



**Advanced Test Equipment Rentals**  
 www.atecorp.com 800-404-ATEC (2832)

# PENTA

S C A N N E R



**P**ENTASCANNER  
 WITH 2-WAY  
 INJECTOR IS THE MOST  
 ACCURATE  
 CATEGORY 5 CABLE  
 TESTER AVAILABLE.

PENTASCANNER IS  
 EIA/TIA TSB-67 Level II  
 COMPLIANT.

If you are evaluating a new Category 5 tester, then look no further than the company that invented handheld cable testing. PentaScanner with 2-Way Injector sets the standard for LAN cable testing, certification and accuracy.

**NETWORK ANALYZER  
 ACCURACY IN THE PALM  
 OF YOUR HAND**

Buy your Level II Category 5 tester from the undisputed market leader, and be assured of getting a tool which far exceeds EIA/TIA TSB-67 Level II accuracy requirements. PentaScanner's superior accuracy is the result of years of accumulated knowledge and experience testing and certifying network cabling systems. In fact, PentaScanner is the only Category 5 cable tester that provides accuracy that is indistinguishable from a network analyzer.

**COMPLETE, ACCURATE  
 CABLE TESTING**

- Tests all pair combinations to 100 MHz
- Measures Near-End Crosstalk (NEXT), attenuation, resistance, impedance, length, capacitance, Attenuation-to-Crosstalk Ratio (ACR) and wiremap
- Monitors and graphs network traffic
- Prints complete, easy to read certification reports
- Allows you to program your own test limits and customize your Autotests
- Stores up to 500 Autotests
- Allows flash ROM updates from the field
- Includes a replaceable, rechargeable battery for all day use
- Incorporates a graphical backlit display screen and on-line help
- Smallest, lightest Category 5 tester available
- Designed for durability

- Compatible with Microtest's PC-based Cable Management System (CMS)
- Free, unlimited technical support

**TOOLS AND LEADERSHIP  
 YOU CAN TRUST**

There are two PentaScanner kits to choose from. Buy PentaScanner with Super Injector to perform one-way measurements quickly and accurately. For even faster cable certification, buy PentaScanner with 2-Way Injector and measure NEXT and ACR simultaneously from both ends of the installed link.

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.



**MICROTEST®**  
 800-526-9675

# PENTASCANNER

PENTASCANNER WITH 2-WAY INJECTOR IS THE FASTEST, EASIEST WAY TO CERTIFY AND MAINTAIN CATEGORY 5 AND ISO CLASS D LANS.

## PRODUCT PACKAGE

- PentaScanner
- Injector
- Replaceable, rechargeable battery
- Operator's guide
- Quick reference guide
- Test patch cables
- Modular 8 adapter
- Serial cable
- AC adapters
- Soft carrying case

## PENTASCANNER SPECIFICATIONS

### PART NUMBERS

- PentaScanner with 2-Way Injector #8130-xx\*
- PentaScanner with Super Injector #8130-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 2.13")
- Weight: 0.79 kg (1 lb, 12 oz)

### POWER

- Rechargeable, replaceable battery pack
- 9.6 Volts @ 1200 mA Hr.
- Built in charger using AC adapter
  - External battery charger available as an accessory
- Battery life: 8 hours daily operation (approximately 6 hours in continuous Autotest)
- 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 95%
- Storage Humidity: 5 to 95%

### USER INTERFACE

- 128 x 64 Graphic LCD with backlight
- 5.7 cm x 3.8 cm (2.25" x 1.5") display area
- Elastomeric keypad with tactile feedback, numeric input, dedicated functions, 4 function keys and cursor pad
- Context sensitive help and operating instructions
- Tone generation audio for warning and other user feedback
- Date and time stamp of all tests

### 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 Annotest results can be stored for later retrieval
- 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
- 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

### ATTENUATION

- Tests all four pairs using far end active signal injection
- Frequency range 10 to 100 MHz
- Sweep mode: Swept 1-100 MHz using 1 MHz steps or fixed points (1.0, 2.0, 4.0, 5.0, 8.0, 10, 16.0, 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

### NOISE

- Impulse Noise: Detects the occurrence of narrow impulse type events exceeding an adjustable threshold of  $\pm 0.262, 0.524, 1.0, 2.0$  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

- TDR method determines length and distance to cable faults
- Range: 0 to maximum distance
  - where maximum distance = 915 meters (3000 ft) for twisted pair cable
  - 1200 meters (4000 ft) for coaxial cable
- Accuracy:  $\pm K \pm$  length Resolution  $\pm$  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:  $\pm 0.3$  ohms @ 0 to 15 ohms
  - $\pm 2\%$  @ 15 to 100 ohms
  - $\pm 5\%$  @ 100 to 5000 ohms
  - $\pm 10\%$  @ 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:  $\pm 20$  pf @ 0 to 200 pF
  - $\pm 10\%$  @ 200 to 100,000 pF
- Resolution: 5 pf @ 20 to 1000 pF
- 50 pf @ 1000 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 keysets

## 2-WAY INJECTOR SPECIFICATIONS

- All NEXT performance specifications are the same as PentaScanner
- Includes removable, rechargeable Nickel Cadmium (Ni-Cd) battery



**MICROTEST®**

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