



Agilent N2640A WireScope™ Pro

Fast Handheld LAN Cabling Certification and Field-Applicable Alien Crosstalk Measurement

Technical Data

WireScope™ Pro – An Expandable Platform

WireScope™ Pro supports copper cable certification to TIA Categories 3 to 6, Category 6A and Category 7 limits. Sweeping a full 1 GHz in a few seconds, it boosts Cat 6A and Cat 7 autotest measurement times to industry leading speed, and provides a future proof platform.

Unique Alien Crosstalk Testing Methodology

In combination with Agilent's newly developed Alien Crosstalk (AXTalk) Stimulators, WireScope™ Pro secures critical 10 Gigabit Ethernet installations and upgrades. The new SwiftAXT (Sweep Interleaved Frequency-domain Technique for Alien Crosstalk) technology is an extremely fast and cost-efficient field testing methodology for Alien Crosstalk, based on real-life conditions.

Faster Measurement and Optimized Workflow

Once connected, the DualRemote™ Pro unit operates entirely remote controlled. User interactions, including restarting running tests, happen on the near end only. The re-designed Dual-wavelength Fiber SmartProbes eliminate the need to swap fibers for testing and calibration, optimizing the test throughput and accuracy.



Features and Benefits

- **Accelerated service deployment with the industry's fastest, automated LAN cabling and fiber certification.**
- **Unique cost-effective Alien Crosstalk measurement technique to test cables to full 10 Gbit/s compliance.**
- **Future-proof 1 GHz frequency range by far exceeds Augmented Category 6 and Category 7 requirements.**
- **No fiber swapping. Dual-wavelength Fiber SmartProbes boost test throughput and accuracy.**
- **Complies with TIA/ISO Level IV accuracy. Independently certified by ETL.**
- **Truly field portable with extreme battery life, bright 6" color LCD and easy touch screen user interface.**



Agilent Technologies

Feature	WireScope™ 350	WireScope™ Pro
Autotest Measurement Time	25 seconds (Cat 3 to Cat 6)	9 seconds (Cat 3 to Cat 6/6A)
Frequency Range	1 MHz – 350 MHz	1 MHz – 1 GHz
Supported TIA Category	3/5/5e/6	3/5/5e/6/6A/7
Measurement Accuracy	exceeds TIA Level III	TIA Level IV
Alien Crosstalk Measurement	not available	optional
Talkset , full-duplex	via copper cables	via copper and fiber cables
Fiber Measurement on two wavelengths	single wavelength probes, require fiber swapping	dual-wavelength probes, no fiber swapping
Removable Memory	128 MByte CF card	256 MByte USB drive
Rechargeable Battery	Ni-MH, 5-8 hours of typical use	Li-Ion, 8 hours of typical use
Dimensions (H x W x D)	228 x 114 x 66 mm (8.9" x 4.5" x 2.6")	232 x 126 x 86.7 mm (9.1" x 5" x 3.4")
Weight (excluding adapters)	approx. 1.2 kg (2.6 lbs)	approx. 1.36 kg (3 lbs)

General Specifications

Test Parameters

- Supported frequency range: 1 MHz to 1 GHz
- Complies with TIA Level IV Accuracy

Power Supply

- Removable/Rechargeable Li-Ion batteries, provide 5 to 8 hours of continuous operation
- AC Power adapter: 100~240V AC, plugs directly into the battery. Battery can be recharged separate from the instrument.

Memory

- 64 MByte internal flash memory, 15.6 MByte user accessible. Allows to store 4,800 measurement summaries, or 160 records with all graphical details.
- 256 MByte USB Flash Drive included. Allows to store 77,500 measurement summaries, or 2,600 records with all graphical details.

Connectivity

- SmartProbe Interface Connector
- Auxiliary 10/100 Mbit/s Ethernet port, RJ-45
- Universal Serial Bus (USB 1.1) port
- Talkset interface: 3.5 mm stereo jack

Software Upgrade

Semi-automated software upgrade using USB Flash Drive.

Dimensions

Size: 232 mm x 126 mm x 86.7 mm
(9.13" x 4.96" x 3.41")

Weight: approx. 1.36 kg
(approx. 3.0 lbs.)

Ease of Use

Based on the proven WireScope™ 350 user interface, the WireScope™ Pro is extremely easy to operate and to learn. The Autotest function makes it a single touch of a button to perform a complete cable characterization. The support for USB Flash Drives not only expands the storage capacity, but also makes it easy to transfer test data, user profiles and test settings, and to install software upgrades.

Future Proof Architecture

WireScope™ LAN cabling testers are known to be future proof. WireScope™ Pro provides investment protection as it grows with the users' needs, offering a lower cost Category 6 product and supporting software upgrades later as needed.

Environmental Conditions

Operating Temperature
0°C to +40°C

Storage Temperature
-10°C to +55°C

Relative Humidity
10% to 80%

Operating Altitude
up to 3000 meters

Pollution Degree: 2

ETL Certificate Number

3103597CRT-001-002



N2644A Series Category 6A Universal Channel and Link SmartProbes, Category 7 Channel and Link SmartProbes

Universal Channel and Link SmartProbes enable the WireScope™ Pro to certify LAN cables, permanent links and channel adapters. Once inserted in the module bay of the WireScope™ Pro, both, SmartProbes and instrument, are automatically set up and ready to perform standards-based cable certification tests.

General Specifications

Size: 79.5 mm x 60.5 mm x 44 mm
(3.1" x 2.4" x 1.7"), excludes cable

Operating Temperature
0°C to +40°C

Storage Temperature
-40°C to +55°C



Measurement Parameter	Range	Resolution	Accuracy
Length	0 – 100 m at NVP > 0.6	0.5 m at NVP = 0.7	± 1 m
Propagation Delay and Skew	0 – 1100 ns	±1 ns	± 6 ns
Attenuation	60 dB	0.1 dB	[1]
Near End Crosstalk (NEXT)	90 dB	0.1 dB	[1]
Equal Level Far End Crosstalk (ELFEXT)	90 dB	0.1 dB	[1]
Resistance	5 – 1000 Ohm	1 Ohm	±5%
Network Specifications			
Cabling Standards	TIA/EIA-606-A and TIA/EIA-568-B Category 3 through 7 ISO/IEC 11801, EN 50173 and Australia/New Zealand Classes C, D, E and F UTP, STP and SCTP cabling		
Ethernet	IEEE 802.3 10BASE-T, 100BASE-TX, 1000BASE-T, 10GBASE-T		
Legacy Networks	IEEE 802.5 Token Ring and IBM Type 1 TP PMD interfaces		
Supported Tests	Attenuation (Insertion Loss) Near End Crosstalk (NEXT) in pair-to-pair and/or PowerSum format Equal Level Far End Crosstalk (ELFEXT) Return Loss and Loop Resistance Wiremap Cable length, Total Propagation Delay and Delay Skew between pairs		

[1] If not mentioned otherwise, specifications are according to TIA Level IV definition.

N2647MM Multimode (850 nm/1300 nm) and N2647SM Single Mode (1310 nm/1550 nm) Fiber SmartProbes

Dual-wavelength Fiber SmartProbes allow the WireScope™ Pro to measure length and propagation delay on optical fiber links. Also, they enable high-performance optical loss and power measurement.

Laser Safety (N2674SM)

Fabry-Perot Class 1 Laser Product in accordance with IEC 60825.1 and FDA 21 CFR 1040.10

General Specifications

Size: 79.5 mm x 64 mm x 44 mm
(3.1" x 2.5" x 1.7")

Connectors
2 x SC (Transmitter, Receiver)

Operating Temperature
0°C to +40°C

Storage Temperature
-40°C to +55°C



Specification	N2647MM Multimode SmartProbe	N2647SM Single Mode SmartProbe
Power Meter		
Detector Type	InGaAs	InGaAs
Calibrated Wavelengths	850 nm, 1300 nm	1310 nm, 1550 nm
Measurement Accuracy	±0.25 dB at -20 dBm ^{[1][2]}	±0.25 dB at -20 dBm ^[1]
Power Measurement Range	0 to -42 dBm	0 to -50 dBm
Transmitter		
Source Type	LED	Fabry-Perot Laser
Center Wavelength	850 nm, 1300 nm (nominal)	1310 nm ± 30 nm, 1550 nm ± 30 nm
Output Power	≥ -20.5 dBm (into 50/125 μm fiber) ≥ -19 dBm (typical, into 62.5/125 μm fiber)	≥ -6 dBm (into 9/125 μm fiber)
Laser Stability	n/a	±0.1 dB (1 hour, after 5 minutes warm-up)
Fiber Network Specifications		
Cabling Standards	TIA 568A, 568.3, ISO/IEC 11801	TIA 568A, 568.3, ISO/IEC 11801
Gigabit Ethernet	1000BASE-SX, 1000BASE-LX	1000BASE-LX
Legacy Networks	100BASE-F, 10BASE-FL, 10BASE-FB, Token Ring	
ATM/SONET	ATM-155 (UNI 3.1), ATM-155 SWL, ATM-622, ATM/SONET OC-3, -OC-12	ATM-622, ATM/SONET OC-3, OC-12, OC-48
FDDI/Fiber Channel	FDDI, Fiber Channel-133, -266, -531, -1062	FDDI, Fiber Channel-133, -266, -531, -1062
Propagation Delay		
Accuracy (whichever is greater)	±2% or ±3.6 ns	
Resolution	4.2 ns	
Measurement Range	0 to 300 μs	
Fiber Length		
Accuracy (whichever is greater)	±2% or ±0.72 m	±2% or ±0.72 m
Resolution	0.83 m at Refractive Index 1.4785	0.83 m at Refractive Index 1.4785
Distance Range	0 to 8 km for 1.50 dB/km at 1300 nm ^[3]	0 to 50 km for 1.50 dB/km at 1310 nm ^[4]

[1] At room temperature, 23°C ± 3K

[2] With 50/125 μm fiber

[3] Assumes double-ended configuration with 12 dB max link loss. Divide by 2 for single-ended configurations.

[4] Assumes double-ended configuration with 25 dB max link loss. Divide by 2 for single-ended configurations.

Ordering Information

All WireScope™ Pro Product Kits contain:

(1) WireScope™ Pro, (1) DualRemote™ Pro, (1) Category 6 Cable Test Software License, (2) AC Power Adapters, (2) Hanging Straps, (2) Category 6A Universal Channel SmartProbes, (2) Category 6A Universal Link SmartProbes, (1) USB Cable, (2) Headsets, (1) ScopeData Pro Management Software, (1) ScopeData Pro User's Guide, (1) WireScope™ Pro User's Guide, (1) WireScope™ Pro Utilities CD Kit, (1) 256 MB USB Flash Drive, (1) Spiral Cord

Professional Certification Kits (N2642A and N2643A) come in a Hard Carrying Case. The basic test kits (N2640A) come in a Soft Carrying Case.

Category 6 Test Kits

N2640A-100 WireScope™ Pro Category 6 Certification Kit (Copper cable only)

N2642A-130 WireScope™ Pro Category 6/ Multimode Fiber Professional Certification Kit

N2642A-140 WireScope™ Pro Category 6/ Single Mode Fiber Professional Certification Kit

N2643A-150 WireScope™ Pro Category 6/ Multimode and Single Mode Professional Certification Kit

Category 6A/7 Test Kits

All Category 6A/7 Test Kits include a Category 6A/7 Cable Test Software License. Vendor specific Category 7 SmartProbes are not included.

N2640A-200 WireScope™ Pro Category 6A/7 Certification Kit (Copper cable only)

N2642A-230 WireScope™ Pro Category 6A/7 and Multimode Fiber Professional Certification Kit

N2642A-240 WireScope™ Pro Category 6A/7 and Single Mode Professional Certification Kit

N2643A-250 WireScope™ Pro Category 6A/7 Multimode and Single Mode Professional Certification Kit

Recommended SmartProbes (each set includes two units)

N2644A-100 Category 6A Universal Channel SmartProbe

N2644A-101 Category 6A Universal Link SmartProbe

N2644A-104 Siemon Category 7 TERA Channel SmartProbe

N2644A-105 Siemon Category 7 TERA Link SmartProbe

N2644A-106 Nexans Category 7 Link SmartProbe

N2647MM Dual-wavelength Multimode Fiber SmartProbe with SC interfaces. Includes 2 SC duplex patch cords 62.5/125 µm, 2 SC duplex patch cords 50/125 µm, 2 SC calibration adaptors, and software.

N2647SM Dual-wavelength Single Mode Fiber SmartProbe with SC interfaces. Includes 2 SC duplex patch cords, 2 SC calibration adaptors, and software.

Alien Crosstalk Test Solution

The SwiftAXT Alien Crosstalk test solution consists of a software license for the WireScope™ Pro, one or more pairs of Alien Crosstalk stimulators, and all required accessories.

N2648A-100 Alien Crosstalk Test Kit with one pair of stimulators

N2648A-200 Alien Crosstalk Test Kit with 6 pairs of stimulators

Optional Accessories

N2643A-100 Category 6A/7 Upgrade License

N2641A-090 Replacement Accessories Bundle, WireScope™ Pro

N2641A-095 256 MB USB Flash Drive, WireScope™ Pro

N2605A-132 Soft Carrying Case

N2641A-134 Hard Carrying Case, WireScope™ Pro

N2641A-135 Rechargeable Battery Pack, WireScope™ Pro

N2641A-097 USB Cable, WireScope™ Pro

N2595A-094 Auto Lighter DC Power Adapter

N2641A-080 Universal AC Adapter, WireScope™ Pro

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- digital microwave solutions for high-speed communications busses and backplanes that allow more complete characterization of new devices and designs with easy, accurate and repeatable BER, jitter and protocol performance measurements.
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