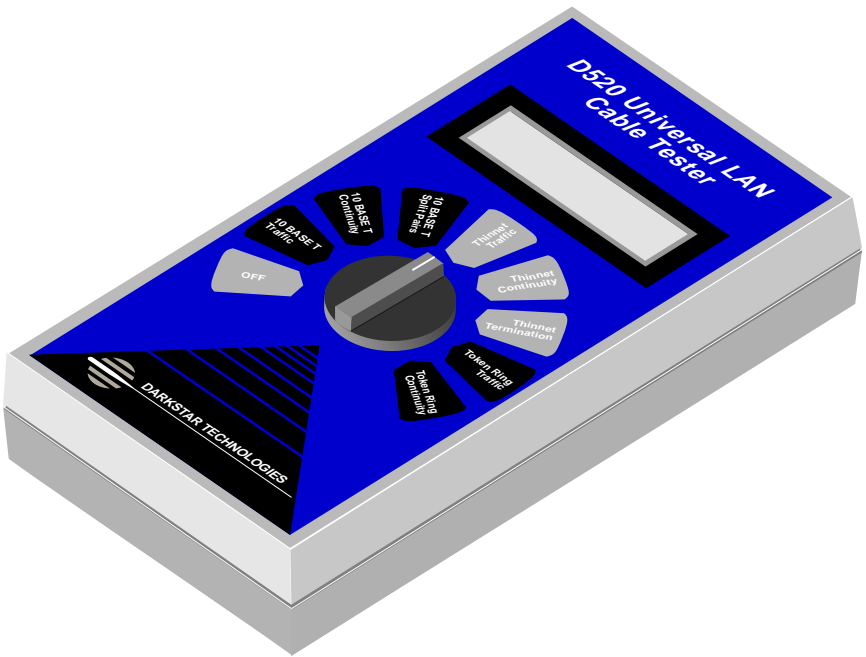


# D520

## Universal LAN Cable Tester

### GUIDE TO OPERATION



**DARKSTAR TECHNOLOGIES**

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## ***Features***

The D520 Universal LAN Cable Tester was designed to address the needs of network installers, maintainers and administrators who support multiple cable types. The D520 is affordable, easy-to-use and its unique set of features makes it a valuable addition to everyone's troubleshooting kit. In addition to testing your LAN cables for proper continuity and termination, you also have the option of checking for the presence of actual network traffic.

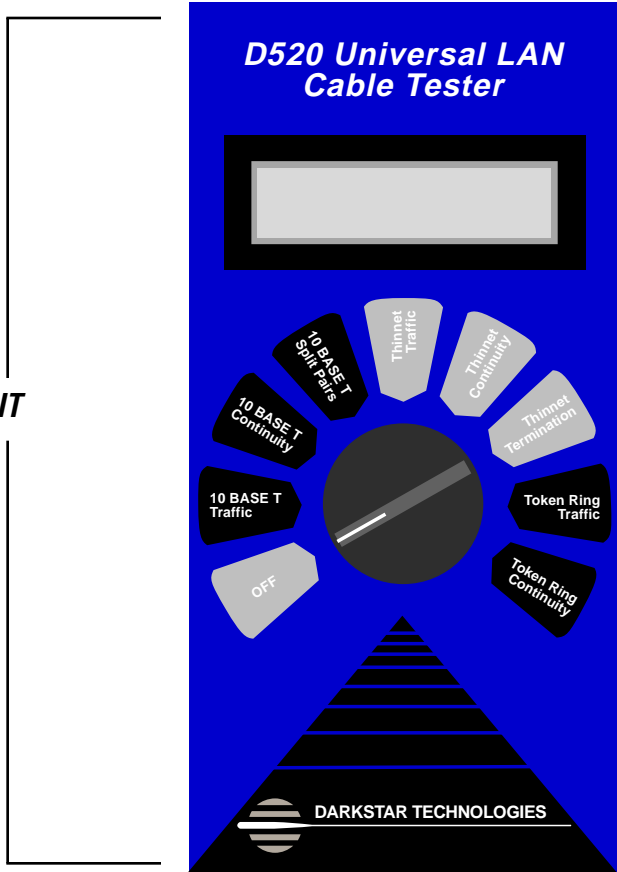
The D520 supports Thinnet, 10BASE-T, and Token Ring networks. There are eight operational modes to choose from: 10BASE-T traffic test, 10BASE-T continuity test, 10BASE-T split pair test, Thinnet traffic test, Thinnet continuity test, Thinnet terminator test, Token Ring traffic test and Token Ring continuity test.

## ***Operation***

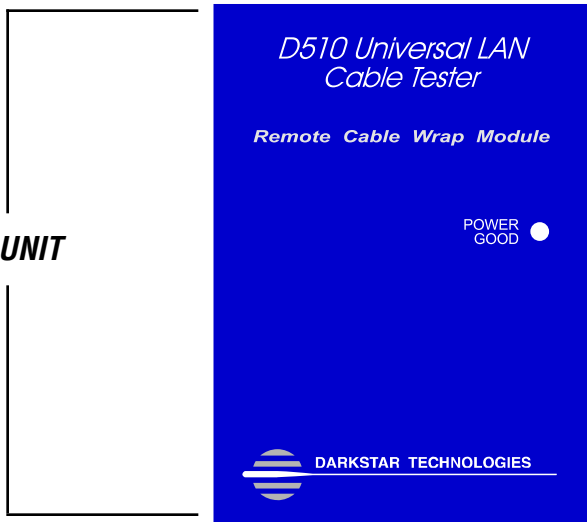
All of the D520's functions are controlled with a single rotary switch on the front panel. Always turn your D520 to the OFF position when not in use in order to conserve battery life. If you see a LOW BATTERY indication when changing modes, then simply replace the 9-volt alkaline battery in the rear of the main unit. The remote unit has a POWER GOOD indicator which will no longer light when its battery is low.

To use your D520, simply turn the rotary switch to the mode that you desire. When testing installed cables for continuity, it's always a good idea to start with a traffic test to make sure you haven't accidentally plugged into an active network. All of the D520's messages will be displayed on the LCD and error messages will be accompanied by a "beep".

**D520 MAIN UNIT**



**D520 REMOTE UNIT**



## ***10BASE-T Traffic Testing***

This mode is used to test 10BASE-T circuits for the presence of network activity using the RJ45 connector. The D520 looks for a 10BASE-T hub at the other end of the cable and if none is found, a NO HUB DETECTED indication will appear on the LCD display. If a hub is detected, then a LINK ESTABLISHED message will appear. Network activity is displayed as a bar-graph on the LCD and if no packets are seen, the words NO TRAFFIC will replace the bar-graph. If the receive pair coming from the hub is backwards, then a REVERSE POLARITY message will be displayed.

## ***10BASE-T Cable Continuity Testing***

This will check your 10BASE-T cables for proper connection on the 1-2 pair and on the 3-6 pair. In this mode, the D520 remote unit needs to be attached to the other end of the cable under test. If nothing is plugged into the D520 or if the remote unit is not functioning, then a NOT CONNECTED OR - NO REMOTE UNIT message will be displayed on the LCD. If no cable faults are found, then a CABLE IS GOOD - REMOTE UNIT SEEN message is displayed. If a wire is open, shorted or swapped with another wire, then the displayed messages might appear as: 1 OPEN, 3 SHORT 6 or 1 SWAP 2, for example.

**Note:** This test will not check wires 4,5,7 or 8.

## ***10BASE-T Split Pair Testing***

In this mode, the D520 performs a near-end crosstalk (NEXT) measurement to determine if any pair (T568 standard) has been split with another pair. This type of fault cannot be detected in the 10BASE-T CABLE test mode. If no faults are found or if no cable is plugged in, you will see a NO SPLIT PAIRS message on the LCD display. If a pair is split with another pair, then the D520 will indicate which pairs are involved. If the cable is picking up too much noise for a reliable measurement, then an EXCESSIVE CABLE NOISE message will be displayed. The D520 also checks for shorts or the presence of the remote module prior to performing the split test.

## ***Thinnet Traffic Testing***

In this mode, the D520 will monitor its BNC connector for 10MHz Ethernet traffic and will display it as a bar-graph. If no traffic is seen or if the D520 is unconnected, then a TRAFFIC DETECTED - NONE message will be seen. The D520 will appear as a high impedance to the LAN and will not affect Ethernet packets.

**Note:** Be sure to conduct this test through a “T” connector and do not disconnect any coax cables that you suspect are part of a live network.

## ***Thinnet Cable Continuity Testing***

This mode is used to test the RG-58 Thinnet cables for proper continuity and termination. If the unit is unconnected or if the cable is open, then a CABLE IS OPEN OR - NO REMOTE UNIT message is displayed. In this mode, as in all other continuity modes, your remote unit must be connected at the other end of the cable under test. If the cable is OK and the remote unit is seen by the D520, then a CABLE IS GOOD - REMOTE UNIT SEEN message will be displayed. A shorted coax or connector will result in a CABLE IS SHORTED message on the LCD. If 50 Ohm terminators are detected on the cable, then you will see either a CABLE TERMINATED - ON ONE END or a CABLE TERMINATED - ON BOTH ENDS message displayed.

## ***Thinnet Termination Testing***

This mode is intended for testing individual 50 Ohm Thinnet terminators. Simply plug the terminator in question into the D520 BNC connector when in this mode, then the display will show you the measured resistance. A good terminator should be in the range of 49 - 51 Ohms. If the D520 measures a value that is too far from 50 Ohms, then an OUT OF RANGE message will be displayed.

## ***Token- Ring Traffic Mode***

This mode is used to detect the presence of LAN traffic in a Type 1 Token-Ring network. Simply use the 9-pin connector to link the D520 to your Token Ring MAU using a standard station cable. The D520 will display an indication of NONE, 4 MHz or 16 MHz depending on what it sees in the ring. An unconnected D520 will display NONE in this mode.

**Note:** If a station cable is plugged into the D520 but the other end of the cable is not connected to a MAU, then the D520 will see shorting bars in your data connector and will display SHORTING BARS DETECTED.

**Note:** The D520 will periodically interrupt traffic in the ring while in this mode but does not exceed the maximum bit outage time allowed for in the 802.5 specification. The server may log this interruption as a soft error in a file. This is necessary to check for frames in the ring and is transparent to users.

**Note:** More intelligent hubs may “wrap” around the D520 which will disable traffic detection. The RJ45 connector can be used to detect traffic in “passive” MAUs.

## ***Token- Ring Continuity Testing***

In this mode, the D520 will test STP Token Ring cables for correct wiring from end-to-end. The remote unit must be connected to the other end of the cable under test. If the shield is open or if the D520 is unconnected, then an OPEN SHIELD OR - NOT CONNECTED message will be displayed. If the remote unit is seen by the D520, then a CABLE IS GOOD message will be displayed. The D520 will check all wires for opens, shorts and swaps. These faults might be displayed as: BLACK OPEN, RED SHORT GREEN or BLACK SWAP ORANGE, for example. If a wire is shorted to the shield, it may be displayed the same as an open.

**Note:** To test shorting bars, simply plug the cable under test into the D520 but do not connect the remote unit at the other end. A good cable should result in a SHORTING BARS DETECTED message.

## **Specifications**

<b>Power Requirement</b>	9-volt alkaline battery
<b>Unit Size</b>	4 X 7.5 X 1.3 inches - Main Unit 10.2 X 19.1 X 3.3 centimeters 3.2 X 4.3 X 1.5 inches - Remote Unit 8.2 X 10.9 X 3.8 centimeters
<b>Shipping Weight</b>	2.0 lb / 0.91 kg
<b>Operating Temperature</b>	0 to 45 degrees centigrade non-condensing
<b>LANs Supported</b>	10BASE-T (IEEE 802.3) 10BASE-2 (Thinnet) Type 1 Token Ring (IEEE 802.5)
<b>Cables Supported</b>	UTP / RJ45 RG-58 coax / BNC STP / IBM type 1
<b>Maximum Cable Length</b>	200 meters
<b>Terminator Test</b>	± 1% accuracy

## **Technical Assistance**

Customer support is obtained through the distributor from which you purchased your tester. If you still have problems or cannot locate your distributor, you may reach us via fax at (765) 775-4073 or via our website at [www.darkstar.crowecorp.com/](http://www.darkstar.crowecorp.com/)

## **Warranty**

Darkstar Technologies warrants its products against defects in materials or workmanship for a period of one year from the date of purchase. Any product that is returned shipping prepaid will be inspected and tested, and items meeting warranty conditions will be repaired or replaced free of charge. Please contact your distributor if repair or replacement is required.

