

Ethernet Module

SSMTT-28

Data Sheet



The Ethernet Module is part of a family of Plug-In modules for the SunSet MTT and xDSL test sets

The SSMTT-28 Ethernet Module, part of the SunSet® Modular Test Toolkit (MTT) family of products, is a rugged, battery-operated handheld test solution for the installation and maintenance of Metro Ethernet and IP services. A complete set of testing capabilities makes the SSMTT-28 ideal for the field technician who needs to verify end-to-end transport of Ethernet and/or Fast Ethernet/IP traffic, perform BER tests, determine throughput, link utilization, round trip delay, and IP connectivity.

The intuitive user interface of the SSMTT-28, along with the straightforward creation and sharing of test profiles, allow technicians with limited Ethernet or IP testing experience to verify performance parameters for Ethernet services. The wide range of test functionalities of the SSMTT-28 Ethernet Module provides all of the tools needed for verifying Service Level Agreements (SLAs) between service providers and their customers.

KEY FEATURES

- Full 10/100 Mbps line rate traffic generation
- Performs throughput, latency, frame loss, and back-to-back tests per RFC 2544
- BER testing at Layer 1, Layer 2, and Layer 3 (IP) for Ethernet and IP services
- IP verification with Ping, Trace Route, Echo Response, and IP Throughput across a routed network
- Generate up to 64 traffic flows with different MAC address, VLAN tag, and IP address configurations
- Class of Service (CoS) (via VLAN P-bit) and IP Type of Service (TOS)/DSCP traffic prioritization settings
- Dual Port capability for network element prequalification testing
- VLAN Scan feature to quickly verify the VLAN ID configuration on a given test interface
- Control/Respond Loopback feature to loop-up/down a far end MTT with a SSMTT-28 or SSMTT-29 (Gigabit Ethernet) module
- Test Profiles for fast and efficient test set configuration and operation

BENEFITS

- Lightweight
- Flexible modular design
- Eliminates the need for multiple instruments
- Complete solution for Installation & Maintenance (I&M) of Ethernet and IP services
- Leverages existing MTT platform
- Cost-effective and future-proof
- Completely interoperable with the SSMTT-29 Gigabit Ethernet Module for mixed 10/100/1000 Ethernet deployments and STT® Ethernet Module

TEST FEATURES

- Enables service providers and operators to turn-up and troubleshoot Ethernet and IP services
- Allows service providers to verify SLAs between themselves and their customers
- Automated SLA verification with RFC 2544 testing
- Layer 2 CoS settings for verifying Metro Ethernet services
- Test profile storing and loading for fast deployment of Ethernet services

SPECIFICATIONS

Connectivity

Ethernet (10Base-T), Fast Ethernet (100Base-T), optional 100Base-FX; per IEEE 802.3 2000 Edition

Connector type

- Dual RJ-45 UTP (10/100Base-T)
- Single duplex LC (100Base-FX)

Operation Mode

Point-to-Point mode

Monitor mode

Auto-negotiation enabled or disabled

Auto-negotiation parameters: Pause flow control, asymmetric pause

Pause flow control frame injection (for full duplex only)

BER/Throughput Testing

End-to-end testing with two test sets

Single-ended testing with loop on the other end

Singe test set bench testing (see Dual Port Operation)

Traffic Generation

Layer 1, Layer 2, or Layer 3 traffic

Configurable source and destination MAC address

Configurable 802.1q VLAN tag and 802.1p priority

Configurable source and destination IP address (IPv4)

Configurable IP header fields (TOS, TTL, Protocol, and Frame Offset) for QoS verification testing

Up to 64 traffic flows (MAC address, IP address, VLAN tag)

Test patterns: All 1s, All 0s, Alt1010, ITU-T PRBS (2e9, 2e11, 2e15, 2e20, 2e23, 2e31) normal or invert, CJPAT, CRPAT, CSPAT, or user defined (2 bytes)

Frame length 64 to 1518 bytes or Jumbo frame (up to 12 kbytes)

Frame rate 0% to 100% bandwidth utilization with steps of 0.01%

Traffic shaping: Constant, ramp, or burst

Error/Alarm injection: Bit, CRC error and rate injection

Test duration

Measurements

Performance statistics: Transmitted and received bandwidth utilization (Min, Max, Average), frame rate (Min, Max, Average), transmitted and received line rate and data rate (kbps)

Frame statistics: Total number of transmitted & received frames, total number of received VLAN tagged frames, number of lost, out of sequence frames, number of received runt, oversized, multicast, flow control, broadcast and unicast frames, frame inter-arrival time measurement (Min, Max, Avg, Variation)

Link statistics: Bit, CRC, error count and rate, collisions, late collisions and excessive collisions count (half duplex only), loss of signal seconds counters

Events recorder with timestamp

Dual Port Operation

Perform Layer 1 & Layer 2 BER/Throughput tests with a single test set

Adds the ability to wrap test a Layer 1 or Layer 2 network element

Adds the ability to perform a Layer 1 or Layer 2 network bench test

Loopback Mode

Automatically loops all incoming frames with or without swapping the source and destination MAC address fields and IP address source and destination fields

Manual or controller/responder mode

IP Features

PING Test

Step by step results showing connectivity to the router

Summary and detailed result screens

Statistics on PING messages

Number of sent/received/missing/unreached messages

Current/average/max/min round trip delay

Following parameters can be configured:

IP mode (Static/DHCP mode)

Local IP address

Destination IP address

Gateway address

Number and rate of PING messages

Frame length

Trace Route

Trace the IP route over the IP network up to 30 hops

Gateway, Router IP address traceability

ECHO Response

Automatic PING Echo response and record

MAC Address Resolver

Discover the MAC address of devices on the network by entering a single or a range of IP addresses

Web Access Test

HTTP web page download and FTP file download: Server response time, download size and duration, average download rate

FTP file upload with user defined file size: Server response time, upload duration, average upload rate

Note: Web Access feature is only available with the color chassis

Round Trip Delay Measurement

Round trip latency measurement

Configurable IP header fields (TOS, TTL, Protocol, and Frame Offset) for QoS verification testing

Bandwidth Sweep

Automatically sweeps bandwidth with configurable start, stop, and step rate and stops upon detecting lost frames and/or pause flow control frames

Configurable IP Header fields (TOS, TTL, Protocol, and Frame Offset) for QoS verification testing

Cable Test

Detection of straight, crossover, open, or short cables

RFC 2544

Throughput, latency, frame loss rate, and back-to-back frames tests conform to RFC 2544 standard

Recommended frame sizes (64, 128, 256, 512, 1024, and 1518 byte) plus one user configurable frame size (64–12000 byte) can be tested

Configurable PASS/FAIL threshold

Tests can be run individually or in sequence

Available for Layer 1, Layer 2, and Layer 3 testing, including Ethernet routed circuits

Configurable IP header fields (TOS, TTL, Protocol, and Frame Offset) for QoS verification testing

VLAN Scan

Discover the VLAN IDs that are configured on an interface by scanning up to 5 different VLAN IDs

Verify the VLAN ID configuration by performing a quick PASS/FAIL connectivity test

Monitoring and Analysis

In-service monitoring with or without TAP device

Measurements

Bandwidth Utilization

Rx Frames Count

CRC Error

Events recorder with timestamp

Other Features

Multiple User Profiles

Up to 10 different test configuration profiles may be saved

Test profiles saved and loaded with the press of a button

Profiles can be shared across multiple chassis for fast and efficient test set configuration and operation

IP Address List

Commonly used IP addresses can be stored and retrieved into an IP address list

User may access the IP address list anywhere a destination IP address needs to be configured for fast and efficient test set operation

Results

Test results are saved in .CSV format for easy retrieval, sharing, and analysis of data

PRODUCT DESCRIPTION

Module Size (WxLxH): 5.0 x 3.5 x 0.9 in (12.6 x 9 x 2.2 cm)

Operating Temperature: 32° to 122°F (0° to 50°C)

Storage Temperature: -4° to 158°F (-20° to 70°C)

Humidity: 5% to 85% noncondensing

ORDERING INFORMATION

SSMTT-28	Ethernet Module
SSMTT-28B	Ethernet Module <i>Includes 100Base-FX capability</i>
SSMTT-28-FXM	1300 nm MMF LC Field Interchangeable Optical Transceiver
SSMTT-28-FXS	1300 nm SMF LC Field Interchangeable Optical Transceiver

Recommended Cables

SA265	Crossover Cable, 100Ω, CAT 5, RJ-45 (m) to RJ-45 (m), 6'
SA266	Cable, 100Ω, CAT 5, RJ-45 (m) to RJ-45 (m), 6'
SA561	Optical Patch Cord, LCUPC to SCUPC Duplex, MMF, 6'
SA562	Optical Patch Cord, LCUPC to SCUPC Duplex, SMF, 6'

For more information or a directory of sales offices: info@sunrisetelecom.com | www.sunrisetelecom.com

