

QT-600 Ethernet Probe

NetComplete® EtherASSURE™ Service Assurance Portfolio



- Key Benefits**
- Carrier-class Ethernet probe
 - Simplifies error proof testing
 - Combines active and passive testing and monitoring
 - Centralizes testing with automated test access

Applications

- Validate Ethernet services are turned up according to service level agreements (SLAs) optimizing long-term burn-in testing from a centralized location
- Troubleshoot and sectionalize issues with Ethernet services using ping, traceroute, 802.1ag/Y.1731 loopback and linktrace, RFC 2544 and Y.1564 SAMComplete
- Monitor network traffic, perform top N analysis, capture traffic, and apply filters/triggers to drill down into data and pinpoint problems

The JDSU QT-600 is a carrier-grade, scalable, Ethernet probe that delivers the test and troubleshooting capabilities required to confidently deploy Ethernet. An integral component of the JDSU NetComplete Service Assurance Solution, the QT-600 reduces operations costs by streamlining the service turn-up process and rapidly segmenting the network to quickly identify problem sources. The detailed test results it generates let service providers confidently guarantee service-level performance. Converting this information into proactive measures has a positive impact—retaining customers and building loyalty while lowering operational costs by deploying fewer technicians to remote locations.

The QT-600 works with the NetComplete EtherASSURE for automated and on-demand test and results management. The QT-600 can characterize customer service performance before handoff to the end customer. The QT-600 supports VLAN testing, multipoint and point-to-point Ethernet services. Adding the 802.1q VLAN tag lets the QT-600 emulate the end customer's traffic and operate in a Q-in-Q or preserved VLAN environment. Additionally, the QT-600 can control VLAN priority or IP priority settings using differentiated services (Diffserv) and type of service (ToS) bits. This allows the generated traffic to take on characteristics of the customer's traffic patterns, eliminating the need for coordinated dispatches to multiple remote sites to turn up service. This, in turn, reduces operational costs and ultimately speeds up the service fulfillment process.

With the capability to run multiple tests such as ping, traceroute, 802.1ag/Y.1731 loopback and linktrace, multistream, RFC 2544, and Y.1564 (throughput, latency, and frame loss as well as back-to-back tests), service providers can rapidly turn up services and troubleshoot and isolate faults remotely from a single location. Input parameters for each QT-600 test are highly configurable for maximum flexibility when troubleshooting.

The QT-600 can be placed into Loopback mode and can also automatically loopback various edge and customer premises equipment (CPE) devices. Running both Layer 2 and Layer 3 loopback tests between two QT-600s and out to the customer premises quickly segments the network and clearly identifies problems to be within or outside of the service provider's domain.

The QT-600 also combines active testing with passive monitoring. While passively monitoring customer traffic, service providers can apply filters to highlight certain data and perform total data reporting versus filtered. The data includes utilization trend graphs; frame utilization statistics and distribution; and topN classifiers such as talkers, protocols, conversations, applications, and IP/MAC listeners and pairs.

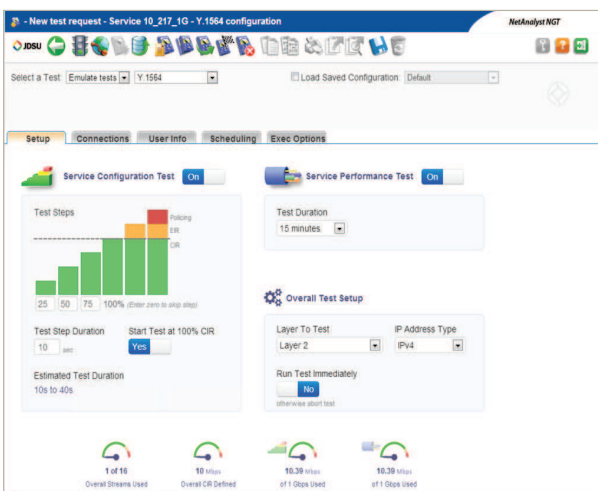
Product Features

Carrier-Class Ethernet Network Probe

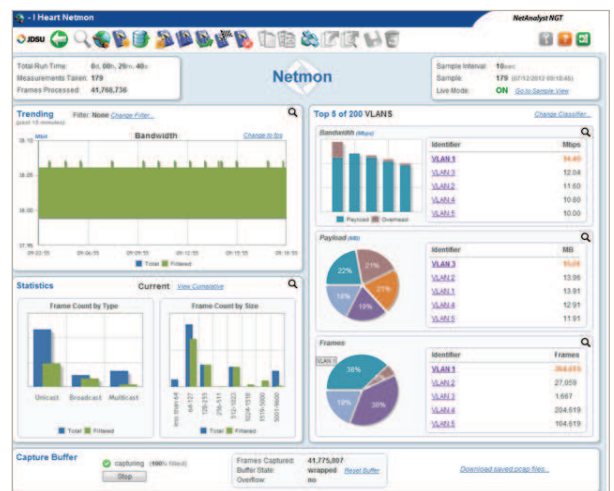
Built for carrier-class networks worldwide, the QT-600 has both NEBS level 3 and CE Mark certifications. Its scaleable architecture includes 10/100 RJ45, 1000BaseT, and 1000 optical gigabit interface connector (GBIC) testing interfaces to simultaneously run up to 16 active tests. A centralized Element Management System (EMS) takes care of all configuration requirements and an automated software upgrade function allows the system administrator to specify all or a subset of the QT-600 to upgrade in a single command.

Combines Active and Passive Testing in a Single Probe

The QT-600 can emulate end-user equipment and actively generate traffic that simulates actual customer traffic patterns. Test and validate connectivity using ping, traceroute, and 802.1ag/Y.1731 loopback and linktrace messages while verifying service turn-up with RFC 2544 or Y.1564 throughput, latency, frame loss, and back-to-back tests mimic real service mix by testing up to 16 streams and multiple services simultaneously. Once the tests are completed, the QT-600 automatically reports the quality of service (QoS) results pertinent to the active transaction. Users can run up to 16 active tests concurrently. For monitoring, the QT-600, working with NetComplete, provides a flexible interface that intelligently reduces the traffic captured on a per port and/or VLAN basis. Monitor continuously or schedule to monitor for specific time intervals. The QT-600 also captures data in both pcap or cap formats at full line rates and provides 120 MB of nonvolatile cache. View captured data either using JDSU Examine software or Wireshark®. For more in-depth troubleshooting, analysis, and monitoring, the QT-600 displays data utilization trends that include frame distribution statistics as well as broadcast, unicast, and multicast frame counts over a 15-minute period. Tracking and reporting topN statistics and displaying the worst offenders along with setting filters lets users spontaneously and easily drill down further into the data to pinpoint the root cause of a problem.



Active testing results



Passive testing results

Simplified, Error-Proof Testing

The QT-600, via its open eXtensible Markup Language (XML) application programming interface (API), seamlessly integrates with the EtherASSURE Test OSS, providing centralized test creation and management that ensures standardized, consistent test procedures are followed, thereby reducing user error. Additionally, through its scheduling capability, EtherASSURE can run repeatable test campaigns at specific times and intervals to assess network and service-level quality. Test results can be automatically e-mailed and also can serve as a baseline for future comparison over time. Its customer-to-QT-600 mapping function enables tests to be created and run against customer services rather than against specific QT-600 probes, making the testing process more intuitive, simpler, and less prone to error.

Centralized Testing and Automated Test Access

The QT-600 optimizes resources by automatically scheduling and queuing tests to run when resources become available. The QT-600 achieves automated test access and management control by configuring the service provider's switch, thus expediting and simplifying the workflow process. In addition, the QT-600 manages service turn-up end-to-end by automatically looping edge and CPE devices and test equipment that may include the JDSU T-BERD[®]/MTS platform, other QT-600s in the network, and third-party network interface units (NIUs).

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Specifications

Ethernet Services Testing

Ping/centralized ping reply	
Traceroute	
802.1ag /Y.1731	Loopback and linktrace
RFC 2544 tests	Throughput, frame loss, latency, back-to-back LBM/LBR support
Y.1564	CIR, EIR, CBS, FD, FDV, and FLR
QT-600 loopback	Layer 2, 3
Loopback discovery	
Multistream Service test	Up to 16 streams, Layer 2, 3, 4
	Throughput, frame loss, frame delay, frame delay variation
Point-to-point service check	HTTP, ping
In-band loopback interoperability with JMESP and J-NID	
Out-of-band loopback interoperability with Canoga Perkins and ADVA NIUs	
Data analysis troubleshooting with capture and filters	
Rolling 15 minute data utilization trending graph	
Frame statistics and distribution	
TopN analysis	Top conversations, top applications, top VLANs, top VLAN priorities, top pairs (MAC and IP), top listeners (MAC and IP), top talkers (MAC and IP)
IPv4 and IPv6 support	
Automated test access	
QinQ, point-to-point, and multipoint services testing	

Operations

Multiuser support for 16 simultaneous active tests
Single passive monitoring test
Centralized administration via EMS
Carrier grade
Automated test access management (TAM) control

Filtering/Triggering

Multiplier support	
Sliding window	
Fixed offset	
Packet	VLAN, MPLS, VLAN priority, Dest/Src IP, application, ToS/DSCP, IP flags
Fixed offset	

Capture

Various stop conditions	On-trigger, time, network utilization
Buffer optimization and status reporting	
Jumbo frames	
Cap and pcap formats with post capture viewing and analysis using JDSU Examine or Wireshark	

Interfaces

Ethernet ports	10/100 Mbps RJ45 connector
1000 Mbps GBIC optical	
1000BaseT	
Duplex modes	Full/Half
Flow control (Ethernet) supported	

Mechanical Dimensions

H x W x D	4.5 x 43.9 x 23.5 cm (1.75 x 17.3 x 9.25 in)
Weight	4 kg (8.8 lb)
Compatible with ANSI (19 in or 23 in) and ETSI (21 in) racks (515 mm between fixing screws)	

Power supply

Meets the following electrical specifications: ETSI ETS 300 132-2 Equipment Engineering (EE)	
AC power option using an AC power adaptor	
DC power option using one or two -48 V DC supply input ports that operate from a nominal supply voltage of -48 V DC	
Range	35 to 60 V DC
Power consumption	<50 W

Compliance

CE
NEBS3 GR-1089-CORE Issue 3, GR-63-CORE Issue 3, and GR-78-CORE Issue 3

Ordering Information

Hardware options

Description	Part Number
QT600-2 1G Ethernet probe	EQT600-2
QT600-2 19-inch rack-mount kit	E19RMKIT
QT600-2 21-inch ETSI rack-mount kit	E21RMKIT
QT600-2 23-inch rack-mount kit	E23RMKIT
QT600-2 AC power supply unit; Europe	EQT600-PSM-EU
QT600-2 AC power supply unit; UK	EQT600-PSM-UK
QT600-2 AC power supply unit; North America	EQT600-PSM-US

Optical interfaces

Description	Part Number
QT600-2 Single mode 1310 nm GBIC	EQTGBICLX
QT600-2 Multimode 850 nm GBIC	EQTGBICSX

Software options

Description	Part Number
QT600-2 Metro Ethernet base	EQT600MEBS
QT600-2 NETMON and Packet Capture	EQT600NTMN
QT600-2 16 tests/streams	EQT600-16TEST

Network and Service Enablement Regional Sales

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