USER GUIDE

PingerPro

Model 70/75

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To: Psiber Data Systems Inc.
7075-K Mission Gorge Rd.
San Diego, CA 92120
RMA# XXXXXXX

Introduction

Thousands of network professionals have relied on Psiber test tools for installing, troubleshooting and maintaining complex, and high performance networks. The PingerPro's extensive feature set makes it even easier for managers and technicians to meet the growing challenges of cable and network management.

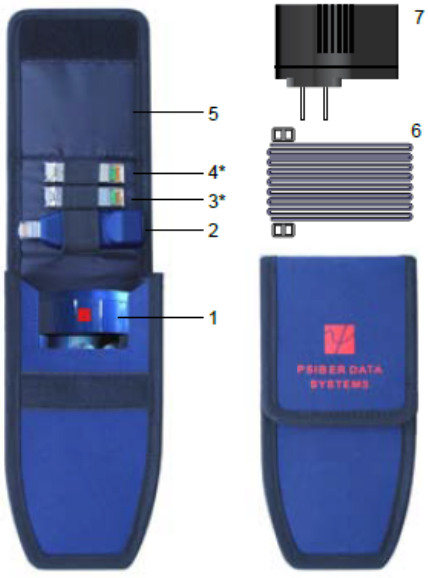
The PingerPro brings a new level of connectivity testing with: fault location, Gigabit Ethernet capability, advanced IPv6 support, Logical Link Data Protocol (LLDP/CDP) and other powerful features that you will use every day. As a result, the PingerPro is the complete high performance first-response tool designed to solve your most frequent network problems. Whether installing new network drops or devices, monitoring performance, or troubleshooting problems, the PingerPro quickly provides the answers you need.

The PingerPro touch screen interface lets you select discrete tests, or configure a complete Auto Test that provides critical link information; conduct network connectivity tests and provide switch port information in seconds. Document your test results with a few keystrokes to prove the job's done right. The rechargeable battery pack and rugged weather resistant design lets you test anywhere. The PingerPro is always available and always ready to:

- Monitor network health
- Manage network changes
- Identify cable and network problems
- Optimize network performance.

Kit Content

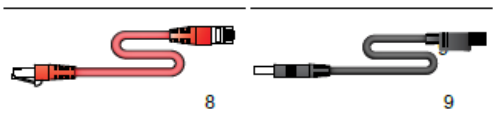
CONTENT



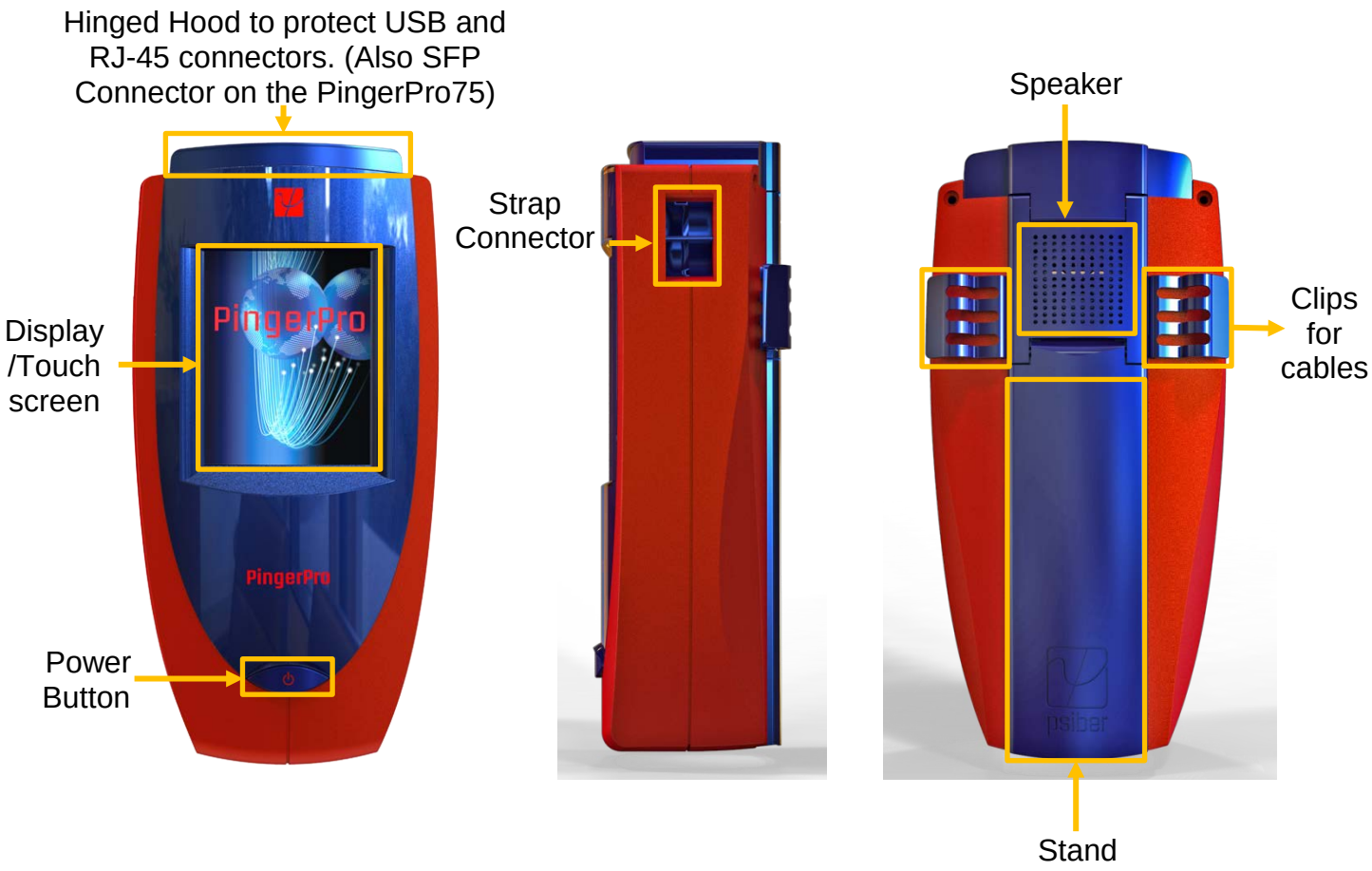
Contents Includes:

1. PingerPro
2. Terminator
3. Single Mode 1310nm SFP*
4. Multimode 850nm SFP*
5. Case
6. Strap (+2 Buckles)
7. AC Power Adapter
8. RJ 45 Patch Cable
9. USB/Charging Cable
10. Quick Start Guide
11. Stylus

*+Fiber Option



Physical



Specifications:

Dimensions:	6.5 in. x 4.0 in. x 2.8 in. (165 mm x 102 mm x 71 mm)
Weight:	13.2 oz.; 387 grams
Power Adaptor:	110/240 VAC
Graphics Display:	320 x 240 RGB
Interface:	Color Touch Screen
Power:	Li-Ion Battery Pack
Operating Temp:	32°F to 122°F / 0°C to 50°C
Storage Temp:	14°F to 131°F / -10°C to 55°C

Preparing the Unit

The PingerPro is portable and can be handheld or placed on a surface large enough for stable use. The PingerPro is designed to withstand the rigors of everyday use and travel. However, to keep your tester in prime operating condition, please observe the following precautions to further reduce the risk of personal injury or damage to the tester.

- Never apply heavy pressure to the tester, especially on or around the display area. Avoid sharp impacts to the tester.
- Excessive pressure or impact can damage components or otherwise cause the tester to malfunction.
- Do not submerge, float or allow liquids to spill into or onto the tester.
- Do not use excessive force to connect or disconnect cables or peripherals.
- Use the supplied strap to prevent accidentally dropping the tester.
- Never use sharp objects on the display/touch screen area. Use only the supplied stylus.

Protect the PingerPro from; dust, moisture, direct sunlight, liquids and corrosive materials. Equipment that generates a strong electromagnetic field, rapid changes in temperature or humidity, extreme heat or cold may also damage your tester. Operate the analyzer within the specified temperature range.

Battery Use:

The tester contains a rechargeable battery pack which is charged by the factory for quick use. The external USB adapter provides power to the tester and charges the battery pack from an AC outlet or computer.

The battery pack can be charged while the tester is on or off. Charging time is reduced if the tester is turned off. With the tester turned on, the battery symbol on the display provides the charge status of the battery pack.

Caution:

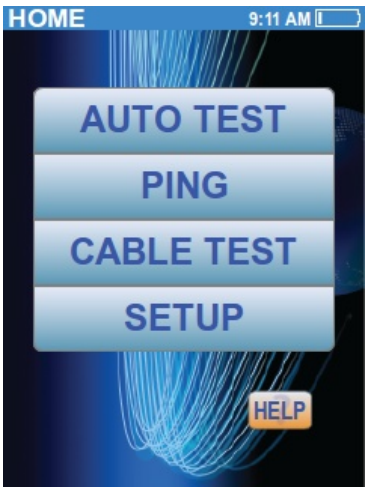
To avoid electric shock, never modify, forcibly bend, damage, apply heat to or place heavy objects on top of the power cord. If the power cable becomes damaged or the plug overheats, discontinue use.

Never remove the power plug from the outlet with wet hands.

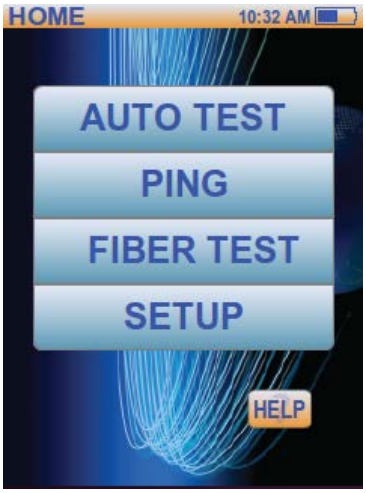
Using the wrong AC adapter could damage your tester. Psiber assumes no liability for damage in such cases. Never pull directly on the power cable to unplug it. Hold the power plug when removing the cable from the outlet.

Getting Started

Turn on the PingerPro by pressing the power button until the screen lights up, and then release the button. The unit displays the welcome screen for approximately 10 seconds and then the Home Screen automatically displays.



Copper Home Screen



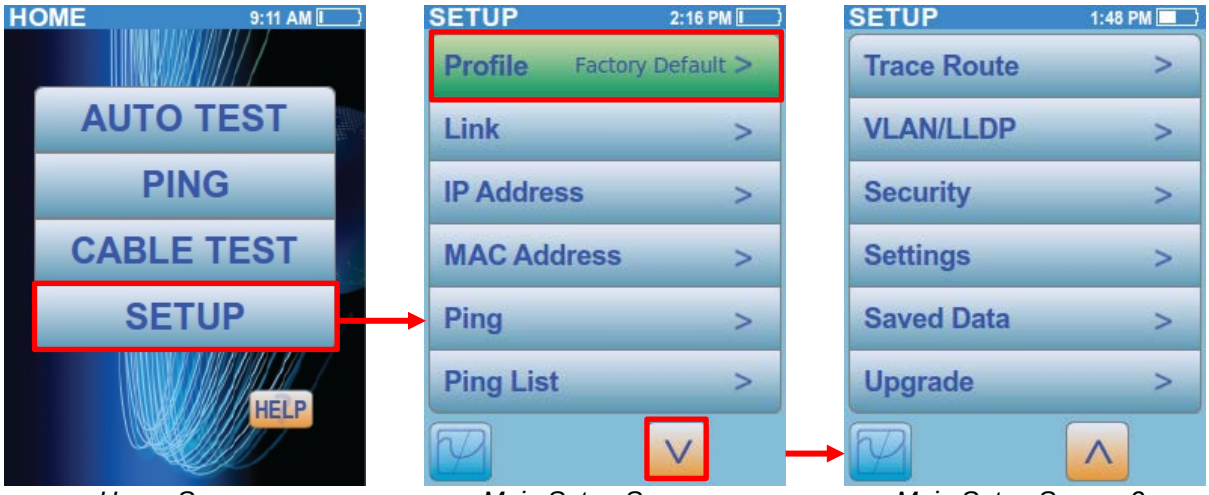
Fiber Home Screen

The **Home Screen** has Auto Test, Ping, Cable Test, Setup and Help Buttons.

- **Auto Test** tests the network with configured parameters selected from the Setup screen.
- **Ping** is a quick but powerful test that, while in factory default setting, sends a Ping from the tester to the Gateway from any part of the network. The Ping test can be quickly changed to pre-configured profiles to Ping other devices.
- The **Cable Test** tests the physical copper portion of the network by measuring the length of the cable to a short or open, performing a wiremap analysis for incorrect wire connection, sending a tone for traceability or sending a signal to blink the switch port specific LED.
- The **Fiber Test** displays the power detected from the device attached to the fiber SFP port.
- **Setup** allows the user to customize settings for the Auto Test and the Ping test to test specific network parameters.
- The **Help** button displays step-by-step instructions on how to use the PingerPro and displays the quick start guide.

Setup

Select the **SETUP** button from the **Home Screen**. The available configurable categories are displayed on the screen. Select a category to expand the button. When completed with any setup configuration, select **Save** and then the **Psiber** button to return to the Home Screen.

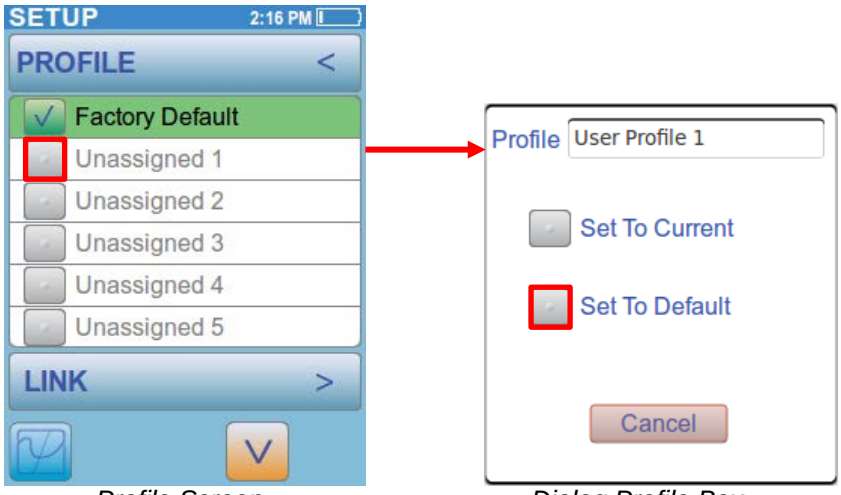


Home Screen *Main Setup Screen* *Main Setup Screen 2*

Profiles

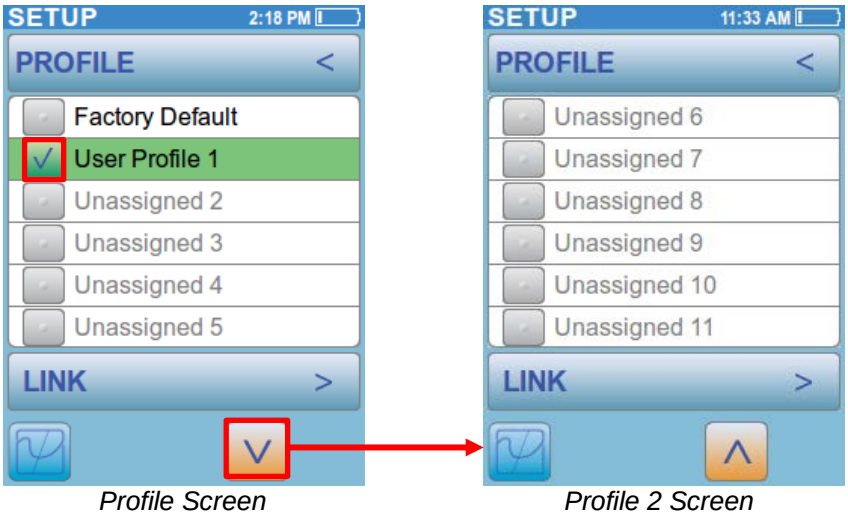
Select the **Profile** button to show a listing of all the profile names. There are 11 customizable profiles and one Factory Default. The Factory Default profile **cannot** be changed.

Select a customizable profile by selecting the gray box to the left of an unassigned profile. A dialog pop-up screen will be displayed. Select **Set To Current** to duplicate the parameters from the currently selected profile. In this case, it will duplicate the Factory Default configurations. Select **Set To Default** to duplicate the parameters of the Factory Default configuration. Select **Cancel** to return to the Profile Screen without any changes.



Profile Screen *Dialog Profile Box*

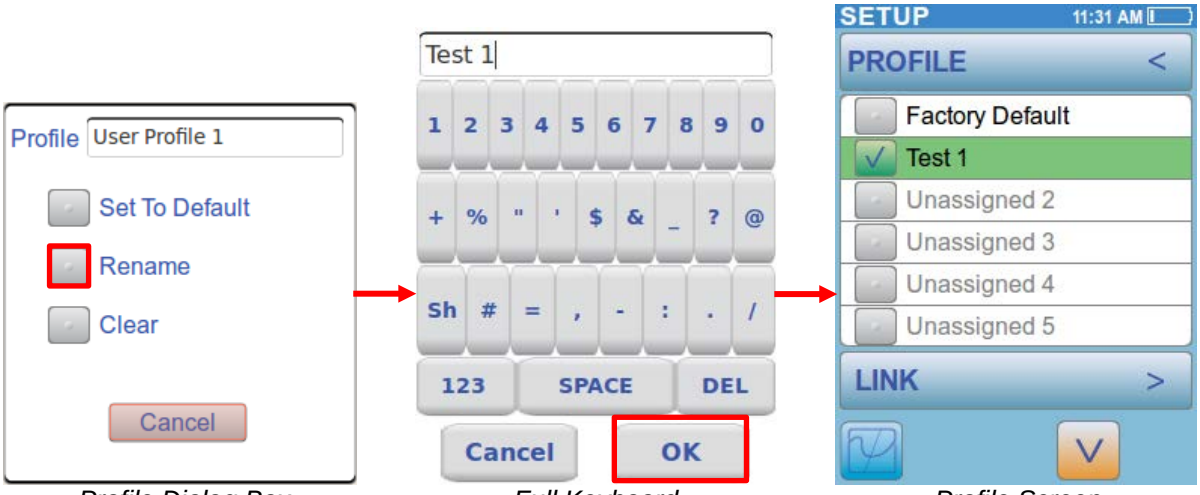
The User Profile 1 is now highlighted green and ready to be used for Auto Test. To edit newly created profiles, select the **User Profile 1** green checked box again.



Profile Screen *Profile 2 Screen*

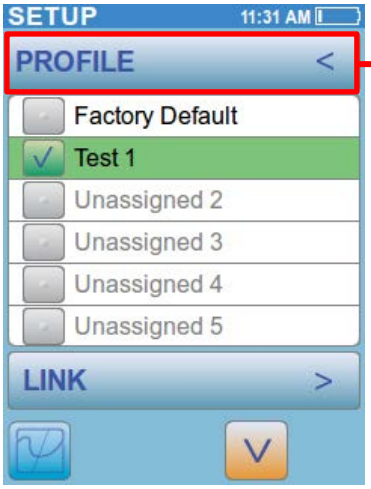
A dialogue box will be displayed. **Clear** will delete the selected profile and return the unit to the Factory Default profile. Select the **Rename** gray button to display a screen with an alphanumeric keyboard.

Enter any profile name with up to 20 characters. Select **OK** for the name to be saved and to return to the **Profile** screen where the new name is displayed and highlighted.

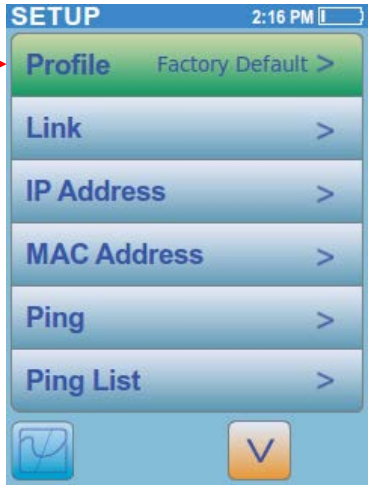


Profile Dialog Box *Full Keyboard* *Profile Screen*

Select the **Profile** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Link** button to continue on to the Link Setup Screen.



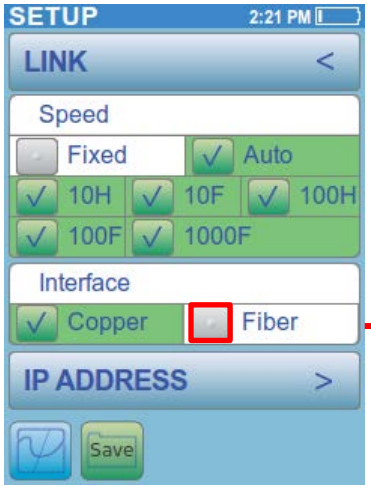
Setup Profile Screen



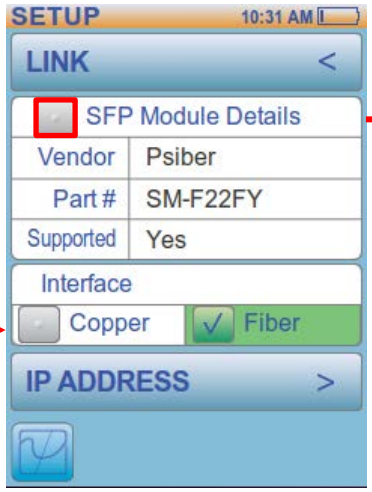
Main Setup Screen

Link

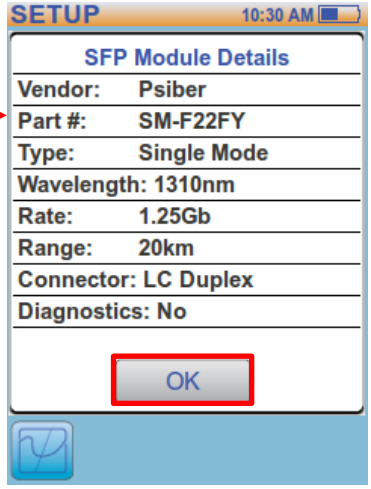
Select the **Link** Button from the Main Setup Screen. The **Speed** parameter choices are **Auto**-negotiating or **Fixed** speed/duplex. **Auto** selects all five speed/duplex modes; 10H, 10F, 100H, 100F or 1000F. In **Fixed**, only **ONE** speed/duplex can be selected. Select the **Save** button to save the configuration.



Setup Copper Link Screen



Setup Fiber Link Screen



SFP Module Details Dialog Box

The **Interface** setting appears in the PingerPro 75 where there is an option to test either **Copper** or **Fiber** cable. Once **Fiber** is selected, the SFP details and capabilities are displayed. Select the **SFP Module Detail** button to show all the details of the connected SFP. Select **OK** to return to the Link Screen.

Select the **Link** button with the **<** arrow to return to the Main Setup Screen or select the bottom **IP Address** button to continue on to the IP Address Setup Screen.

IP address

The **IP Address** settings allow for the selection of a **Fixed** or **DHCP** address. This must match the network to which the PingerPro is being connected. If the network does not have a DHCP Server, select the **Fixed** button.

Fixed allows the IP, Subnet, Gateway and DNS fields to be available to change. Select the **Address** button to change the IP address of the PingerPro. A numerical keyboard will be displayed to enter in the desired address. After entering the address, select **OK** to return to the **IP address** screen. Next, enter in the Subnet, Gateway and DNS addresses then press **Save**.

Setup IP Address Screen-DHCP *Numerical Keyboard* *Setup IP Address Screen-Fixed*

Selecting the **DHCP** button causes the IP, Subnet, Gateway and DNS fields not to appear because they are unavailable for change. This information will automatically be assigned to the PingerPro once a link is established with the DHCP server.

Select the **IP Address** button with the **<** arrow to return to the Main Setup Screen or select the bottom **MAC Address** button to the MAC Address Setup Screen.

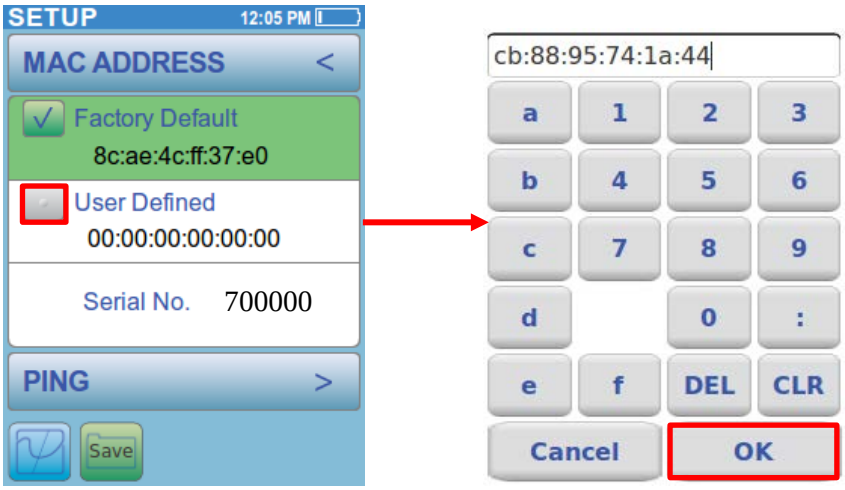
MAC Address

In this screen, the **MAC Address** parameters are displayed. The user has a choice of the **Factory** or a **User Defined** MAC address. The **Factory Default** MAC Address of the PingerPro **CANNOT** be changed.

User Defined allows the user to enter a MAC address of their choice for device cloning purposes. MAC cloning allows the PingerPro to simulate another network device by using its own MAC address to detect issues originating from that device.

Select the **User Defined** gray button to go to a Hexadecimal keyboard screen to enter a MAC address. After entering the desired address, select **OK** to return to the **MAC Address** screen. Select the **Save** button to save the configuration.

The **Serial Number** of the unit is also displayed.



Setup MAC Address Screen *Hexadecimal Keyboard*

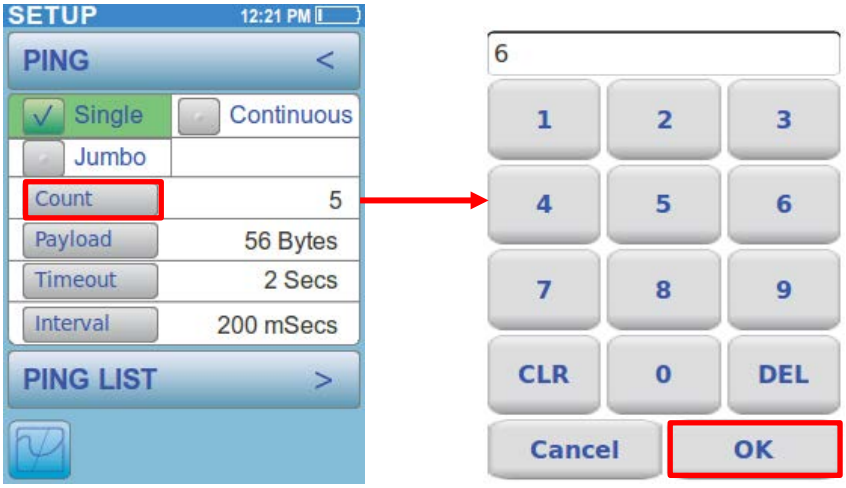
Select the **MAC Address** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Ping** button to continue on to The Ping Setup Screen.

Ping

Ping is a network tool used to test whether a particular host is reachable across an IP network. There are two options; **Single** or **Continuous**. When selecting **Continuous**, there can only be one ping target device selected and it only works in Ping Test.

Select the **Jumbo** button to send a jumbo size frame ping packet for either single ping or continuous pings. Jumbo allows for a ping packet payload to be 2K bytes large. *(Future Release)*

Single will ping a device the number of time you select in **Count**. **Count** determines the number of times to ping a device. Selecting the **Count** Button will display a numerical keyboard screen, allowing the user to change the parameter. After entering a valid number, select **OK** to return to the **PING** screen. Select the **Save** button to save the configuration.



Setup Ping Screen *Numerical Keyboard*

Payload is the amount of data sent with the ping packet in bytes. Select the **Payload** button to display a numerical keyboard. After entering a valid number between 56 and 1518 bytes, select **OK** to return to the **Ping** screen.

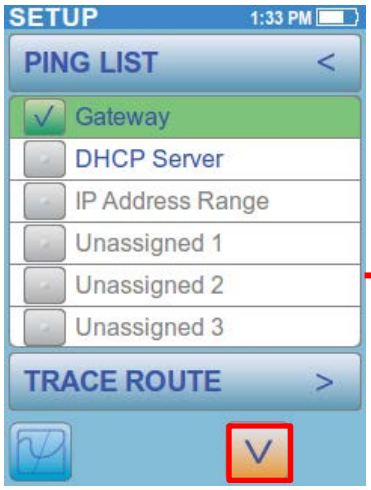
Timeout is the amount of time the PingerPro waits before a ping response returns. Select the **Timeout** button to display a numerical keyboard. After entering a valid number, select **OK** to return to the **Ping** screen.

Interval is the amount of time the PingerPro waits before sending out another ping packet. Select the **Interval** button to display a numerical keyboard. After entering a valid number, select **OK** to return to the Ping screen.

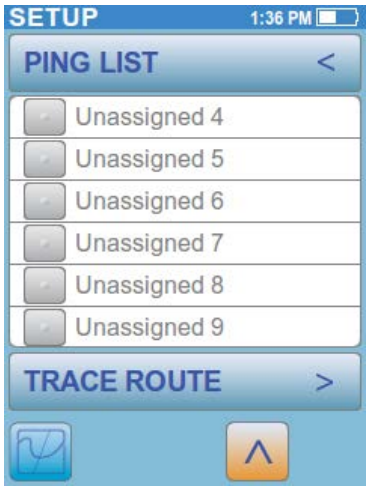
Select the **Ping** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Ping List** button to continue on to The Ping List Setup Screen.

Ping List

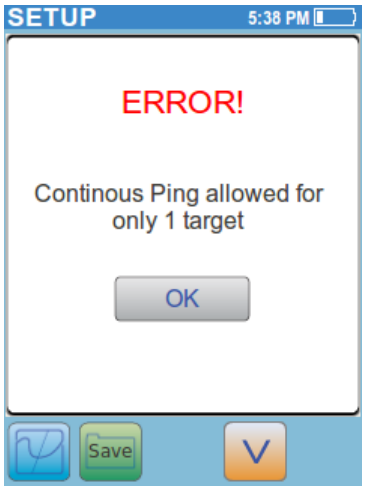
The **Ping List** screen allows the user to select the devices the PingerPro will ping. Select one target, or any combination of targets from the list. The options are **Gateway, DHCP Server, IP Range** (user defined), or up to nine separate **User Defined Targets** (Ping List Entries). **GATEWAY** allows for the pinging of the established gateway. **DHCP SERVER** allows for the pinging of the established DHCP Server. Select the ⋁ arrow to display more targets.



Setup Ping List Screen

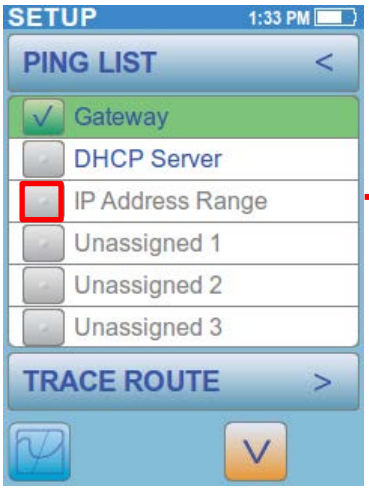


Setup Ping List 2 Screen

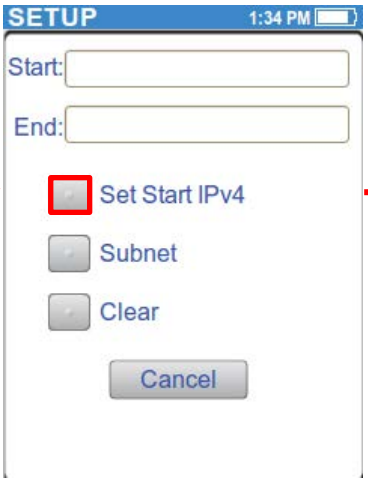


Continuous Ping Error Message

The **IP Address Range** is used to ping a user defined range of IP Addresses or a whole subnet. Select the **Gray button** to set the range. Select the **Subnet** button to select the whole subnet the PingerPro is connected to or select **Set Start IPv4** to set a specific range within that subnet. A numerical keyboard will be displayed to enter in the starting IP Address. Enter in the desired IP address and select **OK** to set the IP Address. Do the same for **Set End IPv4** address. Select the **Save** button to save the configuration.



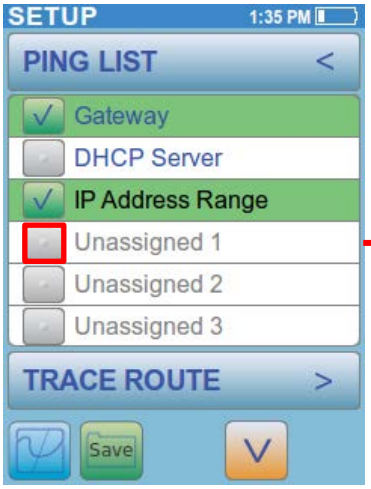
Setup Ping List-IP Range



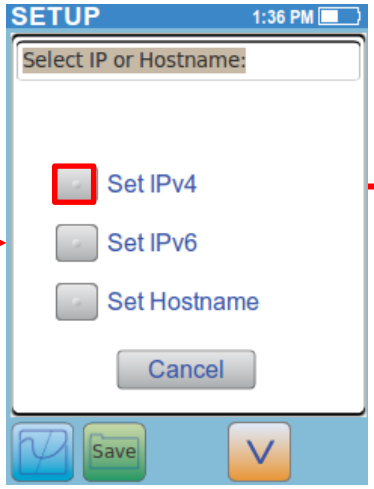
IP Range Setup Dialog Box

Numerical Keyboard

Unassigned 1 to 9 are user defined ping targets. Select any of the gray buttons to edit. Select **Set IPv4**, **IPv6** or **Hostname** to bring up a numerical, hex or full keyboard respectively. Enter in the appropriate address or device name to be pinged and select **OK**. Select the **Save** button to save the configuration.

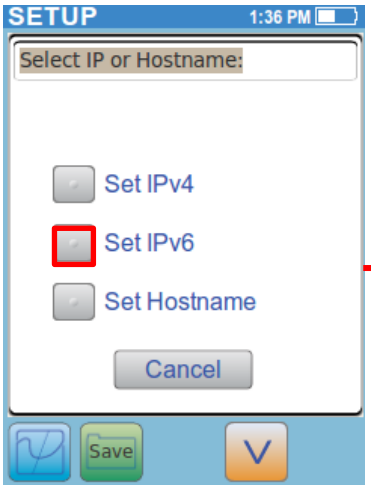


Setup Ping List-IP Range



IP Range Setup Dialog Box

Numerical Keyboard



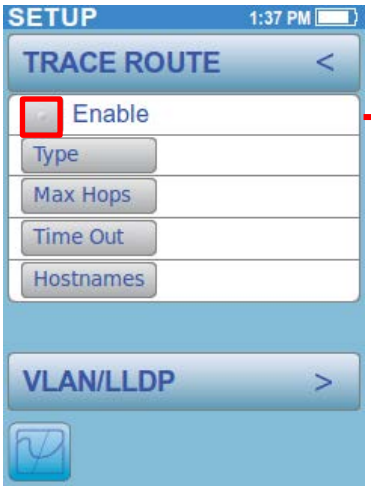
Setup PingIPv6 Screen

Hexadecimal Keyboard

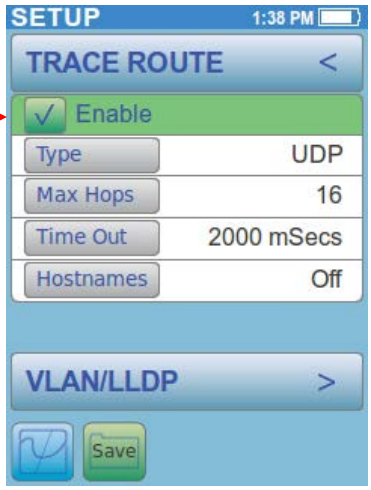
Select the **Ping List** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Trace Route** button to continue on to the Trace Route Setup Screen.

Trace Route

Trace Route displays the path and measures the delay of the packet across an IP network. The path of the packet is recorded as the round-trip time received from each remote node in the path. The sum of the mean times in each hop indicates the total time spent to establish the connection. Select the **Enable** button to add this test to the Ping Test. The Trace Route settings are now displayed.

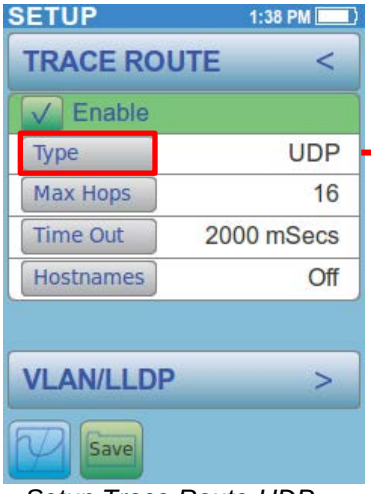


Setup Trace Route Screen

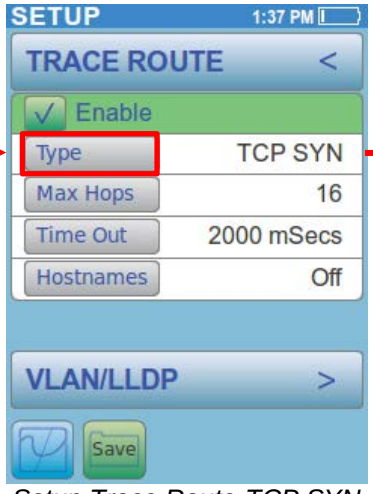


Setup Trace Route Screen-Enabled

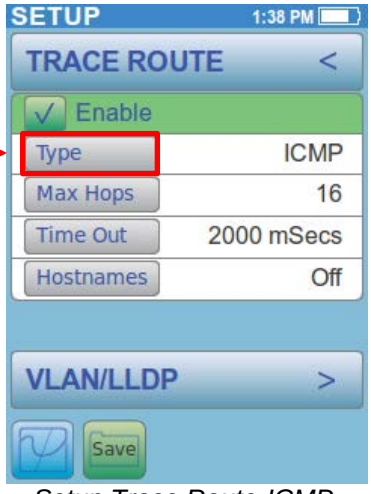
Select the **Type** button to toggle through UDP, TCP SYN or ICMP packet. This can help identify incorrect routing table definitions or firewalls that may be blocking ICMP traffic, or high port UDP in Unix ping, to a site. A firewall may permit ICMP packets but no other packets.



Setup Trace Route-UDP



Setup Trace Route-TCP SYN



Setup Trace Route-ICMP

The hop count refers to the intermediate devices through which data must pass between the PingerPro and target device. Each router along the path constitutes as a hop. Set the Max Hop limit by selecting the **Max Hop** button and entering in a number. Select **OK**.

Timeout is the amount of time the PingerPro waits before a Trace Route packet returns.

Hostnames toggles between Off and On. This allows for the device name to be displayed or just the IP address. Select the **Save** button to save the configuration.

Select the **Trace Route** button with the **<** arrow to return to the Main Setup Screen or select the bottom **VLAN/LLDP** button to continue on to the VLAN/LLDP Setup Screen.

VLAN/LLDP

Select the **Enable** button to add this test to the Auto Test set. The VLAN settings are now displayed.

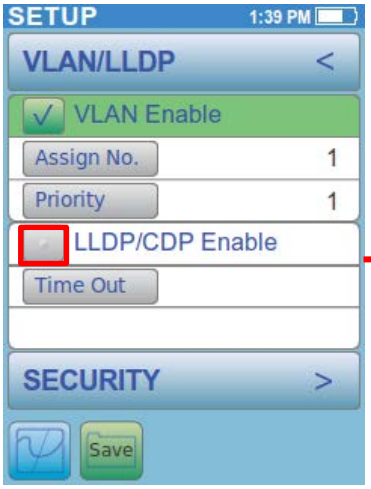
Setup VLAN/LLDP Screen *Setup VLAN Screen-Enabled*

VLAN partitions a single network to create multiple distinct broadcast domains which are mutually isolated so that packets can only pass between them via one or more routers. The default VLAN typically has an ID of 1.

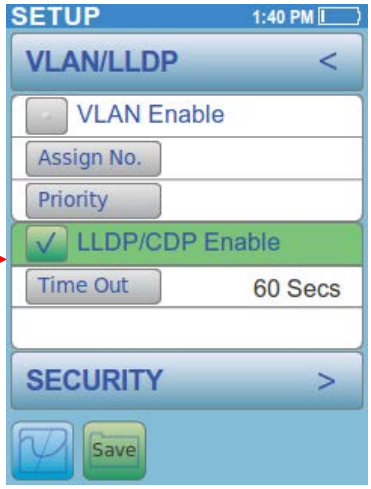
If a VLAN were to exist only on one device, no ports that are members of the VLAN group need to be tagged. These ports would hence be considered "untagged". When the VLAN is to extend to another device, then tagging is used. Since communications between ports on two different switches travel via the uplink ports of each switch involved, every VLAN containing such ports must also contain the uplink port of each switch involved, and these ports must be tagged. To change the VLAN ID select the **Assign No.** gray button and enter in a number up to 4096 and select **OK**.

VLAN **Priority** is defined by the 802.1P standard that is a quality of service (QoS) prioritization scheme that indicates the priority level of the frame. The priority level values range from 0 (best effort/lowest) to 7(highest). These values can be used to prioritize different classes of traffic such as voice and video. The VLAN ID tag specifies the VLAN to which the frame belongs. The priority bits define the priority with which the frames are processed.

Select the **Enable** button to add LLDP/CDP to the Auto Test set. The **LLDP/CDP** settings are now displayed.



Setup VLAN/LLDP Screen



Setup LLDP Screen-Enabled

The **Link Layer Discovery Protocol** (**LLDP**) is a vendor-neutral link layer protocol used by network devices for advertising their identity, capabilities, and neighbors on a network. LLDP information is sent by devices from each of their interfaces at a fixed interval in the form of an Ethernet frame.

The **Cisco Discovery Protocol** (**CDP**) is a proprietary Data Link Layer protocol developed by Cisco Systems. It is used to share information about other directly connected Cisco equipment, such as the operating system version and IP address. By default, CDP packets are sent every 30 to 60 seconds.

Select the gray **Timeout** button to change the time the PingerPro waits for a LLDP or CDP packet.

Select the **VLAN/LLDP** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Security** button to continue on to The Security Setup Screen.

Security

Select the **Enable** button to add this test to the Auto Test set. The **Security** settings are now displayed.

The PingerPro uses 802.1X to gain access to secure networks. **IEEE 802.1X** is an IEEE Standard for Port-based Network Access Control. It provides an authentication mechanism to devices wishing to attach to a LAN or WLAN. The encapsulation of EAP over IEEE 802 is defined as "EAP over LANs" or EAPOL.

The PingerPro uses EAP-MD5 to determine network security. EAP-MD5 differs from other EAP methods in that it only provides authentication of the EAP peer to the EAP server but not mutual authentication. Enter in the **Username** and **Password** for the PingerPro to use to authenticate itself in Auto Test.

Select the **Username** then enter in the correct username from the 802.1X Server and select **OK**. Follow the same steps for entering the **Password**. Select the **Save** button to save the configuration.

Setup Security Screen

Setup Security Screen-Enabled

Full Keyboard- Username

Select the **Security** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Settings** button to continue on to the Settings Setup Screen.

Settings

The **Settings** menu allows the user to customize their PingerPro's operating parameters. Select the gray **Date/Time** button to change date and time. Select the **up** and **down arrow** to change the month then press **Select** to scroll through the day, year, hour, minute and AM/PM selections. Select **OK** to return to the Main Settings page.

The **Sound** setting can be changed to either **High**, **Low** or **Off**. Select the V arrow to see more settings options.

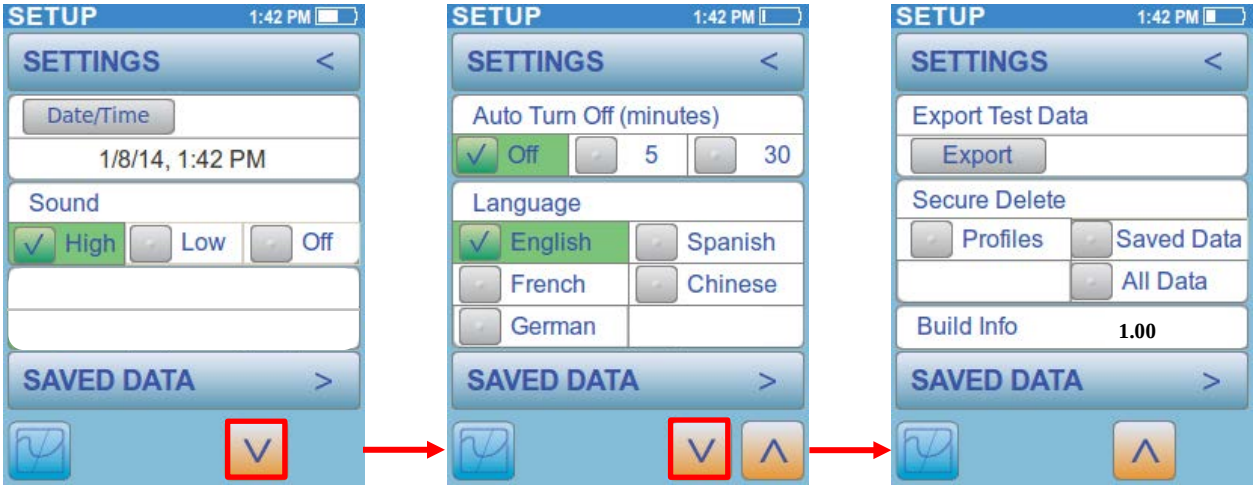
Auto Turn Off allows the PingerPro to turn off with either **5** minutes or **30** minutes of inactivity or set to never turn **off**. To save battery life, change the Auto turn off time to **5** minutes.

PingerPro is available in five different **languages**: English, Spanish, French, German, and Chinese. Select another language, other than the default English setting, and the PingerPro will cycle power to bring up the selected language. Select the V arrow to see more settings options.

Export Test Data allows the user to Export test data to your PC through the USB cable. Select **Export** then plug the USB cord into the PingerPro. A PingerPro Drive will display on the PC. Select the Test Data to be exported to the PC. Copy and paste the data to the PC. (*PingerPro Tools for the PC will be available on the Psiber website for reporting)*

Secure Delete allows the user to set the PingerPro back to the Factory Default settings. The user has the option to select **Profiles, Saved Data** or **All data** to be deleted. *Please note that once this is selected there is no way of getting back the data.*

Build Info shows the latest firmware running on the PingerPro. Check the *www.psiber.com* website for the latest firmware.

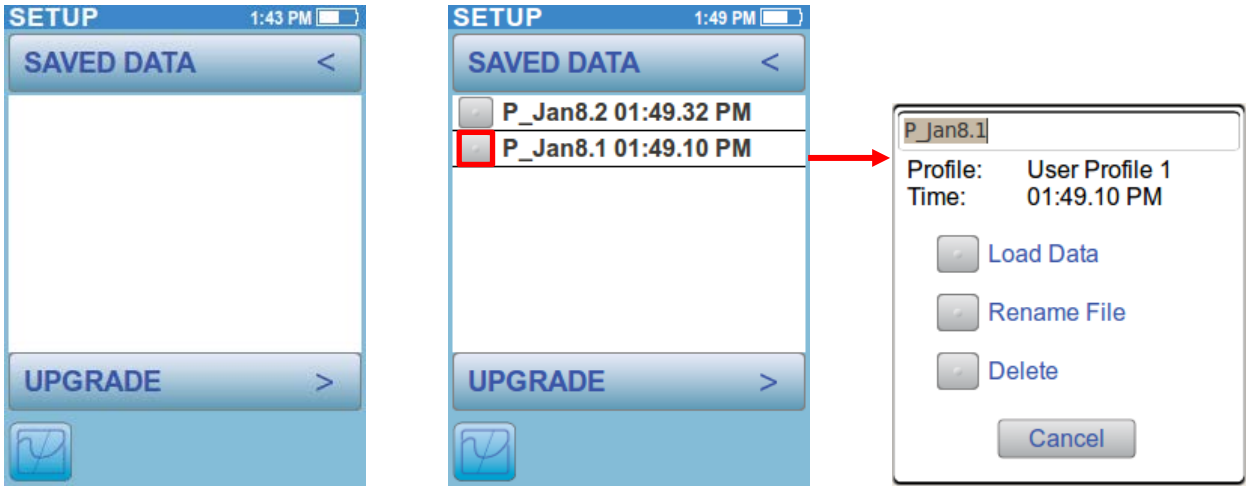


Setup Settings Screen *Setup Settings 2 Screen* *Setup Settings 3 Screen*

Select the **Settings** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Saved Data** button to continue on to The Saved Data Setup Screen.

Saved Data

Saved Data is filled with saved test data from the Auto, Ping or Cable/Fiber Tests. Auto Test is denoted with an A_ prefix before the date and time. Ping test is denoted with a P_ prefix before the date and time. Cable test is denoted with a C_ prefix before the date and time.



Setup Saved Data Screen *Setup Saved Data Screen-Test Data* *Saved Data Dialog Box*

Select the Test Data by selecting the gray button next to the desired saved data. A dialog box will be displayed. The Profile used for the test data is displayed as well as the Time the data was saved.

Below are three options: Load data, Rename File or Delete.

Load data will show a preview of the test data on the PingerPro.

Rename file allows a user defined name to be entered for the test data.

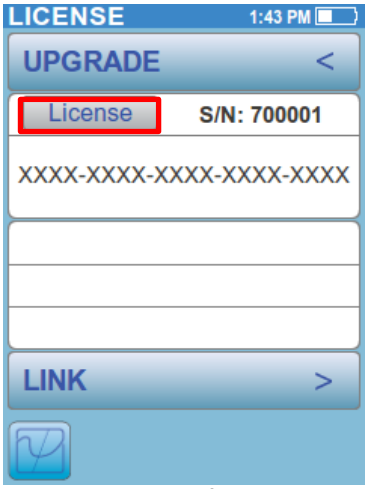
Delete will delete the test data on the PingerPro. *Please note that once this is selected there is no way of getting back the data.*

Select **Cancel** to go back to the Saved Data screen without making any changes.

Select the **Saved Data** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Upgrade** button to continue on to the Upgrade Setup Screen.

Upgrades

Upgrade allows for the upgrade of the PingerPro firmware. A unique License is displayed to upgrade the Pinger Pro with new features. Select the **License** button to enter in the new unique license number given by Psiber. Once that is entered, the **INSTALL FILE dialog** will be displayed, **do not dismiss yet**. Next, the USB drive is exported to the PC so that the install file (*.sbx) can be copied. **Plug** the USB into a PC and the PingerPro. Copy the install file to the PingerPro Drive on the PC then eject the drive. **DO NOT UNPLUG USB**. Select **OK** to dismiss the dialog box on the PingerPro to finish the installation. On the top banner you can watch the progress cycle through COPY, UNPACKING, VERIFY, INSTALLING… of the new firmware. After installing and successful licensing, an **UPGRADE COMPLETE** dialog will appear, then about 5-10 seconds later it will reboot to the newly installed application.



Setup Upgrade Screen

Select the **Upgrade** button with the **<** arrow to return to the Main Setup Screen or select the bottom **Link** button to return to The Link Setup Screen.

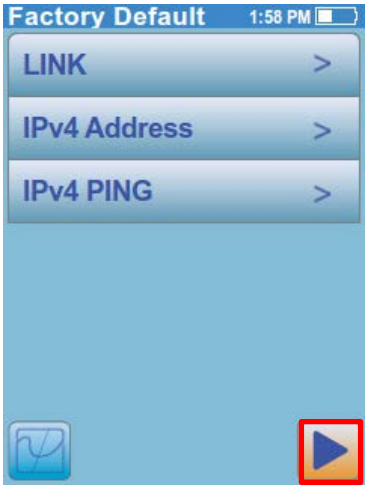
Auto Test

Once Setup has been configured, select the **Auto Test** button on the Home Screen to display the Main Auto Test page. Select the **play** button to start the Auto Test.

Note: The Auto Test can be performed immediately, using Factory Default Profile, without navigating through and changing parameters within the Setup Menu.

Home Screen

Auto Test Screen w/all tests



Auto Test Screen w/few tests

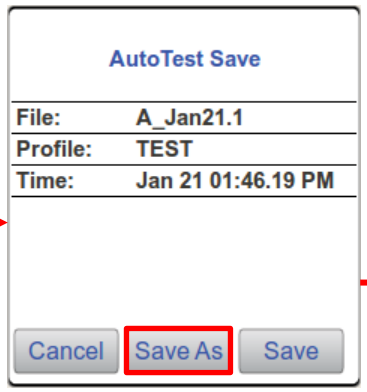
Depending on how the Auto Test is setup, the test will range from 5 to 60 seconds. Once completed, green checkmarks will be displayed for tests that have passed. If the test fails, then a red button and an X will indicate at which part the test failed. As shown below, the Auto Test in progress screen shows a red count down of the time it will wait until a LLDP or CDP packet is found before the timeout is reached.

Main Auto Test Screen in Progress

Main Auto Test Screen Failed

Once the Auto Test is complete, select the **Save** button to save the current Auto Test data. Selecting **Save** will save the data with the automatic file name. Selecting **Save As** will allow the user to rename the file. Selecting **Cancel** will cancel the Save process and return the user back to the Auto Test Results.

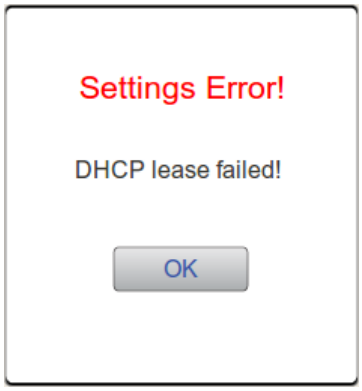
Main Auto Test Screen



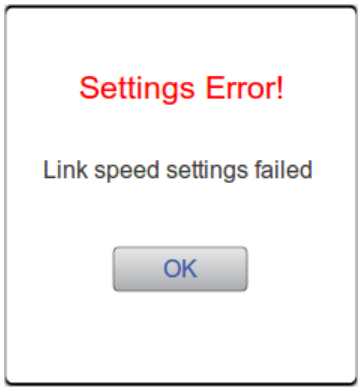
Auto Test Save Screen

Auto Test Save As Screen

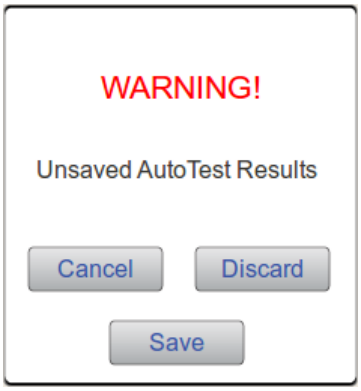
Press the **Refresh** or **Play** button to start a new Auto Test. **Note that this also clears all the data collected**. If no link is established within the timeout period, the button will turn red and a warning message is displayed. Below are a few examples of warning messages.



DHCP Warning Message



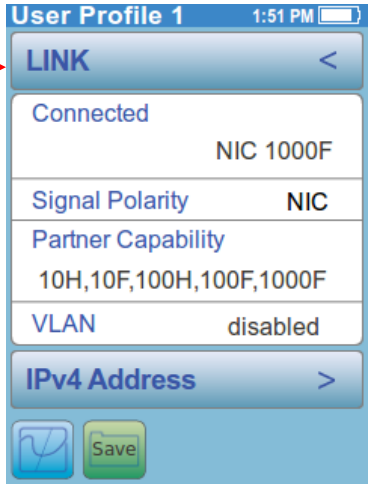
Link Warning Message



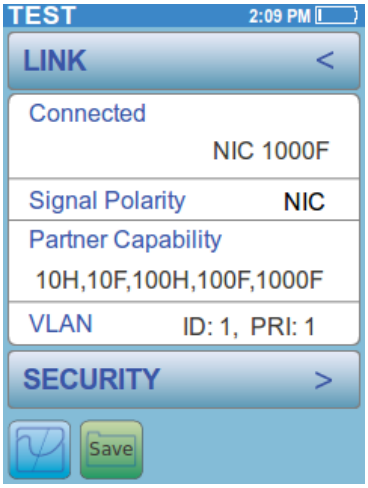
Unsaved Warning Message

Select the **Link** button to bring up the **Link** Results Screen. This screen will display the partner's capabilities and actual connected link status. The linked port is shown with the actual link parameters including connection type (LAN or NIC), speed (10/100/1000) and duplex mode (Half or Full). If VLAN was selected under setup, the VLAN ID and Priority will be displayed.

Main Auto Test Pass Screen

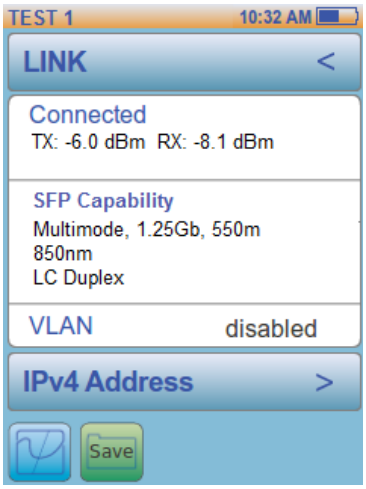


Copper Link Screen



Link Screen with VLAN

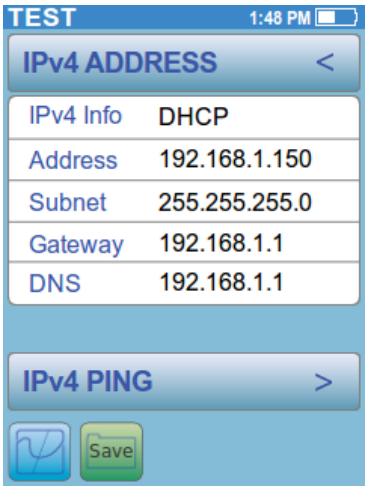
For the PingerPro +Fiber, the unit measures Optical Power Received (Rx) and Transmitted (Tx) when Fiber is selected. The measurement in displayed in 0.1dBm increment with a Range of -32dBm to +8dBm and accuracy +/- 2 dBm.



Fiber Link Screen

Select the **Link** button with the **<** arrow to return to the Main Auto Test Screen or select the bottom button to continue to the IPv4 Address Results Screen.

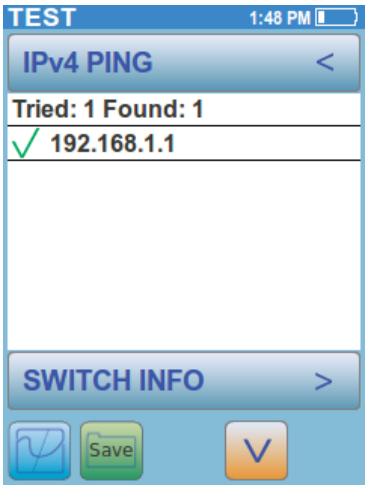
IPv4 Address displays the IP address, Subnet Mask, Gateway IP address and DNS (Domain Name System) Server IP address. IPv4 Info displays **DHCP** or **Fixed** from the configuration set in setup.



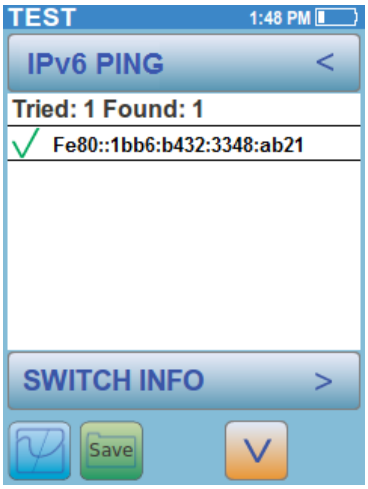
IPv4 Address Screen

Select the **IPv4 Address** button with the **<** arrow to return to the Main Auto Test Screen or select the bottom button to continue to the IPv4 Ping Results Screen.

The **IPv4 PING** and **IPv6 PING** tests are used to quickly verify connectivity and search a stored list or a range of IP addresses for devices on the network. (For more information on devices detected such as roundtrip time and MAC address, use the **Ping** test from the Home Screen.)



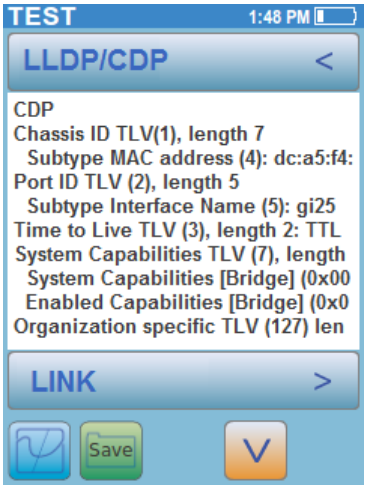
IPv4 Ping Screen



IPv6 Ping Screen

Select the **IPv4 Ping** button with the **<** arrow to return to the Main Auto Test Screen or select the bottom button to continue to the LLDP/CDP Results Screen.

The **Switch Info (LLDP/CDP)** Screen decodes LLDP (Link Layer Discovery Protocol) and CDP (Cisco Discovery Protocol) frames which are detected from the nearest connected switch. Scroll through the entire data by selecting the up and down arrows or by swiping the stylus on the screen up/down and side to side.

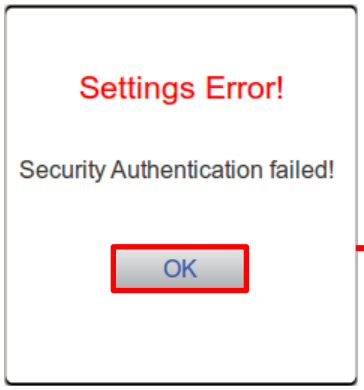


LLDP/CDP Test Screen

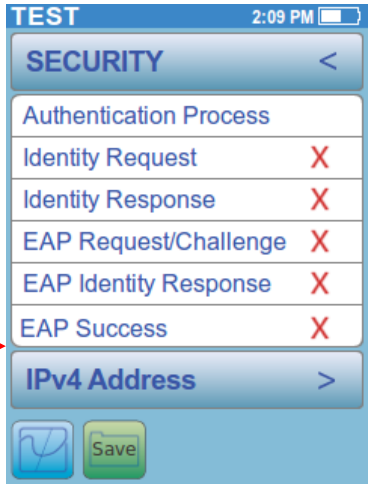
Select the **LLDP/CDP** Switch Info button with the **<** arrow to return to the Main Auto Test Screen or select the bottom button to continue to the Security Results Screen.

The **Security** Results Screen shows the Authentication Process the PingerPro goes through to connect to a network using 802.1X through the EAP-MD5 protocol. The PingerPro will display green check marks for passed steps and red X's for failed steps. This will help determine where the problem is located within the 802.1X Secure network.

Main Auto Test Failed Screen



Security Warning Message



Security Screen with Failures

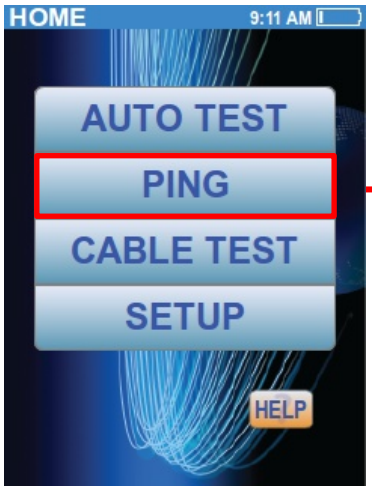
The PingerPro goes through the following common steps to authorize a connection to an 802.1X secure network:

1. The authenticator sends an "**EAP Request/Identity**" packet to the PingerPro as soon as it detects that the link is active.
2. The PingerPro sends an "**EAP Response/Identity**" packet containing a unique User ID for the PingerPro to the authenticator, which is then passed on to the authentication (RADIUS) server.
3. The authentication server sends back an "**EAP Response/challenge**" to the authenticator, such as with a token password system. The authenticator unpacks this from IP and repackages it into EAPOL and sends it to the PingerPro.
4. The PingerPro responds with an **"EAP Identity Response**" packet which includes the correct password to the challenge via the authenticator and passes the response on to the authentication server.
5. If the PingerPro provides proper identity, the authentication server responds with an "**EAP Success**" packet, which is then passed onto the PingerPro. The authenticator now allows access to the LAN network.

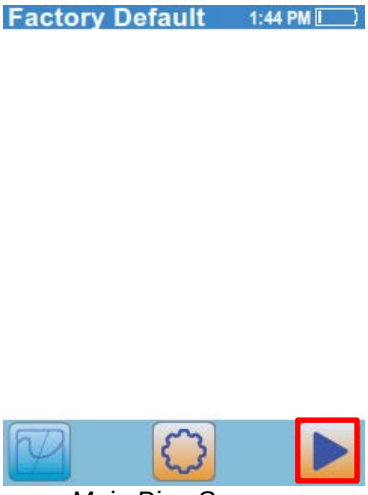
Passed Security Screen

Ping Test

The PING test is the quickest way to verify connectivity, measure round trip communication time, check data integrity, determine a MAC address and search a stored list or a range of IP addresses. Select the **PING** test button from the Home Screen. Select the **play** button to start the test.

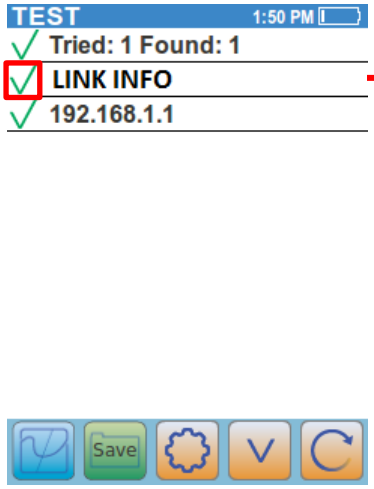


Home Screen

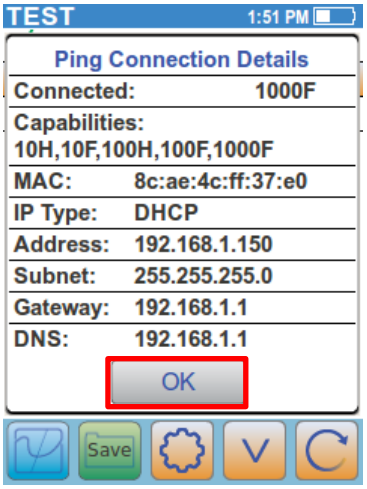


Main Ping Screen

Once the test is complete, a summary of the responsive or unresponsive devices are displayed. The Factory Default profile will only ping the Gateway address. Select the **Link Info** button to display the **Ping Connection Details d**ialog box. **Ping Connection Details** include speed and duplex the Pinger Pro is connected at, partner capabilities, MAC address and IP address information. Select the **OK** button to return to the Main Ping Screen.

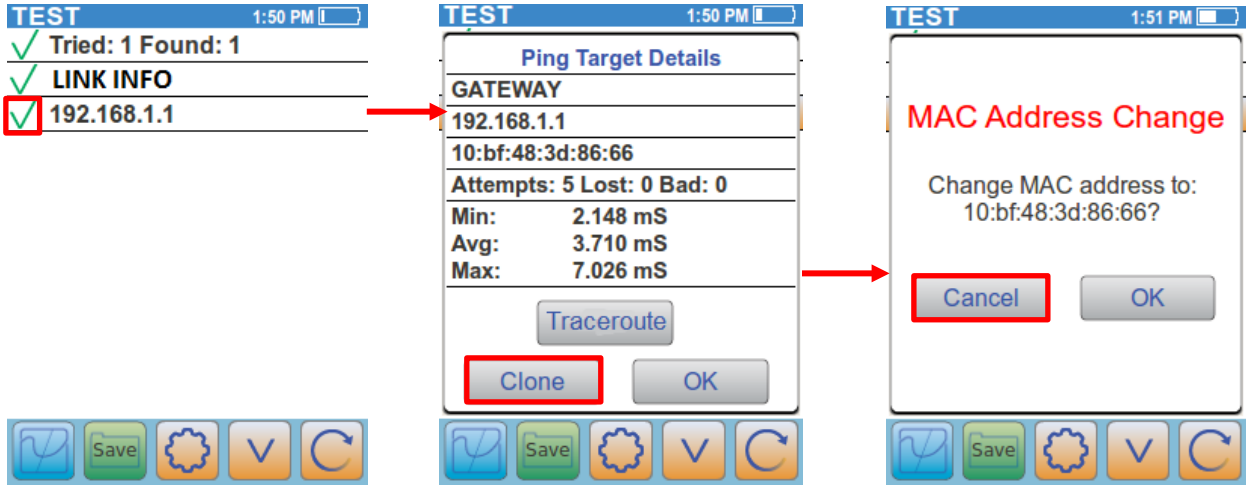


Main Ping Screen



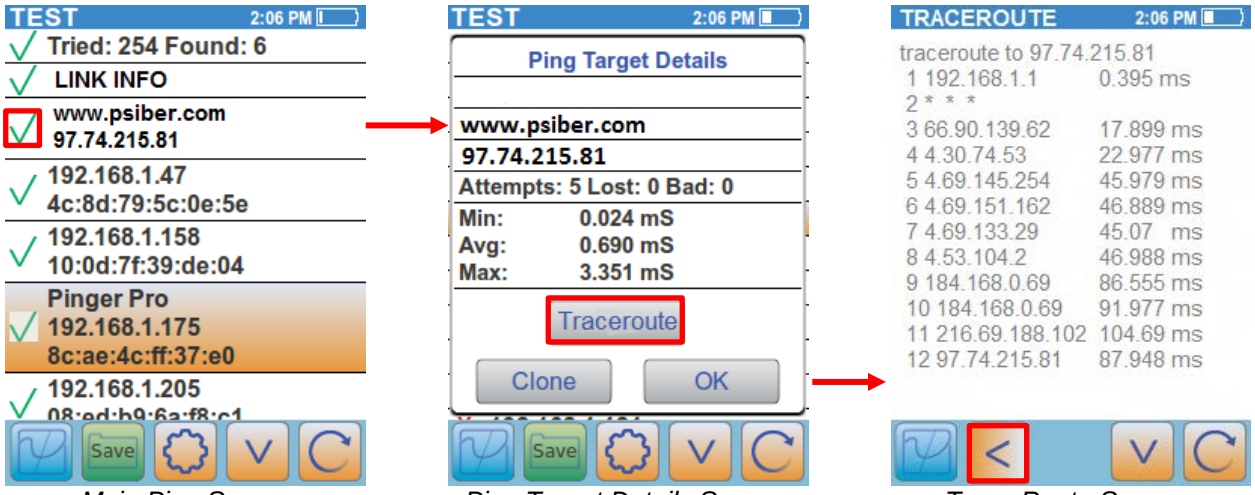
Ping Detail Screen

Select the **Target IP address** button to display the **Ping Target Details**. Ping target details include the Hostname, IP address, MAC address, attempted ping packets sent and the round trip time to the device and back. The **Clone** button will appear when the IP address is within the Subnet mask the PingerPro is connected to. Select **Clone** to change the MAC address of the PingerPro to the target device. Select **OK** to set the MAC address or **Cancel** to return to the Ping Target Details page. Select the **OK** button to return to the Main Ping Screen.



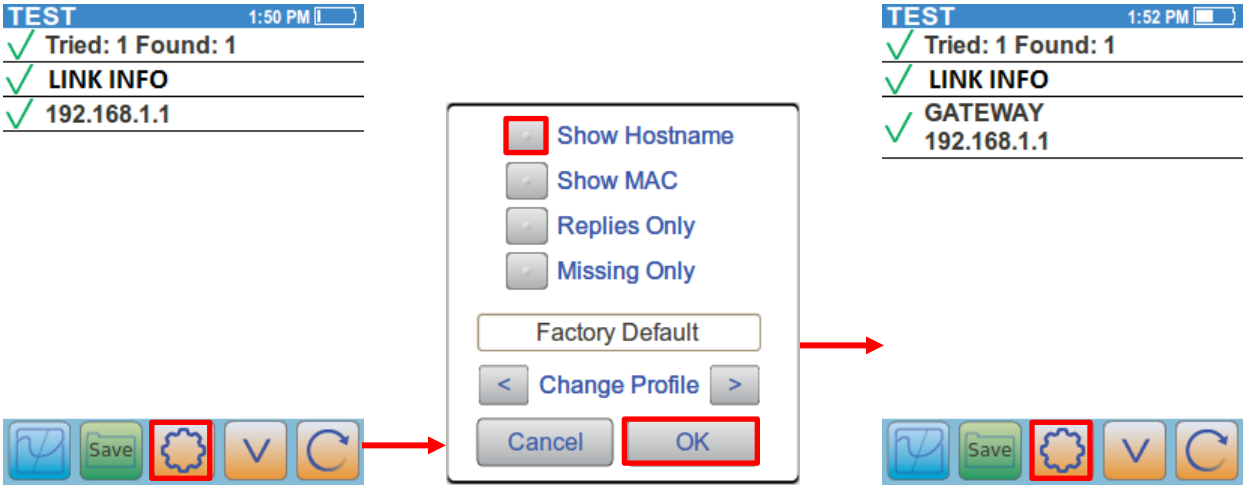
Main Ping Screen *Ping Target Details Screen* *Clone MAC address Screen*

Select the **Trace Route** button to trace the route to that target device. The device is listed with the number of hops it took the PingerPro to get to the device. The IP address (if available) is displayed with the roundtrip time in milliseconds. If the PingerPro cannot resolve the IP address, it displays stars. Use the up and down arrow to see all the hops.



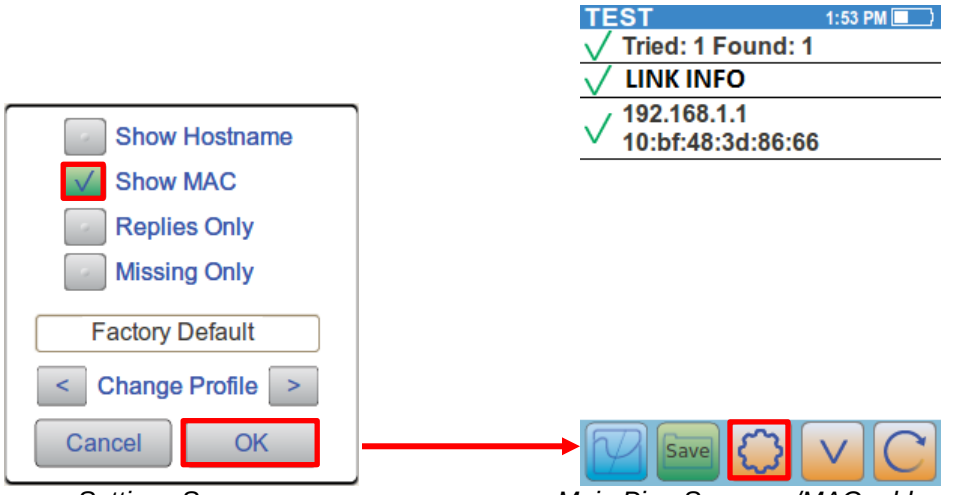
Main Ping Screen *Ping Target Details Screen* *Trace Route Screen*

Select the **Settings** button to display the Settings Screen. Select the **Show Hostname** button and then select **OK** to display the targets name on the Main Ping Screen.



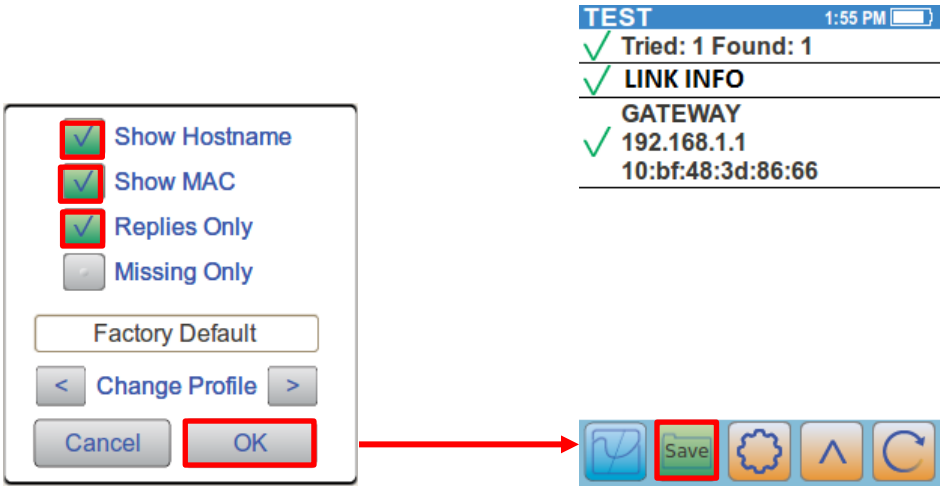
Main Ping Screen *Settings Screen* *Main Ping Screen w/Hostname*

Select the **Settings** button again to display the Settings Screen. Select the **Show MAC** button and then select **OK** to display the target's MAC address on the Main Ping Screen.



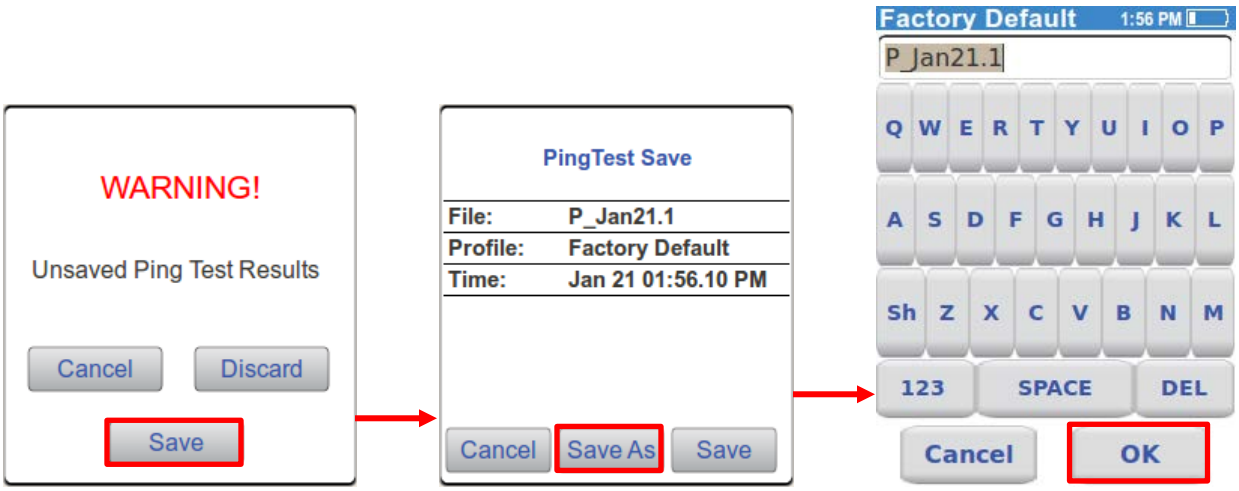
Settings Screen *Main Ping Screen w/MAC address*

Select the **Settings** button again to display the Settings Screen. Select all three buttons including **Show Hostname, Show MAC and Replies only**. Select **OK** to display only the targets that have passed the ping test with both the Hostname and MAC address displayed on the Main Ping Screen.



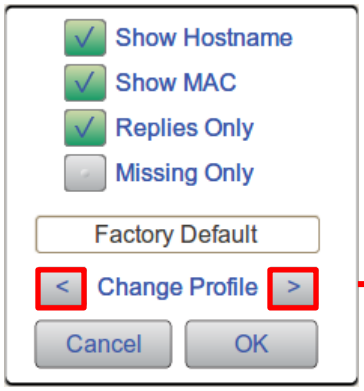
Settings Screen *Main Ping Screen*

Selecting the **Psiber Home** button or the **Refresh** button before saving will result in a warning message being displayed. Select the **Save** button to save the current Ping Test data. Select **Save** to save the data with the automatic file name or select **Save As** to rename the file. Selecting **Cancel** will cancel your Save and return back to the Main Ping Test Screen.



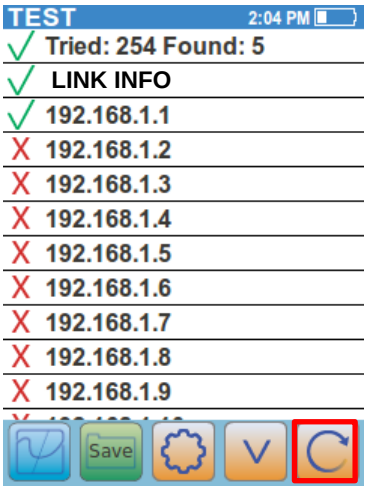
Unsaved Warning Message *Ping Test Save Screen* *Ping Test Save As Screen*

Select the **Settings** button again to display the Settings screen. Select the **<** and **>** arrows to scroll through the User Defined Profiles. Select **OK** to set a new User Defined Profile and return to the Main Ping Screen to run a new test. Select the **Refresh** button to start the test.



Settings w/Factory Default

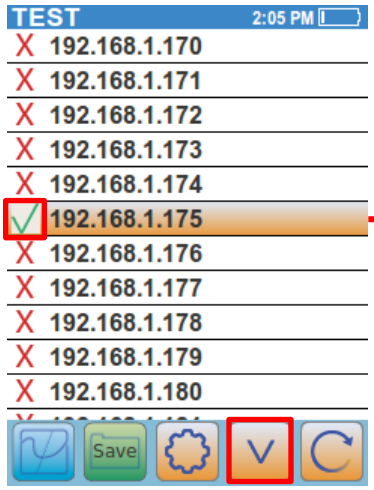
Settings w/TEST Profile



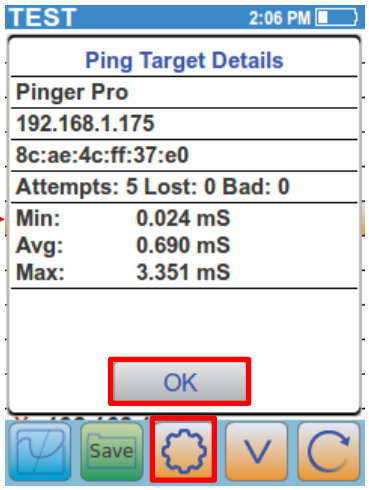
Main Ping Test Screen

This new test displays ping packet responses sent across the entire subnet. The top information bar indicates that 254 IP addresses were sent ping packets and only 5 devices responded.

Use the **V** arrow to scroll through the device to see which devices were found. The PingerPro IP address will be displayed in gold to show its own information. Select on the **Pinger Pro IP address** to bring up the **Ping Target Details**. Select **OK** when finished.

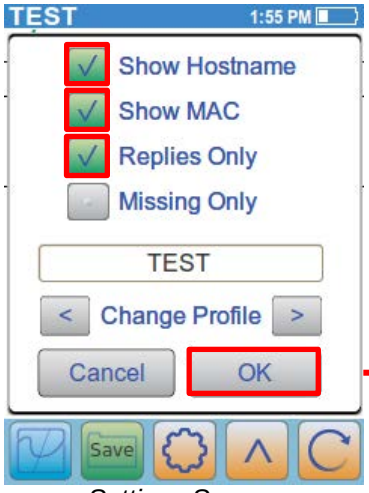


Main Ping Screen test Completed

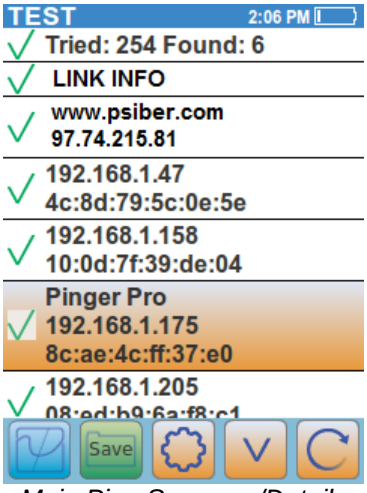


Ping Target Detail Screen

Select the **Settings** button again to display the Settings screen. Select all three buttons including Show Hostname, Show MAC and Replies only. Select **OK** to display only the targets that have passed the ping test with both the Hostname and MAC address displayed on the Main Ping Screen. Select any tested device for more information. Select the **Save** button to save the results.



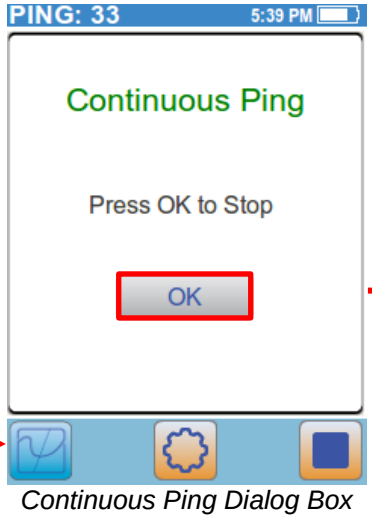
Settings Screen



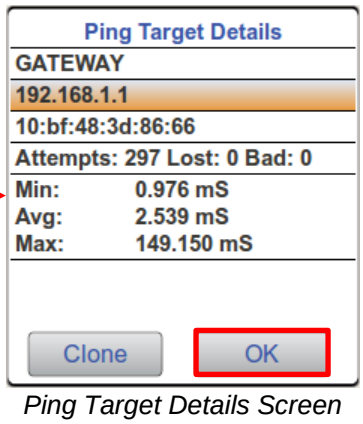
Main Ping Screen w/Details

If **Continuous** ping is selected in setup, the Pinger Pro will continue to ping a specific target until the user selects the **OK** button to stop pinging. The banner will show the number of ping packets the PingerPro has sent to the target device. The Ping Target Details Dialog box will be displayed with information including Hostname, IP/ MAC address, number of attempt, lost and bad packets. The minimum, average and maximum round trip times are also displayed.

Main Ping Screen



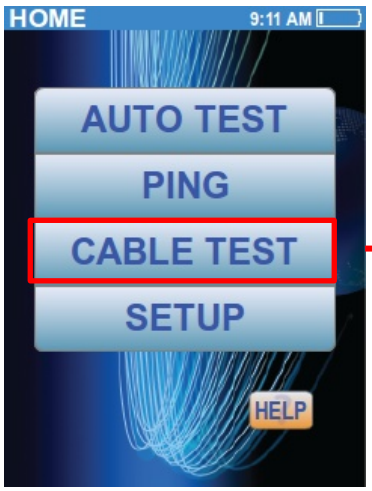
Continuous Ping Dialog Box



Ping Target Details Screen

Cable Test

The **Cable Test** will check the physical wire connected to the PingerPro. Cable Test includes Wiremap, Length, Tone and Port ID. Select the **Cable Test** button from the Home Screen. Select the Wiremap to test the cable.

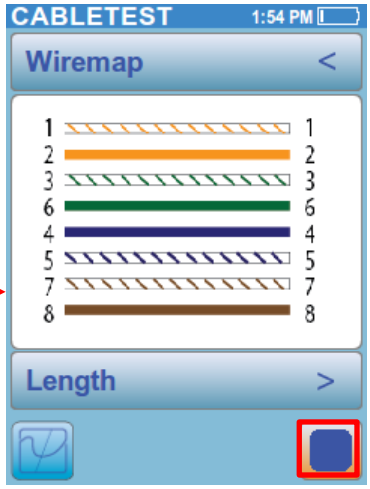


Home Screen

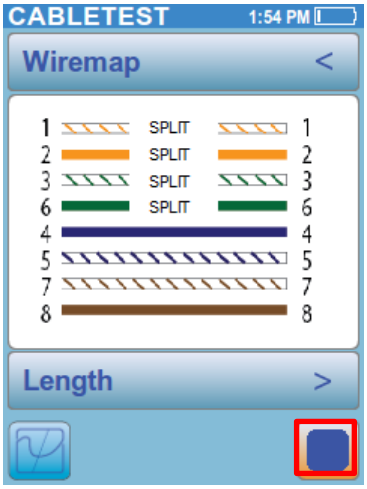
Main Cable Test Screen

Wiremap verifies proper cable wiring and detects split pairs. Connect the Wiremap Terminator to the cable under test before starting the Wiremap test. Selecting the **Play** button will start the test. The Wiremap test will continue to run until the Stop button has been pressed. Select **Save** to save the last tested cable.

Wiremap Screen before Test



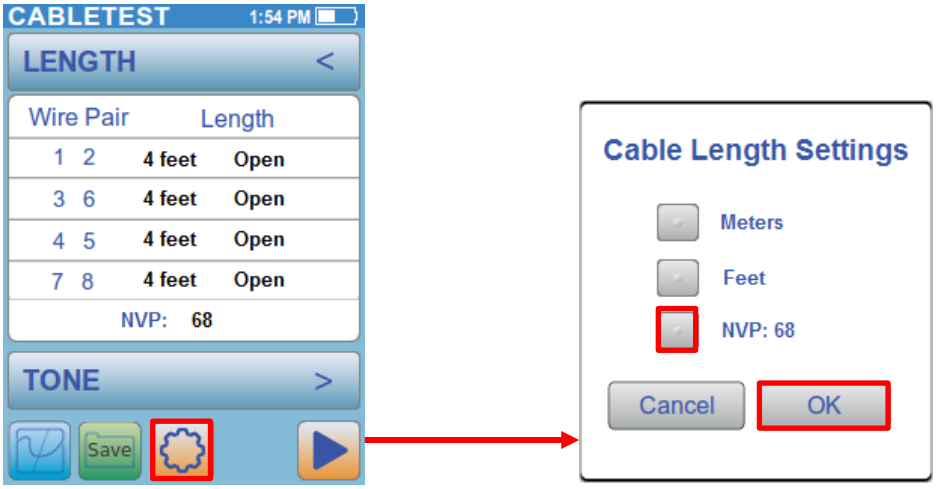
Passed Wiremap Screen



Failed Wiremap Screen

Select the **Wiremap** button with the **<** arrow to return to the Main Cable Test Screen or select the bottom **Length** button to test the length of the cable to an open or short.

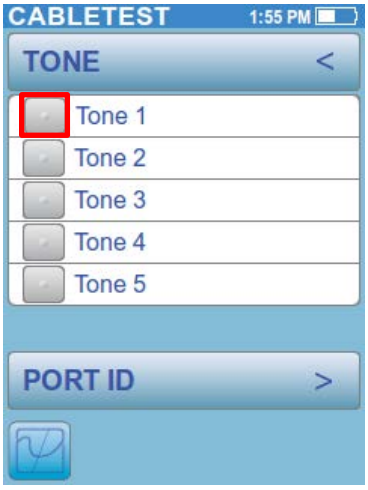
Length measures and displays the distance to an open or short of each wire pair in a cable. Disconnect the cable under test from a switch or Wiremap Terminator prior to starting the length measurement. Select the **Settings** button to change the NVP for the connected cable by selecting the gray button to display a numerical keyboard. The highest NVP is 74 and the lowest is 65. Select either **Meters** or **Feet** to display the length in that unit of measurement. Select **OK** to return to the Length Screen. Select the **play** button to run the test.



Length Screen *Length Settings Screen*

Select the **Length** button with the **<** arrow to return to the Main Cable Test Screen or select the bottom **Tone** button to trace the wire.

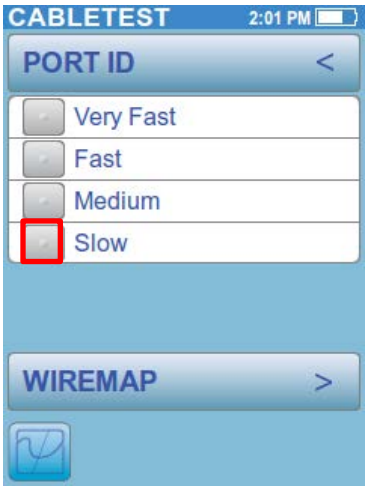
Tone is used to locate a punch down or trace a cable using a Cable Tracker CT-15 probe (Optional). The tone frequency is adjustable. Select a **gray tone** button to start the tone.



Tone Screen

Select the **Tone** button with the **<** arrow to return to the Main Cable Test Screen or select the bottom **Port ID** button to send a signal to the attached Port.

Port ID is used to determine which port of a hub or switch is wired to a particular wall jack by blinking the Link LED on the port. The blink rate is adjustable for compatibility with most switches and hubs. Select the rate at which the LED will blink **SLOW, MEDIUM, FAST,** or **VERY FAST**.

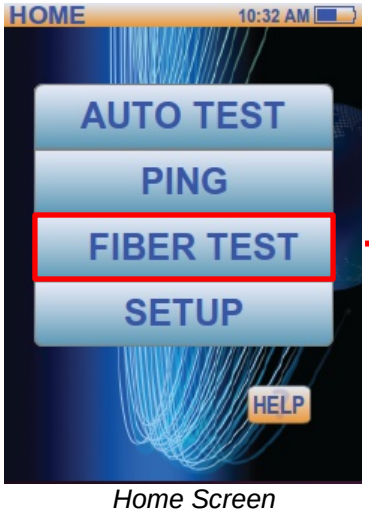


Port ID Screen

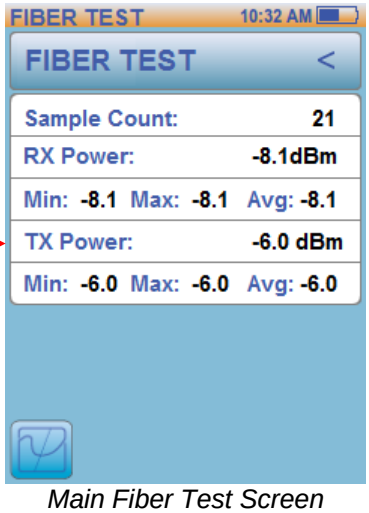
Select the **Tone** button with the **<** arrow to return to the Main Cable Test Screen or select the bottom **Port ID** button to send a signal to the attached Port.

Fiber Test

The **Cable Test** button on the Home Screen will become the **Fiber Test** if it's a PingerPro 75 devices and the fiber button was selected in **Setup** under the **Link** Screen. The **Fiber Test** continuously measures and displays the Received (RX) and Transmitted (TX) power from the fiber SFP port. The sample count and the minimum, average and maximum power detected are also displayed.



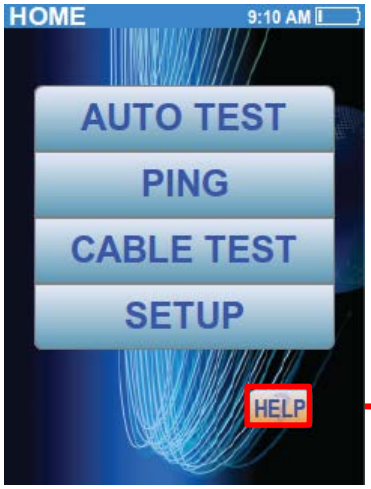
Home Screen



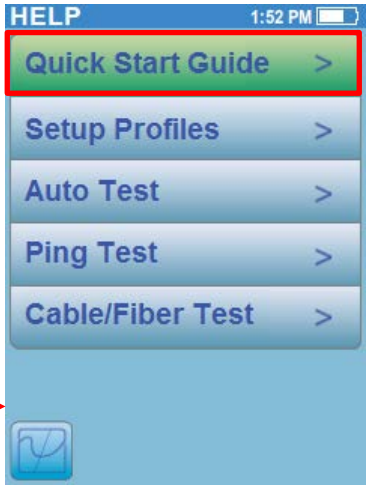
Main Fiber Test Screen

Help

The **Help** Screen displays this step-by-step user guide on how to use the PingerPro and displays the quick start guide.



Home Screen



Main Help Screen

The **Help** Screen is divided into five categories to easily guide through the different tests the PingerPro can perform. Select the Quick Start Guide button and scroll through the pages. Sample helps screens are displayed below.

Getting Started Help Screen

Getting Started Help Screen

Select the **<** arrow to return to the Main Help Screen or the up and down arrows to see more help information.