FLUKE networks

DSX-600 Series

CableAnalyzer™

Users Manual

Software Version 6.3

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Chapter 1: Get Acquainted

Overview of Features

The DSX-600 and DSX-602 CableAnalyzer™ main and remote units are rugged, hand-held testers that let you certify, troubleshoot, and document copper network cabling. The DSX-600/602 include these features:

Note

Feature descriptions in the DSX-600 Series documentation apply to DSX-600 and DSX-602 testers unless stated otherwise.

- The testers certify twisted pair cabling to Cat 6A/Class E_A limits (500 MHz) in less than 10 seconds.
- Gives a PASS or FAIL result based on a test limit that you specify.
- You can save approximately 12,700 Cat 6A Autotest results, with plot data, in the tester's internal memory. You can save more results on a removable flash drive.
- Taptive™ user interface lets you quickly navigate through different views of the results and see more information about cables.
- ProjX™ management system lets you set up projects to specify the types of tests and the cable IDs necessary for a job and monitor the progress and status of the job.
- You can connect the tester to a wired or Wi-Fi network and use the LinkWare™ Live web application to manage your projects from a desktop or mobile device.
- LinkWare PC software lets you upload test results to a PC and make professional-quality test reports.

- LinkWare Stats software makes browsable, graphical reports of cable test statistics.

Contact Fluke Networks


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Fluke Networks operates in more than 50 countries worldwide. For more contact information, go to our website.

Register Your Product

Registering your product with Fluke Networks gives you access to valuable information on product updates, troubleshooting tips, and other support services. If you purchased a Gold Support plan, registration also activates your plan.

To register your product, use LinkWare PC software.

Technical Reference Handbook

The *DSX-600 Series Technical Reference Handbook* has more information about the tester. The Handbook is available on the Fluke Networks website.

Additional Resources

The Fluke Networks Knowledge Base answers common questions about Fluke Networks products and provides articles on cable testing techniques and technology.

To access the Knowledge Base, log on to **www.flukenetworks.com**, then click **SUPPORT** > **Knowledge Base**.

Supplements and Updated Manuals

If necessary, Fluke Networks will put a supplement for this manual, or an updated manual, on the Fluke Networks website. To see if a supplement or updated manual is available, log on to **www.flukenetworks.com**, click **SUPPORT** > **Manuals**, then select a product.

Kit Contents

For a list of the contents of your DSX-600 or DSX-602 kit, see the list that came in the product's box or see the lists of models and accessories on the Fluke Networks website. If something is damaged or missing, contact the place of purchase immediately.

Symbols

Table 1 shows the symbols used on the tester or in this manual.

Table 1. Symbols

	Warning: Risk of fire, electric shock, or personal injury.
	Warning or Caution: Risk of damage or destruction to equipment or software. See explanations in the manuals.
	Consult the user documentation.
	40 year Environment Friendly Use Period (EFUP) under China Regulation - Administrative Measure on the Control of Pollution Caused by Electronic Information Products. This is the period of time before any of the identified hazardous substances are likely to leak out, causing possible harm to health and the environment.

-continued-

Table 1. Symbols

	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste. To return unwanted products, contact the manufacturer's web site shown on the product or your local sales office or distributor.
BC	Conforms to the Appliance Efficiency Regulation (California Code of Regulations, Title 20, Sections 1601 through 1608), for small battery charging systems.
Li-ion	This Product contains a lithium-ion battery. Do not mix with the solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler per local regulations. Contact your authorized Fluke Service Center for recycling information.
CE	Conformite Europeene. Conforms to requirements of European Union directives. Safety requirements for electrical equipment for measurement, control, and laboratory use.
C SP US	Conforms to relevant North American standards.
	Conforms to relevant Australian standards.
	Conforms to relevant Russian standards.
	EMC approval for Korea. Class A Equipment (Industrial Broadcasting & Communication Equipment). 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.
⏻	This key turns the tester on and off.

⚠Safety Information

⚠Warning⚠

To prevent possible fire, electric shock, or personal injury:

- **Read all safety information before you use the Product.**
- **Carefully read all instructions.**
- **Do not open the case. You cannot repair or replace parts in the case.**
- **Do not modify the Product.**
- **Use only replacement parts that are approved by Fluke Networks.**
- **Do not touch voltages > 30 V AC rms, 42 V AC peak, or 60 V DC.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Charge the battery indoors.**
- **Use the Product only as specified, or the protection supplied by the Product can be compromised.**
- **Do not use and disable the Product if it is damaged.**
- **Do not use the Product if it operates incorrectly.**
- **Do not connect the tester to telephony inputs, systems, or equipment, including ISDN inputs. Doing so is a misapplication of this product, which can cause damage to the tester and make a possible shock hazard for the user.**
- **Always turn on the tester before you connect it to a link. Doing so activates the tester's input protection circuitry.**
- **Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.**

- **Remove the input signals before you clean the Product.**
- **Do not put metal objects into connectors.**
- **Batteries contain hazardous chemicals that can cause burns or explode. If exposure to chemicals occurs, clean with water and get medical aid.**
- **Remove the batteries if the Product is not used for an extended period of time, or if stored in temperatures above 50 °C. If the batteries are not removed, battery leakage can damage the Product.**
- **Replace the rechargeable battery after 5 years of moderate use or 2 years of heavy use. Moderate use is defined as recharged twice a week. Heavy use is defined as discharged to cutoff and recharged daily.**
- **Disconnect the battery charger and move the Product or battery to a cool, non-flammable location if the rechargeable battery becomes hot (>50 °C, >122 °F) during the charge period.The battery door must be closed and locked before you operate the Product.**
- **The battery door must be closed and locked before you operate the Product.**
- **Repair the Product before use if the battery leaks.**
- **Recharge the batteries when the low battery indicator shows to prevent incorrect measurements.**
- **Turn off the Product and disconnect all test leads, patch cords, and cables before you replace the battery.**
- **Do not disassemble or crush battery cells and battery packs.**
- **Do not put battery cells and battery packs near heat or fire. Do not put in direct sunlight.**
- **Have an approved technician repair the Product.**

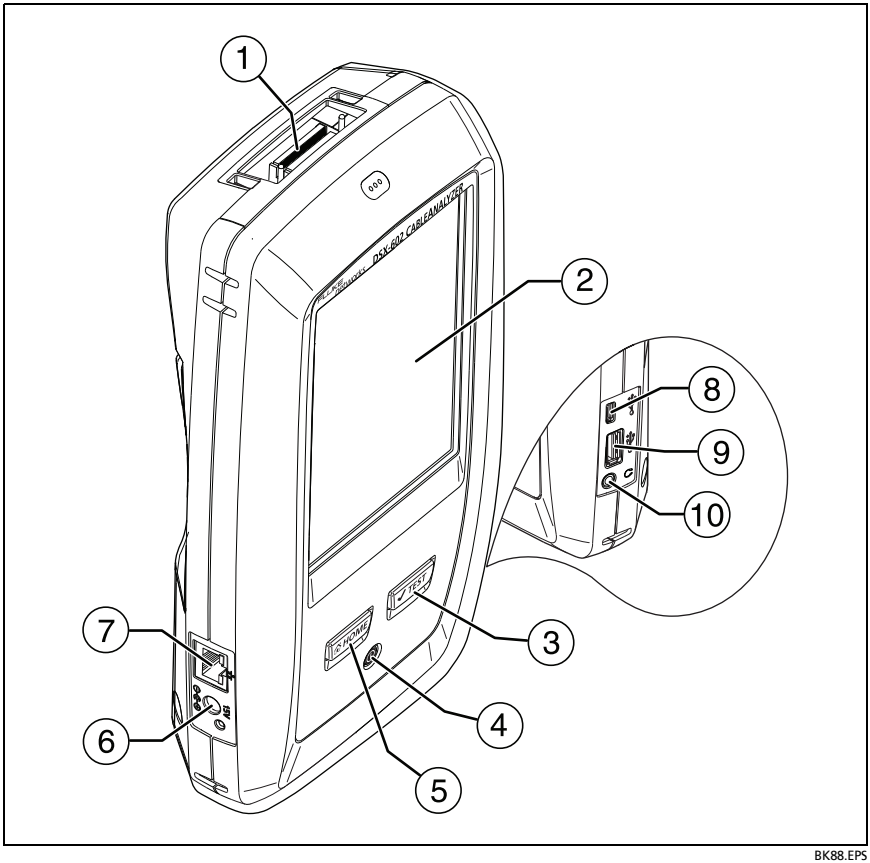
- **Use only AC adapters approved by Fluke Networks for use with the Product to supply power to the Product and charge the battery.**

⚠ Caution

To prevent damage to the tester or cables under test, to prevent data loss, and to make sure your test results are as accurate as possible:

- **Do not connect the tester to an active network. Doing so causes unreliable test results, can disrupt network operations, and can cause damage to the tester.**
- **Connect only RJ45 plugs to the adapters. Other types of plugs, such as RJ11 (telephone) plugs, can cause permanent damage to the jacks.**
- **To make sure your test results are as accurate as possible, do the reference procedure every 30 days. See "Set the Reference" on page 29.**
- **Do not operate portable transmitting devices, such as walkie-talkies and cell phones, during a cable test. Doing so can cause errors in test results.**
- **For permanent link adapters, do not twist, pull on, pinch, crush, or make kinks in the cables. See Figure 4 on page 13.**
- **Do not remove the USB flash drive while the LED on the drive flashes. Doing so can corrupt the data on the drive.**
- **You can lose a USB flash drive, cause damage to it, or accidentally erase the contents of the drive. Thus, Fluke Networks recommends that you save no more than one day of test results on a flash drive, or that you upload results to LinkWare Live. See Chapter 4.**

Connectors, Keys, and LEDs



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Figure 1. Main Tester Connectors, Keys, and LEDs (DSX-602 shown)

① Connector for a link interface adapter

② LCD display with touchscreen

③ TEST: Starts a test. Turns on the tone generator if a remote tester is not connected to the main tester. To start a test, you can also tap **TEST** on the display.

④ ⏻: Power key

⑤ HOME: Press HOME to go to the home screen.

⑥ Connector for the AC adapter. The LED is red when the battery charges, and green when the battery is fully charged. The LED is yellow if the battery will not charge. See "Charge the Battery" on page 14.

⑦ RJ45 connector: Lets you connect to a network for access to Fluke Networks cloud services.

⑧ Micro-AB USB port: This USB port lets you connect the tester to a PC so you can upload test results to the PC and install software updates in the tester.

⑨ Type A USB port: This USB host port lets you save test results on a USB flash drive. On a DSX-600 main tester, this port lets you or connect a Wi-Fi adapter for access to the Fluke Networks cloud service LinkWare Live. (DSX-602 testers have an internal Wi-Fi radio.)

⑩ Headset jack

Note

If you have two main testers, you can use one as a remote. To select the remote function, tap ***TOOLS*** *>* ***Main as Remote****.*

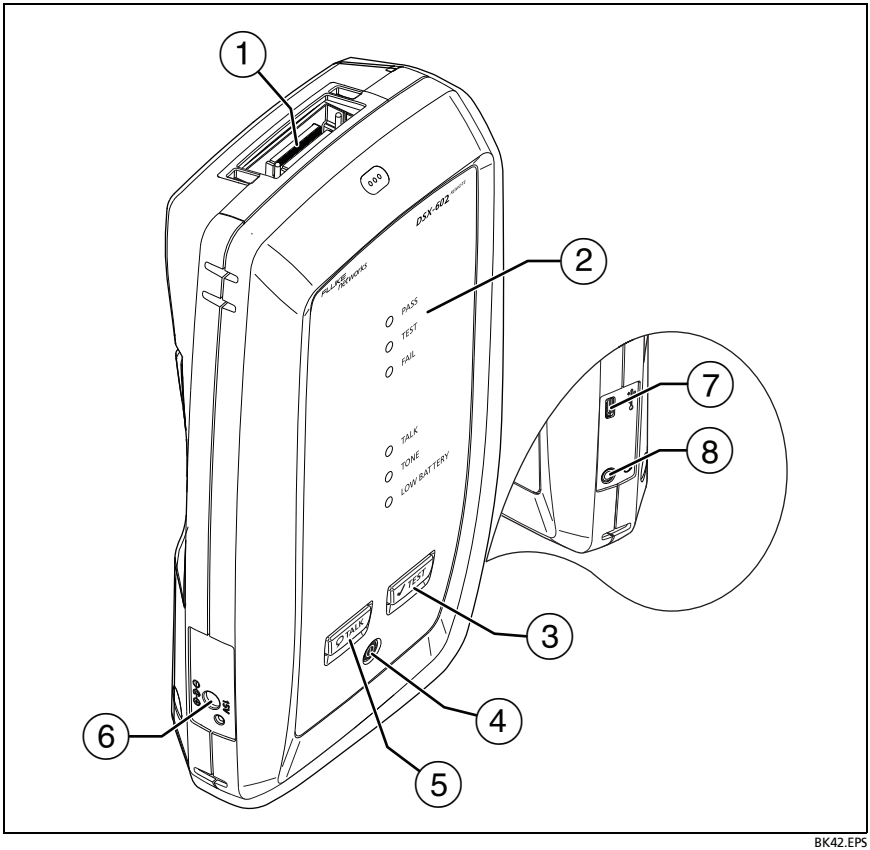


Figure 2. Remote Tester Connectors, Keys, and LEDs (DSX-602 shown)

① Connector for a link interface adapter

② **PASS** LED comes on when a test passes.

TEST LED comes on during a test.

FAIL LED comes on when a test fails.

TALK LED comes on when the talk function is on (⑤). The LED flashes until the main tester accepts the request to talk.

TONE LED flashes and the tone generator comes on if you press TEST when a main tester is not connected to the remote.

LOW BATTERY LED comes on when the battery is low.

The LEDs also have these functions:

- Battery gauge (see Figure 5 on page 15)
- Volume indicator for the **TALK** function
- Progress indicator for software updates

③ TEST: Starts a test. Turns on the tone generator if a main tester is not connected to the remote.

④ ⏻: Power key

⑤ TALK: Press TALK to use the headset to speak to the person at the other end of the link. Press again to adjust the volume. To turn off the talk function, hold down TALK.

⑥ Connector for the AC adapter. The LED is red when the battery charges, and green when the battery is fully charged. The LED is yellow if the battery will not charge. See "Charge the Battery" on page 14.

⑦ Micro-AB USB port: This USB port lets you connect the tester to a PC so you can install software updates in the tester.

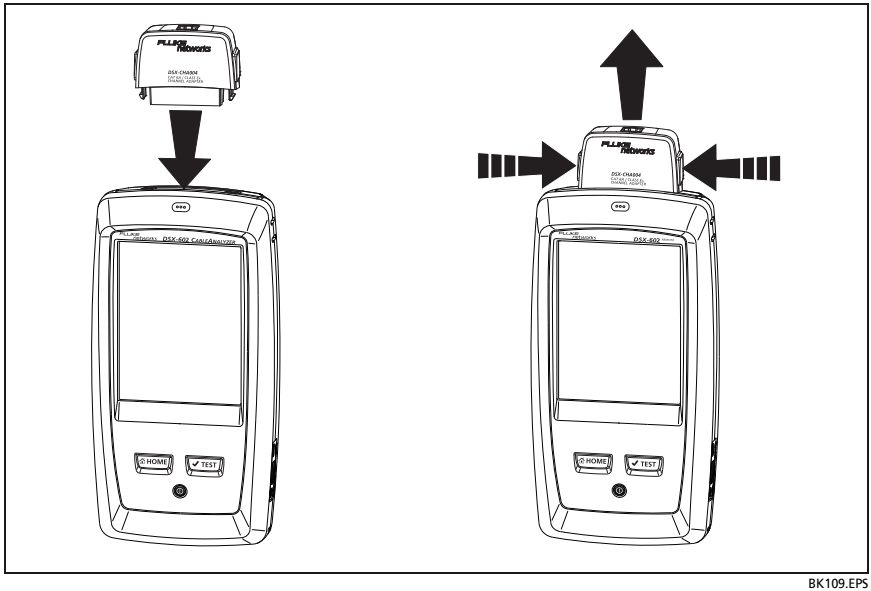
⑧ Headset jack

About Link Interface Adapters

Link interface adapters let you connect the DSX CableAnalyzer to different types of twisted pair links. Figure 3 shows how to attach and remove adapters.

⚠ Caution

To prevent damage to the cables on the permanent link adapters and to make sure your test results are as accurate as possible, do not twist, pull on, pinch, crush, or make kinks in the cables. See Figure 4 on page 13.



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Figure 3. How to Attach and Remove Link Interface Adapters



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Figure 4. How to Prevent Damage to the Permanent Link Adapter Cables (Model DSX-600-PRO or DSX-602-PRO or optional)

AC Adapter and Battery

You can use the AC adapter (model PWR-SPLY-30W) or the lithium ion battery (model VERSIV-BATTERY) to supply power to the tester.

To remove the battery, see “Remove the Battery” on page 106.

Charge the Battery

Before you use the battery for the first time, charge the battery for about 2 hours with the tester turned off.

To charge the battery

Connect the AC adapter to the 15V jack on the left side of the tester. The LED near the AC adapter connector is red when the battery charges, and green when the battery is fully charged.

A fully-charged battery operates for approximately 8 hours of typical use. The battery takes approximately 4 hours to fully charge when the tester is turned off.

Notes

You do not need to fully discharge the battery before you recharge it.

The battery will not charge if its temperature is outside the range of 32 °F to 104 °F (0 °C to 40 °C). The LED near the connection for the AC adapter is yellow if the battery will not charge.

Check the Battery Status

On a main tester

The battery status icon is in the upper-left corner of the screen:


Battery is full.

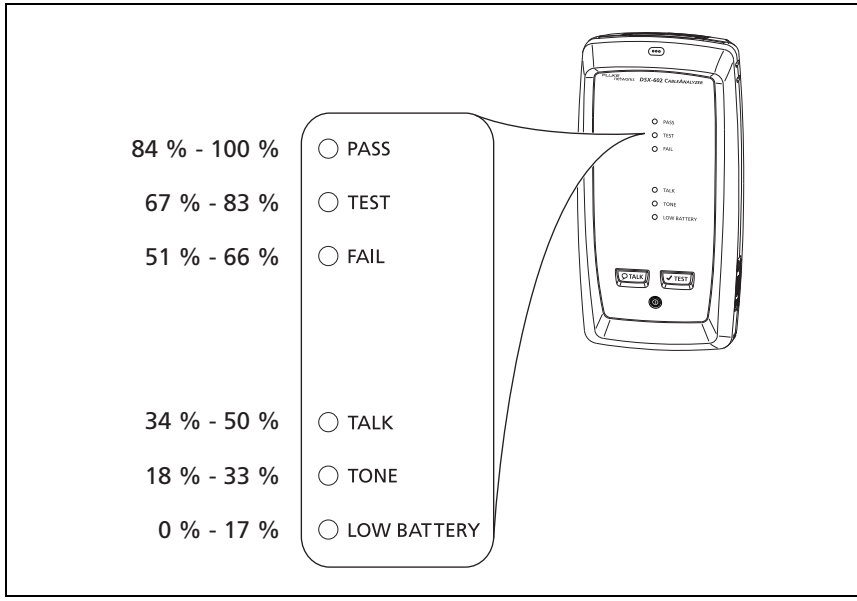

Battery is approximately half full.


If the AC adapter is not connected, the red bar shows that the battery is very low. Connect the AC adapter to charge the battery and make sure the tester continues to operate.

The red bar also shows if the AC adapter is connected, but the battery is not installed.

On a remote

The LEDs show the battery status at the end of the power-up sequence, as shown in Figure 5.



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Figure 5. LEDs Show the Remote's Battery Status

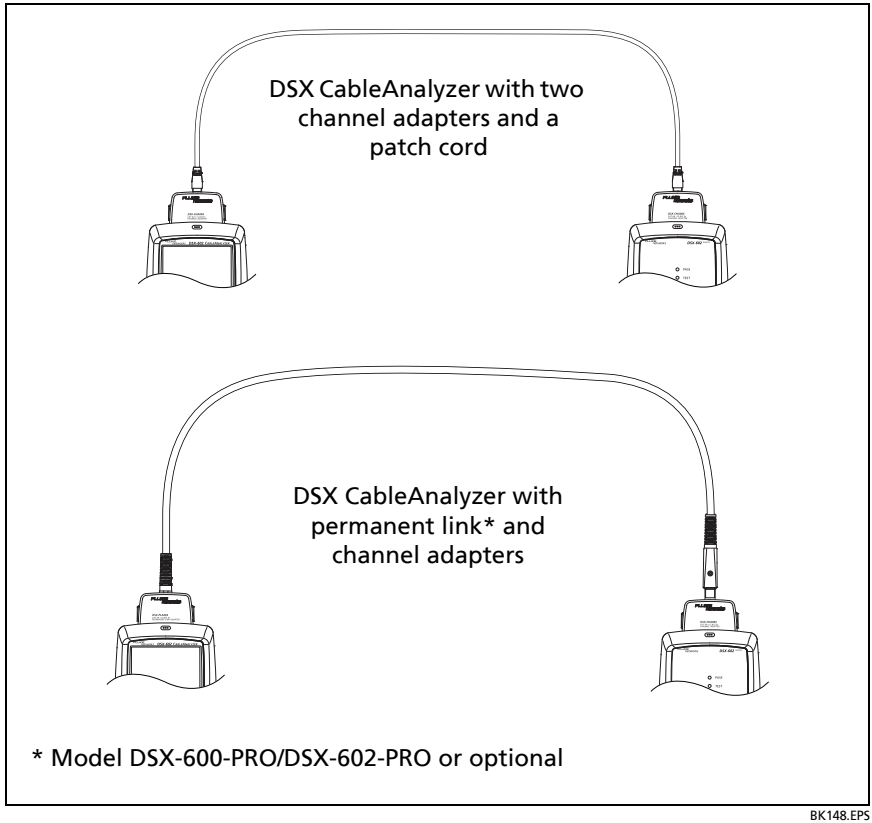
To see more information about a remote's battery status

1. Make the connections shown in Figure 6 and turn on both testers.
2. Make sure the connection icon shows at the top of the screen ().
3. Tap **TOOLS**, then tap **Battery Status**.

When the AC adapter is not connected, the screen shows the **Time Remaining**, which is the approximate battery life at the present rate of use.

Verify Operation

The tester does a self test when you turn it on. If the tester shows an error or does not turn on, refer to "If the Tester Does Not Operate as Usual" on page 107.



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Figure 6. Connections to See the Status of a Remote's Battery

How to Use the Touchscreen

The DSX CableAnalyzer main unit's Taptive™ user interface lets you use a touchscreen to control the tester. You can operate the touchscreen with your fingertip or with a stylus that is made for projected capacitance touchscreens.

⚠ Caution

For correct operation and to prevent damage to the touchscreen:

- **Touch the screen only with your fingers or with a stylus that is made for projected capacitance touchscreens. Do not use too much force.**
- **Do not touch the screen with sharp objects.**

Note

The touchscreen will not respond if you tap it with your fingernail or an incorrect type of stylus or if you wear non-conductive gloves.

To use the touchscreen

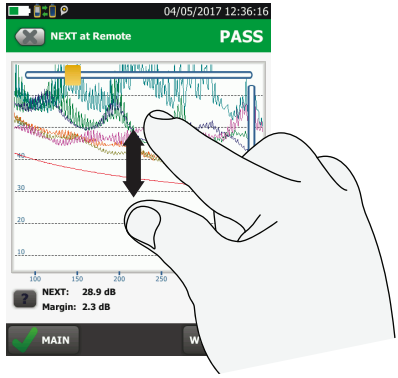
- To select an item on the screen, tap the item lightly with your fingertip.
- To scroll a screen, lightly touch the screen then move your fingertip in the direction you want the screen to move.
- On screens that show a plot, you can drag the measurement cursor. These screens also have a zoom function, as shown in Figure 7.

To clean the touchscreen

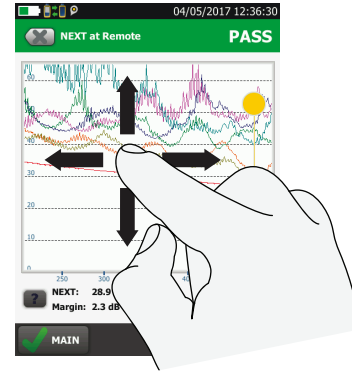
Turn off the tester, then use a soft, lint-free cloth that is moist with a mild detergent.

⚠ Caution

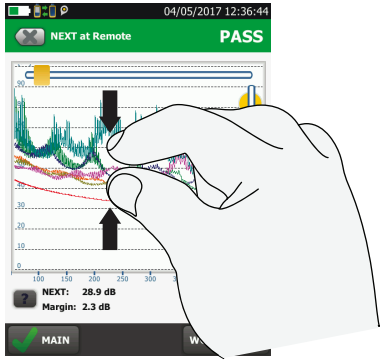
When you clean the touchscreen, do not let liquid get under the plastic around the touchscreen.



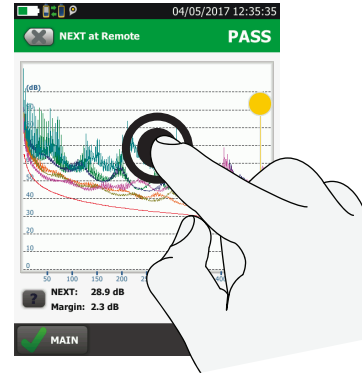
To zoom in, use the reverse-pinch gesture



To move the image, drag it in any direction.



To zoom out, use the pinch gesture



To quickly go back to 1:1 magnification, double-tap the screen.

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Figure 7. How to Zoom the Screen

Change the Language

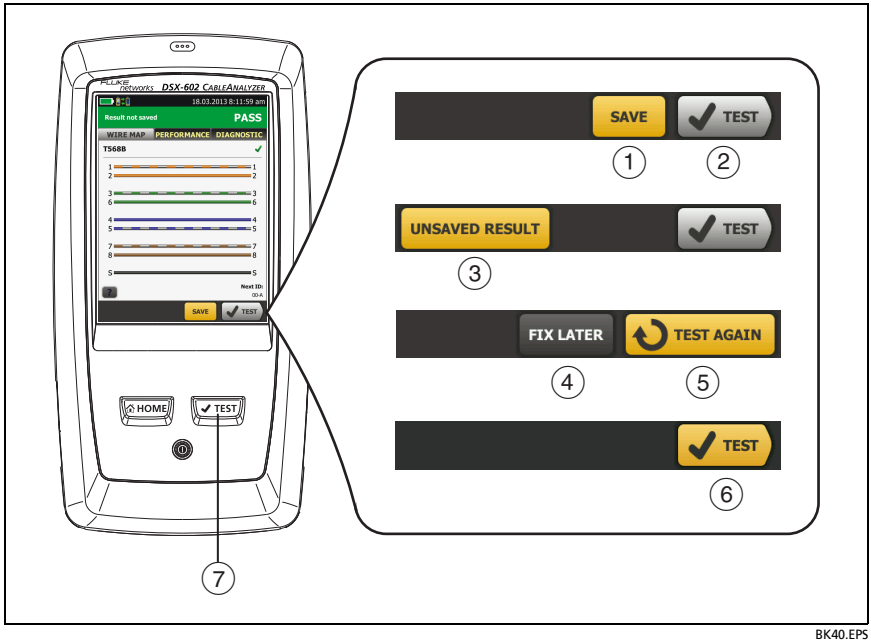
On the home screen, tap the **TOOLS** icon, tap **Language**, then tap a language.

Buttons to Do Tests and Save Results

When a test is completed and more than one button shows at the bottom of the screen, the tester highlights one in yellow to recommend which one to tap. Figure 8 shows the buttons you will see.

Note

*To change the **Auto Save** setting, tap the **Next ID** panel on the home screen.*



BK40.EPS

Figure 8. FIX LATER, TEST AGAIN, and TEST Buttons and the TEST Key

① **SAVE** (yellow), ② **TEST** (gray)**:** These buttons show if the test passed and **Auto Save** is off. When you tap **SAVE**, you can save the results with an ID that you make or select. When you tap **TEST**, you can select to save the results or do the test again and not save the results.

③ **UNSAVED RESULT**: This button shows if **Auto Save** is off and you go to the home screen when a test is completed. Tap this button to see the result.

④ **FIX LATER:** This button shows if the test failed or had a **PASS*** result and the result has not been saved.

⑤ **TEST AGAIN:** This button shows if the test failed or had a **PASS*** result. Tap this button to do the test again. If **Auto Save** is on, the tester saves subsequent results with the same ID. If the test fails again, you can tap **FIX LATER** to save the result if necessary.

When you look at a saved result that failed, tap **TEST AGAIN** to do the test again for the same ID and with the same test settings as the saved result.

⑥ **TEST** (yellow)**:** This button shows if the test passed and **Auto Save** is on. When **Auto Save** is on, the tester saves results with the next available ID when the test is completed. When you tap **TEST**, the tester does a test for the next available ID.

⑦ ✔TEST: The ✔TEST key does the same function as the **TEST** button. When **TEST AGAIN** shows, you can press ✔TEST to do a test on the next ID.

Overview of Memory Functions

You can save approximately 12,700 Cat 6A Autotest results, with plot data included, in the DSX-600 Series main tester.

The capacity available for test results depends on the space used by the software and custom test limits in the tester.

To see the memory status

On the home screen, tap the **TOOLS** icon, then tap **Memory Status**.

To make more memory available, you can export results to a USB flash drive, then delete the results in the tester. See "Manage Results on a Flash Drive" on page 74.

Options for Cable IDs

When you save the test results for a cable, you usually give the results the name that is the ID for the cable. There are several methods you can use to make IDs for test results:

- You can use the **CABLE ID SETUP** screen to make a set of sequential IDs. The tester uses the IDs in sequence as the names for the results you save. When **Auto Save** is on, the tester automatically saves each result with the next available ID in the set.

  A cable ID set also lets you use IDs again so you can add different results to tests you saved before.

- You can enter an ID each time you do a test. To do this, turn off the **Auto Save** function (see page 23). Each time a test is completed, tap **SAVE** (if the test passed) or **FIX LATER** (if the test failed), then enter an ID manually.

- You can use LinkWare PC software to make a set of IDs, download the set to the tester, then import it into a project.

- After you do a test, you can enter the ID for a test you saved before. This lets you replace results.

- If the test failed before, and you saved the results, you can select it on the **RESULTS** screen, then press **TEST AGAIN** to replace the results for that ID.

Notes

Cable IDs are case-sensitive. For example, the tester saves result with the names "A0" and "a0" in two different records.

A cable ID can have a maximum of 60 characters.

If you delete all the ID sets in a project, the tester makes a default set that starts with 001.

To turn the Auto Save function on or off

1. On the home screen, tap the **Next ID** panel.
2. On the **CHANGE ID** screen, tap the **On/Off** control next to **Auto Save**.
3. Tap **DONE**.

About LinkWare Applications

LinkWare PC Cable Test Management Software

The LinkWare PC Cable Test Management software lets you upload test records to a PC, organize and examine test results, print professional-quality test reports, and do software updates and other maintenance procedures on your tester.

You can download LinkWare PC from the Fluke Networks website.

The LinkWare Live Web Application

The LinkWare Live web application lets you manage your projects from a desktop or mobile device.

To get started with LinkWare Live, see Chapter 6.

LinkWare Stats

The LinkWare Stats Statistical Report software that is included with LinkWare PC software provides statistical analysis of cable test reports and generates browsable, graphical reports.

For instructions about LinkWare PC and LinkWare Stats software, see the guides for getting started and the online help available under **Help** on the LinkWare PC and LinkWare Stats menus.

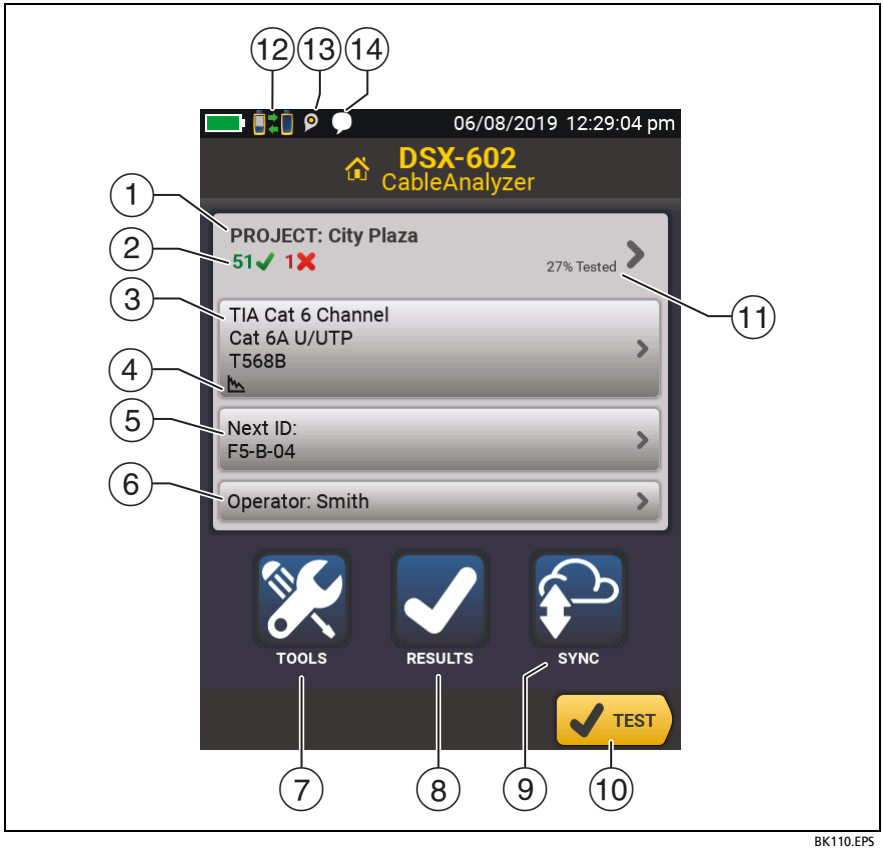
Chapter 2: Certify Twisted Pair Cabling

Warning

Before you use the DSX CableAnalyzer, read the safety information that starts on page 3.

The DSX-600 Series CableAnalyzer Home Screen

The home screen (Figure 9) shows important test settings. Before you do a test, make sure these settings are correct.



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Figure 9. The Home Screen

① **PROJECT**: The project contains the settings for a job and helps you monitor the status of a job. When you save test results, the tester puts them in the project. Tap the **PROJECT** panel to edit the project settings, select a different project, or make a new project.

② Shows a summary of the test results in the project:

✓: The number of tests that passed.

: The number of tests that failed.

: The number of tests with an overall marginal result.

③ The test setup panel shows the settings the tester will use when you tap **TEST** or press TEST. To change these settings, tap the panel.

④ Icons show the status of the **Store Plot Data** and **AC Wire Map** settings. See Table 2 on page 33.

⑤ **Next ID**: The **Next ID** panel shows the ID that the tester gives to the next test results you save.

Tap **Next ID** to do these tasks:

- Enter an ID, select a different ID in the ID set, select a different set of IDs, or make a new set. The tester adds the IDs and ID sets you make to the project that shows on the home screen.
- Turn **Auto Save** on or off.

⑥ **Operator**: The name of the person who does the job. You can enter a maximum of 20 operator names. For each operator you can also enter the email address that the operator will use as an ID to sign in to LinkWare Live.

⑦ **TOOLS**: The **TOOLS** menu lets you set the reference, see the status of the tester, and set user preferences such as the language and the display brightness.

⑧ **RESULTS**: Tap **RESULTS** to see and manage the results that are saved in the tester.

⑨ **SYNC**: Tap **SYNC** to sync projects with LinkWare Live.

⑩ **TEST**: Tap **TEST** to do the test shown in the test setup panel.

⑪ The percentage of the project that is completed. The percentage is the number of IDs used for saved results divided by the total number of used and available IDs in the project.

% Tested does not show if your project contains only a **Next ID** list. See "About Next ID Sets" on page 83 for more information about the **Next ID** list.

⑫  This icon shows when the tester's link interface adapter is connected to the adapter on a remote and the remote is turned on.

⑬  The asset management icon shows when the owner of a LinkWare Live account has enabled the asset management service on the tester. See "About the Asset Management Service" on page 93.

⑭  This icon shows when the talk function is on. To use the talk function:

1. Connect the main and remote testers together through a link that has one or more good wire pairs.
2. Connect headsets to the headset jacks on the testers.
3. Press the button on one of the headset microphones or press TALK on the remote, then speak into the microphone.

Make Sure Your Tester is Ready to Certify Cabling

To make sure your tester meets its accuracy specifications, follow these guidelines:

- Keep the tester's software current. The latest software is available on the Fluke Networks website. See "Update the Software" on page 101.
- Set the reference for the twisted pair adapters every 30 days. See page 29.
- Make sure that you select the correct cable type for the job, and that the NVP for the cable is correct. See Table 2 on page 32.

- Make sure you select the correct test limit for the job. See Table 2 on page 32.
- Make sure the cords and connectors for all test equipment and patch cords are in good condition.
- Make sure the battery is fully charged.
- Send the testers to a Fluke Networks service center every 12 months for factory calibration.

Set the Reference

The reference procedure for twisted pair cable sets the baseline for insertion loss, ACR-F, and DC resistance measurements.

Set the reference at these times:

- Every 30 days, at minimum.
- To ensure maximum accuracy of test results, set the reference daily.

It is not necessary to set the reference when you change the link interface adapters.

To set the reference

1. Turn on the tester and the remote a minimum of 5 minutes before you set the reference.

   Note

   Set the reference only after the testers are at an ambient temperature between 50 °F and 104 °F (10 °C and 40 °C).

2. Use the reference patch cord and two channel adapters or permanent link and channel adapters to connect the main and remote testers together as shown in Figure 10.
3. On the home screen, tap **TOOLS**, then tap **Set Reference**.
4. On the **SET REFERENCE** screen tap **TEST**.

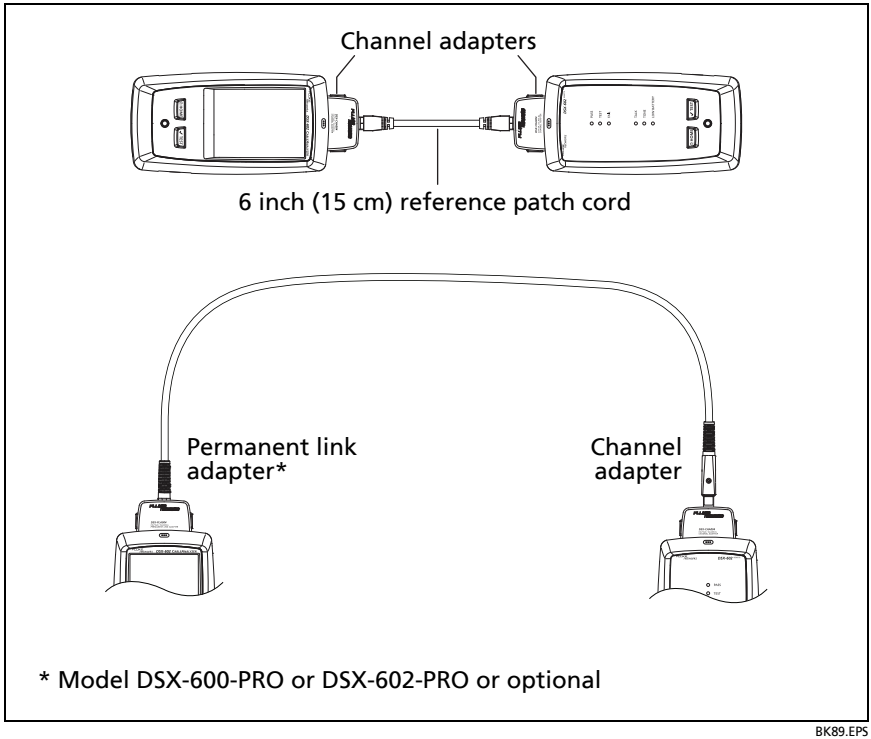


Figure 10. Reference Connections for Twisted Pair Cable

Settings for Twisted Pair Tests

Table 2 gives descriptions of the settings for twisted pair tests. To set up a project, which includes the settings in Table 2, cable IDs, and operator names, see Chapter 5.

To set up a twisted pair test

1. On the home screen, tap the test setup panel.
2. On the **CHANGE TEST** screen, select a twisted pair test to change, then tap **EDIT**.

   Or to set up a new twisted pair test, tap **NEW TEST**.
3. On the **TEST SETUP** screen, tap the panels to change settings for the test. See Table 2.
4. On the **TEST SETUP** screen, tap **SAVE** when your test setup is completed.
5. On the **CHANGE TEST** screen, make sure the button next to the test is selected, then tap **USE SELECTED**.

Table 2. Settings for Twisted Pair Tests

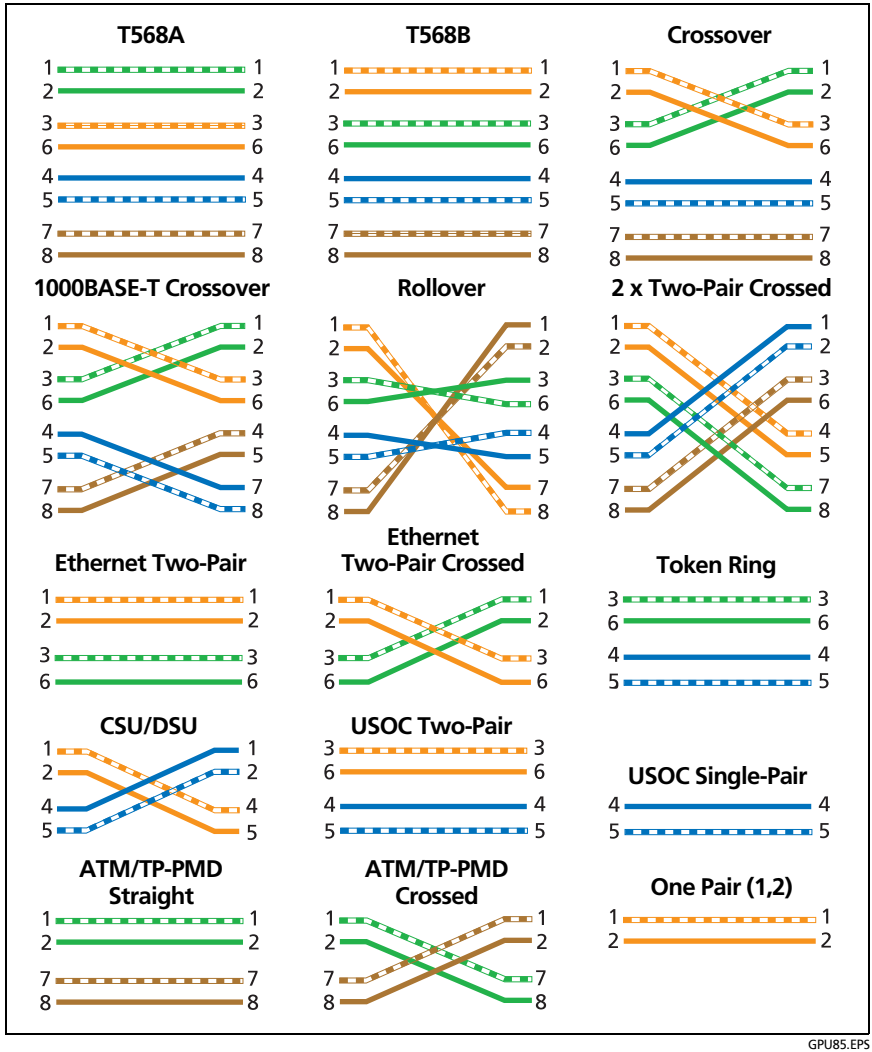
Setting	Description
Cable Type	Select a cable type that is correct for the type you will test. To see a different group of cable types, tap **MORE**, then tap a group. To make a custom cable type, tap **Custom** in the **Cable Groups** list.
NVP	Nominal velocity of propagation. The tester uses the NVP and the propagation delay to calculate the length of the cable. The default value is defined by the selected cable type and is the typical NVP for that cable type. To enter a different value, tap the **NVP** panel, then tap or on the **NVP** screen to increase or decrease the value. To find the actual value for a cable, connect a known length of the cable to the tester, tap **MEASURE** on the **NVP** screen, then change the NVP until the measured length matches the known length. Use a cable at least 30 m (100 ft) long. When you increase the NVP value, the calculated length increases.
Shield Test	This setting shows only when you select a shielded cable type. **On**: The wire map test includes a DC test for shield continuity and AC tests for shield quality. The wire map test fails if the shield is open or the AC test results are unsatisfactory. **Off**: The wire map shows the shield if the shield has continuity. The tester does not do AC tests for shield quality. The wire map test does not fail or show the shield if the shield is open.
Test Limit	Select the correct test limit for the job. To see a different group of limits, tap **MORE**, then tap the name of a group.

Table 2. Settings for Twisted Pair Tests (continued)

Setting	Description
Store Plot Data	**Off** : The tester does not save plot data for frequency-domain tests or for the HDTDR/HDTDX analyzers. You can see the plots before you save the test and exit the results screen. The saved results show frequency-domain measurements in a table and do not include the HDTDR/HDTDX plots. **On** : The tester saves plot data for all frequency-domain tests required by the selected test limit and for the HDTDR/HDTDX analyzers.
HDTDR/HDTDX	**Fail/Pass* only:** The tester shows HDTDR and HDTDX analyzer results only for Autotests with **PASS***, **FAIL***, or **FAIL** results. **All Autotests:** The tester shows HDTDR and HDTDX analyzer results for all Autotests. To get HDTDR/HDTDX analyzer results you can also tap **TOOLS** > **Diagnostics**. For more information about the HDTDR and HDTDX analyzers, see the Technical Reference Handbook.
Outlet Configuration	The **Outlet Configuration** specifies which wire pairs are tested and which wire numbers the wire map shows for the pairs. See Figures 11 and 12. To see the wire map for a configuration, tap **Outlet Configuration**, tap the configuration name on the **OUTLET CONFIG** screen, then tap **SAMPLE**. To select a configuration, tap a name on the **OUTLET CONFIG** screen, then tap **USE SELECTED**. *Note* *The **OUTLET CONFIG** screen shows only the configurations that are applicable to the selected **Test Limit**.* To make a custom outlet configuration, tap **CUSTOM** on the **OUTLET CONFIG** screen, then tap **MANAGE**, then tap **Create**.

Table 2. Settings for Twisted Pair Tests (continued)

Setting	Description
AC Wire Map	The **AC Wire Map** test lets you do tests on links connected through midspan PoE (Power over Ethernet) devices. See the Technical Reference Handbook. When the **AC Wire Map** test is on, this icon shows on the home screen:  *Notes* *Always turn off the AC wire map test when you will not do tests through a PoE device. The AC wire map test increases the time for an Autotest. It also disables the resistance and shield continuity tests.* *The DSX-8000 modules do not support the AC wire map test.*



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Figure 11. Outlet Configurations - RJ45

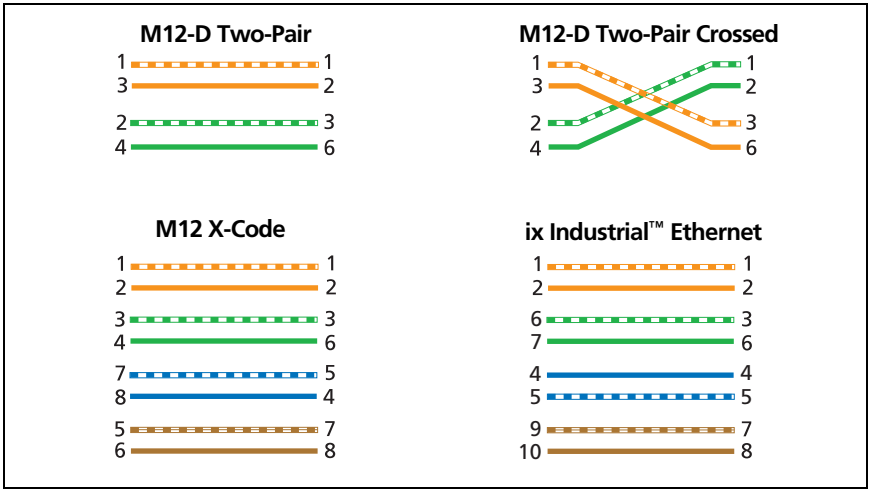
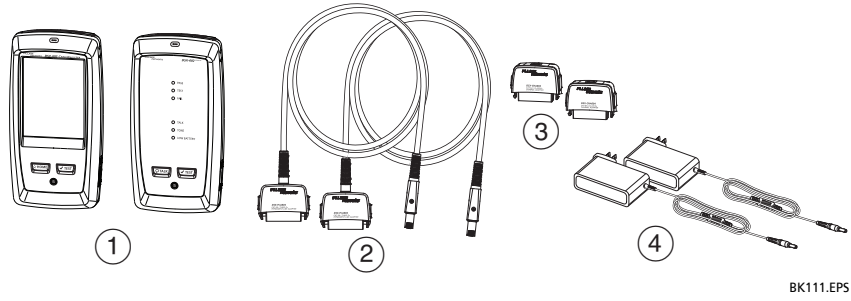


Figure 12. Outlet Configurations - Industrial Ethernet

How to Do an Autotest

When you tap **TEST** on the main tester or press TEST on the main or remote tester, the testers do an Autotest. The Autotest includes all the tests necessary to certify that the cabling meets or exceeds the performance requirements specified in the selected test limit.

Figure 13 shows the equipment for Autotests on twisted pair cable.



1. Main and remote testers
2. For tests on permanent links: two permanent link adapters (PRO model or optional)
3. For tests on channels: two channel adapters
4. AC adapters (optional)

Figure 13. Equipment for Autotests on Twisted Pair Cable

To do an Autotest on twisted pair cable

1. Attach permanent link or channel adapters to the main and remote testers.
2. Make sure that the home screen shows the correct settings for the job.

   To make sure that other settings are correct, tap the test setup panel, make sure the correct test is selected on the **CHANGE TEST SCREEN**, then tap **EDIT** to see more settings. Table 2 on page 32 describes the settings.
3. Connect the testers to the link as shown in Figure 14 or 15.
4. Tap **TEST** on the main tester or press ✔TEST on the main or remote tester.

   If the tester at the other end of the cable is in sleep mode or is off, your tester's tone generator turns on the other tester.

   If the two testers are not connected:

   - Your tester's tone generator stays on. Then, you can use a tone probe if necessary to find the cable to connect to the other tester.
   - Or, tap **MEASURE** to do the tests that do not require a remote tester. Because the tester cannot complete all tests and some tests always fail with no remote connected, the result for an Autotest without a remote is always **FAIL**.

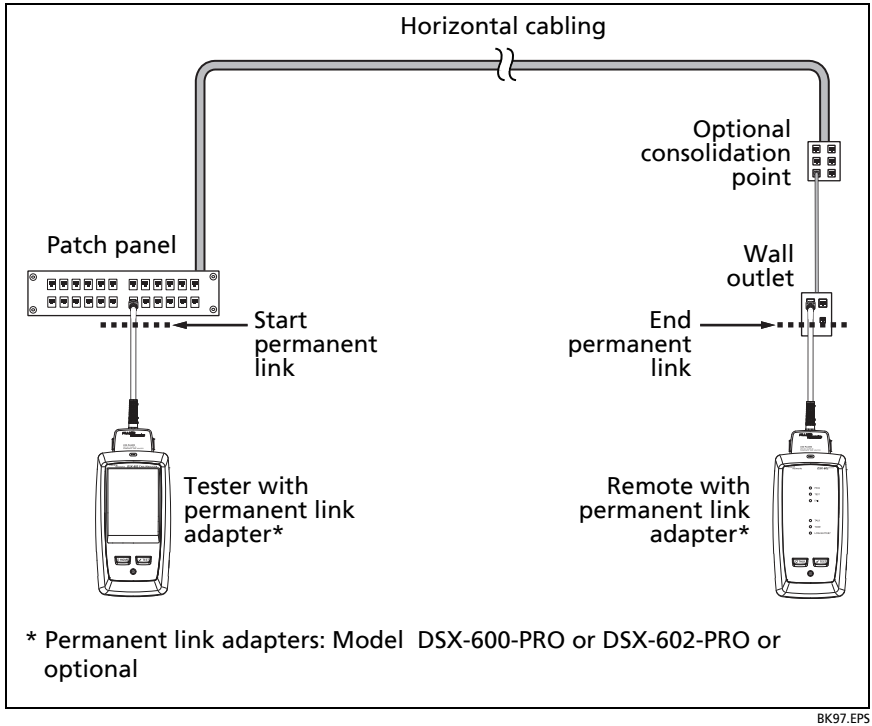


Figure 14. Permanent Link Connections

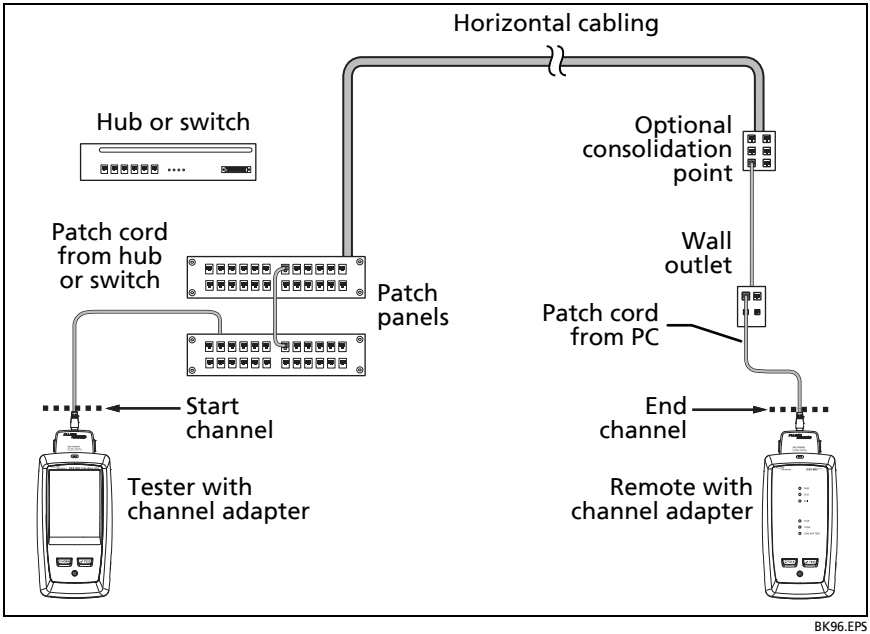


Figure 15. Channel Connections

"Bad Patch Cord" Message

To comply with standards for tests on channels, the tester removes the effects of the channel adapters and their connections from the test results. Before it removes these effects, the tester makes sure that the plugs on the patch cord do not have too much near-end crosstalk (NEXT). Too much NEXT is frequently caused by too much untwisted wire in the plug. If a plug is bad, the tester shows the message **Bad patch cord at main** or **Bad patch cord at remote**, and does not remove the effects of the channel adapters and their connections. The tester saves the message with the results.

If you see one of these messages, replace the patch cord or install a new plug at the bad end.

Twisted Pair Autotest Results

The tests listed below apply to twisted pair cabling.

Note
Some tests are not included in some test limits.

- Wire map
- Resistance
- Length
- Propagation delay
- Delay skew
- Insertion loss (attenuation)
- Impedance
- NEXT (near-end crosstalk)
- PS NEXT (power-sum near-end crosstalk)
- ACR-N (attenuation to crosstalk ratio at the near end)
- PS ACR-N (power-sum attenuation to crosstalk ratio, near end)
- ACR-F (attenuation to crosstalk ratio at the far end)
- PS ACR-F (power-sum attenuation to crosstalk ratio, far end)
- Return loss
- HDTDR and HDTDX analyzers (optional tests, not required by any test limit)

PASS*/FAIL* Results

A result shows an asterisk when measurements are in the tester's accuracy uncertainty range (Figure 16) and the asterisk is required by the selected test limit. These results are marginal.

- A **PASS*** shows that the cable's performance is satisfactory. If a cable must get a **PASS** result to agree with your requirements for quality, identify and correct the problems with the cable and do the Autotest again.
- Usually, a **FAIL*** is not a satisfactory result. The tester shows a **FAIL** for the overall result. Identify and correct the problems with the cable and do the Autotest again.

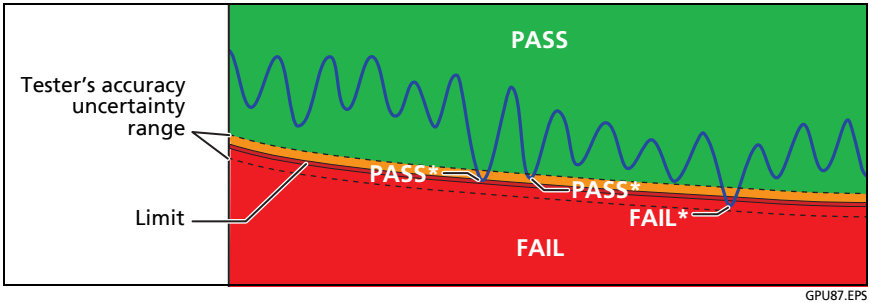


Figure 16. PASS* and FAIL* Results

WIRE MAP Tab

The **WIRE MAP** tab shows the connections between the ends of the cable under test. The tester compares the connections to the selected **Outlet Configuration** to get a **PASS** or **FAIL** result.

If the wire map test fails, you can continue or stop the Autotest. Or, you can tap **SCAN ON** to do the wire map test continuously while you look for the fault. To continue the Autotest after you correct the fault, tap **SCAN OFF**, then tap **CONTINUE**.

If you leave then return to the **WIRE MAP FAIL** screen, the **SCAN ON** button goes away. To see the button again, tap **TEST AGAIN**. You can also select the continuous wire map test as a single test from the **TOOLS** menu. See “Continuous Tests” on page 53.

Figure 17 shows an example of a wire map screen. For information on AC wire map screens, see the Technical Reference Handbook.

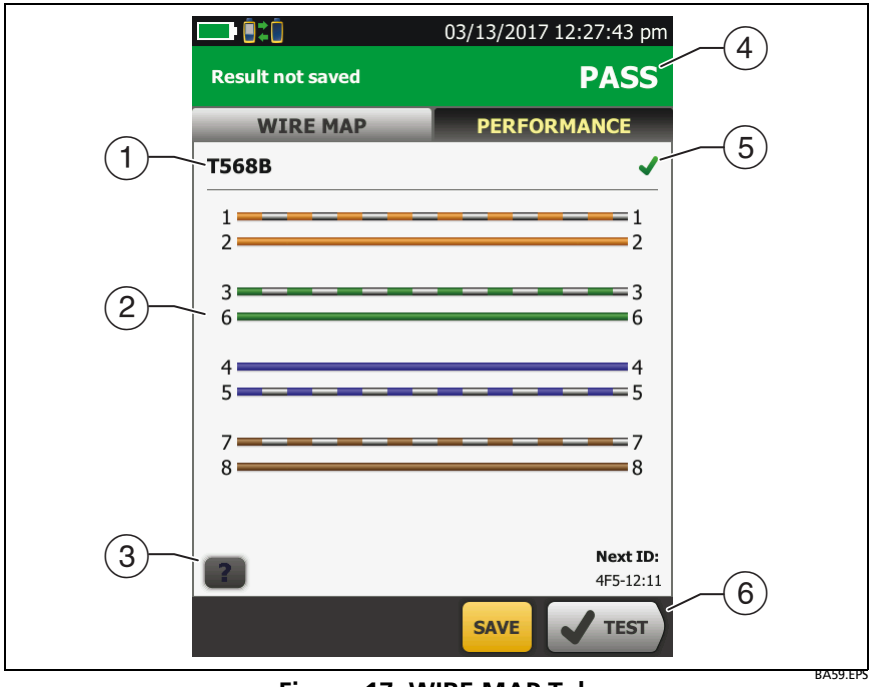


Figure 17. WIRE MAP Tab

① The name of the outlet configuration used for the test. The outlet configuration is a setting on the **TEST SETUP** screen.

② The wire map of the cabling. The main tester is at the left side of the wire map.

③ Tap ? to see information about wire map faults. If ! shows, tap it to see a message about the results, such as **Bad patch cord at remote**.

④ The overall result for the Autotest. If the result shows an asterisk, See “PASS*/FAIL* Results” on page 42.

⑤ The result for the wire map test:

❌ The wire map does not agree with the outlet configuration selected for the test.

✔ The wire map agrees with the outlet configuration selected for the test.

⑥ When more than one button shows at the bottom of the screen, the tester highlights one in yellow to recommend which one to tap. See “Buttons to Do Tests and Save Results” on page 20.

PERFORMANCE Tab

The **PERFORMANCE** tab (Figure 18) shows the overall result for each test that is required by the selected test limit.

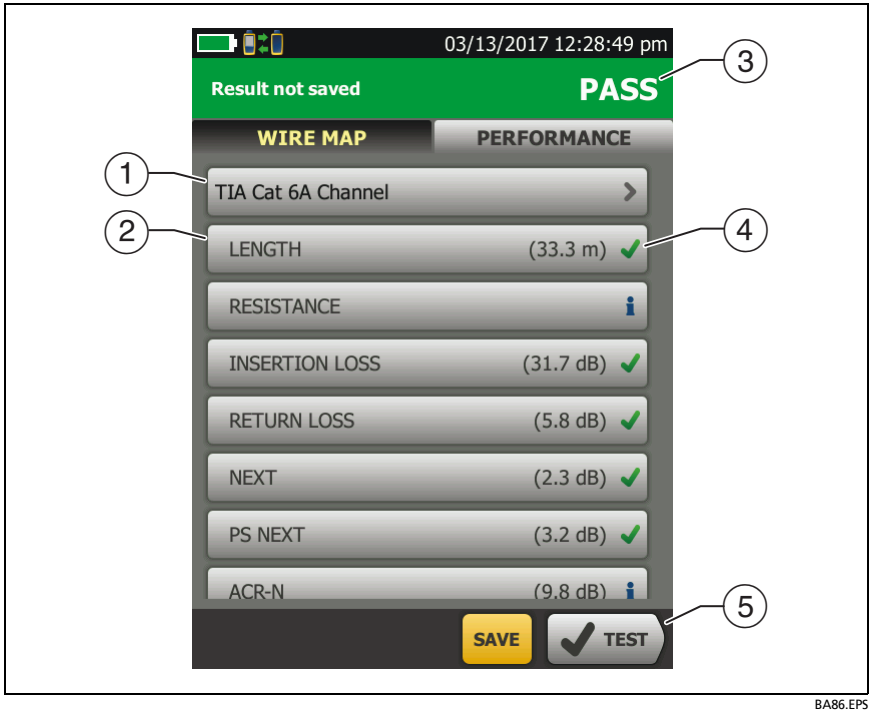


Figure 18. PERFORMANCE Tab

① The test limit and cable type used for the test. To see all the settings used for the test, tap the panel.

② To see detailed results for a test, tap the panel.

③ The overall result for the Autotest. If the result shows an asterisk, See "PASS*/FAIL* Results" on page 42.

④ The overall result for the test:

✘ The results exceed the limit.

The results are within the limit.

The selected test limit does not have a limit for the test, or a dB rule applies. See the Technical Reference Handbook.

The results are within the range of accuracy uncertainty for the tester. See "PASS*/FAIL* Results" on page 42.

The measurement shown for frequency-domain results is the worst margin. (The insertion loss plot is different. See the Technical Reference Handbook.)

5 When more than one button shows at the bottom of the screen, the tester highlights one in yellow to recommend which one to tap. See "Buttons to Do Tests and Save Results" on page 20.

Frequency-Domain Results

Frequency-domain results are the measurements that change with frequency, such as insertion loss and crosstalk.

How to Save Frequency-Domain Results as a Plot or a Table

If **Store Plot Data** is on when you do a test, the saved results show as plots. If **Store Plot Data** is **Off**, the tester does not save plot data for frequency-domain tests or for the HDTDR/HDTDX analyzers. You can see the plots before you save the test and exit the results screen. Figures 19 and 20 show examples of the two types of screens. Also see "Store Plot Data" on page 33.

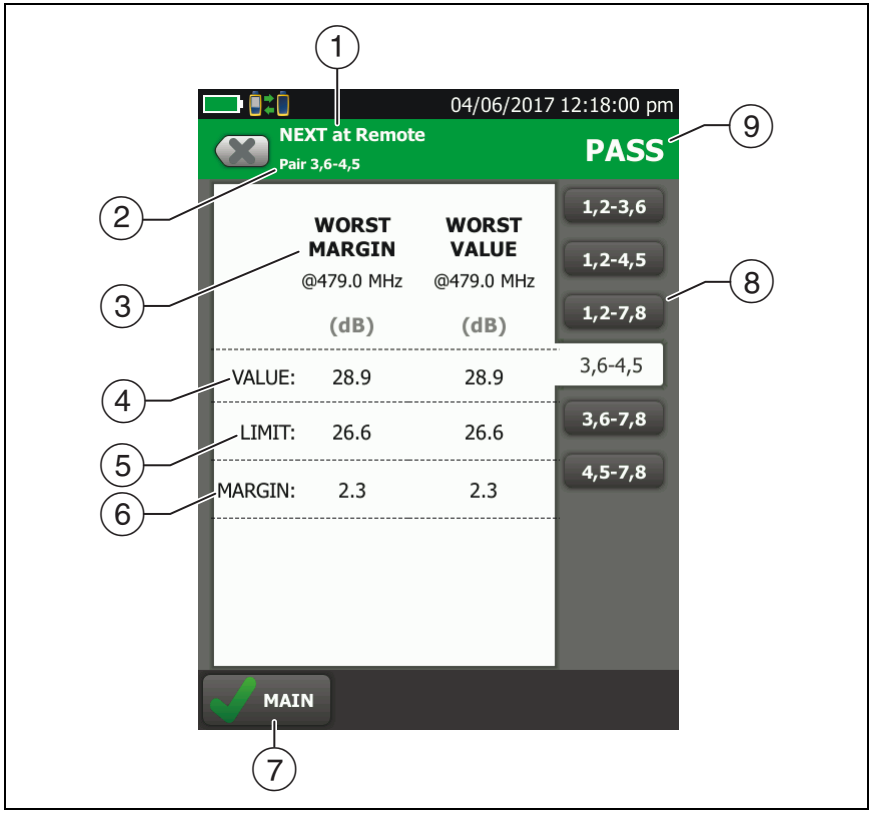


Figure 19. Tabular Results Screen for a Frequency-Domain Test

① The location where the tester made the measurements. To switch between results for the main and remote, tap **REMOTE** or **MAIN** (⑦).

② The results are for the wire pair or pairs shown. To see the results for a different pair or pairs, tap a tab on the right side of the screen (⑧).

③ **WORST MARGIN** is the measurement that is nearest to the limit line or exceeds the limit by the largest amount. **WORST VALUE** is the worst measurement.

④ The measured value.

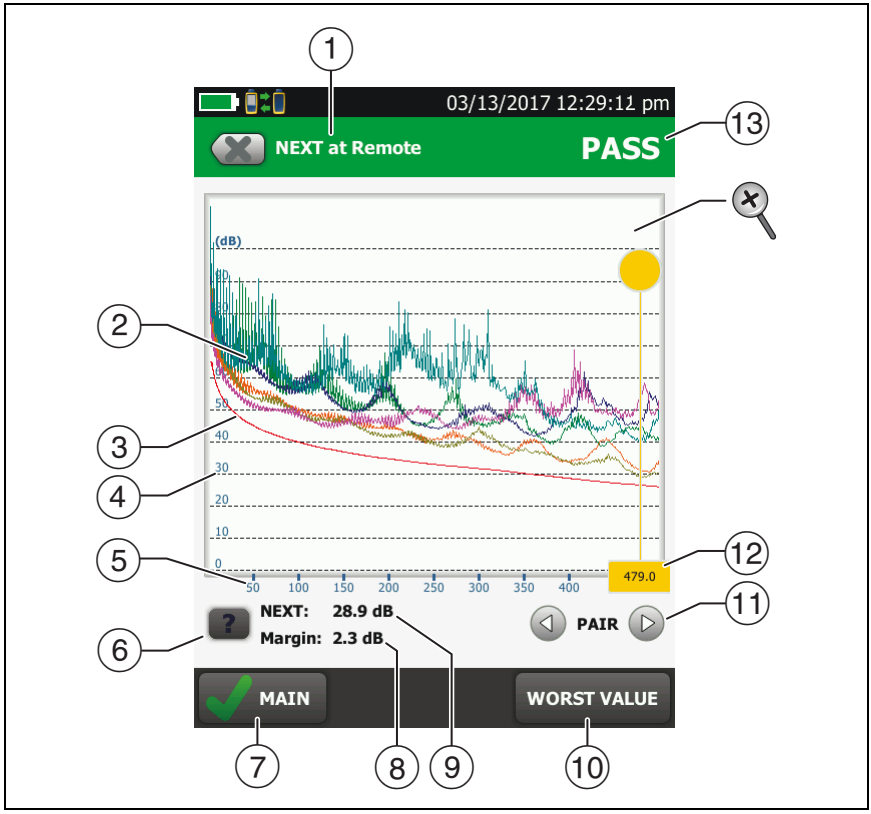
⑤ The limit specified by the selected test limit.

⑥ **MARGIN** is the difference between the measured value and the limit. The value is in a red box if the measurement exceeds the limit.

⑦ To switch between results for the main unit and the remote, tap **REMOTE** or **MAIN**.

⑧ To see the results for a different pair or pairs, tap a tab.

⑨ The result for the pair. If the result shows an asterisk, see “PASS*/FAIL* Results” on page 42.



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Figure 20. Plot Screen for a Frequency-Domain Test

① The location of the measurements. To switch between results for the main and remote, tap **REMOTE** or **MAIN** (⑦).

② Measured values for the wire pairs.

③ The limit line (in red) for the measurement.

Note

If the limit line is black, the tester does not evaluate the measurement at those frequencies because a dB rule applies. See the Technical Reference Handbook.

④ The vertical scale is the measured value in decibels.

⑤ The horizontal scale is the frequency range in megahertz.

⑥ To see help for the screen, tap .

⑦ To switch between results for the main unit and the remote, tap **REMOTE** or **MAIN**.

⑧ The margin at the cursor's location. The margin is the difference between the measured value and the limit. The margin is negative if the pair failed.

⑨ The measured value at the cursor's location.

⑩ When you first look at the plot, the cursor is at the frequency of the worst margin. To move the cursor to the worst value, tap **WORST VALUE**. (The insertion loss plot is different. See the Technical Reference Handbook.)

⑪ To see the plots for pairs, tap  or . To select pairs to show on the plot, touch  or  for one second to see the **SELECT PAIRS** window. Select the pairs you want to see, then tap **OK**.

⑫ When you first look at the plot, the cursor is at the frequency of the worst margin. To move the cursor to the worst value, tap **WORST VALUE** (⑩). The box at the bottom of the cursor shows the frequency at the cursor's position.

To move the cursor to other points, touch and drag the yellow circle at the top of the cursor.

To move the cursor in small increments, tap the yellow circle, then tap the arrow buttons that show on the plot ( or ).

⑬ The overall result for the test. If you look at pairs, the result is for those pairs. If the result shows an asterisk, see "PASS*/ FAIL* Results" on page 42.

 To zoom in and out, use the pinch, reverse-pinch, and double-tap gestures on the touchscreen. You can also use the zoom controls to change the magnification on the frequency and decibels scales independently.

DIAGNOSTIC Tab

If an Autotest on twisted pair cabling fails or has marginal results, the DSX-600/602 CableAnalyzer automatically gives you HDTDR and HDTDX plots to help you find faults. To see the plots, tap the **DIAGNOSTIC** tab, then tap the HDTDR or HDTDX panel (Figure 21).

To get only diagnostics results, select **Diagnostics** from the **TOOLS** menu. These results do not include a **PASS/FAIL** status.

For more information on the HDTDR and HDTDX plots, see the Technical Reference Handbook.

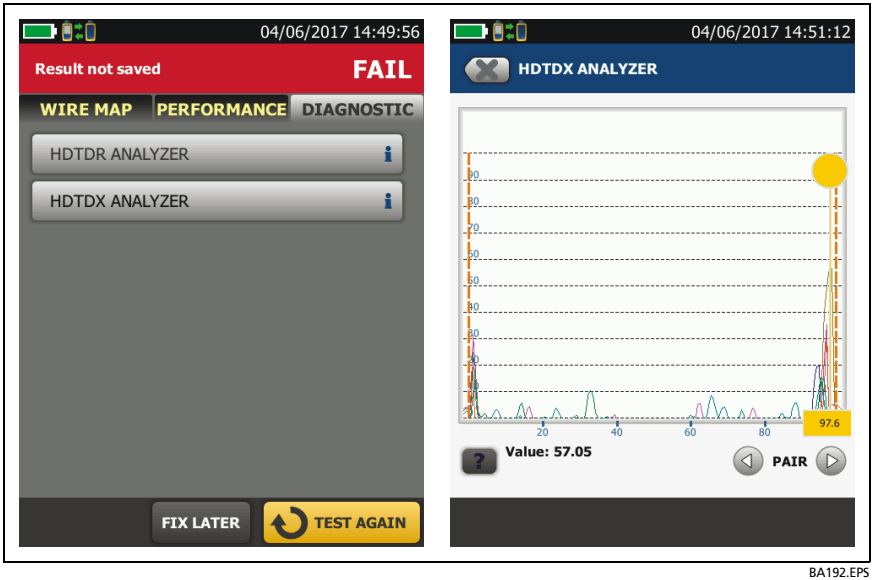


Figure 21. Examples of Diagnostic Screens

Continuous Tests

To do the wire map, length, or resistance test continuously, go to the home screen, tap **TOOLS** > **Single Tests**, then tap a test.

The wire map test compares the results to the outlet configuration specified by the selected test limit and shows  if the connections agree or  if they do not.

The length and resistance tests do not compare the results to a test limit.

To save the result, tap **SCAN OFF** > **SAVE**. The saved test has an  for the overall result.

Chapter 3: Certify Coaxial Cabling

The optional DSX-CHA003 coaxial adapters let you use the DSX CableAnalyzer to certify coaxial cabling for network and video applications.

Set the Reference for Coaxial Tests

To use DSX-CHA003 adapters, you must set the reference for coaxial tests. The reference procedure sets a baseline for insertion loss and resistance measurements.

Set the reference at these times:

- Every 30 days, at minimum.
- To ensure maximum accuracy of test results, set the reference daily.

Note

It is not necessary to set the reference again if you use different coaxial adapters.

To set the reference

1. Make the connections shown in Figure 22.
2. Turn on the tester and the remote a minimum of 5 minutes before you set the reference.

-continued-

Notes

Set the reference only after the testers are at an ambient temperature between 10 °C and 40 °C (50 °F and 104 °F).

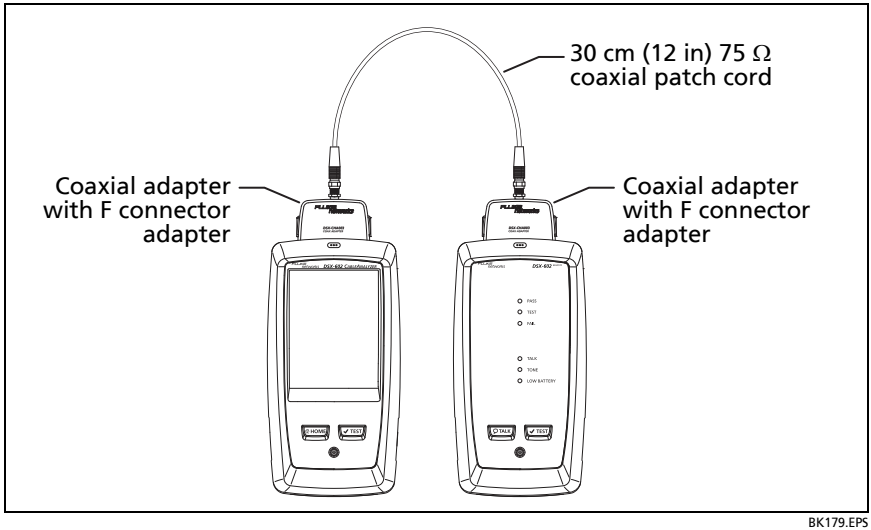
The tester will not let you set the reference if the patch cord is longer than 30 cm (12 in).

You can also set the reference with a 50 Ω patch cord.

3 On the home screen, select a coaxial cable test.

4 On the home screen, tap **TOOLS**, then tap **Set Reference**.

5 On the **SET REFERENCE** screen tap **TEST**.



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Figure 22. Reference Connections for Tests on Coaxial Cabling

Settings for Coaxial Tests

Table 3 gives descriptions of the settings for coaxial tests. To set up a project, which includes the settings in Table 3, cable IDs, and operator names, see Chapter 5.

To set up a coaxial test

1. On the home screen, tap the test setup panel.
2. On the **CHANGE TEST** screen, select a coaxial test to change, then tap **EDIT**.

   Or to set up a new coaxial test, tap **NEW TEST**.
3. On the **TEST SETUP** screen, tap the panels to change settings for the test. See Table 3.
4. On the **TEST SETUP** screen, tap **SAVE** when your test setup is completed.
5. On the **CHANGE TEST** screen, make sure the button next to the test is selected, then tap **USE SELECTED**.

Table 3. Settings for Coaxial Tests

Setting	Description
Cable Type	Select a cable type that is correct for the type you will test. To see a different group of cable types, tap **MORE**, then tap a group. To make a custom cable type, tap **Custom** in the **Cable Groups** list.
NVP	Nominal velocity of propagation. The tester uses the NVP and the propagation delay to calculate the length of the cable. The default value is defined by the selected cable type and is the typical **NVP** for that cable type. To enter a different value, tap the **NVP** panel, then tap  or  on the **NVP** screen to increase or decrease the value. To find the actual value for a cable, connect a known length of the cable to the tester, tap **MEASURE** on the **NVP** screen, then change the NVP until the measured length matches the known length. Use a cable at least 30 m (100 ft) long. When you increase the NVP value, the calculated length increases.
Test Limit	Select the correct test limit for the job. To see a different group of limits, tap **MORE**, then tap the name of a group.
Store Plot Data	**Off** **:** The tester does not save plot data for insertion loss or for the HDTDR analyzer. You can see the plots before you save the test and exit the results screen. The saved results show insertion loss measurements in a table and do not include the HDTDR plot. **On** **:** The tester saves plot data for the insertion loss test and for the HDTDR analyzer.

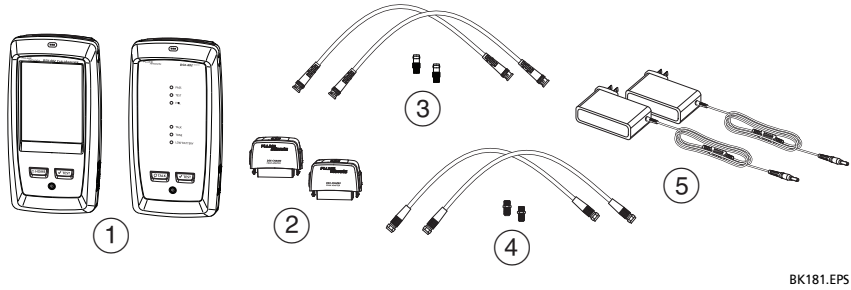
How to Do an Autotest

Figure 23 shows the equipment for tests on coaxial cabling.

Notes

You can do the HDTDR, length, and resistance tests without a remote tester. See "Tests Without a Remote" on page 64.

If you have two main testers, you can use one as a remote. To select the remote function, tap ***TOOLS*** *>* ***Main as Remote****.*



1. Main and remote testers
2. Two DSX-CHA003 adapters
3. For tests on network cabling: F-connector to BNC adapters and patch cords (typically 50 Ω)
4. For tests on video cabling: F-connector adapters and patch cords (typically 75 Ω)
5. AC adapters (optional)

Figure 23. Equipment for Tests on Coaxial Cabling

To do an Autotest

1 Attach coaxial adapters to the main and remote testers.

2 Make sure that the home screen shows the correct settings for the job.

To make sure that other settings are correct, tap the test setup panel, make sure the correct test is selected on the **CHANGE TEST** screen, then tap **EDIT** to see more settings. Table 3 on page 58 describes the settings.

3 Connect the testers to the link as shown in Figure 24.

⚠ Caution

To make sure your results are reliable:

- **Disconnect all taps and devices from the cable.**
- **Do not do tests through splitters (See "About Splitters" on page 63).**

4 Tap **TEST** on the main tester or press ✔TEST on the main or remote tester.

If the tester at the other end of the cable is in sleep mode or is off, your tester's tone generator turns on the other tester.

If the two testers are not connected:

- Your tester's tone generator stays on so you can use a tone probe to find the cable to connect to the other tester.
- Or, tap **MEASURE** to do the length and resistance tests, which do not require a remote tester. Because the tester cannot complete all tests, and the reflection at the end of the cable exceeds the 15% limit for the HDTDR test, the result for an Autotest without a remote is always **FAIL**.

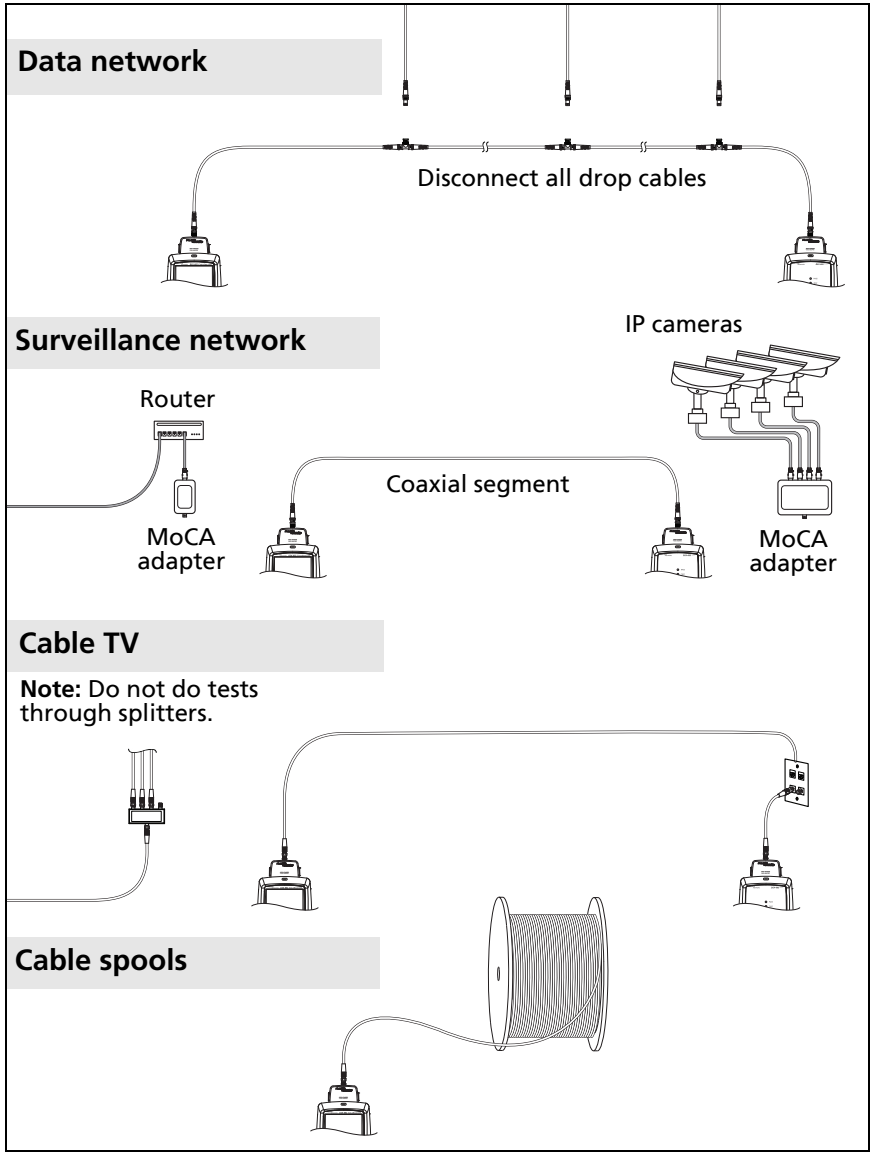
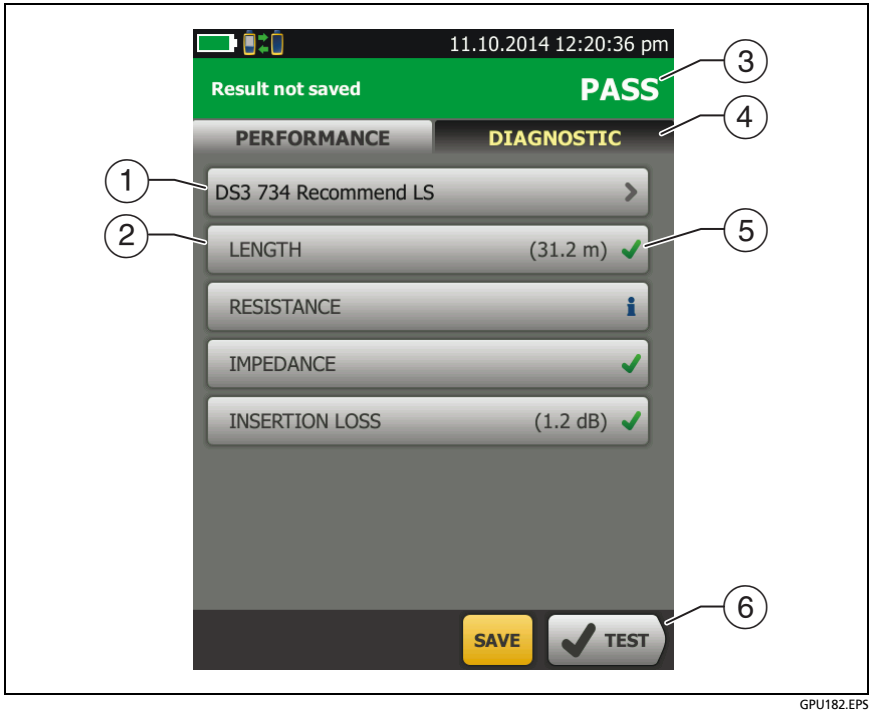


Figure 24. Examples of Connections for Tests on Coaxial Cabling

Coaxial Autotest Results

Note

Not all test limits include all the tests shown in Figure 25.



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Figure 25. Autotest Results for Coaxial Cabling

(1) The test limit and cable type used for the test.

(2) To see detailed results for a test, tap the panel.

(3) The overall result for the Autotest. If the result shows an asterisk, See "PASS*/FAIL* Results" on page 42.

④ The **DIAGNOSTIC** tab shows the HDTDR analyzer button, which you can tap to see the HDTDR plot. The plot helps you find faults on the cable. The HDTDR plot for coaxial cable includes limit lines and a **PASS/FAIL** result.

⑤ The overall result for the test:

 The results exceed the limit.

 The results are within the limit.

 The selected test limit does not have a limit for the test.

 The results are within the range of accuracy uncertainty for the tester. See “PASS*/FAIL* Results” on page 42.

The measurement shown for the insertion loss plot is the worst value if the test passed, or the worst margin if the test failed.

⑥ When more than one button shows at the bottom of the screen, the tester highlights one in yellow to recommend which one to tap. See “Buttons to Do Tests and Save Results” on page 20.

To do the resistance test continuously, select the test from the **TOOLS** menu. This function helps you locate intermittent faults.

About Splitters

If you get these results, there might be a splitter on the cable:

- The tester cannot find the remote.
- The tester looses communication with the remote. The test might continue, then loose communication again as the splitter interferes with the communication signal.
- The length test shows **End not found**.
- The resistance test shows an open.
- The HDTDR plot shows a reflection that has an unusual shape.

Because splitters can cause unreliable test results, you should not do tests through them.

Tests Without a Remote

You can do the length, resistance, and HDTDR tests without a remote tester. Table 4 describes the effects of a remote on tests.

1. Attach a coaxial adapter to the main tester.
2. Make sure that the home screen shows the correct settings for the job.

   To make sure that other settings are correct, tap the test setup panel, make sure the correct test is selected on the **CHANGE TEST** screen, then tap **EDIT** to see more settings. Table 3 on page 58 describes the settings.
3. Connect the tester as shown in Figure 26.
4. To do an Autotest: Tap **TEST** on the main tester or press ✔TEST on the main or remote tester. When the **MEASURE** button shows, tap it to do the length and resistance tests, which do not require a remote tester.

   To do only the length or resistance test: On the home screen tap **TOOLS** > **Single Tests**, then tap a test.

   To do only the HDTDR test: On the home screen tap **TOOLS** > **Diagnostics**, then tap **HDTDR**.

   Note

   *Because the tester cannot complete all tests, and the reflection at the end of the cable exceeds the 15% limit for the HDTDR test, the result for an Autotest without a remote is always **FAIL**.*

Table 4. Remote Requirements for Coaxial Tests

Test	Remote Requirements*
HDTDR analyzer	Optional. Without a remote, the plot shows large reflections at the end of the cabling.
Resistance	A remote or a terminator is required for a loop resistance measurement.
Length	Not required. Because a coaxial cable terminator eliminates signal reflections, the tester cannot measure the length of terminated cabling. The tester shows **End not found** in this case.
Impedance	Optional. Without a remote or terminator, the tester cannot measure the impedance of cables longer than 984 ft (300 m). The tester shows **Unknown** in this case.
Propagation delay	Not required. Because a coaxial cable terminator eliminates signal reflections, the tester cannot measure the propagation delay of terminated cabling. In this case, the tester shows **End not found**.
Insertion Loss	Required.

* If a remote is not required for a test, the test runs without activating the toner when no remote is detected.

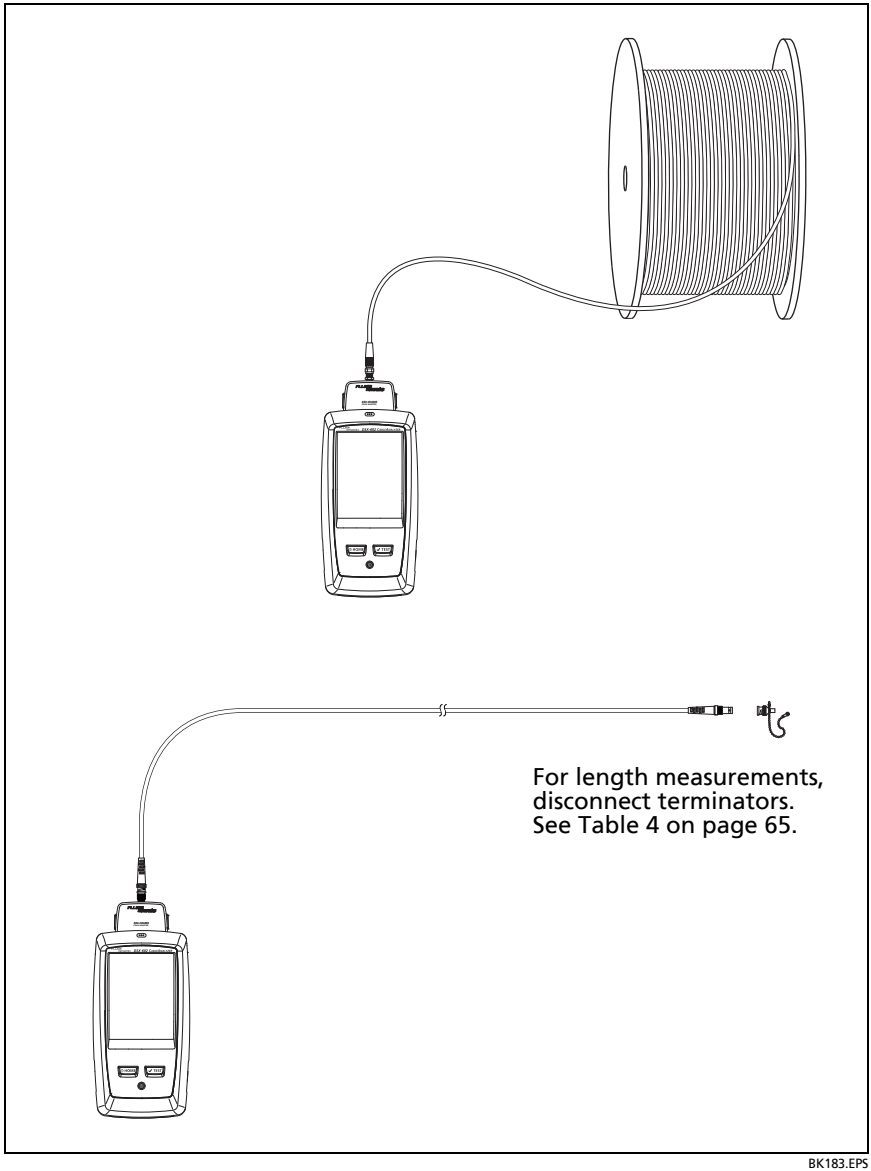


Figure 26. Connections for Coaxial Tests Without a Remote

Continuous Tests

To do the length or resistance test continuously, go to the home screen, tap **TOOLS** > **Single Tests,** then tap a test.

The length and resistance tests do not compare the results to a test limit.

To save the result, tap **SCAN OFF** > **SAVE**. The saved test has an  for the overall result.

Chapter 4: Manage Test Results

View Saved Results

On the home screen, tap the **RESULTS** icon. The **RESULTS** screen shows the results in the active project. See Figure 27.

To view results saved on a USB flash drive, connect the drive, then tap **RESULTS**, **TRANSFER**, **USB Flash Drive**, **Import**. See "Manage Results on a Flash Drive" on page 74.

To organize results and make reports you can give to customers, use LinkWare PC software.

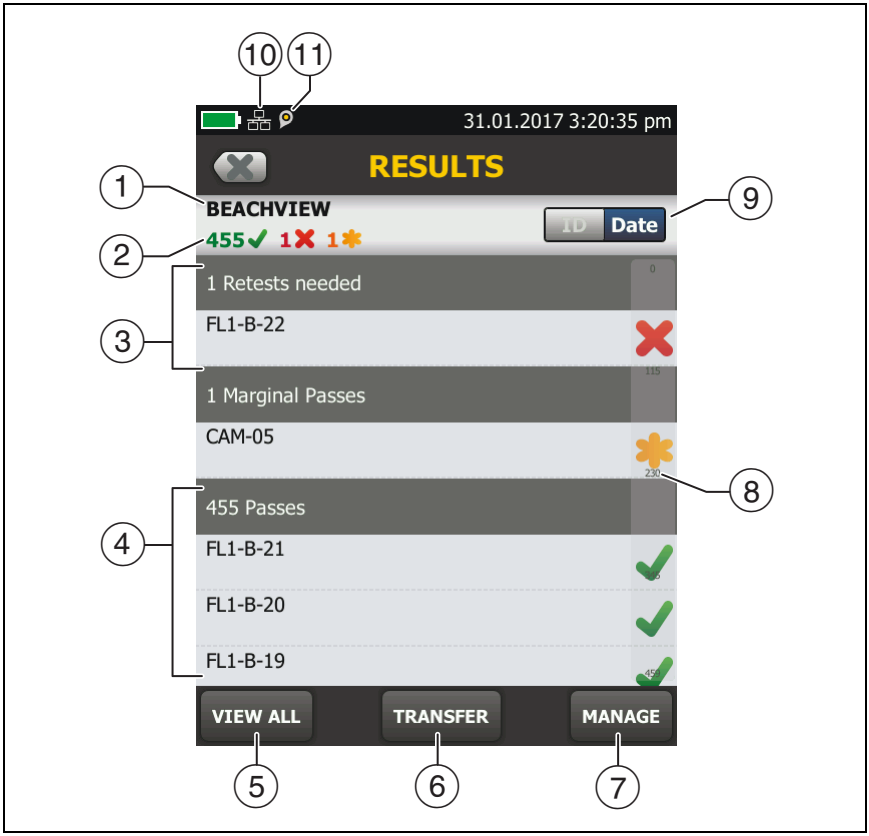


Figure 27. RESULTS Screen

① The name of the active project.

② ✓: The number of results that passed. This includes individual results for each ID and tests that have an ℹ result.

✗: The number of results that failed. This includes individual results for each ID.

: The number of DSX CableAnalyzer results that have **PASS*** results. **PASS*** results have measurements within the range of accuracy uncertainty for the tester. See "PASS*/FAIL* Results" on page 42.

③ The cable IDs that have **FAIL** results and must be tested again.

④ The cable IDs that have an overall **PASS** or  result.

⑤ Tap **VIEW ALL** to see a summary of the results in all the projects in the tester.

⑥ **TRANSFER** lets you export or import results to or from a flash drive and delete results on the flash drive. The **TRANSFER** function also lets you sync project setups and results with LinkWare Live.

⑦ **MANAGE** lets you move results to a different project, rename results, or delete results that are in the tester.

⑧ The scroll bar shows when the list of results is long. To use the scroll bar, tap on the bar or slide your fingertip on the bar. For example, to see the 12th result in the list, tap on "12" in the scroll bar. When you slide your fingertip on the bar, the number of the result you can see is next to your fingertip.

⑨ Tap the **ID/Date** control to sort the results by cable ID or by date. When you sort by ID, the results show in ascending order. When you sort by date, the latest result is at the top of the list.

⑩ These icons show when you connect the tester to a network to use Fluke Networks cloud services (see Chapter 6):

 The tester is connected to a wireless network.

 The tester is connected to a wired network.

⑪  The asset management icon shows when the owner of a LinkWare Live account has enabled the asset management service on the tester. See "About the Asset Management Service" on page 93.

How to Replace a Saved Result that Failed

To use the same test settings that were used for the saved result

1. On the home screen, tap the **RESULTS** icon.
2. On the **RESULTS** screen, tap a result that failed.
3. Tap **TEST AGAIN**.
4. When the test is completed, and if **Auto Save** is on, the tester asks you if you want to overwrite the results. Tap **Yes**.

   If **Auto Save** is off, tap **FIX LATER** (if the test failed) or **SAVE** (if the test passed) to save the result.

To replace a result with a result that uses different test settings

1. Turn off **Auto Save**.
2. Make sure that the home screen shows the project that contains the result you want to replace.
3. Select the necessary test settings.
4. Do the test, tap **FIX LATER** (if the test failed) or **SAVE** (if the test passed), then enter the ID of the saved result.
5. The tester asks you if you want to overwrite the results. Tap **Yes**.

Delete, Rename, and Move Results

Before you delete, rename, or move results, select the project that contains the results and go to the **MANAGE RESULTS** screen:

1. On the home screen, tap the **RESULTS** icon. The **RESULTS** screen shows the results in the active project.
2. To see the results in another project, tap **VIEW ALL**, then tap a project.
3. Tap **MANAGE** to see the **MANAGE RESULTS** screen.

To delete results

1 On the **MANAGE RESULTS** screen, select the results you want to delete.

To select all the tests that failed or all the tests that passed, tap **Select All Retests** or **Select All Passes**.

2 Tap **DELETE**, then tap **DELETE** in the confirmation dialog.

To rename results

1 On the **MANAGE RESULTS** screen, select one result to rename.

2 Tap **RENAME**.

3 Enter a new name, then tap **DONE**.

To move results to a different project

1 On the **MANAGE RESULTS** screen, select the results you want to move.

2 Tap **MOVE**.

- To move the results to a project shown in the list, tap the project name, then tap **MOVE** in the confirmation dialog.
- To make a new project and move the results to the new project, tap **NEW PROJECT**, enter a project name, tap **DONE**, then tap **MOVE** in the confirmation dialog.

Note

When you move results to a different project, that project becomes the active project.

Manage Results on a Flash Drive

You can export or import results to or from a flash drive, and delete results on the flash drive.

To export or import project settings along with results, see "Manage Projects on a Flash Drive" on page 84.

⚠ Caution

- **Do not remove the USB flash drive while the LED on the drive flashes. Doing so can corrupt the data on the drive.**
- **You can lose a USB flash drive, cause damage to it, or accidentally erase the contents of the drive. Thus, Fluke Networks recommends that you save no more than one day of test results on a flash drive.**

Note

The tester reads only USB drives that use the FAT format.

1. Connect a USB flash drive to the type A USB port. The tester makes a bell sound when it detects the drive.
2. On the home screen, tap the **RESULTS** icon, then tap **TRANSFER**.
3. On the **TRANSFER RESULTS** screen, tap **USB Flash Drive**, then tap a function:
   - **Export**: On the **EXPORT RESULTS** screen, select **New** or **All**, select the project that contains the results you want to export to the flash drive, then tap **EXPORT**.

     New: Export only results that do not have the same IDs as results that are already on the flash drive.

     All: Export all the results from all projects in the tester.

     Note

     Cable IDs are case-sensitive. For example, the tester saves result with the names "A0" and "a0" in two different records.

- **Import**: On the **IMPORT RESULTS** screen select the project that contains the results you want to import from the flash drive, then tap **IMPORT**.
- **Delete**: On the **DELETE RESULTS** screen select the project that contains the results you want to delete on the flash drive, then tap **DELETE**.

Upload Results to a PC

Note

To upload results to the cloud for transfer to a PC, use the LinkWare Live web application. See Chapter 6.

To upload results to a PC from the tester or a flash drive, use LinkWare PC software.

1. Install the latest version of LinkWare PC software on the PC.
2. Turn on the tester and start LinkWare PC on the PC.
3. Use the USB cable supplied to connect the Micro-AB USB port on the tester to a type A USB port on the PC. See Figure 28.

   Or connect a USB flash drive to the PC.
4. On the LinkWare PC toolbar, click , then select a product, or select **Test Files (.tst)** to upload from a flash drive.
5. In the **Import** dialog box in LinkWare PC, select options for the location and the number of results to import.

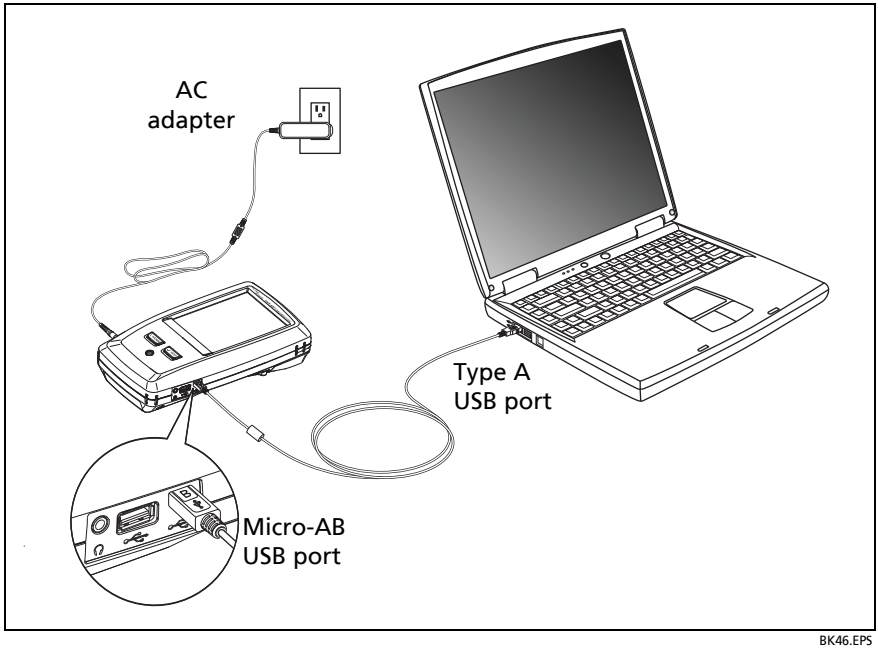


Figure 28. How to Connect the Tester to a PC

View the Memory Status

To see the memory status

On the home screen, tap the **TOOLS** icon, then tap **Memory Status**.

The **MEMORY STATUS** screen shows these values:

- The percentage of memory available
- The number of test records that are saved
- The number of .id files that have been downloaded to the tester from LinkWare PC software
- The memory space taken by other files, such as the databases for projects and test limits

Chapter 5: Use Projects

Why Use Projects?

The tester's ProjX™ management system lets you set up projects that help you monitor the status of a job and make sure that your work agrees with the requirements of the job.

You can use a project to do these tasks:

- Specify the tests that are necessary for a job.
- Specify settings for tests.
- Specify an operator for the job.
- Make sets of sequential IDs to use as names for test results.
- Automatically save test results with IDs from a set.
- Add the results from other necessary tests to each saved result in the project.
- See which IDs do not have results for a specified test.
- See what percentage of a job is completed.
- See how many links passed and how many failed.
- Keep the test results from a job in one place for easy access.

When you use a project, you can do tests and use IDs that are not specified in the project if necessary. You can also easily change the settings in a project if necessary.

Notes

It is not necessary to install a module to set up a project for the module. The main unit keeps all the settings.

To manage projects in the cloud, use the LinkWare Live web application. See Chapter 6.

Set Up a Project

Refer to the **PROJECT** screen in Figure 29 on page 79.

1. On the home screen, tap the **PROJECT** panel, tap **CHANGE PROJECT**, then tap **NEW PROJECT**.
2. On the **NEW PROJECT** screen, enter a name for the project, then tap **DONE**.
3. On the **PROJECT** screen, tap the **Operator** panel to enter an operator name for the project.
4. On the **PROJECT** screen, tap the **NEW TEST** button to enter the tests and test settings necessary for the project.
5. On the **PROJECT** screen, tap the **NEW ID SET** button to make one or more sets of cable IDs for the project. See the **CABLE ID SETUP** screen in Figure 30 on page 82.
6. On the **PROJECT** screen, tap **DONE**.

The PROJECT Screen

To start a new project, tap the **PROJECT** panel on the screen. Figure 29 shows the **PROJECT** screen and describes the items you enter to make a project.

① The name of the project. See also item ⑨.

Projects you download from LinkWare Live include the organization name. They can also include subproject names. On the tester's **PROJECT** screen, these names show in this format: **Organization Name>>Project Name>>Subproject Name**. See "About Project Names from LinkWare Live" on page 81.

② **Operator**: The name of the person who will do the tests for the project. For each operator you can also enter the email address that the operator will use as an ID to sign in to LinkWare Live.

③ The date range for the results in the project.

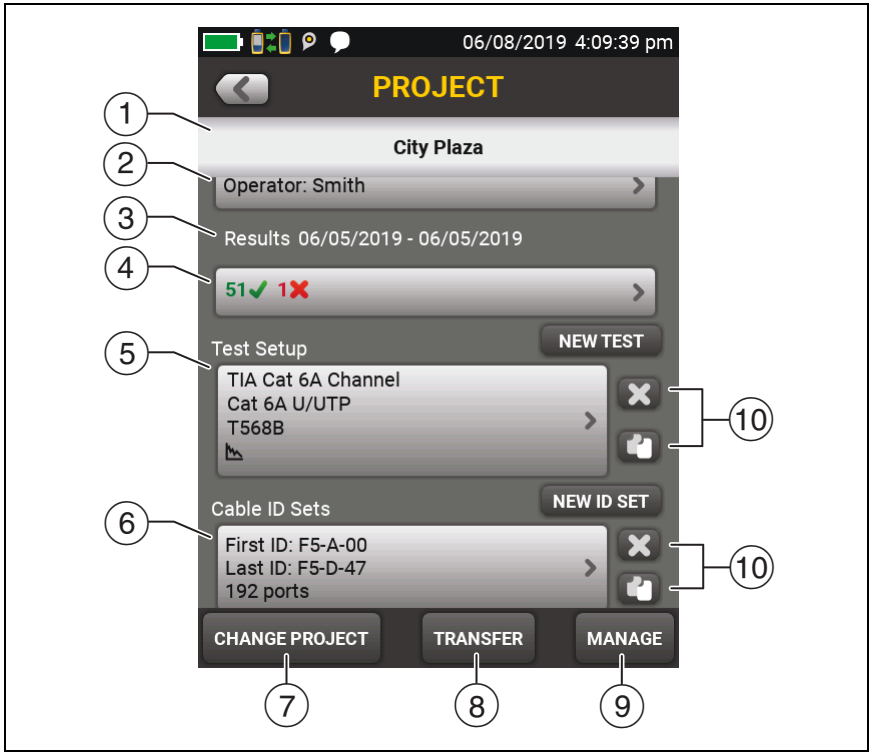


Figure 29. PROJECT Screen

④ **Results**: A summary of the test results in the project:

: The number of tests that failed.

: The number of tests that passed.

: The number of DSX CableAnalyzer results that have **PASS*** results. **PASS*** results have measurements within the range of accuracy uncertainty for the tester. See "PASS*/FAIL* Results" on page 42.

⑤ **Test Setup**: The tests that are available in the project.

To add a test to the project, tap **NEW TEST**.

⑥ **Cable ID Sets**: The sets of IDs the tester can use for the names of test results.

To add a set of IDs to the project, tap **NEW ID SET**. See Figure 30.

⑦ To use a different project, tap **CHANGE PROJECT**, then tap a project.

To make a new project, tap **CHANGE PROJECT**, then tap **NEW PROJECT**.

⑧ **TRANSFER** lets you export or import projects to or from a flash drive and delete projects on the flash drive. The project data includes all project settings and test results.

⑨ **MANAGE** lets you rename, copy, or delete a project that is in the tester.

⑩ To delete the test setup or ID set, tap . To copy the test setup or ID set so you can edit it to make a new one, tap .

Notes

If you delete an imported ID set from a project, the ID set is still available in the tester. To delete imported ID sets from the tester, use LinkWare PC software.

*A project must have at least one **Test Setup** and one **Cable ID** set. If you delete them all, the tester makes a default **Test Setup** and **Cable ID** set.*

About Project Names from LinkWare Live

Projects you download from LinkWare Live include the organization name. They can also include subproject names. On the tester's **PROJECT** screen, these names show in this format: **Organization Name>>Project Name>>Subproject Name**.

LinkWare Live will not use organization or subproject names you create on the tester. If you use the format "**Organization Name>>Project Name>>Subproject Name**" to enter names on the tester, then sync the project to LinkWare Live, LinkWare Live will use all of the names as the project name.

The CABLE ID SETUP Screen

To see the **CABLE ID SETUP** screen, tap the **PROJECT** panel on the home screen, then tap **NEW ID SET** on the **PROJECT** screen. See Figure 30.

Each project can have up to 5000 IDs. If an ID set does not have a **Last ID**, the tester counts the set as one ID. An ID can have a maximum of 60 characters. Symbols, such as the asterisk, and accented characters do not increment.

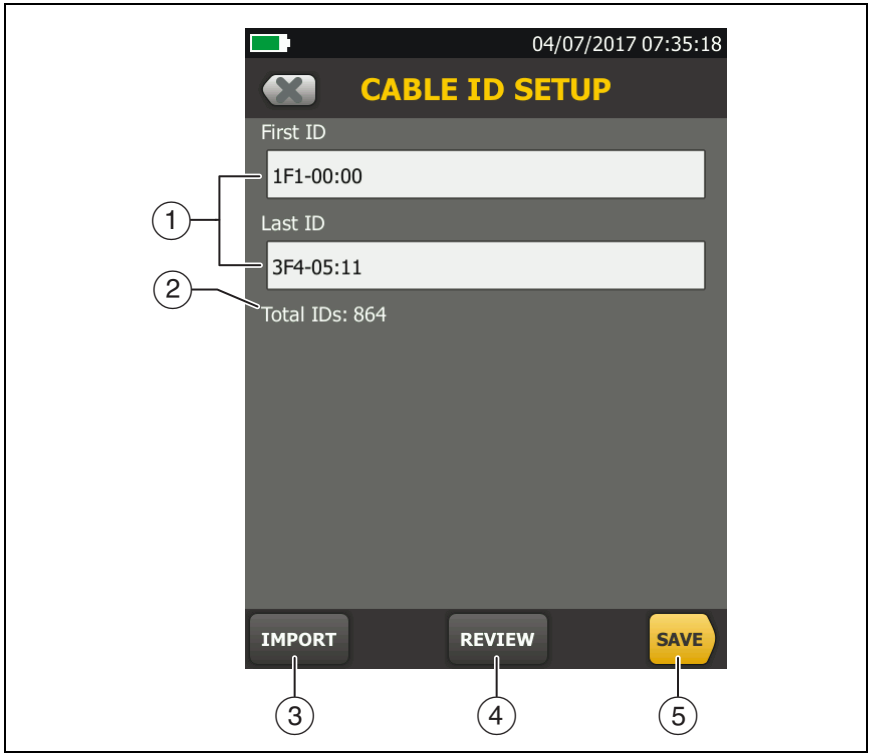


Figure 30. CABLE ID SETUP Screen (after you enter the first and last IDs)

① **First ID** and **Last ID**: The first and last IDs in a set of sequential IDs.

If you do not enter a **Last ID** when you make an ID set, the tester will increment the **First ID** to make subsequent IDs.

Note

The tester does not increment symbols or accented characters.

When you use an ID set that does not have a **Last ID**, the set under **IDs Untested** on the **CHANGE ID** screen shows only the next ID.

② **Total IDs**: The number of IDs in the set. This section does not show for ID sets that do not have a **Last ID**.

③ Tap **IMPORT** to use an ID set that you downloaded to the tester from LinkWare PC software.

④ Tap **REVIEW** to see the **CABLE ID REVIEW** screen, which shows the ID set an the total number of IDs.

Note

*The **REVIEW** button does not show if you do not enter a **Last ID**.*

⑤ **SAVE**: To save the ID set, tap **SAVE**.

About Next ID Sets

If you do not enter a **Last ID** when you make an ID set, the tester uses the **First ID** as the **Next ID**. The tester increments the Next ID each time you save a result.

- Numbers increment sequentially:

  1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, ... 99, 100, 101...

- Letters increment through the English alphabet:

  A, B, C, D, ... Z, AA, AB, AC, AD, ... AZ, BA, BB, BC...

- Numbers and letters do not cause each other to increment:

  1Y, 1Z, 1AA, 1AB, ... 1ZZ, 1AAA, 1AAB...

- The tester does not increment symbols or accented characters.

When you use a **Next ID** set, the set under **IDs Untested** on the **CHANGE ID** screen shows only the next ID. To save the next test with a different ID, tap the **Next ID:** panel, then enter a different ID.

Each project can have one **Next ID** set.

If your project has only a **Next ID** set, the tester cannot calculate the percentage of the project that is completed, so the **% Tested** value does not show on the home screen.

If your project has both a **Next ID** set and sets with first and last IDs, the **% Tested** value includes tests you saved with **Next ID**. For example, if you have one **Next ID** set and one set with 10 IDs, and you save 10 results with next IDs, the **% Tested** shows 50% (10 saved results divided by 20 IDs).

Manage Projects on a Flash Drive

You can export or import projects to or from a flash drive, and delete projects on the flash drive. The project data includes all project settings, test results, and ID sets.

⚠ Caution

- **Do not remove the USB flash drive while the LED on the drive flashes. Doing so can corrupt the data on the drive.**
- **You can lose a USB flash drive, cause damage to it, or accidentally erase the contents of the drive. Thus, Fluke Networks recommends that you save no more than one day of test results on a flash drive.**

Note

The tester reads only USB drives that use the FAT format.

1. Connect a USB flash drive to the type A USB port. The tester makes a bell sound when it detects the drive.
2. On the home screen, tap the **PROJECT** panel.
3. On the **PROJECT** screen, tap **TRANSFER**.
4. On the **TRANSFER PROJECTS** screen, select a function:
   - **Export**: On the **EXPORT PROJECTS** screen, select the projects you want to export to the flash drive, then tap **EXPORT**.
   - **Import**: On the **IMPORT PROJECTS** screen select the projects you want to import from the flash drive, then tap **IMPORT**.

- **Delete**: On the **DELETE PROJECTS** screen select the projects you want to delete on the flash drive, then tap **DELETE**.

Copy Project Settings to Other Testers

To copy the settings in a project to other DSX-600/602 testers, use the **Read Project Setups** and **Write Project Setups** utilities in LinkWare PC software. You can use LinkWare PC to read project settings from a tester or from a project you exported to a flash drive.

Chapter 6: Sync Projects with LinkWare™ Live

The LinkWare Live web application lets you manage your projects from a desktop or mobile device.

Note

To make sure you can use the latest features in LinkWare Live, keep your tester updated with the latest Versiv software.

Sign Up for a LinkWare Live Account

1. Go to **www.linkwarelive.com/signin**.
2. If you already have a LinkWare Live account, enter your email address and password on the LinkWare Live **Sign In** page.
3. If you do not have a LinkWare Live account, click **New user? Sign up now!**. Enter the information for your account, then click **CREATE ACCOUNT**.

   Fluke Networks sends you an email with a LinkWare Live activation code.
4. Open the email, copy the activation code, click the LinkWare Live activation link in the email, paste the activation code into the box in the activation window, then click **ACTIVATE**.
5. The LinkWare Live **Sign In** page shows again. Enter your email address and password, then click **SIGN IN**.

How to See the Tester's MAC Address

Some networks require users to register their device's MAC address before they can connect to the network.

There are two MAC addresses: one for the wired port and one for the Wi-Fi adapter.

To see the tester's or Wi-Fi adapter's MAC address

1. For a DSX-600 that uses an external Wi-Fi adapter, connect the Wi-Fi adapter to the tester's USB port.
2. On the home screen tap **TOOLS**, then tap **Network**.
3. On the **NETWORK** screen, tap the **Wired** or **Wi-Fi panel**. The MAC addresses shows at the top of the **WIRED** and **WI-FI PORT** screens.

Use LinkWare Live Through a Wired Ethernet Network

1. Use an appropriate cable to connect the tester's RJ45 Ethernet port to an active network port. If the cable is good and the port is active, the LEDs on the tester's port will come on.
2. On the home screen, make sure the **Operator** name is correct. The tester uses the email address associated with the operator name as the ID when you sign in to LinkWare Live.

   If no address is associated with the name, or if you enter a different address on the **LWL SIGN IN** screen, the tester associates the name with the address you enter.
3. On the home screen, tap the **SYNC** icon.
4. When the tester connects to the network, the wired network connection icon shows at the top of the screen: 
5. On the **LWL SIGN IN** screen, enter the ID and password for your LinkWare Live account, then tap **SIGN IN**.

6 If you use other people's LinkWare Live accounts, the **ORGANIZATION** screen shows. Tap the organization you want to use.

7 On the **SYNC PROJECTS** screen (Figure 31 on page 91), select the projects you want to sync, then tap **SYNC**.

Use LinkWare Live Through a Wi-Fi Network

Note

The testers in some custom kits do not support Wi-Fi (for example, in some kits purchased for government applications). These testers do not show any Wi-Fi settings.

DSX-602 testers have an internal Wi-Fi radio. These testers do not need an external adapter to connect to Wi-Fi networks.

To connect a DSX-600 tester to a Wi-Fi network, you must have an optional USB Wi-Fi adapter. Fluke Networks recommends these adapters:

- TP-LINK TL-WN725N, versions 1 and 2 (recommended)
- NETGEAR WNA1000M

Other adapters may be suitable. For the latest list of qualified adapters, see this topic in the Fluke Networks Knowledge Base:

www.bit.ly/1ACJeFO

To use a Wi-Fi network

1 For a DSX-600 that uses an external Wi-Fi adapter, connect the Wi-Fi adapter to the tester's USB port.

2 On the home screen, make sure the **Operator** name is correct. The tester uses the email address associated with the operator name as the ID when you sign in to LinkWare Live.

-continued-

If no address is associated with the name, or if you enter a different address on the **LWL SIGN IN** screen, the tester associates the name with the address you enter.

3 On the home screen, tap the **SYNC** icon.

4 Select a wireless network if necessary.

- **If a notice about additional information shows**

  Tap **OK**, then enter the required credentials on the **REDIRECTED LOGIN** screen and log in. If another **REDIRECTED LOGIN** screen shows after you log in, tap **DONE** on that screen.

- **If the NETWORK screen shows**

  The network settings are not correct. To change the settings:

  a. Tap the **Wi-Fi** panel, then change the settings as necessary. Table 5 on page 95 describes the Wi-Fi settings.

  b. To test the settings, go back to the **WI-FI PORT** screen, then tap **CONNECT**.

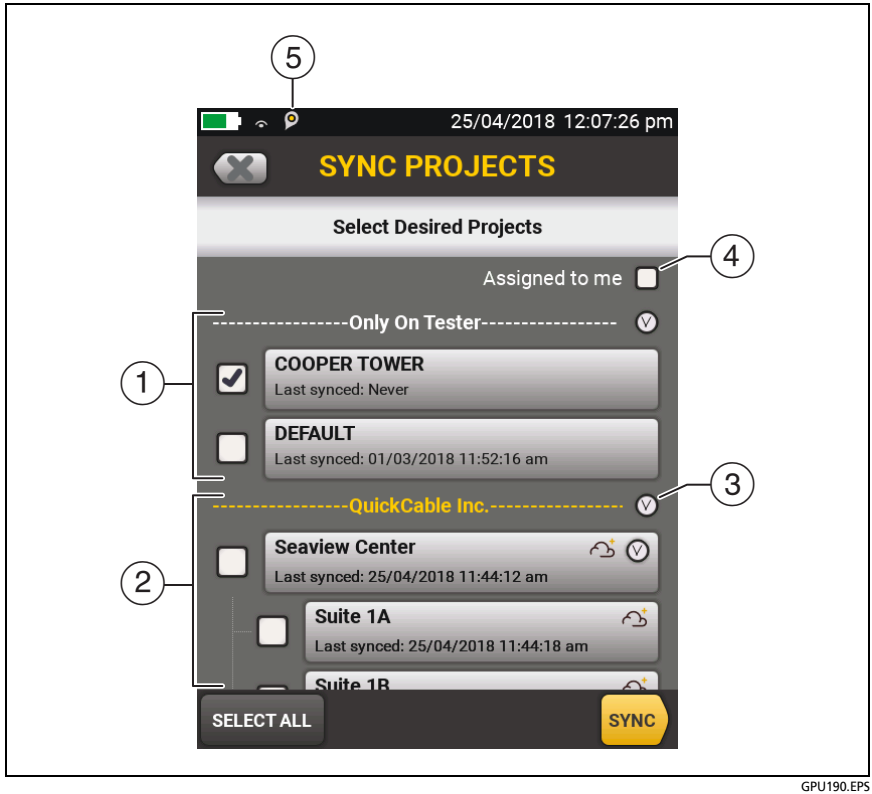
     When the tester connects to the network, the Wi-Fi network connection icon shows at the top of the screen: 

  c. On the home screen, tap the **SYNC** icon.

5 On the **LWL SIGN IN** screen, enter the ID and password for your LinkWare Live account, then tap **SIGN IN**.

6 If you use other people's LinkWare Live accounts, the **ORGANIZATION** screen shows. Tap the organization you want to use.

7 On the **SYNC PROJECTS** screen (Figure 31), select the projects you want to sync, then tap **SYNC**.



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Figure 31. SYNC PROJECTS Screen

① These projects are only on the tester. They have not been synced to LinkWare Live.

By default, the active project is selected to sync.

② These projects and subprojects are in the LinkWare Live organization shown ("QuickCable" in this example).

To update the list without syncing projects, tap , then tap the **LinkWare Live** panel again.

The cloud icon shows that the project is only in LinkWare Live and has not been synced to the tester.

The cloud and "+" icon shows that the project in LinkWare Live has been synced to the tester, so you can use the project on the tester.

Note

*If you rename a synced project on the tester or in LinkWare Live, and the project has the **Active** status in LinkWare Live, the **SYNC PROJECTS** screen on the tester shows both names in the format **DSX-600/602 Project Name -> LinkWare Live Project Name**. After you sync, the project's name on the tester changes to the name used in LinkWare Live.*

③ Tap ⓥ to collapse or expand the list of projects.

④ If you select **Assigned to me**, you will see only projects that are assigned to you in the project settings in LinkWare Live.

⑤ The asset management icon shows when the owner of a LinkWare Live account has enabled the asset management service for the tester. See "About the Asset Management Service" on page 93.

When You Cannot Sync a Deleted Project

When you delete a project in LinkWare Live, it goes into the recycle bin. If you synced the project before it was deleted, then try to sync it again, the tester shows a message to tell you that you cannot sync a deleted project. You will see this message even if you rename the project on the tester because LinkWare Live gives each project a unique, hidden ID that never changes, and uses this ID to identify projects. If it is necessary to sync the project, go to the LinkWare Live recycle bin and restore the project.

If a project in the LinkWare Live recycle bin has never been synced, and you create a project with the same name on the DSX-600/602 then sync the project, LinkWare Live shows it as a new, active project and gives it a unique ID.

About the Asset Management Service

LinkWare Live's asset management service lets you see the locations of your testers in the field. The owner of the LinkWare Live account can enable or disable the service remotely for each tester.

When this service is enabled on a tester, the asset management icon () shows on the tester's home screen. When a technician uses the tester to sign in to LinkWare Live, the tester's location shows on a map on LinkWare Live's **ASSETS** page.

Note

You can enable or disable the asset management service only with LinkWare Live. There is no setting on the tester that enables or disables this service.

Change the Network Settings

It is not usually necessary to change the wired or Wi-Fi network settings before you try to make a connection. But for example if you must use static addressing, you can get to the settings on the **NETWORK** screen.

To get to the network settings

On the home screen, tap **TOOLS**, then tap **Network**, then tap the **Wired** or **Wi-Fi panel**.

To test the settings

Tap **CONNECT** on the **WI-FI PORT** or **WIRED PORT** screen.

Settings for the Wired Port

The tester can use **DHCP** (dynamic host configuration protocol) or **Static** for the address method. Most networks use **DHCP**.

For **Static**, enter an IP address for the tester and the **Subnet Mask**, **Gateway** address, and **DNS1** and **DNS2** addresses for the network. If you are not sure what to enter, speak to the network administrator.

Settings for the Wi-Fi Port

Table 5 shows the Wi-Fi settings.

Note

The testers in some custom kits do not support Wi-Fi (for example, in some kits purchased for government applications). These testers do not show any Wi-Fi settings.

Table 5. Settings for the Wi-Fi Connection

Setting	Description
Address	Most networks use **DHCP**.
DHCP address settings	**SSID**: The tester does a scan for wireless networks and shows a list of available networks. Select the correct SSID. To connect to a hidden network, tap **ADD SSID**. **Security:** • **Authentication**: Select the authentication type that the network uses: • **Open**: Security credentials are not necessary. • **WEP**: Select an encryption method and enter the necessary keys. • **WPA/WPA2 Personal**: Enter the password for the network. ♦ **WPA/WPA2 Enterprise**: ♦ **EAP**: Select an EAP type that is appropriate for the authentication server. ♦ **User** and **Password**: Enter a user name (login name) and password for the network. ♦ **Alternate ID**: The tester can use the **Alternate ID** with some EAP methods to send an empty or anonymous identity while the tester makes a private connection. The tester then uses the private connection to send the **User** name and **Password** you entered. The tester can also use the **Alternate ID** to send the **User** name and **Password** to an authentication server in a different realm. In this situation, the **Alternate ID** can have a format such as anonymous@MyCompany.com or /MyCompany/anonymous.
Static address settings	Enter an IP address for the tester and the **Subnet Mask**, **Gateway** address, and **DNS1** and **DNS2** addresses for the network. If you are not sure what to enter, speak to the network administrator. The **Security** settings are the same as for the **DHCP** address settings.

Delete Wi-Fi Settings and Passwords

The tester saves the security settings and passwords for the Wi-Fi connections you use.

To delete all Wi-Fi settings and passwords

On the home screen, tap **TOOLS**, then tap **Network**, tap the **Wi-Fi** panel, then tap **FORGET ALL**.

Regulatory Information for the DSX-602 Wi-Fi Radio

To see the regulatory information

On the home screen, tap **TOOLS**, then tap **Regulatory Information**.

Sign Your Tester Out of LinkWare Live

1. On the home screen, tap the **TOOLS** icon, then tap **Sign In**.
2. On the **LWL SIGN IN** screen, tap **SIGN OUT**.

Or, turn off the tester.

Sign In to LinkWare Live from a Desktop or Mobile Device

1. Go to **https://www.linkwarelive.com/signin**.
2. Enter your LinkWare Live user name and password, then click **SIGN IN**.

For more information about how to use LinkWare Live, click **HELP** on the LinkWare Live web page.

Import Projects from LinkWare Live into LinkWare PC

1. Install the latest version of LinkWare PC software on the PC.
2. Turn on the tester and start LinkWare PC on the PC.
3. Use the USB cable supplied to connect the Micro-AB USB port on the tester to a type A USB port on the PC.
4. On the LinkWare PC toolbar, click .
5. Sign in to your LinkWare Live account, then use the LinkWare PC dialog boxes to select and import projects.

Learn More About LinkWare Live

Go to **http://www.flukenetworks.com/linkwarelive**.

Chapter 7: Maintenance

⚠ Warning ⚠

To prevent possible fire, electric shock, personal injury, or damage to the tester:

- **Do not open the case. You cannot repair or replace parts in the case.**
- **Use only replacement parts that are approved by Fluke Networks.**
- **If you replace parts that are not specified as replacement parts, the warranty will not apply to the product and you can make the product dangerous to use.**
- **Use only service centers that are approved by Fluke Networks.**

⚠ Caution

If you replace electrical parts yourself, the tester will possibly not have the correct calibration and can give incorrect test results. If the calibration is not correct, cable manufacturers can remove their warranty from the cabling you install.

Verify Operation

The tester does a self test when you turn it on. If the tester shows an error or does not turn on, refer to “If the Tester Does Not Operate as Usual” on page 107.

Clean the Tester

To clean the touchscreen, turn off the tester, then use a soft, lint-free cloth that is moist with water or water and a mild detergent.

To clean the case, use a soft cloth that is moist with water or water and a mild detergent.

⚠ Warning ⚠

Do not put the tester or the battery pack in water.

⚠ Caution

To prevent damage to the touchscreen or the case, do not use solvents or abrasive materials.

When you clean the touchscreen or the case, do not let liquid get under the plastic around the touchscreen.

See Information About the Tester

To see information about your tester On the home screen, tap the **TOOLS** icon, then tap **Version Information**.

To see information about your remote tester

Connect the main and remote testers together (see Figure 6 on page 17), then tap **REMOTE** on the **Version Information** screen.

Traceable Calibration Period

To make sure that the testers operate within the published specifications for accuracy, have them calibrated at a Fluke Networks authorized service center every 12 months. To get information on factory calibration, contact an authorized Fluke Networks Service Center.

To see when the tester last received a factory calibration, tap the **TOOLS** icon on the home screen, then tap **Version Information**.

Update the Software

New software gives you access to new features and the latest test limits and cable types. Software updates are available on the Fluke Networks website.

You can use a PC to install a software update, or connect an updated main unit to a remote or to another main unit to update those units.

You can also use LinkWare Live to download a software update from the cloud to your main tester, then use the main tester and a USB cable to install the update in the remote.

About DSX-600 and DSX-602 Update Files

Software update files have these extensions:

- DSX-600 testers: update.cic
- DSX-602 testers: update.ci2

The update files are not interchangeable. LinkWare PC and LinkWare Live let you install only the correct file in your DSX-600 or DSX-602 tester.

Use a PC to Update the Software

⚠ Caution

To prevent unexpected loss of power, connect the ac adapter to the tester when you update the software.

Note

The software update procedure does not delete the test records, project settings, or user preferences in the tester, but can possibly change the factory-installed cable types or test limits.

1. Install the latest version of LinkWare PC software on your PC. LinkWare PC is available on the Fluke Networks website.
2. Connect the AC adapter to the tester and connect the Micro-AB USB port on the tester to a type A USB port on the PC. See Figure 32.
3. LinkWare PC automatically tells you if new software for the tester is available on the Fluke Networks website, and lets you install the software.

   Note

   Older versions of LinkWare PC do not start the update procedure automatically. For older versions, you must have the software update file on a disk or USB drive and click  *to start the update procedure.*

4. The tester reboots when the update is completed. To make sure the update was installed correctly, tap the **TOOLS** icon on the home screen, tap **Version Information**, then make sure the correct version shows.
5. Do steps 2 through 4 again for the remote. On a remote tester, the LEDs show the progress of the installation.

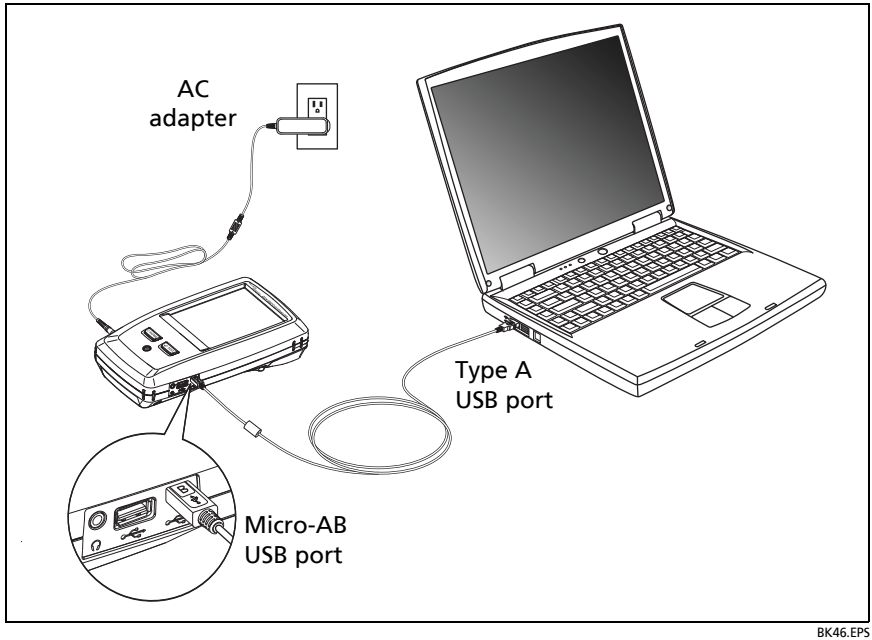


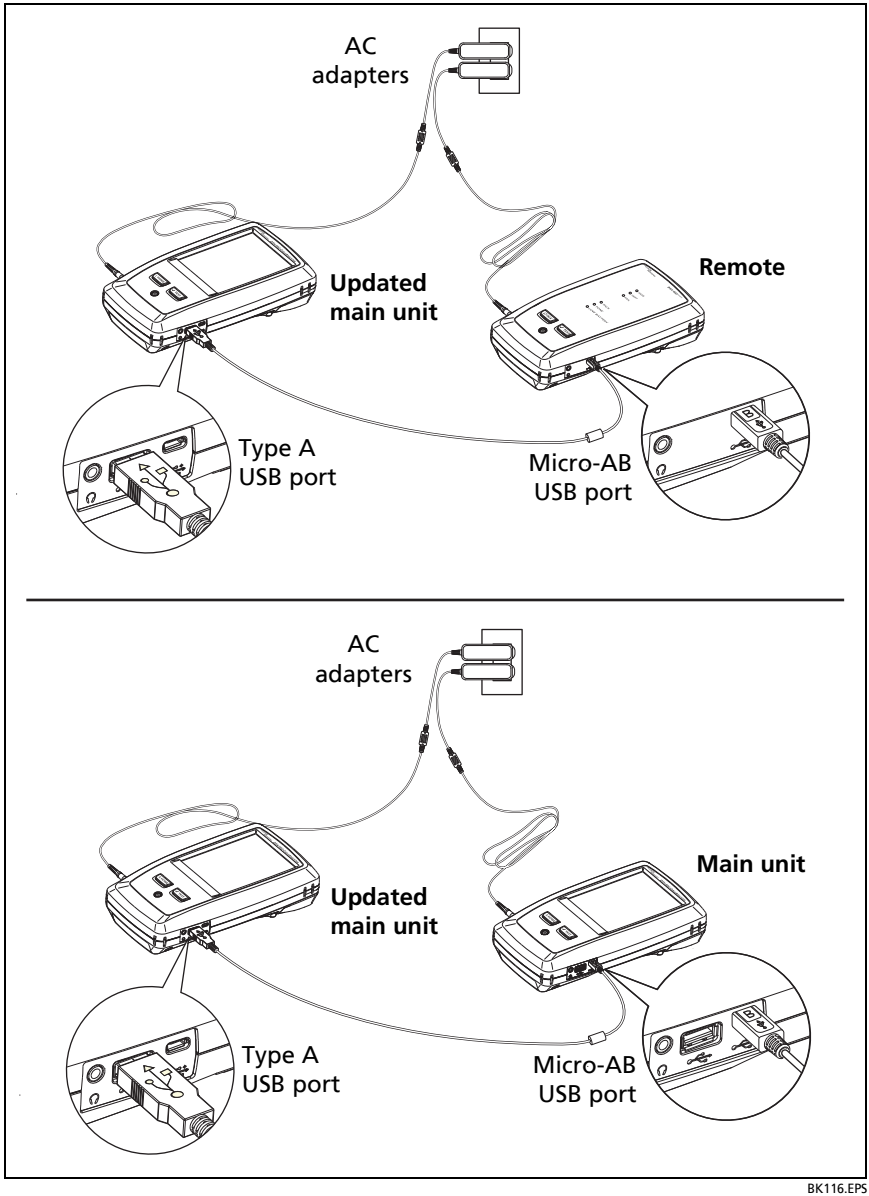
Figure 32. How to Connect the Tester to a PC

Use an Updated Main Tester to Update Other Testers

1. Turn on both testers and connect the AC adapters to both testers.
2. Use the USB cable provided to connect the updated main unit to the remote or to another main. See Figure 33.
3. Follow the instructions shown on the display of the updated main unit.

Note

If a remote has newer software than the main unit, the main unit can install the older software in the remote so that you can use the two units together. The remote cannot install the newer software in the main unit.



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Figure 33. How to Connect Units Together to Update the Software

Use LinkWare Live to Update the Software

1. For a wired network: Use an appropriate cable to connect the tester's RJ45 Ethernet port to a network port.

   For a Wi-Fi network: For a DSX-600 tester that uses an external Wi-Fi adapter, connect the Wi-Fi adapter to the tester's USB port.

2. On the home screen, tap the **SYNC** icon.

3. For a Wi-Fi network: If the network selection screen shows, connect to a network:

   a. Select a network.

   b. Enter security information.

   c. Go back to the previous screen, then tap **CONNECT**.

   d. Go back to the home screen, then tap **SYNC**.

4. On the **LWL SIGN IN** screen, enter the ID and password for your LinkWare Live account, then tap **SIGN IN**.

5. If a software update is available, the tester shows a message. Tap **YES** to install new software in your tester.

6. The tester reboots when the update is completed.

7. To install the update in a remote or another main tester, use the USB cable provided to connect the updated main tester to the other tester. See Figure 33.

8. Follow the instructions shown on the display of the updated main tester.

Extend the Life of the Battery

Warning

To prevent possible fire, electric shock, or personal injury, read the warnings about the rechargeable battery under "Warning" on page 5.

- Do not frequently let the battery discharge completely.
- Do not keep the battery at temperatures below -20 °C (-4 °F) or above +50 °C (+122 °F) for periods longer than one week.
- Before you put a battery into storage, charge it to approximately 50 % of full charge.

Store the Tester

- Before you store a tester or an extra battery for a long period, charge the battery to approximately 50 % of full charge. The discharge rate of the battery is 5 % to 10 % each month. Check the battery every 4 months and charge it if necessary.
- Keep a battery attached to the tester during storage. If you remove the battery for more than approximately 24 hours, the tester will not keep the correct time and date.
- Storage temperature: 14 °F to 140 °F (-10 °C to +60 °C)

Remove the Battery

Figure 34 shows how to remove the battery.

Notes

If you remove the battery and do not connect the AC adapter, the clock keeps the current date and time for a minimum of 24 hours.

The screw does not come out of the battery door.

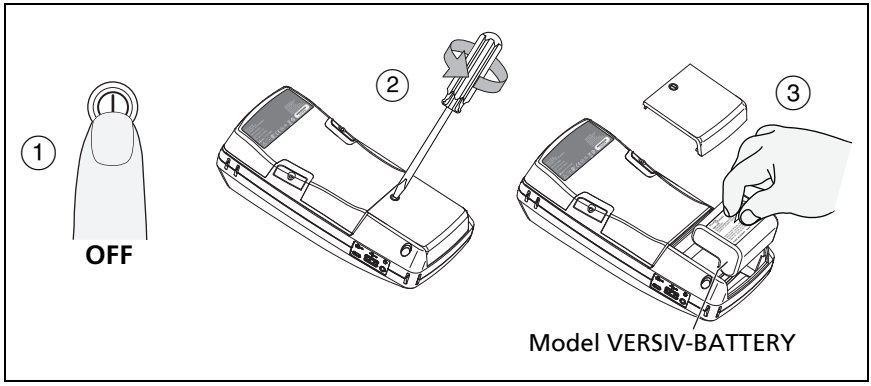


Figure 34. How to Remove the Battery

Options and Accessories

For a complete list of options and accessories go to the Fluke Networks website at **www.flukenetworks.com**.

To order options and accessories, contact an authorized Fluke Networks distributor.

If the Tester Does Not Operate as Usual

If the tester does not operate as usual or if it shows an unusual message, see Table 6 for possible explanations and solutions to some conditions that can occur.

If the condition continues, contact Fluke Networks for assistance, or search the Fluke Networks Knowledge Base for a solution.

If you contact Fluke Networks, have available the serial number, software and hardware versions, and calibration date for the tester, if possible. To see this information, tap the **TOOLS** icon on the home screen, then tap **Version Information**.

You can also use LinkWare PC software to upload the system log from the tester. This file contains information that can possibly help Fluke Networks find a solution to an unusual problem.

The serial numbers of the main and remote units are on a sticker on the back of the units.

Table 6. Possible Solutions for Unusual Behavior

The touchscreen or the keys do not respond. Press and hold ⏻ until the tester turns off. Then turn on the tester. If the problem continues, install the latest version of software in the tester.
The tester will not turn on even though the battery is charged. The safety switch or the fuse in the battery is possibly open. Wait a few seconds, then try again. If the tester does not turn on, the battery is possibly bad and must be replaced. The tester can operate on AC power if the battery does not operate.
Test results appear to be incorrect. The tester possibly has incorrect settings. Make sure you selected the correct cable type and test limit.

Before You Send a Main Tester to a Service Center

⚠ Caution

If you send a main tester to a Service Center, make sure you download any test results you must keep to LinkWare Live, LinkWare PC, or to a USB flash drive. Service procedures can possibly delete test results, and Fluke Networks is not liable for lost results.