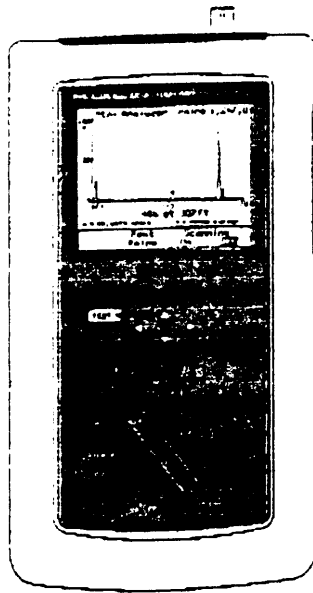


FLUKE.

DSP-100 CableMeter

626-510



DSP-100

A fast, accurate Cat 5 tester with unique diagnostic capabilities

- Laboratory-level accuracy in a handheld field tester
- Meets the stringent proposed TIA Level II accuracy requirements
- Record test time: Complete test of a 4 pair Cat 5 cable in approximately 20 seconds
- Automatically test NEXT from both ends
- Unparalleled diagnostics: Locate the source of crosstalk problem
- Executes all "performance" tests required by the proposed TIA link standard
- Tests a wide variety of LAN cabling systems: UTP, FTP, STP (IBM Type 1,2,6,9), Coax
- Saves up to 500 test results
- Free Windows based DSP-LINK software delivers sophisticated test results data management
- Fast test execution, accurate answers, and diagnostics save you time and money

Introducing the Fluke DSP-100 CableMeter

Finally, you can certify your category 5 UTP cabling installation with confidence. The Fluke DSP-100 is a rugged, handheld field tester that uses a revolutionary digital technology to give you a powerful combination of capabilities.

TIA Level II Accuracy

Designed to meet expected requirements of TIA Level II accuracy for both Channel and the Basic Link.

Unparalleled Troubleshooting

Only Fluke's patented Time Domain Crosstalk (TDX™) Analyzer instantly pinpoints NEXT faults such as bad connectors, poor workmanship or improper cabling.

Fastest Test Time

The DSP-100 tests 4-pair UTP cables from both ends in approximately 20 seconds – faster and more completely than any other tester.

Digital Test Technology delivers superior performance

The Fluke DSP-100 uses a truly revolutionary test technique. To measure the critical parameter of NEXT between two pairs, the DSP-100 sends a pulse – a pulse that very closely resembles the signals transmitted on 100 Mbps local area networks – into one pair and captures the signal induced by this pulse on the other pairs. The captured signal is analyzed using the Digital Signal Processing algorithms to provide a very accurate picture

of NEXT in both the frequency domain as well as the time domain. And since one pulse replaces hundreds of test frequencies, the DSP-100 is extremely fast without compromising accuracy!

Diagnostics

The time domain analysis of the NEXT coupling – called TDX – pinpoints the distance to the location of NEXT problem(s). Rather than to tell the technician that a link fails because the "worst case" NEXT value exceeds the limit at some frequency, the DSP-100 in addition, reports the distance to the location where the crosstalk is occurring. The technician can immediately identify this location and perform the corrective action. A major improvement over the typical "Fail" message.

NEXT Measurement from both ends of the link

The proposed TIA link standard requires that the NEXT measurement is to be performed from both ends of the link. The Fluke DSP-100 supports this requirement in two ways. You can use an (optional) "Smart Remote" unit, or you can use two standard DSP-100 testers. The test results are transmitted to the tester "in charge" and automatically consolidated into one report.

Sophisticated test results management

The DSP-100 stores test results for up to 500 links for printing or downloading to a computer. Each link's test results may be identified by a unique, user-defined label. Windows™-based DSP-LINK™ software brings "point and click" simplicity to the task of transferring data or updating your DSP-100; and it's included free with the DSP-100!

- It is fast: download all 500 test results from the DSP-100 to a personal computer in under two minutes with DSP-LINK. Keep your tester where it earns you money – at the job site, while your PC prints test reports.
- Download the complete link analysis from the DSP-100 including NEXT and Attenuation plots and all TDX data in comma separated value (CSV) format for use by spreadsheet, charting, and database programs.

Keep your tester "current"

If standard specifications change, the DSP-LINK software provides a very easy method to update the test parameters in the tester's internal database in Flash EPROM.

And if we need to release a new software revision of the DSP-100, you can effortlessly update your tester using the DSP-LINK software. Simply access our bulletin board from your computer or insert a diskette into the computer and use the software download function of the DSP-LINK software.

As quick to learn as it is to use

Connect the DSP-100 to the cabling link and select a test mode with the rotary knob. Up and down arrow keys let you select the appropriate link type, network standard, and cable grade. Turn to Autotest, the results of each test are displayed in seconds. In the Single Test Mode, a detailed analysis of the results is plotted on the display.

Specifications

Cable Types

Unshielded Twisted Pair LAN cables of all categories (100Ω UTP category 3, 4, and 5).
Foil-screened Twisted Pair cables (100 and 120Ω FTP/STP category 3, 4, and 5).
Shielded Twisted Pair cables (150Ω IBM Type 1, 2, 6, and 9)
Coaxial cables: Thicknet (10Base5), Thinnnet (10Base2), RG-58, RG-58 Foam, RG-59, RG-59 Foam, RG-62.

Test Standards

TIA Cat 3, 4, and 5, Basic Link or Channel,
TIA TP-PMD

ISO Class A, B, C, or D
IEEE 10Base5, 10Base2, and 10Base-T
IEEE Token Ring 4 Mbps or 16 Mbps
IEEE 100Base-TX; 100Base-T4; IEEE 802.12 (100VG-AnyLAN), 4-UTP and 2-STP

Autotest

The DSP-100 automatically executes the series of tests required by the selected testing standard. The common tests are described below.

Speed of Autotest

Full autotest of Category 5 UTP cable (over 1000 frequency points for NEXT between 100 kHz and 105 MHz from both ends of the cable) in approximately 20 seconds.

Wire Map

Ensures proper connectivity of twisted pair links in accordance with the cable type and network standards selected for the test.
Four pairs plus shield (TIA/EIA 568 4-pair, 10Base-T, Token Ring, TP-PMD).
Resistance threshold for continuity is 50Ω.

Characteristic Impedance

	Twisted Pair	Coax
Range	70 - 180Ω	35 - 100Ω
Accuracy	±(5Ω + 5% (Nom. - Meas'd))	±(5Ω + 5% (Nom. - Meas'd))

The accuracy of impedance measurements decreases as the difference between the expected value (nominal) and the measured value increases.

Length

Link length and/or distance to a fault detected by Time Domain Reflectometry (TDR) pulse
The DSP-100 has a zero "dead zone"

	Twisted Pair	Coax
Range	800m (2500 ft)	1300m (4000 ft)
Resolution	5m (1 ft)	5m (1 ft)
Accuracy	±(1 ft + 4% of reading)	±(1 ft + 4% of reading)

Accuracy specification excludes error in Nominal Velocity of Propagation (NVP). The DSP-100 offers the mode to "calibrate" the NVP of the cable under test.

Propagation Delay

The time for a digital pulse to travel the length of the cable.

DC Loop Resistance

Verifies good ohmic connections.
Range: 0 to 400Ω
Accuracy: ±(200 mΩ + 1% of reading)

Attenuation

Frequency range: 100 kHz to 105 MHz in 100 kHz steps size (range of test is determined by network and cable type).
Accuracy: ±1 dB over a range of 0 to 25 dB from 1 MHz to 100 MHz

Near End Crosstalk (NEXT)

Smart Remote measures NEXT at far end.
Frequency range: 100 kHz to 105 MHz in 100 kHz step size (range of test is determined by network and cable type).
Measurement Accuracy: ±2 dB at the TIA Link limit for a category 5 Channel.

Dynamic Accuracy: Typically better than .6 dB.
Residual NEXT (after compensation for connector) better than -55 dB at 100 MHz.
Random Noise Floor typically better than -80 dB at 4 MHz and better than -60 dB at 100 MHz, measured as specified in the proposed TIA Link standard (TSB 67).

Attenuation to Crosstalk Ratio (ACR)

Value computed by the tester based upon the measurements of attenuation and NEXT at each frequency point (100 kHz step size) across the spectrum of interest. If NEXT has been measured from both ends, the tester also computes the values for ACR from both ends of the cable.

Return Loss

A measure of impedance mismatch and is expressed as Return Loss in decibels (dB).

Case

High impact plastic with shock absorbing "Fluke Yellow" overmold
Dimensions: 22.5 cm L x 13 cm W x 7.6 cm D (9 1/8" L x 5 1/8" W x 3" D)
Weight: 1.4 kg (3 lb., 1 oz)

Display

Graphic LCD, 240 X 200 bit mapped, with backlight.
Test connections RJ45 (Shielded) and BNC.
Input Protection. Protected against continuous telco voltages and 100 mA overcurrent

Power

Main instrument and "Smart Remote" unit
Rechargeable NiCD, battery life 10 - 12 hours
May be charged while in the unit (while operating) or off-line using Battery Eliminator included with the product
Recharge Time: 2 hours
Standard Remote unit: Replaceable 9 Volt Alkaline cell

Software Updates

Flash E-PROM technology

Languages Supported

English, French, German, Spanish, and Italian

Impulse Noise

Threshold programmable from 100 mV to 500 mV in steps of 10 mV

Serial Input/Output Interface

DB-9 connector (DTE male), 1,200 to 38,400 bps, hardware or Xon/Xoff flow control, 8 data bits, 1 stop bit, no parity.

Ordering Information

DSP-100 CableMeter
DSP-100/SR CableMeter with Smart Remote
DSP-R Standard Remote
DSP-SR Smart Remote
8P 7217 Spare Battery Pack
BP 7210 External Battery Charger
N6580 UTP Cable Kit
N6581 STP Cable Kit

The DSP-100 product includes the DSP-R. The DSP-SR is a Smart Remote with a Soft Case and AC Adapter. If you order the DSP-100/SR the Smart remote is included rather than the standard remote.

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DSP-100 CableMeter™ Accuracy Update

New guidelines published as part of the Telecommunication Industry Association's TSB-67 included specific methods for presenting instrument performance specifications. The specifications for the DSP-100 are presented in accordance with these guidelines below.

TSB-67 defines two performance levels for field testers, Accuracy Level I and the more accurate Level II. Also defined are two link types, the *Basic Link* (which includes the tester patch cord) and the *Channel* (which includes the user's patch cord). Measurement accuracy for NEXT must be stated for both link types. However, as the DSP-100 does not require different adapters for connecting to different link types, instrument performance specifications for both link types are the same.

The specifications below show that the DSP-100 meets all required accuracy specifications for **both the Basic Link and the Channel**.

NEXT and Attenuation Specifications

	Level II Requirements	Guaranteed Performance	Measured Performance*
Return Loss	15 dB	> 15 dB	23 dB
Dynamic Accuracy	±0.75 dB	±0.75 dB	±0.6 dB
Residual NEXT	55 dB	> 55 dB	57 dB
Random Noise	65 dB	> 65 dB	78 dB
Output Signal Balance	37 dB	> 37 dB	39 dB
Common Mode Rejection	37 dB	> 37 dB	40 dB
Attenuation Accuracy	±1.0 dB	±1.0 dB**	±0.65 dB
NEXT Accuracy (Basic Link)	±1.6 dB	±1.6 dB**	±1.11 dB
Next Accuracy (Channel)	±1.5 dB	±1.5 dB**	±1.07 dB

* Independently Verified at 100 MHz in the Underwriter's Laboratories letter report dated 7/27/95 (worst case of instruments tested)

**1 to 100 MHz

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