TC60x Series
Ethernet Service Testers

Key Benefits

- Complete solution for activating, verifying & fault-diagnosing Ethernet service from 10Mbit/s to 1Gbit/s quickly and easily
- 5" (800x480) color LCD touchscreen
- Dual or single 1000Base-X SFP ports; perform two measurements simultaneously*
- Dual or single 10/100/1000 RJ45 ports
- Convenient and intuitive user interface
- Integrates multiple software tools for field measurement, ensuring high cost-performance
- PDF and CSV data report generation
- Rechargeable lithium battery powers continuous use for over 3.5 hours (4 hours idle)

Main Functions

Ethernet Features:

- Supports two 10/100/1000Base-T electrical interface and two 1000Base-X optical interface
- Synchronous Ethernet (SyncE) and IEEE 1588v2 (Precision Time Protocol) measurement
- RFC 2544: Throughput, Latency, Packet Delay Variation, Frame Loss, and Back-to-Back (symmetrical and asymmetric results)
- Ethernet BERT: Layer 1 to Layer 4
- Y.1564: Service configuration & performance measurement
- Stream traffic generation & analysis: up to 10 streams simultaneously
- Smart Loopback for Layer 1 to Layer 4
- VLAN (Q-in-Q) support
- MPLS support
- Packet Delay Variation measurement
- Cable Diagnostics and Optical Power testing
- IPv6 support
- Ping, Trace Route
- CSV and PDF result files

E1 Features:

- 2.048 Mbit/s transmit and receive
- ITU-T G.821, G.826, and M.2100
- LOS, LOF, and AIS warring measurement
- 75Ω unbalanced and 120Ω balanced support
- Error injection / alarm generation

Model & Option Guide

Model	Main Function
TC601+	Single Port 1G Ethernet Tester
TC602	Dual Port 1G Ethernet Tester
TC602RE	Dual Port 1G Ethernet Tester with SyncE and E1 Tests

Model	1GE RJ45	1GE SFP	Ext. Clk	E1
TC601+	Single	Single	x	x
TC602	Dual	Dual	x	x
TC602RE	Dual	Dual	√	√

Product Overview

From Deviser Instruments, the TC60x Series of handheld Ethernet service testers supports testing for speeds up to 1Gbps. The TC602RE adds a suite of E1, SyncE, and IEEE 1588v2 testing functions for even wider utility. It's the next generation of telecommunication systems analysis, serving the growing need for high-speed metropolitan access and and wireless backhaul at unmatched cost performance.

Major Applications

TC60x Series instruments excel at all Ethernet measurement applications, including performance evaluation; metro Ethernet installation, activation, & maintenance; point-to-point Ethernet joining-up service planning; real-time online fault diagnosis; wireless backhaul service verification; and more.

* On select models only.

RFC 2544

The RFC 2544 test mode supports remote loopback and point-to-point symmetrical / asymmetrical testing, as well as VLAN/Q-in-Q/MPLS demarcation. Test results appear in a complete, easy-to-read tab-based report, organized into throughput, latency/delay, frame loss, and back-to-back readings. Users can implement up to 8 custom frame lengths in one test.

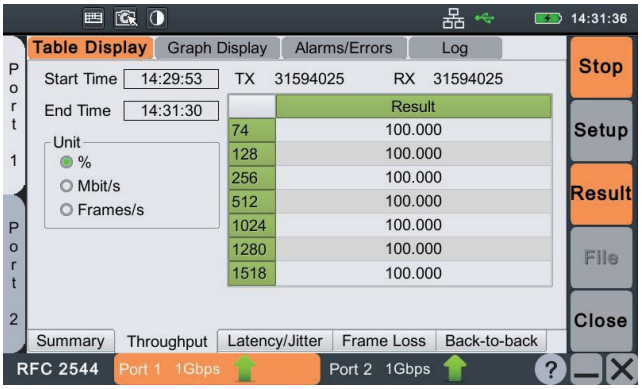

Figure 1: RFC 2544 Throughput Data

BERT

The TC60x Series' Bit Error Rate mode supports VLAN/Q-in-Q/MPLS (by option only) frame structure demarcation, custom (or 8 PRBS) code pattern testing, and service disruption time tests - all for up to 4 layers. Users can verify Ethernet point-to-point characteristics, or insert error bits / FCS error at any point during the BER measurement.

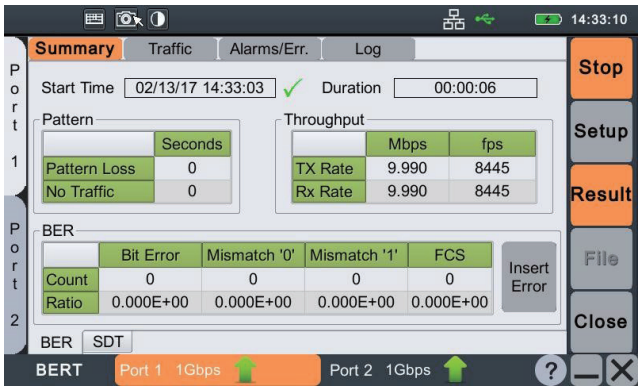

Figure 2: BERT Results

Y.1564

Measure network service configuration and performance, and verify whether the design conforms to the promissory SLA. This mode supports 10 customizable service streams and random frame size packages. Each stream can employ a different IP address, VLAN tag, MPLS tag, frame length, bandwidth, and other parameters. Additional test include CIR\CIR-EIR\BW overshoot, frame delay, frame jitter, and frame loss ratio.

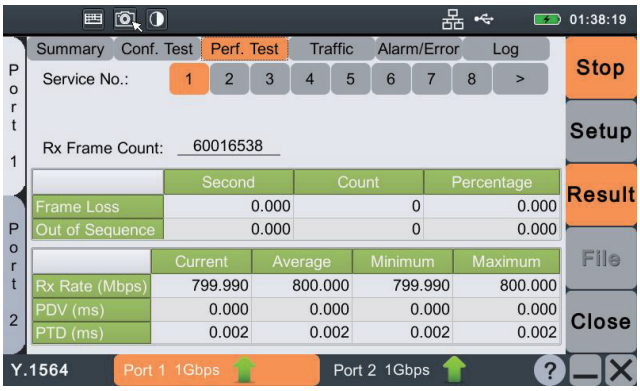

Figure 3: Y.1564 Results

Flow Generation

The TC60x Series can generate up to 10 streams simultaneously, with different MAC/IP addresses, frame lengths, and headers. The instrument supports constant, burst, ramp, and increasing frame generation, simulating test environments for triple-play installations. In addition, it can discover remote devices and establish intelligent automatic loopback connections - perfect for point-to-point QoS performance verification.

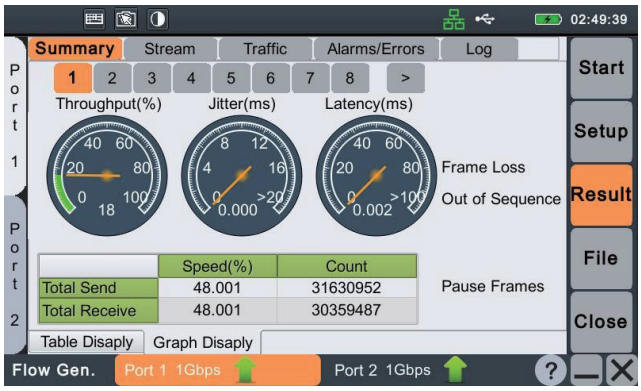

Figure 4: Flow Generation

Loopback

The TC60x Series offers test modes supporting intelligent loopback up to Layer 4, including transparent (all data streams are looped back), Layer 2, 3, 4, and all-unicast.

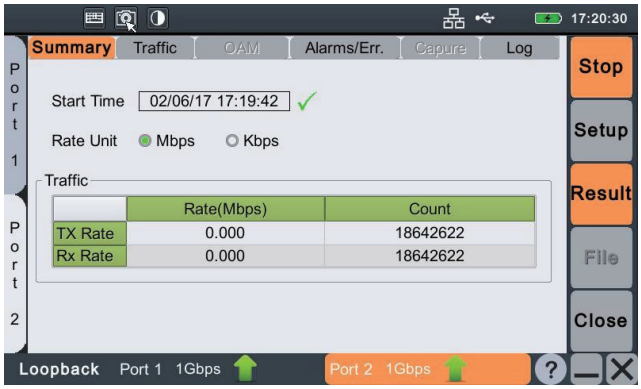

Figure 4: Loopback

Through

The passthrough test mode assists online fault diagnosis of real-time information streams between the operator's network and the service provider / customer network.

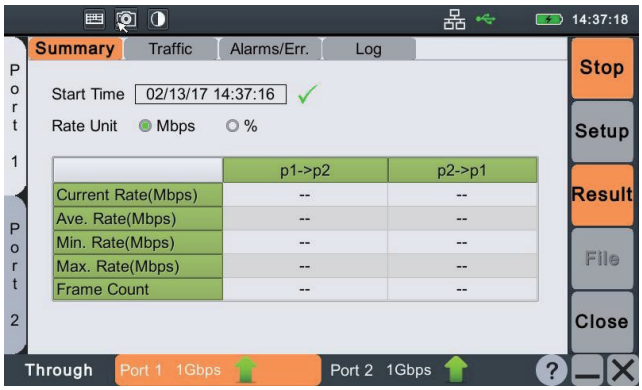

Figure 5: Passthrough

Additional Tools

To support your test and measurement goals, TC60x Series models offer a Web browser, ping and traceroute tools, a robust file management utility, and more.

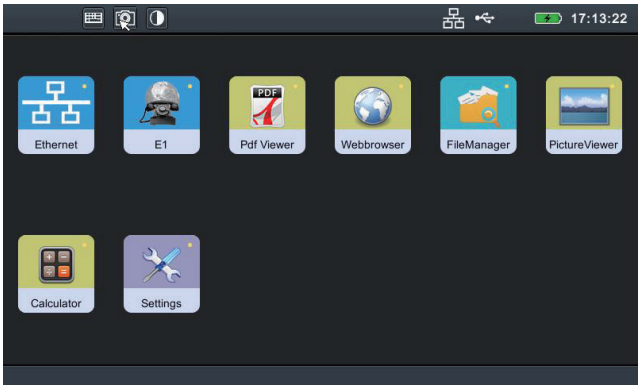

Figure 6: TC602RE Main menu

Specifications

Optical Port			
Available Wavelength	850nm, 1310nm & 1550nm (see below)		
	1000Base-SX	1000Base-LX	1000Base-ZX
Wavelength	850nm	1310nm	1550nm
Tx Level	-9 ~ -3dBm	-9 ~ -3dBm	0 ~ +5dBm
Rx Level Sensitivity	-20dBm	-22dBm	-22dBm
Transmission Distance	550m	10Km	80Km
Transmission Bit Rate	1.25 Gbit/s		
Receiving Bit Rate (Gbit/s)	1.25 Gbit/s		
Tx Working Wavelength Range	830 ~ 860nm	1270 ~ 1360nm	1540 ~ 1570nm
Test Accuracy			
Frequency	±4.6 ppm		
Optical Power (dB)	±2dB		
Jitter Compliance	IEEE802.3		
Ethernet Type	IEEE802.3		
Connector	LC		
Transceiver Type	SFP		
Electrical Port			
Auto/manually detecting straight-through/cross cable			
	10Base-T	100Base-TX	1000Base-T
Tx Bit Rate	10 Mbit/s	100 Mbit/s	1 Gbit/s
Rx Bit Rate	10 Mbit/s	100 Mbit/s	1 Gbit/s
Tx Test Accuracy	±4.6 ppm		
Rx Test Accuracy	±4.6 ppm		
Duplex Mode	Full duplex		
Jitter Compliance	IEEE802.3		
Connector	RJ-45		
Max. Distance	100m		
E1 Port (TC602RE only)			
75 Ω unbalanced BNC × 2; 120 Ω balanced RJ48 × 1			
Line Rate and Code	2.048 Mbps, HDB3 and AMI		
Compliance	ITU-T G.703		
General			
Dimensions (LxWxH)	179mm x 145mm x 56mm (7.0" x 5.7" x 2.2")		
Display	5" 800x480 color LCD touchscreen		
Weight (with battery)	0.8kg (1.8lbs)		
Working Temperature	-10°C ~ 50°C		
Storage Temperature	-20°C ~70°C		
Relative Humidity	0% to 95% (non-condensing)		
External Port	USB, LAN RJ-45		
Working Time	~7 hours (TC601+); ~5 hours (TC602); ~3.5 hours (TC602RE)		
Charging Time	5 hours from fully discharged to fully charged		
Language	English, Chinese		

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