Microtest PentaScanner Plus Specs
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PentaScanner® Products

.... [*high-performance cable certification tools*]

PentaScanner 350 with 2-Way Injector+…Testing Category 5 Links for Superior Performance.

PentaScanner+ with Super Injector+… The smallest, most accurate Category 5 tester available.

If you are evaluating a new Category 5 tester, look no further than the company that invented handheld cable testing. PentaScanner products set the standard for LAN cable testing, certification and accuracy.

PentaScanner 350 with 2-Way Injector+

Superior link quality is required for high speed applications. Now you can test Category 5 links for superior performance. PentaScanner 350's Performance Grading puts the focus on link quality, ensuring that your cabling, connectors and installation will meet requirements now and well into the future. Performance Grading measures and rates the quality of high performance links by analyzing the headroom available for high-speed applications. PentaScanner 350 can actually differentiate links that are marginally passing from links that have up to 70 times better signal-to-noise ratios.

PentaScanner 350 measures Quality Bands from 1 to 7, with 1 being a marginally passing Category 5 link and 7 being the highest link performance. Now you can tell those links that marginally pass and may require costly rewiring from the links that are highly reliable.

PentaScanner 350 includes all the proven features in PentaScanner+, such as a 21-second Autotest, full cable certification, extensive cabling library, automatic increment of circuit ID, replaceable, rechargeable battery, Flash ROM for field updates and storage of 500 Autotests. And, if you already own PentaScanner+, it's easy to upgrade to PentaScanner 350.

Don't just test to Category 5 requirements – test for superior performance!

PentaScanner+ with Super Injector+

When only single-ended testing is required, PentaScanner+ with Super Injector+ is the most economical tester available. PentaScanner+ far exceeds EIA/TIA TSB-67 Level II accuracy requirements. Its superior accuracy is the result of years of accumulated knowledge and experience testing and certifying network cabling systems. In fact, PentaScanner+ provides accuracy indistinguishable from a network analyzer.

Features of PentaScanner 350 and PentaScanner+

- Test all pair combinations to 100 MHz.
- Measure Near-End Crosstalk (NEXT), attenuation, Return Loss, resistance, impedance, length, capacitance, Attenuation-to-Crosstalk Radio (ACR), Power Sum NEXT and wiremap.
- Monitor and graph network traffic
- Print complete, easy-to-read certification reports.
- Allow you to program test limits and customize Autotests.
- Store up to 500 Autotests.
- Allow flash ROM updates from the field.
- Include a replaceable, rechargeable battery for all day use.
- Incorporate a graphical backlit display screen and on-line help.
- Designed for durability.
- Compatible with Microtest's PC-based MT Crimp™ for complete physical infrastructure management.
- Free, unlimited technical support.

Tools and Leadership You Can Trust

When you need the job done right the first time, there's only one choice – Microtest, the worldwide leader in cable certification and diagnostic technology.

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Product Package

- PentaScanner 350 with 2-Way Injector+ or PentaScanner+ with Super Injector+
- Replaceable, rechargeable battery
- User documentation
- (2) Test patch cables
- (2) Modular 8 adapters
- Serial cable
- (1) AC adapter with the PentaScanner+ or (2) AC adapters with the PentaScanner 350
- Soft carrying case

PentaScanner Specifications

Part Numbers

- PentaScanner 350 with 2-Way Injector+ #8180-xx*
- PentaScanner+ with Super Injector+ #8150-xx*

Call Microtest Sales for U.S. and International part numbers

Physical Characteristics

- Dimensions: 10.2 cm x 20.3 cm x 5.5 cm (4' x 8' x 2.15')
- Weight: 0.79 kg (1 lb., 12 oz.)

Power

- Rechargeable, replaceable battery pack
- Built in charger using AC adapter
- External battery charger available as an accessory
- Battery life: 8 hours daily operation
- AC: 9V DC – 1 amp AC adapter for continuous operation or charging

Environmental

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

Measurement Ports

- BNC and 36-pin connector that withstands in excess of 20,000 mating cycles
- Testing of all four pairs on Modular 8 (RJ-45) is fully supported

Serial Port

- Connector and Cable: DB-9F
- Baud rate: 300 to 38,400 baud
- Protocol: Parity - NONE 8 Data bits, 1 Stop bit
- Handshake: XON/XOFF, RTS/CTS

Memory

- Test Storage: Up to 500 complete Autotest results can be stored
- Control: Flash memory allows electronic upgrading in remote locations

Autotest Functions

- Full suite of tests to determine if cable meets generic cabling or network type requirements (TIA TSB-67, ISO Class C, D, 10-Base T, Token Ring, Fast Ethernet, ATM 155 etc.)
- Up to 20 user definable Autotest programs

Near-End Crosstalk (NEXT)

- Tests all six pair combinations from both ends*
- Power Sum NEXT computed from both ends for all 4 pairs*
- Frequency range 0.7 to 100 MHz
- Sweep Mode 0.1, 0.2, 0.5 MHz steps (linear) or TIA (user selectable)
- Dynamic Range: Measurement dynamic range > 75 dB
- Measurement Accuracy: Calculated per TIA TSB-67 error model (see NEXT and Attenuation Specifications table)
- Measurement resolution: 0.1 dB

Requires 2-Way Injector+ for simultaneous measurements from both ends

Attenuation

- Tests all four pairs using far end active signal injection
- Frequency range 1.0 to 100 MHz
- Sweep mode: Swept 1- 100 MHz using 1 MHz steps or fixed points (1, 2, 4,5, 8, 10, 16, 20, 25, 31.25, 62.5, and 100 MHz)
- Dynamic Range: 0 - 50 dB
- Measurement Accuracy: Calculated per TIA TSB-67 error model (see NEXT and Attenuation Specifications table)
- Measurement resolution: 0.1 dB

NEXT and Attenuation Measurement Performance Specifications

NEXT and Attenuation Performance Parameters @ 100 MHz	Testing Thru 36 Pin Connector		Testing Thru Mod 8 Adapter
	Typical	Max	Typical
Dynamic Accuracy (dB)	0.3	0.5	0.3
Residual NEXT (dB)	67	62	45
Output Signal Balance (dB)	50	43	40
Common Mode Rejection (dB)	35	38	34
Random Noise (dB)	78	75	78
Transmit Return Loss (dB)	26	23	20
Receive Return Loss (dB)	22	17	17
NEXT Accuracy (dB) @ 100 MHz	0.5 (*1)	0.9 (*1)	1.5 (*2,3)
Atten. Accuracy (dB) @ 100 MHz	0.3 (*4)	0.6 (*4)	0.6 (*3,4)

*Notes:

(1) NEXT accuracy is calculated at the Basic Link Limit (29.3 dB) per error model in TSB-67 A.3

(2) NEXT accuracy is calculated at the channel Limit (27.1 dB) per error model in TSB-67 A.3

(3) Performance assumes a high performance modular 8 plug

(4) Attenuation accuracy calculated per error model in TSB-67 A.3

Return Loss

- Test all four pairs from both ends*
- Frequency Range: 1.0 to 100.0 MHz
- Measurement Range: 0 to 20.0 dB
- Measurement resolution: 0.1 dB

Requires 2-Way Injector+ for simultaneous measurements from both ends

Noise

- Impulse Noise: Detects the occurrence of narrow impulse type events exceeding an adjustable threshold of ± 0.262, 0.524, 1.0, 2.0 or 2.5 volts. Instantly displays up to 200 impulse noise events per second. Graphically logs and displays impulse events for up to 25 hours. Termination impedance: 200 ohms.
- Peak to Peak Noise: Measures the peak to peak voltage of steady state noise signals. Range: 0 to 3,000 mVpp into 100 ohms. Bandwidth: 3dB from 40 kHz to 30 MHz

Wire Map

- Uses Injector for complete mapping of wiring at both ends of the cable
- Finds miswires, opens, shorts, split pairs
- Includes test of shield if connected

Length

- Range: 0 to maximum distance where maximum distance = 915 meters (3000 ft) for twisted pair cable = 1200 meters (4000 ft) for coaxial cable
- Accuracy: ± K ± Length Resolution ± NVP uncertainty where K=4% of length or 0.6 meters (2 ft), whichever is greater Length Resolution: 0.3 meters (1 ft)

Impedance

- Range: 40 to 200 ohms
- Accuracy: 5 ohms
- Resolution: 2 ohms

Loop Resistance

- Range: 0 to 10000 ohms
- Accuracy:
  ± 0.3 ohms @ 0 to 15 ohms
  ± 2% @ 15 to 109 ohms
  ± 5% @ >109 to 5000 ohms
  ± 10% @ 5000 to 10000 ohms
- Resolution: 0.1 ohms @ 0 to 200 ohms 1.0 ohms @ 200 to 1000 ohms

Capacitance

- Range: 0 to 100,000 pF
- Accuracy: ± 20 pf @ 0 to 200 pF ± 10% @ 200 to 100,000 pF

High Voltage Input/Protection:

- The test interface withstands input hazard conditions that arise from normal telephone interfaces (48 VDC at less than 80 mA) or 24 VAC power used to power many telephone keysetsTSB-67 Level II Accuracy is maintained through Quality Band 7

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