing
Option 150/43	IP address returned by the DHCP server if a DHCP option is enabled in the test settings
Lease Time	Time the IP address is leased to the LR G2 by the DHCP server

DNS Test

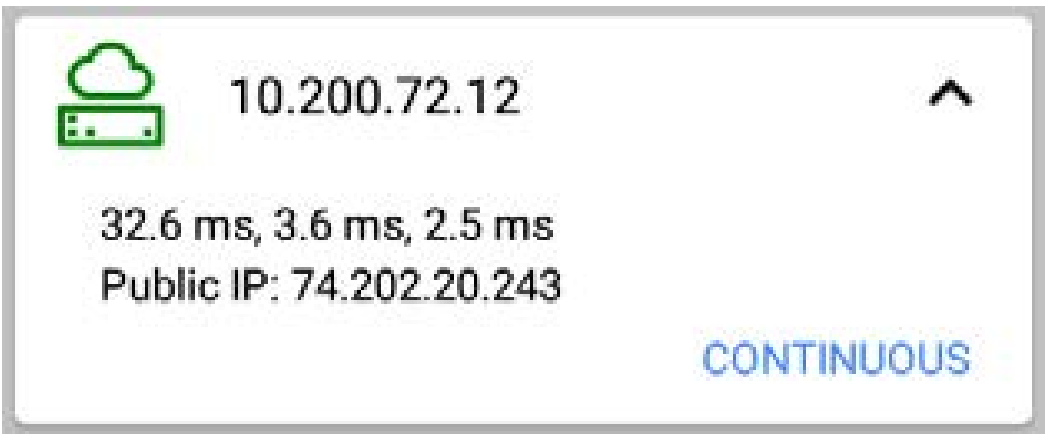
The DNS test card header displays the DNS IP addresses.



Expand the DNS card to view the response times from each DNS server. The LR G2 pings each DNS server three times and displays the response time from each Ping. Up to four DNS servers are captured and displayed on the DNS test card.

Gateway Test

The Gateway Test card displays the gateway's IP address.



The LR G2 pings the gateway three times and displays the response time from each Ping.

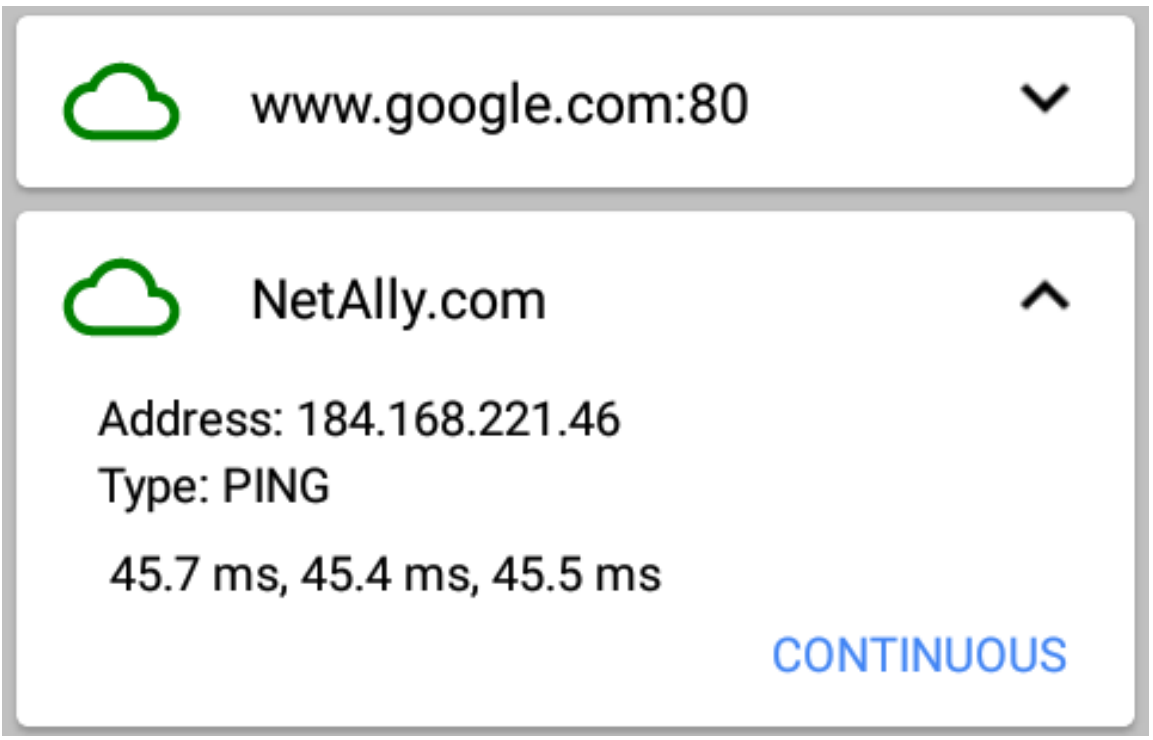
Touch **CONTINUOUS** to run a continuous monitoring test to the gateway. A dialog box appears and displays the continuous Ping test results until you close the dialog box.

Target Tests

The Targets Tests are user-assignable endpoints that LR G2 attempts to connect to each time AutoTest runs. Target tests are either Ping or TCP Port Open tests.

See Targets in the Configuring Test Settings chapter.

The Target Test card header shows the URL or IP address of the target and the port number if applicable.



The expanded Target Test card shows the IP address of the target, the type of test (Ping or

TCP), and the time for each response received by LR G2.

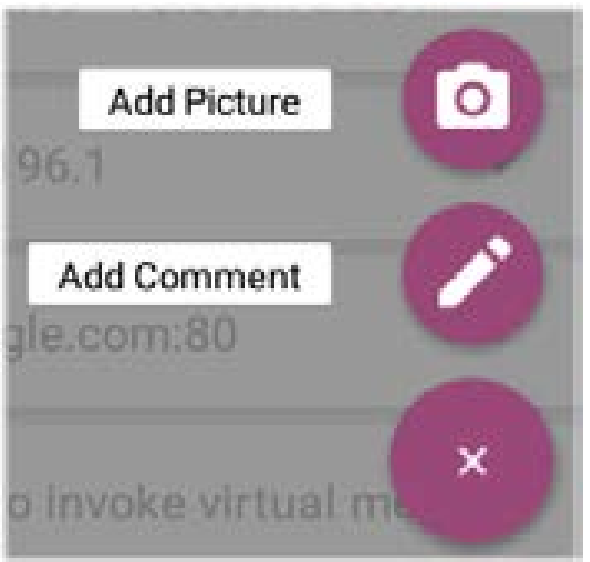
Touch **CONTINUOUS** to run a continuous monitoring test to the target. A dialog box appears and displays the continuous Ping or TCP Port Open test results until you close the dialog box.

Link-Live Upload

The Link-Live test card indicates whether the LinkRunner G2 was able to upload your test results to the Link-Live Cloud Service. Refer to the chapter on Link-Live Cloud Service for more information.

Floating Action Button

The Floating Action Button or FAB appears on many of the Android and LinkRunner G2 application screens. It offers additional actions related to the current screen or test.

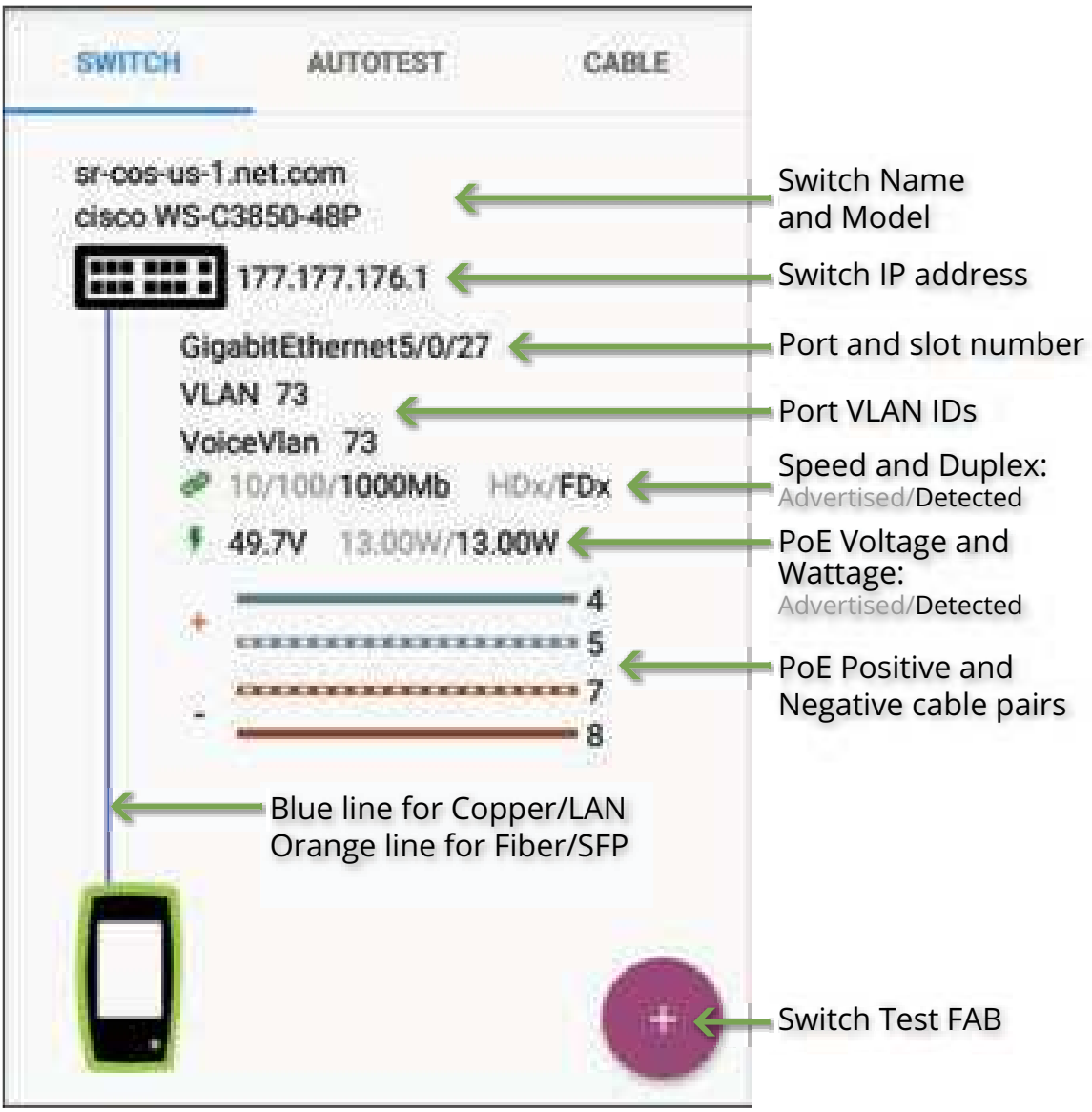


Tap or click the FAB once to view the additional options available. Then, touch the pop-up button for the action you want to perform.

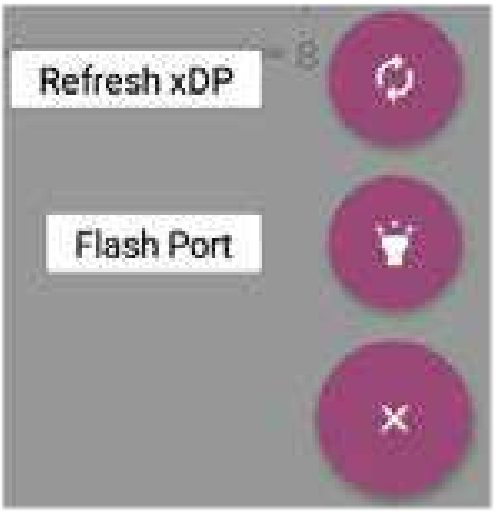
For example, the AutoTest FAB allows you to add a picture or a comment to the last AutoTest result, which is automatically uploaded to Link-Live at the completion of each test.

Switch Test

The Switch test tab displays the information from the nearest switch by locating the port advertisement (xDP) on the first few packets seen by LinkRunner G2.



Tap the FAB on the Switch test screen to access the following actions:



Refresh xDP: Captures and displays the next port advertisement (CDP or LLDP).

Flash Port: Causes the switch to flash the LED on the port where the LinkRunner G2 is connected. Touch and drag the slider between Slow and Fast to differentiate it from the other switch port LED flash rates.

To restart testing at any time, tap the refresh icon at the top right of the LR G2 app screen.

Cable Test

The Cable test can help you determine cable length and status, wire map patch and structured cabling, and locate cables. The Cable test tab can perform tests using the configurations described in this section.

With an unterminated cable test, you can determine length, shorts, and splits and locate opens. With a terminated cable test using the internal Wire Mapping Port or a WireView accessory, you can identify cable length, shorts and opens, split pairs, crossover cables, and normal or negative pair polarity.

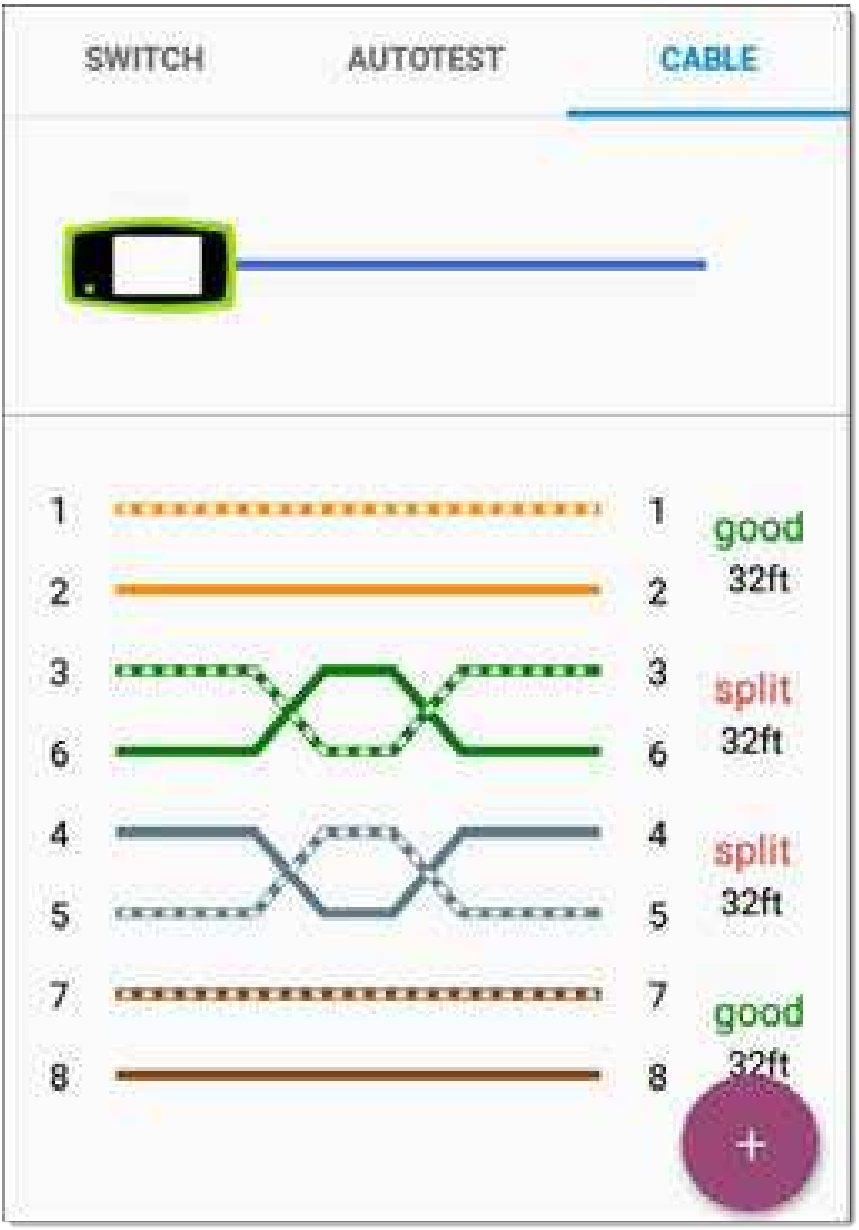
NOTE: LR G2 cannot perform a cable test on a cable that is connected to a switch.

To restart testing at any time, tap the refresh icon  at the top right of the LR G2 app screen.

Refer to Buttons and Ports as needed.

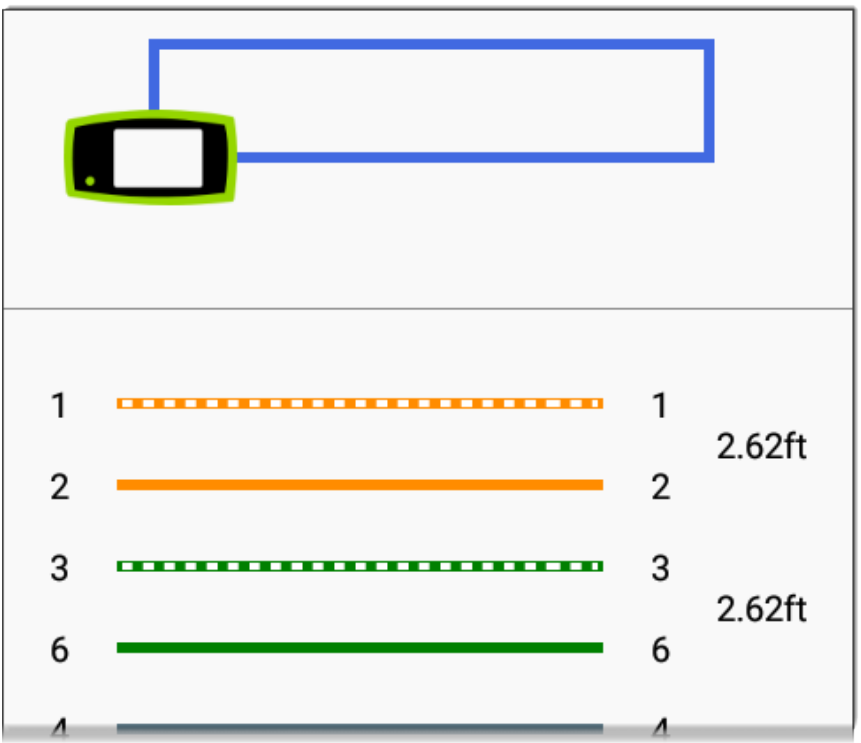
Open Cable TDR Testing

Connect an open cable (unterminated) into the top RJ-45 port to measure its length and view any shorts, opens, or splits.



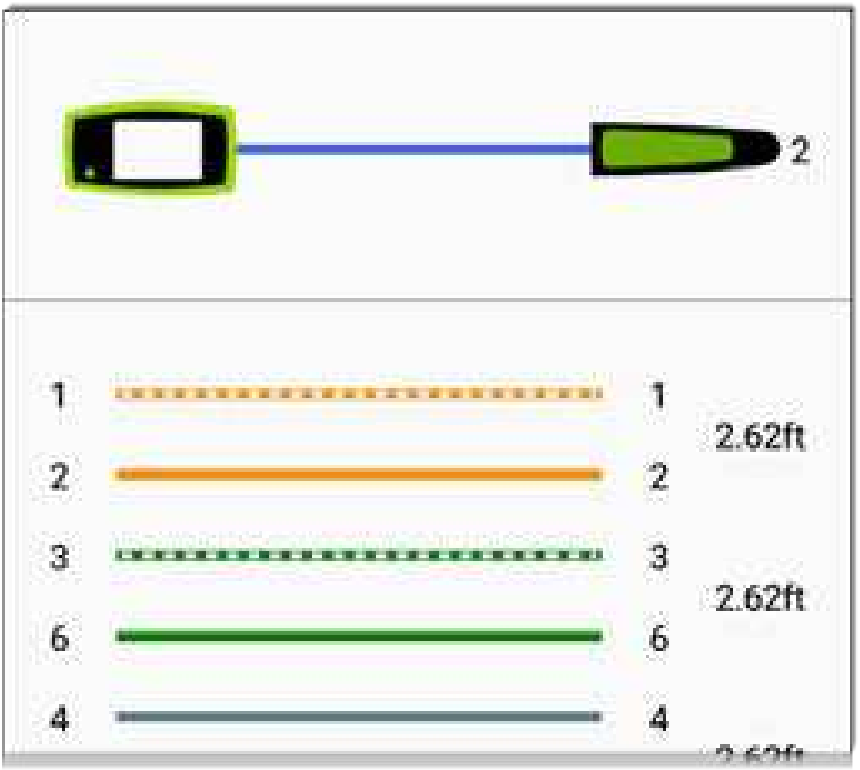
Patch Cable Testing

Connect a cable from the top LinkRunner G2 RJ-45 LAN port into the side RJ-45 Cable Test/Wire Mapping Port to view its length and wire mapping, including any faults.



Wire Mapping

Connect the top RJ-45 port to a cable terminated with an external WireView Cable ID accessory. A WireView #1 is included with your LinkRunner G2. Additional WireViews 2-6 are available for purchase.

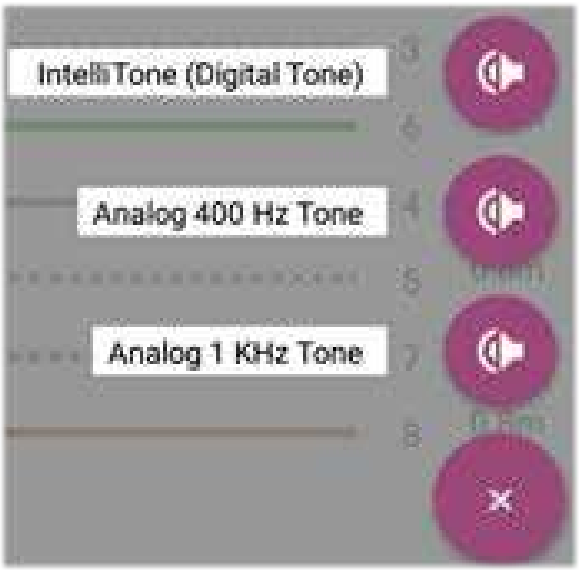


The Wire Mapper Cable Test displays the number of the WireView attached, unless a cable fault prevents LR G2 from detecting the WireView.

A cable/drop port can be traced using a WireView up to 300 ft/100 m from the LinkRunner G2.

Using the Tone Function

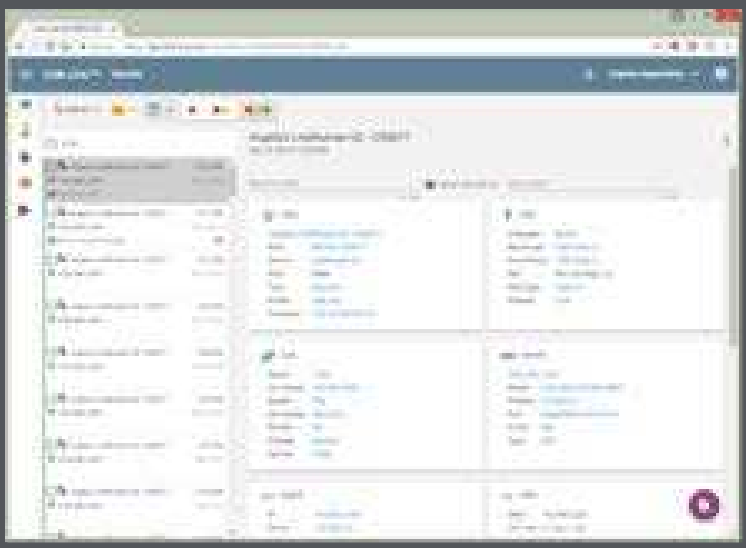
You can also trace a cable using a Fluke Networks* IntelliTone™ Probe, or any analog probe, and the Tone function.



Connect a cable into the top RJ-45 port, touch the FAB, and select the appropriate Tone option for your probe. The LinkRunner G2 emits the tone through the cable, and the probe detects it, allowing you to trace the wire or locate it in the switch closet.

* IntelliTone is a trademark of Fluke Networks.

Link-Live Cloud Service



Link-Live Cloud Service is a free, online system for collecting, tracking, organizing, and reporting your test results, which are automatically uploaded once your LinkRunner G2 is claimed.

Claiming your LR G2 to Link-Live also allows you to update the firmware on your unit and access applications in the NetAlly App Store that have been specifically chosen to work with LinkRunner G2.

Getting Started in Link-Live

To start, create a user account at Link-Live.com, and sign in.

On the LinkRunner G2 Unit

In the LinkRunner G2 testing application on your LR G2 unit, touch the navigation menu icon ☰ at the top left of the screen, and touch **CLAIM NOW** in the navigation drawer.



In Link-Live

The first time you sign in to Link-Live, a pop-up window appears, prompting you to claim a device.

If you already have a user account and other devices claimed to Link-Live, navigate to the **Units** page from the left side navigation drawer, and

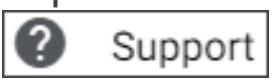
click the **Claim Unit** button at the lower right corner of the screen.



Then, select the LinkRunner G2 image, and follow the claiming instructions on the Link-Live website.

Once your LR G2 is claimed to the Link-Live Cloud, it will automatically upload your AutoTest results each time you run AutoTest.

From the LR G2, you can also upload a test comment and a picture with your test results using the AutoTest FAB and automatically sort your results into folders in Link-Live using the Jobs feature. If your LR G2 is not connected to an active network, the test result and any photos or comments are stored in memory and uploaded once a connection is established.

For more information on how to use Link-Live, click or touch the navigation menu icon  at the top left of the Link-Live website, and select 

.

Unclaiming

To unclaim your LR G2 from Link-Live on the device, open the **About** section from the Left-Side Navigation Drawer, and select **UNCLAIM**.

LinkRunner G2 Tools

The LR G2 also features a performance test Reflector, a VLAN Monitor, and packet Capture tools. These are explained in the following section.

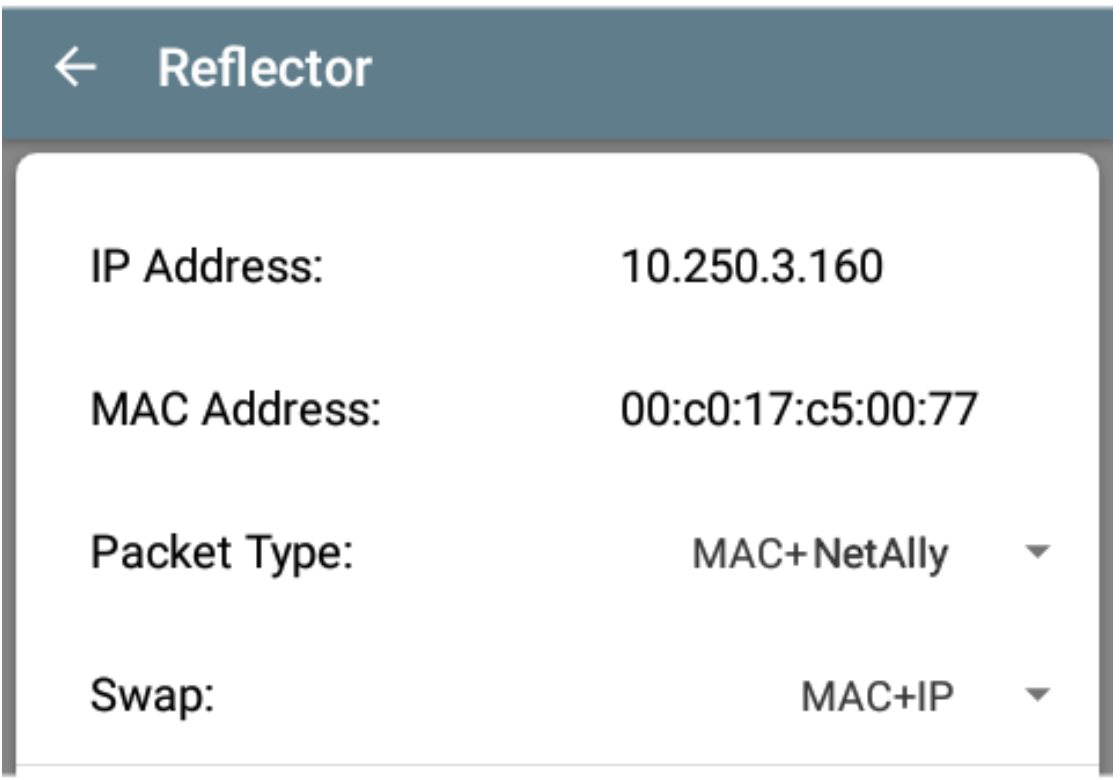


Access the tools from the Left-Side Navigation Drawer.

Reflector

The Reflector feature allows the LinkRunner G2 to act as a reflector for performance tests conducted by other NetAlly testing devices.

To open the Reflector screen, touch the navigation menu icon at the top left of the LinkRunner G2 application screen, and then touch **Reflector**.



IP Address: When you enter the Reflector screen, the LR G2 automatically obtains and displays its IP address in the top field. Use this IP address to connect to the LR G2 from your main performance testing device.

MAC Address: LinkRunner G2's MAC address

Packet Type: Touch the down caret ⌄ to select the packet type filter setting. The **MAC + NetAlly** setting tells LR G2 to reflect only packets with a destination MAC address that matches the LR G2's own MAC address and NetAlly payload.

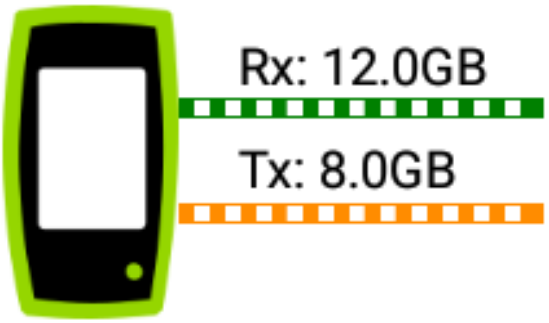
Swap: Touch the down caret ⌄ to select a swap setting. **MAC + IP** tells the LR G2 to swap the source and destination MAC and IP addresses for packets that are reflected back to LR G2.

NOTE: The recommended settings are **Packet Type: MAC + NetAlly** and **Swap: MAC + IP**. Other Reflector settings may cause undesired traffic on your network.

To start the Reflector feature, tap the FAB on this screen. Tap it again to stop the Reflector.



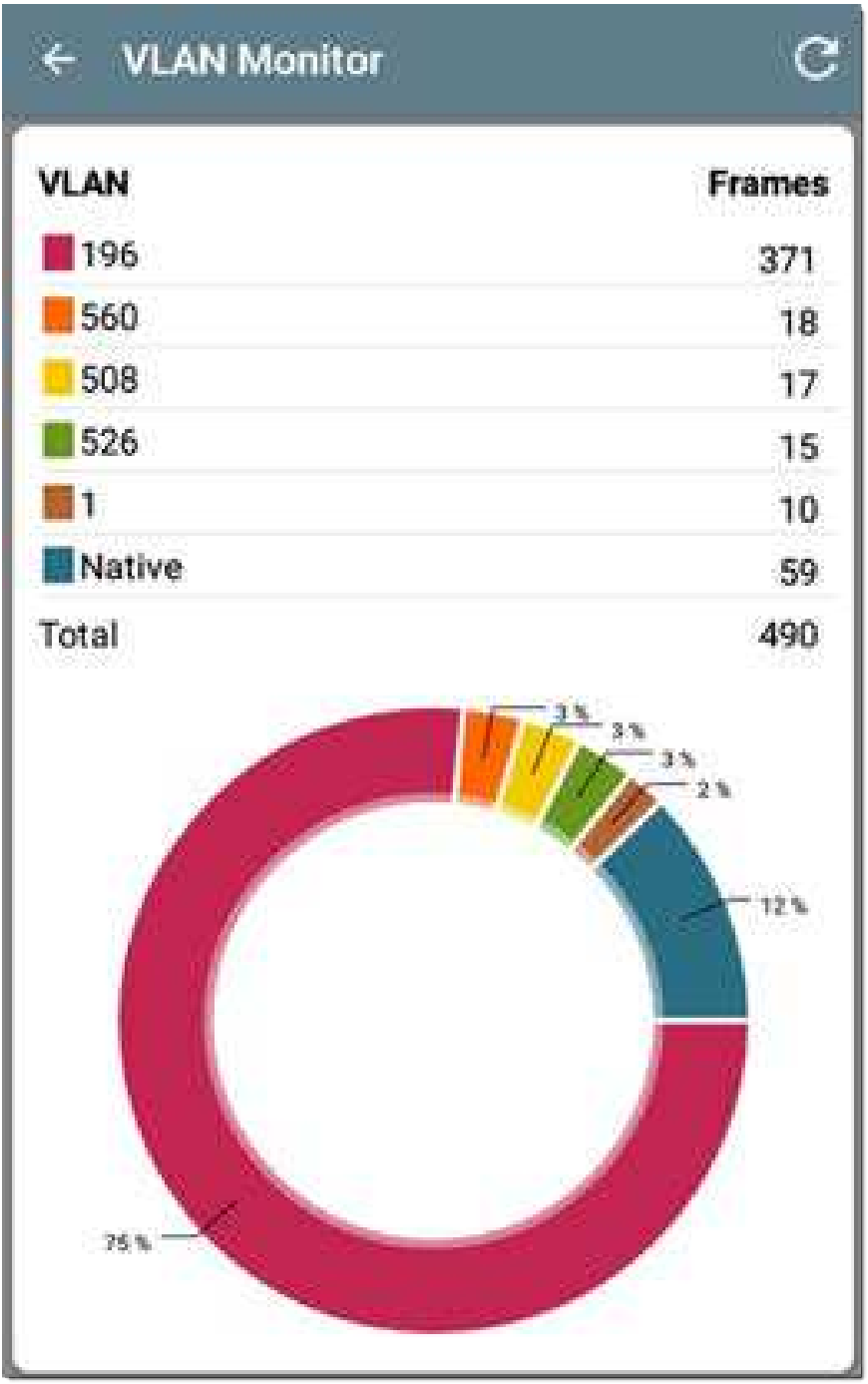
While running, the Reflector screen displays the bytes received and reflected.



See the user documentation for your main NetAlly performance tester for information on setup and viewing results.

VLAN Monitor

The VLAN Monitor tool displays the real-time traffic on any Virtual LANs detected.



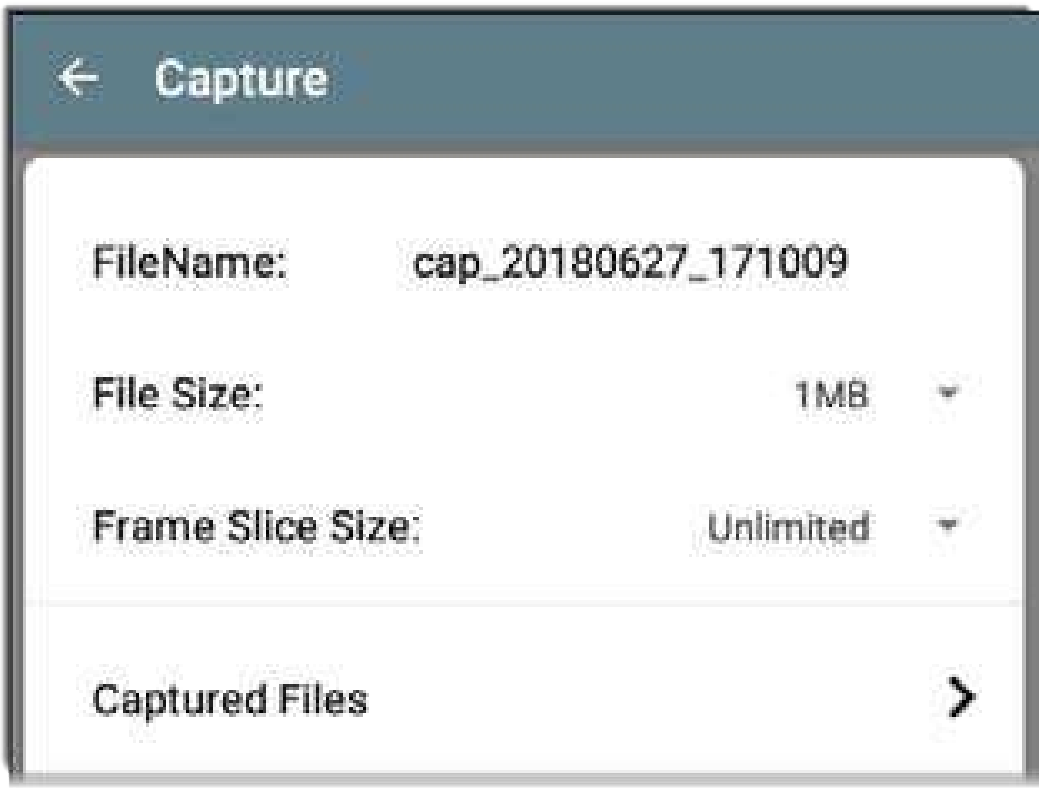
The top nine VLANs with the highest traffic are displayed as colored portions of the pie chart, and the rest are grouped into the "Others" category.

Capture

Using the Packet Capture tool, you can save packet captures, upload them to Link-Live, and then download for analysis on a PC.

NOTE: You must have a Micro SD card inserted in the LR G2 to run and save packet captures. See Using a Micro SD Card.

To open the Capture screen, touch the navigation menu icon ☰ at the top left of the LinkRunner G2 application screen, and then select **Capture**.



Filename: Capture files are automatically named using the date and time. Touch this field to enter a custom name.

File Size: Touch this field to specify a size for the capture file. The default is 1 MB. The capture stops when the captured file reaches this size. When capture is running, the File Size field displays the current file size as data is captured.

Frame Slice Size: Touch this field to select a specific frame slice size for your capture. The default is Unlimited.

Frames: When capture is running, the Frames field displays the number of captured frames.

SD Space: When capture is running, this field appears and shows the remaining space on the SD card.

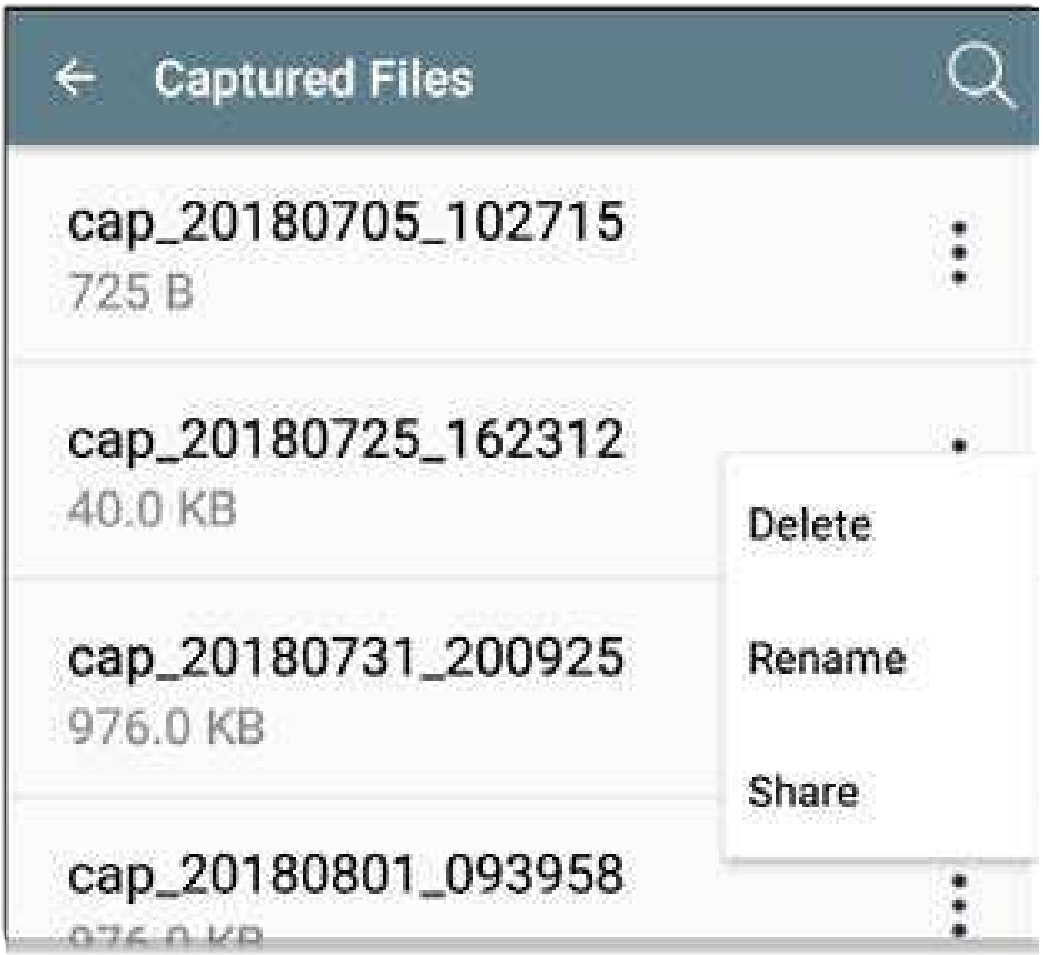
Saving and Accessing Capture Files

To start Capturing, tap the FAB on this screen. Tap it again to stop capturing packets.



Once a capture is completed, a notification appears in the Top Notification Panel and provides options for sharing the capture file.

If captured files are saved on the LR G2, the **Captured Files** field appears on the Capture screen. Touch the field to open the Captured Files screen.



Tap the action overflow icon ⋮ to the right of the filename to Delete, Rename, or Share the capture file to Link-Live.

You can also access all captures and other files from the File Manager Application. Capture files are saved on your inserted SD card.

Software Management

This chapter explains how to save and transfer files using your LinkRunner G2.



Managing Files

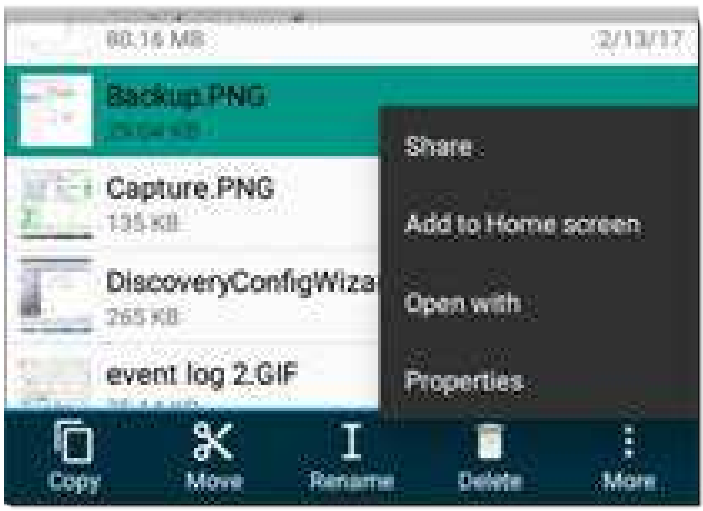
LinkRunner G2 supports several methods for managing files, consistent with other Android devices. Images, documents, applications, and other files live in a folder hierarchy, where you can copy, move, and paste them between folders or to external storage locations.

See also Swiping and Navigation.

File Manager Application

The File Manager app allows you to access the files saved on your LR G2. Touch the icon at the bottom of the Home Screen to open the File Manager.

Touch a folder or file in the File Manager to open it.



Long press on folders or files in the File Manager to view additional file management operations.

Tap the action overflow icon ⋮ whereever it appears in the File Manager to see even more actions, such as to create a new folder or add a file to the Home Screen.

Using a Micro SD Card

1. To use a Micro SD card for storage, insert it into the Micro SD card slot on the right side of your LinkRunner G2. A Micro SD card icon appears in the notification bar at the top of the LR G2 screen.
2. On the LR G2 screen, pull down the Top Notification Panel to reveal the "New SD card detected" notification.



3. Touch **SET UP**.
4. On the Set up your SD card screen, select **Use as portable storage** to use the Micro SD card for transferring files to and from your LinkRunner G2.

5. Touch the **NEXT** button at the bottom left of the screen.
6. Touch **DONE**.
7. The **SD card** storage location is now available from the File Manager  application, and a notification appears in the Top Notification Panel alerting you that it is connected.

Using a USB Drive

Insert a USB flash drive into the USB port on the top of the LR G2.

The **USB storage** location is now available from the File Manager  application, and a notification appears in the Top Notification Panel alerting you that it is connected.

Using a Micro USB to USB Cable

1. Plug a Micro USB connector side of a USB cord into the Micro USB port on the right side of the LR G2, and plug the USB side into a PC or tablet. (If the LR G2 folder does not open automatically on your PC screen, continue following the steps below.)

2. On the LR G2 screen, slide down the Top Notification Panel to view the notifications.
3. Then, touch **USB for File Transfer**.
4. In the pop-up dialog, tap the **File transfers** option.
5. On your PC or tablet, navigate to the LinkRunner G2 folder in the file system if necessary. From there, you can move, copy, and paste files to and from the LinkRunner G2's file system.

Updating Firmware

Your LinkRunner G2 accesses software updates from the Link-Live Cloud Service.

NOTE: You must create an account and "claim" your LinkRunner G2 unit to the Link-Live Cloud Service for the LR G2 to find and download software updates. See Getting Started in Link-Live.

1. To check for updates through the Device Settings, touch the Settings  icon at the bottom of the Home Screen.
2. On the Settings screen, scroll down to the **System** section, and touch **About Tester**.
3. At the top of the About Tester screen, touch **CHECK FOR UPDATES**.
4. On the System Updates screen, touch the **Check for Updates** button. If a new software version is available, it displays below the Current version shown.
5. Tap the new version number, and then touch **Download** to download and install the latest software.

6. Once the new software is downloaded, touch **Install** to install it.

Restoring Factory Defaults

⚠ **CAUTION:** This operation will delete all test results, installed applications, and saved files, and reset device settings to the factory default state. Make sure to back up any files you desire to keep.

1. To access the Android device settings, touch the Settings  icon at the bottom of the Home Screen.
2. On the Settings screen, scroll down to the **Personal** section, and touch **Reset**.
3. On the Reset screen, touch **Factory data reset**.
4. At the bottom of the Factory data reset screen, touch **RESET LINKRUNNER G2**.
5. The device asks you to confirm once more that you want to restore all defaults. Touch **ERASE EVERYTHING** to do so.

The device restarts with factory default settings.

Changing the Language

1. To change the language on the LinkRunner G2 interface, go to the Device Settings by touching the Settings  icon at the bottom of the Home Screen.
2. On the Settings screen, scroll down to the **Personal** section, and touch **Language & input**.
3. On the Language & input screen, touch **Language**.
4. Touch the name of your desired language in the list. The LR G2 displays the chosen language.

Additional Features

This chapter describes how to use the built-in camera, flashlight, and optional Edimax adapters for Wi-Fi/Bluetooth/BLE support.



Camera and Flashlight

The camera lens and flash are located on the back of the LinkRunner G2 unit. (See Buttons and Ports.)

The Camera application is located in the APPS screen. Touch the Apps button on the Home Screen to open the APPS screen. From there, you can touch and hold on the camera app icon, and then place the icon on a Home Screen page for quick access.

Additionally, once an AutoTest has completed, the Floating Action Button appears and provides the option of opening the camera application to take and attach a picture to the AutoTest results.

The Flashlight feature can be accessed from the Quick Settings Panel by swiping down twice from the top of the LR G2 screen.

Wi-Fi Bluetooth USB Adapters

LinkRunner G2 supports two Wi-Fi/Bluetooth USB Adapters, which are available for purchase separately: the Edimax N150 EW-7611ULB and Edimax AC1200 EW-7822ULC.

You can use these adapters to connect to networks wirelessly for browsing the internet, transferring files, using email, and running applications.

Plug the USB Adapters into the USB port on the top of your LinkRunner G2.

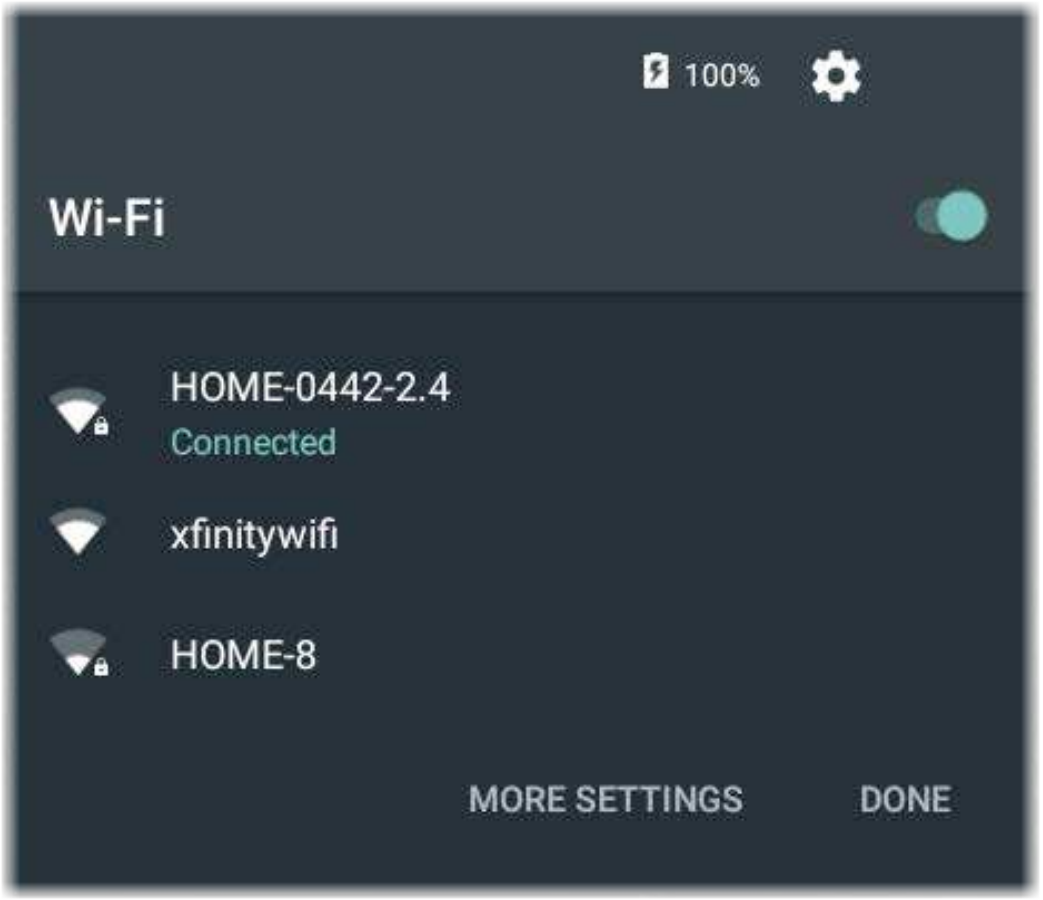
Connecting to Wi-Fi or Bluetooth

1. On the LR G2 screen, swipe down from the top of the screen twice to open the Quick Settings Panel.



2. At any time, tap the icons above Wi-Fi or Bluetooth to quickly enable or disable Wi-Fi or Bluetooth capability.

3. Tap Wi-Fi to open the list of available Wi-Fi networks.
4. Touch a network's name to connect to it.



Optionally, touch **MORE SETTINGS** to open the Wi-Fi device settings screen and manage Wi-Fi networks there.

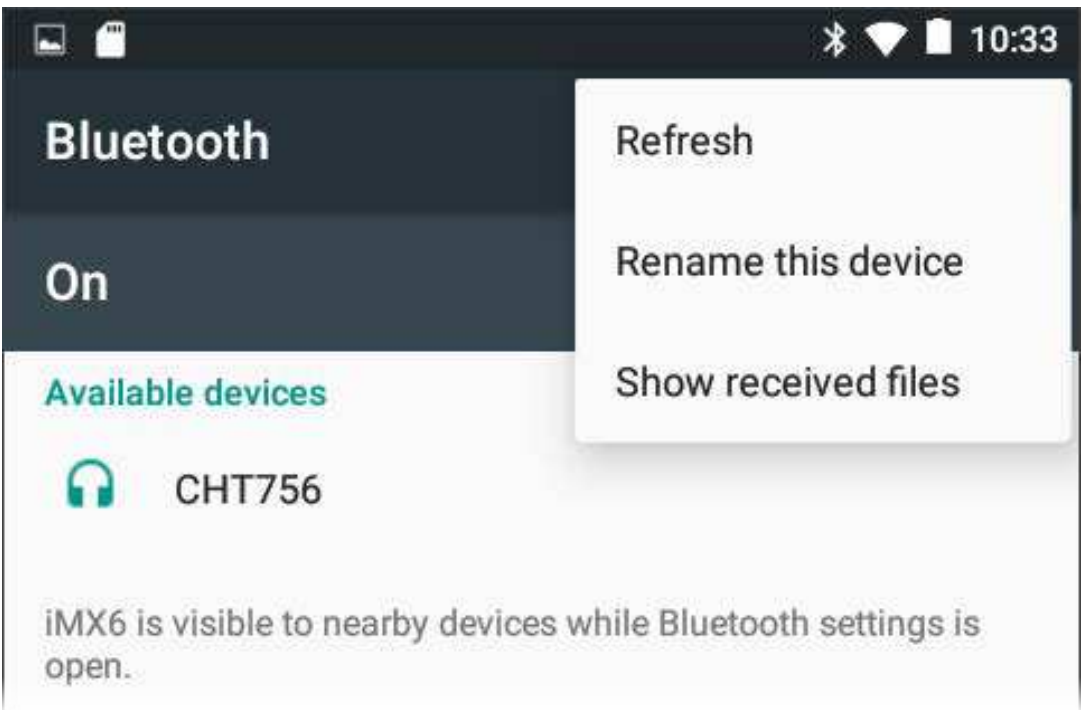
Once a Wi-Fi network or Bluetooth device is selected, its name displays below the Quick Settings icon.



To connect to a Bluetooth device, touch Bluetooth to scan for available Bluetooth devices.

MORE SETTINGS opens the Bluetooth device settings screen as well.

On the Bluetooth or Wi-Fi settings screen, touch the action overflow icon ⋮ to Refresh the scanning process and view other options.



Specifications and Compliance

Required compliance information is contained in this chapter.

Specifications and Compliance

Dimensions	3.8 in x 7.7 in x 1.6 in (9.7 cm x 19.6 cm x 4.1 cm)
Weight	18 oz (0.51 kg)
Battery	Rechargeable lithium-ion battery pack (3.6 V, 6 Ah, 21 Wh)
Battery Life	Typical operating life is 4 hours (infinite on PoE). Typical charge time is 3 hours.
Display	5.0 in color LCD with capacitive touch screen (480 x 854 pixels)
Keypad	1-key elastomeric (power only)
Host Interface	Micro USB On-the-Go port
USB Port	USB 2.0 Type A port
SD Card Port	Supports Micro SD
Memory	Approximately 3 GB available for storing test results and user applications
Media Access	10BASE-T, 100BASE-TX, 1000BASE-T (IEEE-802.3) and PoE
Cable Test	Pair lengths, opens, shorts, splits, crossed, straight through, and cable ID

Tone Generator	Digital tone: [455 KHz]; Analog tones: [400 Hz, 1 KHz]
Ports	RJ-45 copper port 100/1000BASE-X fiber adapter port
External AC Adapter/ Charger	AC input 90-264 Vac 48-62 Hz input power DC output 15 Vdc at 2 amps OR RJ-45 via PoE
LEDS	2 LEDs (Transmit and Link Indicators)

Environmental Specifications

Operating Temperature	32ºF to 113ºF (0ºC to +45ºC) NOTE: The battery will not charge if the internal temperature of the Tester is above 122ºF (50ºC).
Operating relative humidity (% RH without condensation)	90% (50ºF to 95ºF; 10ºC to 35ºC 75% (95ºF to 113ºF; 35ºC to 45ºC)
Storage Temperature	-4ºF to 140ºF (-20ºC to +60ºC)
Shock and vibrations	1 m drop test, Random, 3.8 grms, 5 Hz-500 Hz (Class 2)

Safety	IEC 61010-1:2010: Pollution degree 2
Altitude	Operating: 4,000 m; Storage: 12,000 m
EMC	IEC 61326-1:2013: Basic Electromagnetic Environment; CISPR 11: Group 1, Class A

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.

Certifications and Compliance Standards

CE	Conforms to relevant European Union directives.
	Conforms to relevant Australian Safety and EMC standards.
FC	Complies with 47 CFR Part 15 requirements of the U.S. Federal Communications Commission.
c UL us LISTED	Certified by UL North America Safety Standards.
KC	Conforms to relevant South Korean EMC Standards.

Additional South Korean EMC Standards Information

Electromagnetic Compatibility. Applies to use in Korea only. Class A Equipment (Industrial Broadcasting & Communications Equipment) [1]

[1] This product meets requirements for industrial (Class A) electromagnetic wave equipment and the seller or user should take notice of it. This equipment is intended for use in business environments and is not to be used in homes.