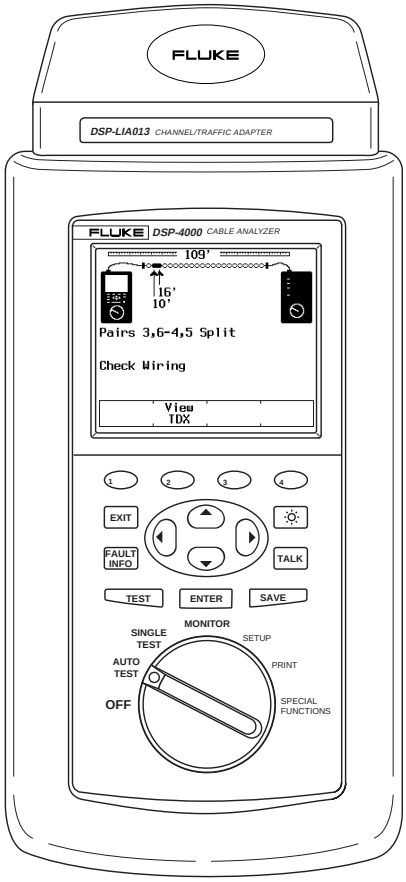
FLUKE®

DSP-4000 Digital CableAnalyzer™

A high-performance tester for Cat 6 copper and fiber cabling installations



The DSP-4000 CableAnalyzer:

- Exceeds all specification requirements for Cat 5, Cat 5E, and the coming Cat 6.
- Accepts the new manufacturer-specific Cat 6 connectors.
- Tests high-performance cable to 350 MHz.
- Provides extremely fast test times: performs a complete two-way AutoTest in approximately 10 seconds.
- Automatically diagnoses cabling faults and displays results graphically and in text.
- Monitors network traffic on 10Base-T and 100Base-T Ethernet systems.
- Shows detailed plots of NEXT, ELFEXT, PSNEXT, Attenuation, ACR, and Return loss—up to 350 MHz.
- Provides built-in Talk Mode for two-way voice communication between the main and remote units.
- Includes tone generator for use with a tone probe, such as the Fluke 140, to trace wires and identify cable in LAN installations.
- Includes free Windows®,-based DSP-LINK software.

The DSP-4000 Digital CableAnalyzer™, the latest in Fluke's family of digital test tools, is designed for cable installers and network owners who need to certify high-speed, copper and fiber cabling to today's industry standards and tomorrow's emerging standards. The DSP-4000 digital test technology delivers functionality and accuracy beyond that of analog testers. Whether, you're certifying cabling installations; troubleshooting a problem; migrating to a high-speed network; or re-certifying wiring after adds, moves, and changes, the DSP-4000 is the best tool for the job.

Accurately tests high-performance cabling systems—Cat 6 and beyond

With high-bandwidth test capability up to 350 MHz and an extremely wide dynamic range, the DSP-4000 can accurately test any of the new, high-performance cable on the market. Plus, the DSP-4000 is built on an extendable digital platform that ensures compliance with new standards as they are approved. It supports all the tests specified in the new standards including NEXT, Equal Level Far-End Cross Talk (ELFEXT), Power Sum NEXT, Power Sum ELFEXT, Attenuation, Attenuation-to-Crosstalk Ratio (ACR), Propagation Delay, Return Loss, and Delay Skew. The DSP-4000's AutoTest feature performs all these tests quickly and accurately.

Powerful diagnostics simplify troubleshooting

Now you can quickly identify and locate opens or breaks, short circuits, and anomalies in the cabling link under test. The DSP-4000's patented, two-way Time Domain Crosstalk (TDX™) Analyzer precisely locates the position of a crosstalk problem and shows how far the defect is—in feet or meters—from the tester. Then, with a touch of the FAULT-INFO key, the DSP-4000 automatically diagnoses the cabling faults and graphically displays the cabling link and the location of the defect.

Optional Link Interface Adapters

To give the DSP-4000 the flexibility to adapt to various manufacturer's unique connector systems, Fluke offers optional, manufacturer-specific Link Interface Adapters. These adapters not only allow you to tailor the DSP-4000 for the specific installation at hand, but also deliver unequaled channel accuracy.

Monitors network traffic

To detect network usage before testing a link, the DSP-4000 monitors network traffic on 10BASE-T and 100BASE-TX Ethernet systems, monitors impulse noise on twisted pair cable, identifies hub port connections, and determines which standards are supported by a hub port connection.

Optional Fiber Test Adapter provides dual fiber testing

The optional FTA410 Fiber Test Adapter easily attaches to the DSP-4000 to allow bi-directional testing of multimode fiber links at 850 nm and 1300 nm, testing two fibers at a time. It also measures optical power, loss, length, and propagation delay; provides pass/fail results based on common fiber test standards; and may be used with a separate source, such as the Fluke LS-1310/1550 to measure optical power and power loss of singlemode fiber at 1310 nm and 1550 nm. The Fiber Test Adapter also supports the DSP-4000 Talk Mode, allowing easy voice communication with your partner.

DSP-Link Software included *free*

Windows-based DSP-LINK software brings "point and click" simplicity to the task of transferring data or updating your DSP-4000. It's fast—upload all stored test results (500 to more than 2000) from the DSP-4000 to your PC in about two minutes. And when Fluke releases an upgrade for the tester, you can download the new release directly from our web site at *www.fluke.com/nettools.*

Specifications

Service center calibration period is 1 year. Self-calibration required every 30 days.

Cable types
Shielded and unshielded twisted pair (STP and UTP) LAN cabling:
- TIA Category 3, 4, 5, and 5E: 100Ω
- ISO/IEC Class C and D: 100Ω and 120Ω

Foil-screened twisted pair (ScTP):
- TIA Category 3, 4, 5, and 5E: 100Ω
- ISO/IEC Class C and D: 100Ω and 120Ω

Shielded screened twisted pair cables (SsTP):
- ISO/IEC Class C and D: 100Ω

Shielded Twisted Pair (STP) 150Ω IBM Type 1, 6, and 9 - adapter required)
Coax:
- 10BASE5 ThickNet, 10BASE2 ThinNet, RG-58, RG-58 Foam, RG-59, RG-59 Foam, RG-8, RG-8A/U, & RG-62.

Fiber:
- Multimode and singlemode fiber using fiber test accessories

Test standards
TIA Cat 3 and 5 per TIA TSB-67: Basic Link or Channel
TIA Cat 5 (new) and 5E: Basic Link or Channel
ISO/IEC 11801 and EN 50173 Class C and D: Link
ISO/IEC 11801 and EN 50173 Class C and D (new): Permanent Link or Channel
Aus/NZ Class C and D: Basic Link or Channel
STP cabling, (IBM Type 1, 150Ω)
ANSI TP-PMD IEEE 802.3 10BASE5, 10BASE2: Ethernet with coaxial cabling IEEE 802.3 10BASE-T, 100BASE-TX, 1000BASE-T: Ethernet with twisted pair cabling IEEE 802.5: Token Ring, 4 Mbps or 16 Mbps
Contact Fluke for information on additional test standards or testing to higher cabling performance standards.

Speed of Autotest
Full Autotest of Cat 5 UTP cable, including 6 pair combinations for NEXT in both directions, in approximately 10 seconds.

Supported tests
(range of test is determined by network or selected standard)
NEXT, NEXT @ Remote
Wire Map
Characteristic Impedance
Length
DC Loop Resistance
Propagation Delay Return Loss (RL), RL @ Remote
Delay Skew
Attenuation
Attenuation-to-Crosstalk Ratio (ACR), ACR @ Remote
Power Sum ACR, PSACR @ Remote
ELFEXT, ELFEXT @ Remote
Power Sum ELFEXT, PSELFEXT @ Remote
Power Sum NEXT, PSNEXT @ Remote

LAN traffic
- Monitor provides an audible tone to indicate amount of traffic
- Monitors 10BASE-T Ethernet traffic using the Monitor RJ45 jack
- Monitors 100BASE-TX Ethernet traffic using the Monitor RJ45 jack
- Auto-negotiates between 10BASE-T and 100BASE-TX using the Monitor RJ45 jack
- Blinks the Link Light on a 10BASE-T, 10/100BASE-TX or a 100BASE-TX hub

Cable tone generator
Provides a tone generator that can be detected by a handheld tone probe

Display
Graphic bit-mapped LCD with back light and adjustable contrast

Test connections
Variable (depending on Link Interface Adapter used)

Input protection
Protected against continuous telco voltages and 100 mA over-current. Occasional ISDN over-voltages will not cause damage

EMC
EMC compliant

Case
High impact plastic with shock absorbing overmold

Dimensions
Main unit and smart remote including link interface adapter: 11" x 5" x 3" (28 cm x 12.7 cm x 7.6 cm)

Weight
Main unit: 3 lbs., 4 oz (1.5 kg) Smart remote: 3 lbs., 1 oz (1.4 kg)

Power
Main instrument and smart remote: Rechargeable NiMH battery 7.2V, 3400 mAH
Typical battery life 10-12 hours, with recharge time 4 hours, may be charged while in the instrument (while operating or off-line)

Languages supported
English, French, German, Spanish, Italian, Portuguese, Japanese, and Simplified Chinese

Ordering Information

Model Name	Description
DSP-4000	**CableAnalyzer** Includes: DSP-4000 CableAnalyzer, DSP-4000 Smart Remote, DSP-LINK Software, Soft Carrying Case, Manual, Display Box, Quick Reference Card, Talk sets (2), AC Adapter/Chargers (2), Instrument Straps (2), Cat 5E Basic Link Adapters (2), Cat 5E Channel Adapter, Cat 5E Channel/Traffic Adapter, Coax Patch Cable (BNC), RJ-45 to RJ-45 calibration cable, RS-232 Serial Cable, RJ-45 to BNC Adapter Cable
Fiber Test Accessories	
DSP-FTA410	**Fiber Test Option Set** Includes: Fiber Test Adapters (2), Manual, SC/ST Patch cords (4), ST/ST Adapters (2)
DSP-FTK	**Fiber Optic Test Kit** Includes: Optical Power Meter Accessory (DSP-FOM), a combination 850/1300 nm Fiber Optic Source, patch cords, ST/ST adapter, and hard carrying case
LS-1310/1550	**Laser Source** Includes: 1310/1550 nm Laser Source, patch cords, ST/ST adapter, and hard carrying case
Other Accessories	
DSP-CMS	**CableManager Software**
Fluke 140	**Tone Probe** Includes: Tone Probe, one spare probe tip, one 9V battery (installed)

Fluke. *Keeping your world up and running.*

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