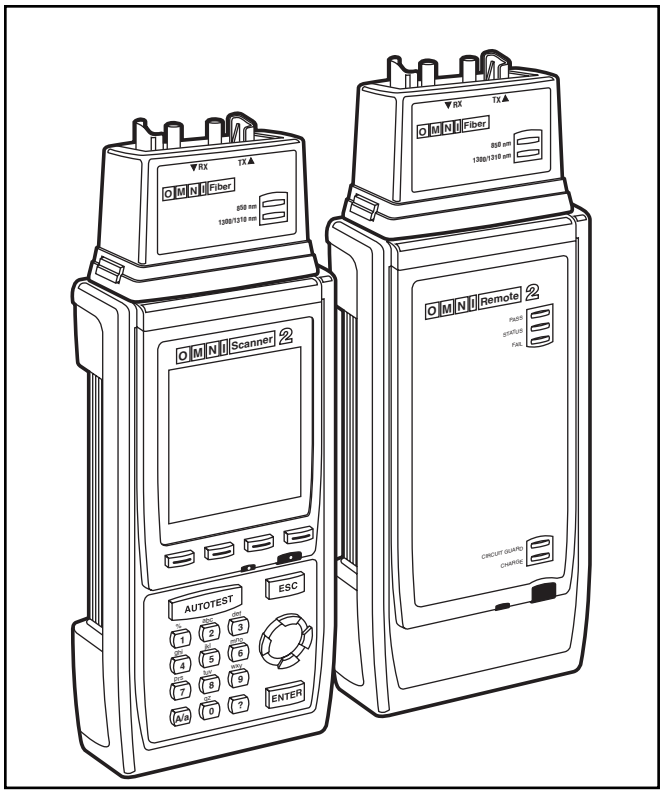
BLACK BOX®
NETWORK SERVICES

OMNISCANNER2

Certify Category 5, enhanced Category 5, Category 6 or 7, or fiberoptic cable with this hand-held tester.



Key Features

- ***Guaranteed certification to test Category 5e, as well as proposed Category 6 and 7.***
- ***Add the OMNIFiber MM to Test and certify single- and multimode fiber!***
- ***Supports an extended frequency range of 300 MHz.***
- ***Provides super-fast Autotest results and the most efficient overall testing process.***
- ***MultiMediaCard flash storage for 10,000+ Autotests.***
- ***Features a dynamic range of 100 dB to accurately measure the faintest signals.***
- ***Instantly pinpoints specific connection failures with patent-pending S-Bands™ diagnostics.***

The versatile OMNIScanner2 includes the technology to test cables complying with the latest TIA/ISO/IEC standards. It even exceeds proposed Level IV accuracy requirements and matches the accuracy of a laboratory network analyzer!

OMNIScanner2 certifies enhanced Category 5 and Category 6 and 7 cable. It includes a full vector engine for both Magnitude and Phase measurements required for this advanced certification. And it's the only field tester to measure link bandwidth.

With an extremely wide dynamic range of 100 dB, OMNIScanner2 is the only tester that can go all the way to 300 MHz on Category 7/Class F links and fiber optic installations (with OMNIFiber).

OMNIScanner2 verifies installed links against all common cabling and network standards, including Gigabit Ethernet. It provides accurate Return Loss and ELFEXT (Equal Level Far-End Cross Talk) measurements.

A full vector engine provides Magnitude and Phase measurements—a must for advanced certification. The tester's Frequency Domain DSP design gives you much faster operation.

The OMNIScanner2's ultra-low crosstalk test interface supports testing of all four pairs. Plus, adapter cables enable testing of 110 block and shielded modular jack and plug interfaces. You also get super-fast autotests and storage of up to 1000 results. It stores full graphical data you can retrieve anytime. Optional MultiMediaCard flash storage provides room for over 10,000 Autotests. And you can use the USB port to upload data right to your PC.

The NiMH (Nickel Metal Hydride) battery provides 10 hours of operation and is environment-friendly.

The bright, high-contrast LCD with full-time backlight provides better viewing. The backlit keypad increases efficiency when working in poorly lit environments.

Simple, fast, and intuitive, OMNIScanner2's project-based user interface makes it easy to create custom test, cable, and project configurations.

With ScanLink Tools software for your PC, you can manage and organize test data. Create or modify the extensive cable library or customize autotests on your PC—and easily download new setups into your field testers.

Scanlink Tools consist of the OMNIScanner Configuration software, the Scanlink Upload software, and the OMNIScanner Remote Control software. These programs allow you to store, retrieve, manage, edit, and print network cabling information. You can create professional reports, control the OMNIScanner remotely, and define cable and

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project configurations to be downloaded to the OMNIScanner. Flash software upgrades will cover final specifications for proposed Category 6/Class E and Category 7/Class F.

OMNIScanner Autotest Functions

- Full suite of tests to determine if cable meets generic cabling or network type requirements
- Extended performance range cabling (CAT 6 and CAT 7)
- TIA standard Autotests
- ISO/IEC standard Autotests
- Vendor specific Autotests
- IEEE standard Autotests
- ATM standard Autotests
- FDDI standard Autotests
- AS/NZ standard Autotests
- ANSI standard Autotests

OMNIFiber2 Test Functions

- Wire Map
- NEXT (Near End Crosstalk)
- Return Loss
- Attenuation
- ELFEXT (Equal Level FEXT)
- ACR (Attenuation to Crosstalk Ratio)
- Bandwidth
- Length/Delay
- Resistance
- Power Sum NEXT, ACR, and ELFEXT
- Coax Tests: Length, Delay, Impedance, Resistance

Wire Map

- Finds miswires, opens, shorts, crossed and split pairs and presents results in a schematic format
- Includes shield test if connected
- Uses OMNIRemote for complete mapping of wiring at both ends of the cable

NEXT

- Test all six pair combinations from both directions using OMNIRemote
- Frequency Range: 1 to 300 MHz
- Dynamic Range: >100 dB
- Measurement Accuracy: Calculated per TIA error model
- Accuracy: Significantly exceeds Level III requirements
- Measurement Resolution: 0.1 dB

Return Loss

- Measures Return Loss on all four pairs from both directions using OMNIRemote
- Frequency Range: 1 to 300 MHz
- Dynamic Range: > -35 dB
- Factory Calibrated to ensure measurement port match to reference 100-ohm impedance
- Measurement Accuracy: Significantly exceeds Level III requirements
- Measurement Resolution: 0.1 dB

Attenuation

- Tests all four pairs using OMNIRemote as far-end active signal injector
- Frequency Range: 1 to 300 MHz
- Dynamic Range: > 60 dB
- Measurement Accuracy: Significantly exceeds Level III requirements
- Measurement Resolution: 0.1 dB

Resistance

- Range: 0 to 500 W
- Accuracy: ± 0.5 W @ 0 to 15 W; ± 2% @ 15 to 500 W
- Resolution: 0.1 W
- Power Sum NEXT, ACR, and ELFEXT
- Computed for 4 pairs from both ends from the respective pair-to-pair NEXT, Attenuation, and FEXT measurements

ELFEXT
(Equal Level FEXT)

- Tests from both directions using OMNIRemote and reports all 24 pair combinations
- Frequency Range: 1 to 300 MHz
- Dynamic Range: >100 dB
- Measurement Accuracy: Significantly exceeds Level III requirements
- Measurement Resolution: 0.1 dB

ACR
(Attenuation to Crosstalk Ratio)

- Computed for 6-pair combinations from both ends at all frequency points from the respective pair-to-pair NEXT and Attenuation measurements

Bandwidth

- Computed for the link or channel under test, bandwidth indicates the highest frequency for which the worst-case pair-to-pair crosstalk (NEXT) is at least 3 dB less than the attenuation

OMNIFiber MM

OMNIFiber MM transforms OMNIScanner2 into a fiber optic tool for testing and certification of multimode fiber optic premise networks.

OMNIFiber consists of two test heads that attach directly onto OMNIScanner and OMNIRemote to become a part of each unit.

Using the One-Button Autotest feature, OMNIFiber measures loss and length over two fibers simultaneously. The measurements are compared against the selected LAN standard for instant PASS/FAIL analysis. OMNIFiber measures loss at 850 and 1300 nm over multimode fiber and at 1310 and 1550 nm over single-mode fiber.

The OMNIScanner2 with OMNIFiber specifically tests for the type of network being installed, not just loss. It certifies fiber links for TIA/EIA, ISO, and IEEE applications such as 100BASE-F Fibre Channel, FDDI, Gigabit Ethernet, and more.

The OMNIScanner2 with the OMNIFiber MM supports multiple fiber types with optional Interchangeable Connectors. Choose from ST, SC, FC, and a Universal 1.25-mm connector.

OMNIFiber Test Functions

- Multimode Fiber: Length, Propagation Delay, Loss
- +3 dBm to -55 dBm
- 0.01 dB resolution
- ± 0.25 dB typical accuracy
- 0 to 10,000 ns delay
- 1-ns resolution 0 to 10,000 ns

Interchangeable Fiber Connectors for OMNIFiber MM

OMNIScanner2 and the OMNIFiber support multiple network designs with simple interchangeable adapters. OMNIFiber has one ST® style connector port (TX) and one threaded optical receiver port (RX) which accepts different connector adapters. Select the Fiber Connector to match the interface you're using—ST, SC, or FC. A Universal 1.25-mm connector enables a mated connection to any 1.25-mm ferrule.

Specifications

Delay — OMNIFiber MM: 0 to 10,000 nS; 1 nS resolution

Environmental:
- Operating Temperature: 32 to 122°F (0 to 50°C);
- Storage Temperature: 14 to 131°F (-10 to +55°C);
- Operating Humidity (Non-condensing): 5 to 90%;
- Storage Humidity: 5 to 95%

Length: OMNIScanner:
- Range: Up to 457 m (1500 ft.) on twisted-pair cable;
- Accuracy: ± *K* ± Length resolution ± NVP uncertainly, where *K* = ± 4% of length or 0.6 m (2 ft.), whichever is greater;
- Length Resolution: 0.3 m (1 ft.);

OMNIFiber MM:
- Range: Up to 6600 ft. (2012 m) on multimode fiber optic cable;
- Resolution: 1 ft. (0.3 m)

Memory: Control: Flash Memory allows electronic upgrading of both OMNIScanner and OMNIRemote programs;
Test Storage: Up to 1000 complete autotest results can be stored in permanent flash memory. They are not subject to loss due to power or battery failures

Optical Measurements:
OMNIFiber MM: +3 dBm to -55 dBm; 0.01 dB resolution; ±0.258 dB typical accuracy

User Interface:
OMNIScanner2:
- 62 x 62 mm graphic LCD with backlight;
- Backlit keypad;
- Context-sensitive help;
- Audio feedback;
- Date stamp of all tests;

OMNIRemote:
- LEDs: (1) Pass, (1) Status, (1) Fail, (1) Circuit guard, (2) Charge;

OMNIFiber MM: LEDs:
- (2) 850 nm, (2) 1300 nm

CE Approval: Yes

Connectors: OMNIScanner2:
- (1) DB9 M, (1) USB, (1) MMC card socket, (1) 160-pin adapter connector;

OMNIScanner2 remote unit:
- (1) 160-pin adapter connector;

TS1004A: (2) ST;
TS1005A: (2) SC

Speed: Up to 38.4 kbps

Power: OMNIScanner2 and OMNIFiber MM: Removable, rechargeable battery pack (9.6 V @ 1200 mA-hr. nickel-cadmium); AC adapter also included

Size: OMNIScanner2: Each handset: 8.8"H x 4.5"W x 2.1"D (22.4 x 11.4 x 5.3 cm);
OMNIFiber Modules: Each handset: 3.5"H x 3.8"W x 1.5"D (8.9 x 9.7 x 3.8 cm)

Weight: OMNIScanner2: Each handset: Approximately 2 lb. (0.9 kg);
OMNIFiber Modules: Each handset: 0.2 lb. (0.1 kg)

OMNIScanner2 Performance

Transmission Performance Measurement Method

All cabling transmission performance measurements (NEXT, RL, Attenuation, and ELFEXT) are implemented using swept frequency domain, vector, digital signal processing measurement methods to ensure accurate, repeatable results.

Transmission Performance Measurement Parameters

The accuracy of the RF transmission performance measurements is calculated in accordance with error models documented in related TIA documents. OMNIScanner is designed to exceed Level III accuracy requirements. The following table provides typical specifications for important instrument parameters relating to the measurement accuracy models.

OMNIScanner2 Transmission Performance Measurements

Instrument Parameter	@ 100 MHz	@ 200 MHz	@ 300 MHz
Residual NEXT	> 105 dB	> 105 dB	> 100 dB
Noise Floor	> 100 dB	> 100 dB	> 95 dB
Detector Accuracy	0.2 dB	0.2 dB	0.2 dB
Output Signal Balance	50 dB	45 dB	40 dB
Common Mode Rejection	50 dB	45 dB	40 dB
Port Match Error	0.1 dB	0.2 dB	0.5 dB
Directivity	50 dB	50 dB	45 dB
RL Tracking	0.05 dB	0.05 dB	0.05 dB
RL Source Match	50 dB	45 dB	40 dB

OMNIScanner2 features easy-to-read and understand custom screens.

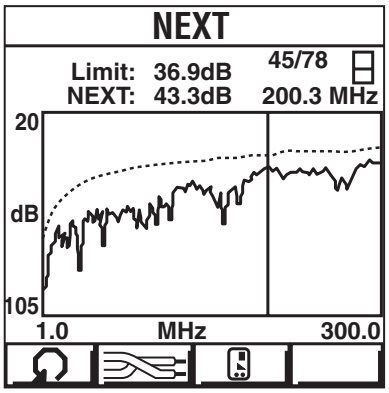

Figure 1. NEXT screen. OMNIScanner2 displays a NEXT graph for each pair combination. Limit and NEXT are shown for the frequency indicated by the cursor position.

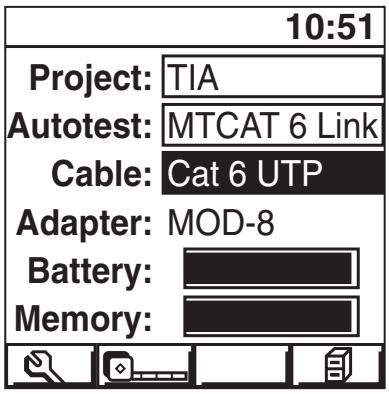

Figure 2. Project screen. OMNIScanner2's project screen lets you perform all typical workflow operations. You can select Project, Autotest specifications, and cable types in the project screen.

The Complete Package

OMNIScanner2 package:

- OMNIScanner 2
- OMNIScanner2 Remote Unit
- PC-based configuration software
- (1) serial cable
- (2) AC adapters
- (2) adapter cables (36-pin connector to RJ-45)
- (1) carrying case
- (2) battery packs
- User's manual

OMNIFiber package:

- (2) modules
- (2) 6-ft. (1.8-m) duplex fiber cables
- (2) couplers
- (1) carrying case
- (4) optical surface cleaners

Black Box offers the best warranty program in the industry—Fido Protection®. For more information, request **FaxBack 22512**.

Ordering Information

ITEM	CODE
OMNIScanner2	TS1000A-R5
For fiber testing, order the appropriate OMNIFiber Module…	
OMNIFiber MM Modules	
ST, 62.5-Micron	TS1004A
SC, 50-Micron	TS1005A
Interchangeable Connectors for OMNIFiber	
ST	F0220
SC	F0221
FC	F0222
Universal 1.25-mm	F0223