

Datasheet: LinkRunner™ AT

Key features include:

- Multiple user-configured AutoTests
- Cable length measurement, fault location and fault type
- TruePower(tm) Power over Ethernet (PoE) measurement
- Ethernet speed and duplex verification at 10/100/Gigabit rates
- Twisted pair and fiber optic link testing
- Nearest switch identification
- DHCP, DNS and Gateway connectivity tests
- Ping and TCP port connectivity tests to up to 10 user-selected targets
- Results saved on the tester or uploaded to the Link-Live Cloud Service with zero-touch
- Results, project and staff management using the Link-Live Cloud Service
- Packet reflection at rates up to 1Gbps



Network technicians and desktop support professionals are under ever-increasing pressure to deploy new infrastructure and ensure user satisfaction.

To address these challenges, LinkRunner™ AT Network Auto-Tester provides quick and complete copper and fiber optic network connectivity testing. This rugged, handheld network tester speeds troubleshooting and reporting with a complete one-button AutoTest and zero-touch Link-Live cloud reporting. The AutoTest performs your required set of connectivity tests in 10 seconds, enabling you to quickly and accurately identify and solve network connectivity problems. Cloud reporting automatically uploads results to the Link-Live Cloud Service for project management and reporting.

The LinkRunner AT provides the answers you need to quickly troubleshoot connectivity problems:

Overview

- Am I following the best troubleshooting practice?
- Is this patch cable good? Where is the cable broken?
- Where does the cable from this jack terminate?
- Is this the correct switch and port? Is it delivering PoE power?
- What is the speed and duplex of my copper and fiber links?
- Are the DHCP and DNS servers working properly?
- Is the Gateway available?
- Are our most important local datacenter servers available?
- Are our key cloud and SaaS applications available?
- Are 802.1X and IPv6 implemented correctly?
- How do I save and manage hundreds of results?
- Where and when is my staff working and what are they testing?
- How can I do my job better and faster while impressing my boss?

In seconds, the LinkRunner AutoTest provides these answers and more on a brightly colored display that's easy to read under desks or outdoors. You can document your test results to prove the job's done right. With a six hour battery life and rugged design, the LinkRunner AT Network Auto-Tester can work wherever and whenever you need it.

LinkRunner AT Features

Instant-on operation — ready to run your first test in less than three seconds.

Get answers fast — user-defined AutoTest performs your required set of connectivity tests in seconds, enabling you to accurately and quickly identify and solve network problems. The AutoTest facilitates standardized troubleshooting by ensuring that everyone on the support team tests in accordance with the organization-defined, network-specific best practice. Create up to 10 AutoTest profiles for a variety of troubleshooting scenarios.

Take control — use the Link-Live Cloud Service to manage thousands of test results and multiple testers. Easily view and sort results. Organize results by job-specific folders. Tag individual results with detailed comments and images. Create professional reports customized with your logo and project specific information. Know who on your staff is testing what, where and when by assigning a tester to a technician.

Verify connectivity at 10/100/1G over copper or 100/1G over fiber — connect using copper or fiber, turn it on to see link status, connection type, signal strength and traffic.

Nearest switch and VLAN information — uses IEEE Link Layer Discovery Protocol (LLDP) plus the Cisco® and Extreme Discovery Protocols (CDP and EDP) to display the VLAN and nearest switch model, slot and port.

TruePower™ PoE testing — quickly validate PoE performance by drawing actual power up to the 802.3at standard 25.5W. Load the circuit to stress switches, cabling and patch panels, all while measuring the voltage and pairs being used. The ability to validate the TruePower delivery before installing cameras, AP's and phones ensures smooth deployment.

802.1X authentication — verify access to secure networks using 802.1X and MAC Access Control Lists (ACL). The included LinkRunner AT Manager software configures 802.1X EAP type, downloads certificates and enters passwords.

Cable verification and toning — check patch cables using the built-in wiremap port including pin-to-pin connection, or installed wiring for length, shorts, opens or split pairs. The optional office locator kit allows identification of up to six unique ports for documenting cable plants.

IPv4/IPv6 ready — supports both IPv4 and IPv6 networks.

Key device and application availability — in addition to ping, which is often blocked or disabled, the LinkRunner AT performs a TCP port open test to verify application connectivity to up to 10 user-defined servers using IPv4 and IPv6. Router, DNS and DHCP servers are reported.

Document results — Save test results locally on the tester or select the Link-Live Reporting Mode to have results automatically uploaded to the Link-Live Cloud Service. Results on the tester are downloaded to your PC and managed locally using the LinkRunner AT Manager PC application. Results uploaded to cloud service are managed using any smart device with a browser and an internet connection.

Designed for field use — six-hour Li-ion battery life, one-handed operation and a rugged design.

LinkRunner AT Functions

Cable Length

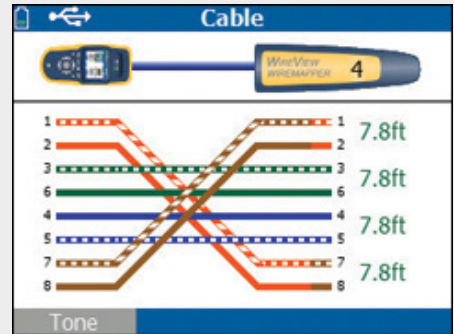
Measure the length of non-terminated twisted pair cables with TDR.

Graphical Cable Wiremap

Find opens, shorts, mis-wires and split pairs on non-terminated cable with a WireView Cable Identifier or the built-in wiremap port.

Cable Location

Locate cable runs with toning, switch port discovery, switch port LED blinking and cable identification with up to six remote cable identifiers. Toning supports both analog and digital IntelliTone™ modes.

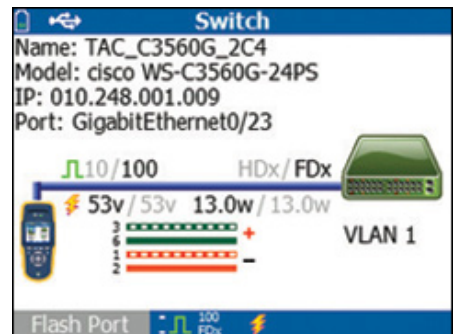


A mis-wired cable with pairs 1,2 and 7,8 swapped using cable identifier #4

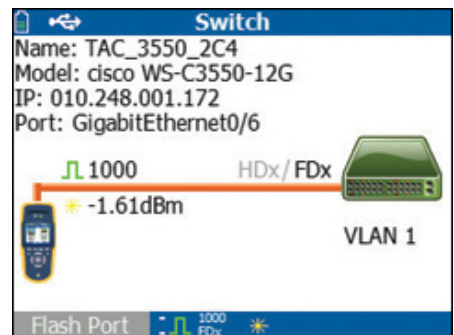
Switch Information

LinkRunner AT decodes discovery packets to display critical nearest switch information including:

- Switch name and model
- IP address
- Port, slot and VLAN
- Duplex and speed (actual and advertised)
- Signal strength
- Connection MDI or MDI/X
- PoE voltage and power (actual and test limits)
- Graphical representation of power on pairs



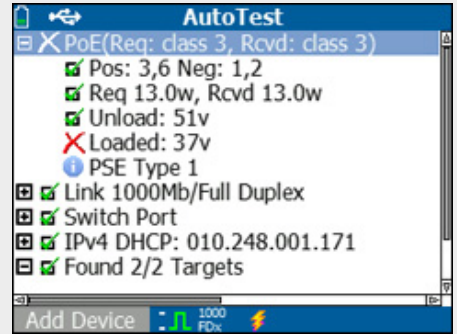
100 Mbps link on copper with PoE on port 23



1 Gig link on fiber

TruePower™ PoE Loading

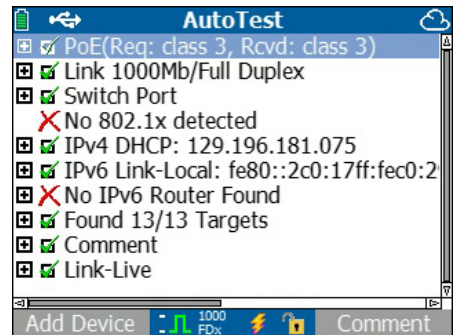
Verify you are receiving the required current and voltage up to 25.5W to power your PoE enabled devices. The LinkRunner TruePower PoE loading draws actual power to verify that your PoE enabled devices will have the required power to function.



AutoTest

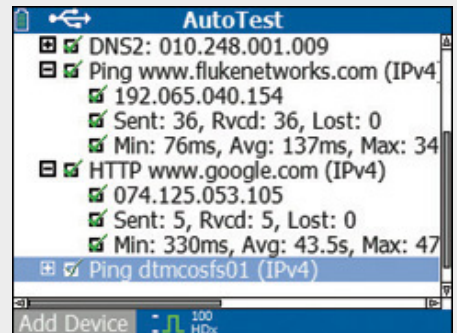
Verify enterprise connectivity in seconds with AutoTest. Standardize your set of critical network tests in profiles to run every time. Create, save and share up to 10 network and task specific profiles. Tests include:

- PoE (copper only) class
- Link speed and duplex(actual and advertised)
- RX pair and polarity
- 802.1x authentication
- Switch name, port, VLAN, model and IP
- DHCP auto-negotiation with subnet and DHCP server addresses
- IPv4 and IPv6 availability
- Ping and TCP port connectivity with lost and min, max and average speed



Ping and TCP Port Connectivity

Verify connectivity to key devices with ping and TCP connectivity testing. Devices automatically include a router, DNS server and DHCP server. Configure 10 additional devices to meet your requirements by URL or IPv4/ IPv6 address and optional application port number.



Reflector

The packet reflector mode allows use as a remote device during end-to-end network path performance testing to validate LAN and WAN throughput capabilities at rates up to 1Gbps. The LinkRunner AT 2000 model supports packet reflection for multiple testers including:

- OptiView XG Network Analysis Tablet
- OneTouch™ AT Network Assistant
- EtherScope™ Network Assistant
- MetroScope™ Service Provider Assistant

Reflector

IP Address: 010.248.001.199
MAC Address: 00-C0-17-C0-29-50
Packet Type: MAC+Fluke
Swap: MAC+IP

Reflector Mode

Rx: 150M bps
Tx: 150M bps

Configure 100 FDx Stop

Link-Live Reporting Mode

Enable Link-Live Reporting Mode to have AutoTest results automatically uploaded to the Link-Live Cloud Service. This zero-touch reporting feature speeds and simplifies reporting and ensures that results are consistently saved. Append comments to each test result. You can even add an image to a test result - a photograph of the link under test for example. Results can be automatically saved to job-specific folders to simplify project management. Up to 10 results are held in memory in the absence of a network connection and uploaded later when a connection is available.

AutoTest

PoE(Req: class 0, Rcvd: class 0)
 Link 1000Mb/Full Duplex
 Switch Port
 IPv4 DHCP: 129.196.181.075
 Found 6/6 Targets
 Comment
 Job: Building A
 Test: Floor 2 Outlet 4-17
 Link-Live
 Sent

Add Device 1000 FDx Comment

RESULT MANAGEMENT OPTIONS

Link-Live Cloud Service

Once the LinkRunner AT is connected to the Link-Live Cloud service, basic network connectivity test results are automatically uploaded to the dashboard for project management and reporting. This internet-hosted service is available from anywhere at any time using any device with a browser and internet connection. It is especially useful for managers of remote teams that need visibility to test results instantly. In addition, teams that utilize companions to the LinkRunner AT such as the LinkSprinter, or AirCheck G2 have a single dashboard system to manage results from network connectivity tests.

Time	Test	PoE	Link	Access	DSCP	Gateway	WWW
Feb 25, 16 Thursday 5:03:53pm	Name: Shamree Howard's AirCheckG2 MAC: 00C017-350086 Device: AirCheckG2 Test Type: wireless AutoTest: 44746296-dbd1-11e5-946b-8a5424b09e Images:		PHY Data Rate: 48 Retry Rate: 0 Signal (dBm): -52 Noise (dBm): -96 SNR (dB): 44	SSID: Cisco4400 AP Name: Cisco1130-11nort BSSID: 00:17:0f:27:96:00 Channel: 11 802.11 Type: bg	IP: 10.250.9.225 Server: 10.250.8.2 Subnet: 255.255.254.0 DNS1: 10.250.1.221 DNS1 Ping (ms): 1, 1, 1 DNS2: 129.196.196.25 DNS2 Ping (ms): ---	IP: 10.250.8.1 Public IP: 74.202.20.243	URL: www.google.com/PING IP: 216.58.217.36 Time (ms): 11, 10, 13
Feb 25, 16 Thursday 5:03:22pm	Name: Shamree Howard's AirCheckG2 MAC: 00C017-350086 Device: AirCheckG2 Test Type: ethernet Images:	47v	Speed: 1000 Adv Speed: 10/100/1000 Duplex: FDx Adv Duplex: HDX/FDX	Name: COL_DEV_SW1.flst.eng Model: cisco WS-C3750G-48PS IP/MAC: 10.250.0.2 Port: GigabitEthernet1/0/38 VLAN: 500	IP: 10.250.1.151 Server: 10.250.0.2 Subnet: 255.255.254.0 DNS1: 10.250.1.221 DNS2: 129.196.196.254	IP: 10.250.0.1 Public IP: 74.202.20.243	URL: www.google.com/PING IP: 216.58.217.36 Time (ms): 3, 3, 3
Feb 25, 16 Thursday 1:03:32pm	Name: Shamree Howard's AirCheckG2 MAC: 00C017-350086 Device: AirCheckG2 Test Type: wireless Images:		PHY Data Rate: 48 Retry Rate: 2 Signal (dBm): -49 Noise (dBm): -96 SNR (dB): 47	SSID: Cisco4400 AP Name: Cisco1130-11nort BSSID: 00:17:0f:27:96:00 Channel: 11 802.11 Type: bg	IP: 10.250.9.225 Server: 10.250.8.2 Subnet: 255.255.254.0 DNS1: 10.250.1.221 DNS1 Ping (ms): 1, 1, 1 DNS2: 129.196.196.25 DNS2 Ping (ms): ---	IP: 10.250.8.1 PING (ms): 11, 67, 9	URL: www.google.com/PING IP: 216.58.217.36 Time (ms): 5, 4, 4
Sep 25, 15 Friday 12:52:51pm	Name: Shamree's LinkSprinter 300 MAC: 00C017-523713 Device: LinkSprinter Folder: Spiceworld Images:	48v	Speed: 100 Adv Speed: 10/100 Duplex: FDx Adv Duplex: HDu/FDx RX Pair: 1,2 Polarity: Normal	Name: NETGEAR ProSafe Main Type: LLOP Model: Netgear Gigabit Smart Switch IP/MAC: 192.168.0.0.167 Port: g1/Switch Port 1	IP: 192.168.0.100 Server: 192.168.0.1 Subnet: 255.255.255.0 DNS: 192.168.0.1	IP: 192.168.0.1 Public IP: 107.77.100.125	URL: www.google.com/80 IP: 74.125.227.210 Time (ms): 39, 50, 48
Sep 25, 15 Friday 12:24:20pm	Name: Shamree's LinkSprinter 200 MAC: 00C017-523713 Device: LinkSprinter Folder: Spiceworld Images:	47v	Speed: 1000 Adv Speed: 10/100/1000 Duplex: FDx Adv Duplex: HDu/FDx RX Pair: All Polarity: Normal	Name: Test Drive Switch Type: LLOP Model: Netgear Gigabit Smart Switch IP/MAC: 192.168.0.0.153 Port: g1/TO Port 5	IP: 192.168.0.137 Server: 192.168.0.1 Subnet: 255.255.255.0 DNS: 192.168.0.1	IP: 192.168.0.1 PING (ms): 1, 1, 1 Public IP: 107.77.100.125	URL: www.google.com/80 IP: 133.104.121.18 Time (ms): 26, 131, 95
Sep 25, 15 Friday 12:02:29pm	Name: Shamree's LinkSprinter 300 MAC: 00C017-523713 Device: LinkSprinter Folder: Spiceworld Images:	48v	Speed: 100 Adv Speed: 10/100 Duplex: FDx Adv Duplex: HDu/FDx RX Pair: 3,6	Name: NETGEAR ProSafe Main Type: LLOP Model: Netgear Gigabit Smart Switch IP/MAC: 192.168.0.0.167 Port: g1/Switch Port 1	IP: 192.168.0.100 Server: 192.168.0.1 Subnet: 255.255.255.0 DNS: 192.168.0.1	IP: 192.168.0.1 Public IP: 107.77.100.125	URL: www.google.com/80 IP: 216.58.216.100 Time (ms): 291, 100, 275

Link-Live dashboard

LinkRunner AT Manager Software

For AutoTest results saved locally on the tester via the Local Reporting Mode the LinkRunner AT Manager Software facilitates management and analysis of test results, test reports and testers. LinkRunner AT Manager Software is an application installed on a Windows(R) PC.

LinkRunner AT Manager Software features:

- View test results saved locally on the tester
- Move test results from the tester to a local drive
- Generate reports in PDF, CSV and HTML formats
- Configure AutoTest profile
- Transfer AutoTest profiles between a tester and a local drive
- Capture screen images
- Update tester firmware



Multiple language support

LinkRunner AT fully supports multiple languages including English, French, German, Spanish, Portuguese, Russian, Japanese and Simplified Chinese. Multi-language support includes LinkRunner AT user interface, getting started guide, user manual and supporting LinkRunner AT Manager software, help files and user reports.

Gold Support

Sign up for the Gold Support plan and enjoy unrivaled privileges that support and protect your investment. These include repairs and loaner equipment, unlimited technical assistance seven days a week, 24 hours a day via phone or our website support center; free software upgrades; unlimited web-based training; and access to our extensive Knowledgebase library. Some benefits are not available in all countries.

See www.enterprise.netscout.com/content/gold-product-support for more information.

Model Comparison

	Feature	LRAT-1000	LRAT-2000
Basic Test	10/100/100 RJ45 interface	✓	✓
	Solicit PoE voltage (802.3af)	✓	✓
	Link/DHCP/gateway	✓	✓
	Nearest switch (CDP/LLDP)	✓	✓
	Ping/TCP Port single target	✓	✓
	Ping responder	✓	✓
UX	Color display	✓	✓
	AA battery pack	✓	option
	Lithium Ion rechargeable battery	option	✓
Cable Test	Length and distance to fault	✓	✓
	Flash switch port	✓	✓
	Integrated patch cable test	✓	✓
	WireView office ID/wiremap	option	✓
	Toning (analog and IntelliTone)	✓	✓
Configurable	Configurable PoE class (802.3at)	✓	✓
	Configurable link speed/duplex	✓	✓
	Configurable MAC address	✓	✓
	Configurable VLAN ID	✓	✓
	Configurable 802.1X security	✓	✓
AutoTest	Continuous testing w/ stats	✓	✓
	>1 Ping/TCP target (up to 10)	✓	✓
	AutoTest profiles (up to 10)	✓	✓
Advanced	TruePower PoE load (25.5W)		✓
	100/1000 Fiber SFP interface		✓
	Line rate packet reflector (1Gbps)		✓
	IPv6 support		✓
Reports	Results saved locally on tester	10	50
	LinkRunner AT Manager PC software	✓	✓
	Link-Live Cloud Reporting	✓	✓
	Link-Live Cloud Service	✓	✓

Technical Specifications

Environmental	
Operating Temperature and Relative Humidity	32°F to 113°F (0°C to +45°C) <i>Note: The Li-ion battery will not charge if the internal temperature of the tester is above 113°F (45°C)</i>
Operating Relative Humidity (% RH without condensation)	90% (50°F to 95°F; 10°C to 35°C) 75% (95°F to 113°F; 35°C to 45°C)
Storage Temperature	-4°F to 140°F (-20°C to +60°C)
Shock and Vibration	Random, 2 g, 5 Hz-500 Hz (Class 2) 1 m drop
Safety	EN 61010-1 2nd edition
Safety	EN/IEC 60825-1:2007, EN/IEC 60825-2:2004+ A1:2007 (LRAT-2000 only)
Altitude	4,000 m; Storage: 12,000 m
EMC	FCC Part 15 Class A, EN 61326-1
Certifications and Compliance	Conforms to relevant European Union directives Conforms to relevant Australian standards Listed by the Canadian Standards Association

General	
Media Access; Copper	RJ-45: 10BASE-T, 100BASE-TX, 1000BASE-T and PoE (IEEE 802.3af and 802.3at)
Media Access; Fiber	SFP Adapter Port supports 100BASE-FX and 1000BASE-LX/SX/ZX (LRAT-2000 Only)
Cable Tests	Pair lengths, opens, shorts, splits, crossed, straight through and cable ID
Tone Generator	IntelliTone digital tone: [500 KHz]; analog tones: [400 Hz, 1 KHz]
Dimensions	3.5 in x 7.8 in x 1.9 in (8.9 cm x 19.8 cm x 4.8 cm)
Weight	18 oz (0.5 kg)
Li-ion Battery	Removable, rechargeable li-ion battery pack (18.5 Watt-hrs). Typical operating life is 6 hours; Typical charge time is 3 hours
AA Battery	Removable AA battery pack. Typical operating life is 3 hours
External AC Adapter/Charger	AC input 90 to 264 Vac 48 to 62 Hz input power DC output 15 Vdc at 1.2 amps
Display	2.8 in color LCD (320 x 240 pixels)
Keypad	12-key elastomeric
LEDs	2 LEDs (Link and Receive/Transmit indicators)
Host Interface	USB 5-pin mini-B

LinkRunner AT Manager Software	
Supported Operating System	Windows® Vista, Windows® XP, Windows® 7, Windows® 8
Processor	400 MHz Pentium processor or equivalent (minimum); 1 GHz Pentium processor or equivalent (recommended)
RAM	96 MB (minimum); 256 MB (recommended)
Hard Disk	Up to 500 MB of available space may be required
Display	1024 x 768 high color, 32-bit (recommended)

Ordering Guide

Model Number	Description
LRAT-1000	LinkRunner AT 1000 tester with AA battery pack, 4 AA batteries, LinkRunner AT Manager software CD, USB cable, Getting Started Guide, and soft case.
LRAT-2000	LinkRunner AT 2000 tester with Li-ion battery, Wireview Cable ID #1, RJ-45 coupler, LinkRunner AT Manager software CD, USB cable, Getting Started Guide and soft case. SEE PHOTO
LRAT-2000-KIT	Includes LinkRunner AT 2000 tester with Li-ion battery, Wireview Cable ID #1-#6, RJ-45 coupler, LinkRunner AT Manager software CD, USB cable, Holster, IntelliTone 200 Probe, and a deluxe carrying case. SEE PHOTO
LINKSOLUTIONS-KIT	Includes LinkRunner AT 2000 tester, two LinkSprinter 300 network testers, LinkRunner AT holster and two LinkSprinter holsters. Note: Available only where LinkSprinter 300 is sold.
ACKG2-LRAT2000-KIT	NETWORK TROUBLESHOOTING KIT. Includes: Aircheck G2 Wireless Tester, soft case, AC charger, USB cable, Quick Start Guide, external directional antenna, holster, automobile charger, LinkRunner AT 2000 tester with Li-ion battery, AC charger, IntelliTone PRO 200, Wireview Cable ID set 2-6, Large Folding Test Kit Pouch, Holster, RJ-45 coupler, LinkRunner AT Manager software CD, USB cable, Getting Started Guide, soft case Deluxe duffle bag. SEE PHOTO
1TG2-1500-LRAT2	Includes the OneTouch AT 1TG2-1500 Ethernet Tester and the LinkRunner AT LRAT-2000 Network Auto-Tester as well all the following accessories: 1TG2-1500 Contents - 10/100/1000 Mbps copper/fiber test module, two 1G SX SFP fiber transceivers, SD card, frame carry strap, hand strap, AC adapter and line cord, USB flash drive, WireView #1-6, RJ45 patch cable and coupler, carrying case, getting started guide, and resource CD with users manual. LRAT-2000 Contents - LinkRunner AT 2000 tester with Li-ion battery, Wireview Cable ID #1, RJ-45 coupler, LinkRunner AT Manager software CD, USB cable, Getting Started Guide and soft case.
1TG2-3000-LRAT2	Includes the OneTouch AT 1TG2-3000 Ethernet and Wi-Fi Tester along with the LinkRunner AT LRAT-2000 Network Auto-Tester as well as all the following accessories: 1TG2-3000 Contents: 10/100/1000 Mbps copper/fiber and 802.11a/b/g/n/ac test module, Versiv platform, two 1G SX SFP fiber transceivers, external directional antenna with mounting clip, SD card, frame carry strap, hand strap, AC adapter and line cord, USB flash drive, WireView #1-6, RJ45 patch cable and coupler, carrying case, getting started guide, and resource CD with users manual. LRAT-2000 Contents: LinkRunner AT 2000 tester with Li-ion battery, Wireview Cable ID #1, RJ-45 coupler, LinkRunner AT Manager software CD, USB cable, Getting Started Guide and soft case.

Accessories	Description
PWR-CHARGER	AC Charger replacement
WBP-LION	LinkRunner AT Lithium Ion Replacement Battery
LRAT-AA-BATT	LinkRunner AT AA Battery Pack
LRAT-HOLSTER	LinkRunner AT Holster
SFP-1000SX	SX Gig Fiber SFP transceiver with DDM (850 nm, Multimode)
SFP-1000LX	LX Gig Fiber SFP transceiver with DDM (1310 nm, Singlemode)
SFP-1000ZX	ZX Gig Fiber SFP transceiver (1550 nm, Singlemode)
SFP-100FX	100BASE-FX Fiber SFP transceiver with DDM (Multimode)
WireView 1	WireView Cable IDs #1
WireView 2-6	WireView Cable IDs #2-6
MS-AUTO-CH	Auto Charger for Li-ion battery pack

Gold Support Options	Description
LRAT-1000-1YS	1 year of Gold Support for LinkRunner AT 1000
LRAT-1000-3YS	3 years of Gold Support for LinkRunner AT 1000
LRAT-2000-1YS	1 year of Gold Support for LinkRunner AT 2000
LRAT-2000-3YS	3 years of Gold Support for LinkRunner AT 2000
LRAT-2000-KIT-1YS	1 year of Gold Support for LinkRunner AT 2000 kit
LRAT-2000-KIT-3YS	3 years of Gold Support for LinkRunner AT 2000 kit
LINKSOLUTIONS-KIT-1YS	1 year of Gold Support for one LinkRunner AT 2000 + two LinkSprinter 300
LINKSOLUTIONS-KIT-3YS	3 years of Gold Support for one LinkRunner AT 2000 + two LinkSprinter 300
ACKG2-LRAT2000-1YS	1 year of Gold Support for ACKG2-LRAT2000
ACKG2-LRAT2000-3YS	3 years of Gold Support for ACKG2-LRAT2000
1TG2-1500-LRAT2-1YS	1 year of Gold Support for 1TG2-1500-LRAT2
1TG2-1500-LRAT2-3YS	3 years of Gold Support for 1TG2-1500-LRAT2
1TG2-3000-LRAT2-1YS	1 year of Gold Support for 1TG2-3000-LRAT2
1TG2-3000-LRAT2-3YS	3 years of Gold Support for 1TG2-3000-LRAT2

For a complete listing of LinkRunner AT models and accessories, visit www.enterprise.netscout.com