

# ValidatorPRO™ and ValidatorPRO-NT

## Ethernet Network Management Tools



### Key Features

- Measures optical power on single mode and multimode fiber
- Conducts BER testing to speed certify Ethernet data transmission speed up to 1000BASE-T (1 Gb/s)
- Measures SNR and skew to uncover impairments to electrical Ethernet data transmission
- Tests for opens, shorts, split pairs, miswires, and reversals and measures distance to opens and shorts—supports all copper network, telco, and coax cables
- Measure PoE voltage and current (NT only)
- Performs port discovery to detect advertised Ethernet speed and displays capabilities of network devices (NT only)
- Pings network devices to verify connectivity to active equipment (NT only)
- Discover and display essential information regarding functionality of 802.11 b/g/n wireless devices (NT only)
- Includes Plan-Um® software to create network layout; document cable tests; show network topology; and record moves, adds, and changes

### Applications

- Certify speed capability of electrical Ethernet cable runs to support 10/100/1000 Mb/s Ethernet applications
- Ensure configuration and connectivity with active network devices
- Measure optical power and insertion loss
- Discover and display essential information regarding functionality of 802.11 b/g/n wireless devices
- Document network topology including moves, adds, and changes

Building on the capabilities of the JDSU Validator and Validator-NT, the JDSU ValidatorPRO series of Ethernet Network Management Tools offers a complete solution to test copper and fiber Ethernet cables. The ValidatorPRO Ethernet speed certifier with integrated optical power meter and accompanying Plan-Um cable management software delivers the power to test both copper and fiber cabling, determine if cables can support Gigabit Ethernet, and perform troubleshooting for cable installations. The ValidatorPRO performs all tests offered by the Validator and Validator-NT, including speed certifying the data-carrying capabilities of copper Ethernet network cables up to 1 Gb/s by testing for noise in the network, detecting faults in the cabling wiring, and ensuring that cables can support the speed capabilities of active equipment.

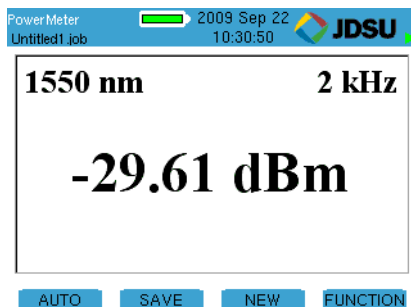
To certify Ethernet speed performance of cable runs, the ValidatorPRO series of handheld testers conducts bit error rate (BER) tests by sending data packets down specified cable runs at defined data rates to check for errors at the maximum throughput of the link. The ValidatorPRO also reports on signal quality that can impact high-speed data transmission by measuring signal-to-noise ratio (SNR). Skew measurements provide the signal time delay between pairs that can impact Ethernet data transmission. The ValidatorPRO also provides continuity testing that detects opens, shorts, miswires, split pairs, reversals, and high-resistance faults while accurately measuring distance to faults and total cable length.



Test fiber and copper (telco, network &amp; coax) cables

The ValidatorPRO includes an integrated optical power meter that measures optical power at 850/1300/1310/1490/1550 nm on multimode or single-mode fiber to address an increasing number of Ethernet networks that now include optical links.

The ValidatorPRO-NT version includes a comprehensive set of features for testing a network's active network capabilities: measure Power over Ethernet (PoE) to ensure the correct power is available on the correct pins, use port discovery to ensure the correct speed and duplex capability are available; connect at gigabit Ethernet and run ping tests to verify connectivity to IP hosts; discover network devices using Cisco Discovery Protocol (CDP) or Link Layer Discovery Protocol (LLDP), discovery and display essential information regarding functionality and configuration of 802.11 b/g/n networks.



Shows optical power levels in dB or dBm

WiFi Screen  
2009 Sep 08 17:23:35 JDSU

Active WiFi Networks

Level	Mode	SEC	Pr	CH	SSID/MAC
0%	Managed	off	b/g	6	00:21:63:83:5E:9C
0%	Ad-Hoc	off	b	11	"Free Public WiFi" 42:47:5B:1F:DD:BF
0%	Managed	on	g	11	"NPPCAM" 00:0F:B5:36:C4:61
0%	Managed	on	b/g/n	9	"Spire Network" 00:23:6C:8E:B1:8B

SAVE REFRESH

Shows available wireless networks and relevant information

## Plan-Um Cabling Installation and Planning Software

ValidatorPRO includes the updated powerful Plan-Um planning and reporting software used to plan network architectures, organize cable information, estimate cable length requirements, and document test results. Plan-Um helps set up each job, defines the scope of the job, aids in testing cable runs, and produces reports for the installer and customer. The Network Tools feature provides a quick view of the network architecture and lets users document moves, adds, and changes.

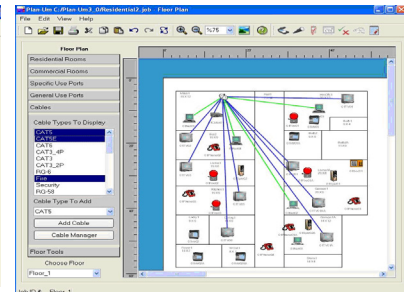
Used in conjunction with Plan-Um, ValidatorPRO provides confidence in the physical properties of cable runs and the overall capability of the network.

## Plan the job, conduct tests, document results

### 1 Layout

- Create custom floor plans or import existing AutoCAD or Visio files
- Show specific ports: network, telephone, cable
- Indicate cable runs
- Print or e-mail layout for approval
- Save layouts for future jobs
- Automatically create cable test schedule
- Cable list shows run start and end points

To	Type	Test Jack	Use	Length	Result	Bundle Type	Bundle #	Color	Response Plot
1	01Net01	CAT3	Network			UTP	NA	NA	NO DATA
2	01Net02	CAT3	Network			UTP	NA	NA	NO DATA
3	01Net03	CAT3	Network			UTP	NA	NA	NO DATA
4	01Net04	CAT3	Network			UTP	NA	NA	NO DATA
5	01Net05	Security	2Wire	Security		UTP	NA	NA	NO DATA
6	01Net06	Security	2Wire	Security		UTP	NA	NA	NO DATA
7	01Net07	Security	2Wire	Security		UTP	NA	NA	NO DATA
8	01Net08	Security	2Wire	Security		UTP	NA	NA	NO DATA
9	01Net09	Security	2Wire	Security		UTP	NA	NA	NO DATA
10	01Net10	CAT3	Network			UTP	NA	NA	NO DATA
11	01Net11	CAT3	Network			UTP	NA	NA	NO DATA
12	01Net12	CAT3	Network			UTP	NA	NA	NO DATA
13	01Net13	CAT3	Network			UTP	NA	NA	NO DATA
14	01Net14	CAT3	Network			UTP	NA	NA	NO DATA
15	01Net15	CAT3	Network			UTP	NA	NA	NO DATA
16	01Net16	CAT3	Network			UTP	NA	NA	NO DATA
17	01Net17	CAT3	Network			UTP	NA	NA	NO DATA



Measures cable length and distances to opens and shorts using advanced TDR technology

Skew and SNR results

### 2 Speed Certification and Continuity Test

- Certifies Ethernet transmission speed up to 1 Gb/s using full Bit Error Rate (BER) test by sending data packets across cable runs
- Conducts measurements to detect noise and delay that affect data transmission: Skew and overall SNR

ID	Type	From	To	Result
Cable001	CAT3	01 Net01	01 Panel01	✓ PASS
Cable002	CAT5	01 Net02	01 Panel01	✓ 100Mb
Cable003	CAT5E	01 Net03	01 Panel01	✓ 1000Mb
Cable004	RG-6	01 TV01	01 Panel01	✓ PASS
Cable005	CAT5E	01 Net04	01 Panel01	✓ 1000Mb
Cable006	CAT5E	01 Net05	01 Panel01	✗ FAIL
Cable007	CAT6	01 Net06	01 Panel01	✓ 1000Mb

Length	Skew	SNR
Max: 300 ft	Max: 35ns	Min: 20dB
A: 11.4 ft	0.0	30.8
B: 10.9 ft	0.0	31.4
C: 10.7 ft	0.0	31.0
D: 10.3 ft	0.0	30.8

Wiremaps individual runs to locate and identify cable routes

Tests telephone, network, coax, and security/alarm cables for continuity, proper termination, and polarity

Shows the actual error rate in the BER test

### 3 Document and Archive

- Verifies all tests are done against the plan
- Shows PASS/FAIL, cable length, and speed rating
- Provides end-of-job report for billing purposes
- Stores finished jobs for reference to support moves, adds, and changes
- Can store data on a PC or directly on the ValidatorPRO test unit

**VALIDATOR<sup>™</sup>**

**Cable Test Schedule**

Date: 12/10/04  
Time: 1:30 pm

**Site Information**

Job ID: 04112  
Residential  
John Hennessey  
(555) 777-8888  
johnh@hennessey.org  
8769 Generoso Street  
Springfield  
MA  
01103

**Contractor Information**

Test-Um Inc.  
North Xiang  
8805 383-1000  
nxing@test-um.com  
808 Cable Place  
Carmelito  
CA  
90012  
USA

Certified by: \_\_\_\_\_ (INSTALLER SIGNATURE)  
(INSTALLER COMPANY)

**Cable Schedule**

CABLE ID	TO	FROM	TYPE	CBL_CAT	USE	LENGTH	RESULT
Cable001	01Panel04	01Panel01	CAT3	Phone	Phone	339 ft	✓ PASS
Cable002	01Panel02	01Panel04	CAT3	Phone	Phone	339 ft	✓ PASS
Cable003	01Panel03	01Panel01	RG-6	2Wire	TV	4 ft	✓ PASS
Cable004	01TV01	01Panel01	RG-6	2Wire	TV	2 ft	✓ PASS
Cable005	01Comm01	01Spkr04	Audio	2Wire	Speaker	2 ft	✓ PASS
Cable006	01Comm01	01Spkr02	Audio	2Wire	Speaker	10 ft	✗ FAIL
Cable007	01Comm01	01Spkr01	Audio	2Wire	Speaker	12 ft	✓ PASS
Cable008	01Comm01	01Spkr03	Audio	2Wire	Speaker	13 ft	✗ FAIL
Cable009	01Fire01	01Panel01	Fire	2Wire	Fire	6 ft	✓ PASS
Cable010	01Fire03	01Panel01	Fire	2Wire	Fire	1 ft	✓ PASS
Cable011	01Panel01	01Panel01	CAT3	Phone	Phone	340 ft	✓ PASS
Cable012	01Panel01	01Panel01	CAT3	Phone	Phone	340 ft	✓ PASS
Cable013	01Panel01	01Panel01	CAT3	Phone	Phone	31 ft	✓ 1000Mb
Cable014	01Panel01	01Panel01	CAT3	Phone	Phone	31 ft	✓ 1000Mb
Cable015	01Panel02	01Panel01	CAT5E	Data	Network	15 ft	✓ 1000Mb
Cable016	01Panel02	01Panel01	RG-6	2Wire	TV	4 ft	✓ PASS
Cable017	01Panel02	01Panel01	CAT3	Phone	Phone	335 ft	✓ PASS
Cable018	01Panel03	01Panel01	CAT3	Phone	Phone	336 ft	✓ PASS
Cable019	01Panel03	01Panel01	RG-6	2Wire	TV	4 ft	✓ PASS
Cable020	01Fire02	01Panel01	Fire	2Wire	Fire	6 ft	✗ FAIL
Cable021	01Sat01	01Panel01	RG-59	2Wire	Satellite	4 ft	✓ PASS

## Specifications

### General

Display	Color back-lit FSTN liquid crystal display (LCD)
Operating System	Linux
Keypad	Full navigations set with alphanumeric data entry and soft-key functions
Memory	Non-volatile memory: internal NAND flash memory Volatile memory: 128 MByte DDR2 SDRAM memory
Languages supported (GUI)	English, French, Italian, German, Spanish, Portuguese, Korean, and Simplified Chinese

### Interfaces

- USB 2.0 host port (for external memory sticks)
- Optical Power meter for 850/1300/1310/1490/1550 nm wavelengths. -45 to +10dBm dynamic range for 850nm and -50 to +10dBm for all other frequencies.  $\pm 0.20$  dB accuracy.  $\pm 0.06$  dB linearity. Measured in dB or dBm. Auto wavelength selection with 270, 330, 1k, 2kHz modulation
- Wi-Fi 2.4 GHz 802.11 b/g/n standards with MIMO technology. Support 64/128-bit WEP encryption, WPA, WPA2, and CISCO CCX security

### Test Connectors

- 8-position shielded modular jack (data)
- 6-position modular jack (telephone)

- F-coax (video) Male connector w/sacrificial adapter
- 2.5 mm universal push pull (UPP) (Fiber)

### Cable Types

- Shielded or unshielded twisted pair network cable
- Telephone
- Coax
- Single mode and multi mode fiber cable

### Cable Length

Maximum cable length:	100 meters (1,500 ft)
Maximum cable length for testing of split pairs:	Up to 100 m (327 ft), depending upon cable type
Cable length accuracy	$\pm 5\%$ (after performing both unit and cable calibration)

### Electrical

Power sources:	AC adapter; auto cigarette lighter power adapter; lithium-ion rechargeable, removable batteries
----------------	---

### Environmental

Operating temperature	0 to 50°C (32 to 122°F) (normal operation, not charging battery) 0 to 45°C (32 to 113°F) (charging battery)
Storage temperature	-20 to 60°C (-4 to 140°F)
Operating humidity	10 to 85% RH, non-condensing

Shock and Vibration minimum	2 ft drop (free fall from stationary) on concrete
-----------------------------	--

Safety:	EN 61010-1
EMI/EMC:	EN 61326-1:2006
Altitude:	4000 m

### Agency Certifications and Compliance

Main and Remote units:	CE
Battery:	CE
AC wall adapter:	CE, PSE, UL
Auto cigarette lighter power:	CE

### Calibration

Traceable Calibration Period:	2 Years
Self-Calibration Period:	30 days for unit calibration Perform cable calibration whenever changing cable type being measured.

### Physical

Main Unit Size	22.9 x 11.4 x 5.3 cm (9 x 4.5 x 1.8 in)
Weight	710 gm (1 lb 9 oz) with battery

### Remote

Size	14.2 x 11.2 x 4.4 cm (5.6 x 4.4 x 1.8 in)
Weight	341 gm (12 oz) with battery

### Ordering Information (Models, options and accessories)

Part #	
NT1150	ValidatorPRO Ethernet speed certifier with integrated optical power meter
NT1155	ValidatorPRO-NT Ethernet speed certifier with integrated optical power meter including active network tests
ValidatorPRO and ValidatorPRO-NT each include the following: One smart remote on set, 8-wire mapping remote (RJ11/RJ45/TP612), two lithium-ion rechargeable batteries (NT93), two universal AC adapter/charge units (one 1.83m (72 in) USB to PC connection cable (series A plug to series B plug), two 1.9m (7.5 in) RJ12-to-RJ11 cables for no-fault connection to RJ11 or RJ45 jacks, two 30.48cm (1 ft) patch cables with RJ45 connectors, two 60.96cm (2 ft) RJ45 to 8 alligator clips cord sets, two sacrificial cables for RJ45 mod plug, one coupler F-jack to F-jack, USB drive including Plan-Um cabling installation and planning software, user guide (product manual), firmware, and quick start guide, Deluxe carrying case, Printed quick start guide, 100 "speed certified" cable labels, one 12 V vehicle charger	

### Accessories

Lithium-ion rechargeable battery	NT93
1.83 m (72 in) USB cable assembly	NT94
Cable speed certified labels, roll of 100	NT95
19 cm (7.5 in) RJ12-to-RJ12 cable for no-fault connection to RJ11 or RJ45 jacks	TP20
30.48 cm (1 ft) patch cable with RJ45 connectors	TP55
F-connector plug to BNC jack adapter	TP62
60.96 cm (2 ft) RJ45 to 8 alligator clips cord set	TP68
Sacrificial cable for RJ45 mod plug	TP74
Set of 20 (1-20) Coax ID-only remotes	TP311
Set of 20 (1-20) RJ45 ID-only remote identifiers	TP312
Set of 20 (1-20) RJ11 ID-only remote identifiers	TP314
OLS-5 Optical MM LED Source 850/1300nm, ST connector type	2255/01
OLS-6 Optical SM Laser Source 1310/1550, FC connector type	2255/02
Inspection & Cleaning Kit 200/400X FBP Probe, HD3-P4 Display, FBPT Tips (SC, LC), FMAE Adapters, (U25M, U12M), Bulkhead/Patchcord Cleaning Tools (2.5mm & 1.25mm), Case & power supply/charger	FBP-SM05-C
Inspection & Cleaning Kit - same as FBP-SM05-C but with HD3 Display	FBP-SM03-C
Visual Fault Locator - Pocket Size, 2.5mm (SM & MM)	FFL-050
1.25mm UPP adapter	FITP-UPP12



ValidatorPRO NT1150  
ValidatorPRO-NT NT1155

### Test & Measurement Regional Sales

NORTH AMERICA	LATIN AMERICA	ASIA PACIFIC	EMEA	www.jdsu.com/know
TEL: 1 866 228 3762 FAX: +1 301 353 9216	TEL: +1 954 688 5660 FAX: +1 954 345 4668	TEL: +852 2892 0990 FAX: +852 2892 0770	TEL: +49 7121 86 2222 FAX: +49 7121 86 1222	