D280

Ethernet Speed Reader

GUIDE TO OPERATION

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Features

The D280 is a simple, low-cost tool for testing Ethernet ports to verify service and advertised capabilities. It's easy to use and can fit in your pocket or tool kit. Ambiguous duplex and link compatibility issues are quickly resolved with bicolor LEDs, which indicate Hub or NIC, Speed, Duplex and Auto settings for the equipment in question.

Operation

Just plug it in! The Speed Reader is activated automatically if it detects Ethernet equipment at the far end of the cable. If the connection is OPEN, then nothing will happen. Likewise, if the port is really for TOKEN RING or is a TELCO circuit, then nothing will happen. When you plug the D280 into an Ethernet device, it will first power up and flash all of its LEDs (both red and green) and then it will indicate the specifics of the Ethernet service as follows:

Green LEDs mean that the device looks like a HUB or a SWITCH and the red LEDs mean that the device looks like a NIC card in a COMPUTER or looks like a WAN port on a router. This identification scheme assumes a "straight through" cable with correct polarity like the one supplied with the Speed Reader.

If all LEDs remain off, it means that the connection is open, or something other than Ethernet was detected. If your D280 LEDs appear dim or fail to function, it may be time to replace the 9-volt alkaline battery.

NOTE! If the LEDs are constantly flickering BOTH red and green, your Speed Reader is not malfunctioning. Please see the Auto-MDIX description in the next section.

Auto-sensing Ports

The green Auto Sensing LED will light to indicate a 10/100 capable device and the four bicolor LEDs will indicate the advertised speed & duplex capabilities. If one or both link partners are auto sensing, then they will automatically get link at the highest common capability (fastest speed and duplex settings that both will support).

If the D280 detects an Ethernet device that has been SWITCHED OFF, then you will see the LED test cycle continuously at one-second intervals with no final determination.

In this case, a pause will be displayed when all LEDs are off, and this should not be confused with an Auto-MDIX indication.

Auto-MDIX Ports

Many of the newer Ethernet ports will transmit their link information on BOTH the 1-2 pair and the 3-6 pair. This is a method of getting link with other Ethernet equipment regardless of whether a straight-through cable or a crossover cable is used. These ports are always auto-sensing ports and are sometimes called "auto uplink" ports.

Your Speed Reader will indicate this by alternately displaying HUB (green) auto settings and NIC (red) auto settings. While the red/green flickering will differ, depending on the manufacturer, the D280 is accurately indicating what is actually being advertised. In the case of these Auto-MDIX ports, it's impossible to identify the device as being a PC or a switch since the link information is appearing on both Ethernet pairs.

Non-auto Ports

If the Auto Sensing LED is dark, then the device has been locked to a particular speed and duplex setting, or it could also mean that it's older equipment that is only capable of a single speed. The connection type and speed is known and will be displayed BUT the duplex must be ASSUMED.

A port that is not auto-sensing does not advertise its duplex setting, so the Speed Reader cannot determine the duplex of such a port. Per the Ethernet standard (IEEE 802.3u-1995 clause 28), the Speed Reader must assume that non-auto sensing ports are half duplex. To warn you of the fact that this MAY NOT be the port's actual duplex setting, the Speed Reader flashes the half duplex LED.

Duplex mismatch is a common networking problem that often results in dramatically reduced throughput due to excessive collisions. The Speed Reader can help identify a duplex mismatch by clearly indicating the duplex settings of auto sensing ports and by showing you what duplex setting WILL BE ASSUMED for non-auto sensing ports.

The duplex mismatch problem may occur if at least one of the link partners is not auto sensing. According to the standard, an auto sensing link partner must assume that a non-auto sensing link partner is half duplex. If the non-auto sensing link partner is actually full duplex, then collisions will result and performance on the link will be degraded. To avoid this problem, always verify the ACTUAL duplex settings of non-auto ports.

Specifications

Power Requirement	9-volt alkaline battery
Unit Size	2.3 X 2.4 X 1.0 inches 5.9 X 6.1 X 2.6 centimeters
Shipping Weight	1 lb / 0.45 kg
Operating Temperature	0 to 45 degrees centigrade Non-condensing
Media Interface	UTP / RJ45
User Interface	Red / Green bicolor LED display
Maximum Cable Length	100 meters
Identification Capabilities	HUB or Switch vs. NIC in PC 10 Mbit vs. 100 Mbit Fixed speed vs. Auto Sensing Half duplex vs. Full duplex Auto-MDIX detection Ethernet device vs. open cable

Technical Assistance

Technical support and repair help is most quickly obtained from Darkstar by contacting us via e-mail at our web site:

www.darkstarinc.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.

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