Multi-Protocol Module

## SSMTT-30/SSMTT-30L

Data Sheet

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

The SSMTT-30 Multi-Protocol 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 Storage Area Network (SAN) services such as Fibre Channel, ESCON, and FICON. A complete set of testing capabilities makes the SSMTT-30 ideal for the field technician who needs to verify end-to-end transport of Fibre Channel, ESCON, and Layer 2 FICON traffic, perform BER tests, determine throughput, link utilization, and round trip delay.

The intuitive user interface of the SSMTT-30, allows technicians with limited SAN testing experience to verify performance parameters for Fibre Channel, ESCON, and FICON services. The test functionalities of the SSMTT-30 Multi-Protocol Module provides all of the tools needed for verifying Service Level Agreements (SLAs) between service providers and their customers.

KEY FEATURES

- Full Fibre Channel (1.0625 and 2.125 Gbps) line rate traffic generation
- Full ESCON (200 Mbps) line rate traffic generation
- BER testing at Layer 1 and Layer 2 for Fibre Channel, FICON, and ESCON services
- Round trip delay measurements at Layer 1 and Layer 2 for Fibre Channel, FICON, and ESCON
- Fibre Channel buffer-to-buffer credit management
- Fibre Channel Fabric login and N_Port login for connecting and testing through a Fibre Channel switch fabric
- Fibre Channel monitor mode for in-service monitoring
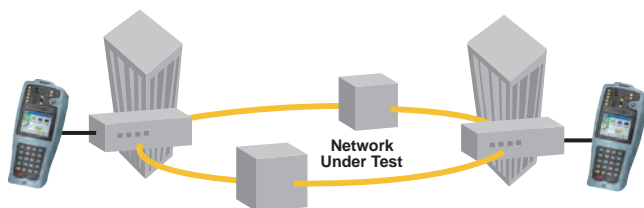
SAN Testing Application:
End-to-end Fibre Channel Transport verification

BENEFITS

- Lightweight
- Flexible modular design
- Eliminates the need for multiple instruments
- Complete solution for Installation & Maintenance (I&M) of Fibre Channel, ESCON, and FICON services
- Leverages existing MTT platform
- Cost-effective and future-proof
- Completely interoperable with the STT® Ethernet Fibre Channel Module

TEST FEATURES

- Enables service providers and operators to turn-up and troubleshoot Fibre Channel, FICON, and ESCON services
- Allows service providers to verify SLAs between themselves and their customers
- Layer 2 header configuration parameters for specific Fibre Channel and ESCON traffic testing
- Simple user interface that is consistent with SSMTT-28 and SSMTT-29 modules

SPECIFICATIONS

Connectivity

Fibre Channel per ANSI INCITS 230
Data rate: 1.0625 Gbps/2.125 Gbps
Connector type: Dual (SSMTT-30), Single (SSMTT-30L) Duplex LC
Optical transceiver type: SFP field interchangeable
SA580-850
    Transmitter
    - Wavelength: 850 nm multi-mode
    - Power: -9 dBm to -3.5 dBm
    Receiver
    - Wavelength: 770 to 860 nm
    - Signal: -21 to 0 dBm max
SA580-1310: 1310 nm single-mode
    Transmitter
    - Wavelength: 1310 nm single-mode
    - Power: -9.5 dBm to -3 dBm
    Receiver
    - Wavelength: 1270 to 1600 nm
    - Signal: -21 to 0 dBm max

ESCON per SA23-0394 (Optional Interface)
Data rate: 200 MBaud
Connector type: Duplex LC
Optical transceiver type: SFP field interchangeable
SA580-ESCON: 1310 nm multi-mode
    Transmitter
    - Wavelength: 1310 nm LED multi-mode
    - Power: -20.5 dBm to -15 dBm
    Receiver
    - Wavelength: 1260 to 1380 nm
    - Signal: -29 to -14 dBm max

Operation Mode
Point-to-Point mode
Link Initialization enabled or disabled (Fibre Channel, FC-2 Layer)
Monitor mode (SSMTT-30 only)

BER Testing (Fibre Channel/FICON)

Traffic Generation
Fibre Channel: Unframed/FC-0/FC-1/FC-2 testing
FICON: FC-2 testing
End-to-end testing with two test sets
Single-ended testing with loop on the other end
Configurable FC-2 header
FC-2 Fabric Login and N_Port Login
Test Patterns
    Framed: All 1s, All 0s, Alt1010, CSPAT, CRPAT, CJTPAT or User
        Defined (4 bytes)
    Unframed: High frequency, Mixed frequency, and Low frequency
        patterns or User Defined (4 bytes)
Frame length: 28 to 2140 bytes
Frame rate: From 0% to 100% bandwidth
Buffer-to-Buffer credits: 1 to 65535 (with Link Initialization enabled)
Traffic shaping: Constant, ramp, or burst
Error injection: Bit and CRC single errors or error rate injection,
    8B/10B symbol and disparity errors. No_RRDY injection when buf-
    fer-to-buffer credits are configured.
Test duration

Measurements
Performance statistics: Transmitted and received bandwidth utiliza-
    tion (Min, Max, Average), frame rate (Min, Max, Average)
Frame statistics: Total number of transmitted & received frames,
    number of lost frames, out of sequence frames, number of
    undersized frames, number of oversized frames, number of
    transmitted and received R_RDY frames, and number of buffer-
    to-buffer credit available
Link statistics: Bit errors, CRC errors, 8B/10B symbol and disparity
    errors, loss of signal and loss of signal seconds counters, loss of
    synchronization, loss of pattern synchronization counters
Events recorder with timestamp

BER Testing (ESCON)

Traffic Generation
ESCON: Layer 1 and Layer 2 testing
End-to-end testing with two test sets
Single-ended testing with loop on the other end
Configurable Destination Link and Logical addresses
Configurable Source Link and Logical addresses
Test Patterns
    Fixed: All 1s, All 0s, 1010, and 1010
    User: 32-bit
    PRBS*: 2e31, 2e23, 2e20, and 2e15
Frame length: 12 to 1035 bytes
Frame rate: From 0% to 100% bandwidth
Traffic shaping: Constant, ramp, or burst
Error injection: Bit and CRC burst or continuous error injection
Test duration

Measurements
Performance statistics: Transmitted and received bandwidth utiliza-
    tion (Min, Max, Average), frame rate (Min, Max, Average)
Frame statistics: Total number of transmitted and received frames,
    number of lost frames, out of sequence frames*
Link statistics: Bit errors, CRC errors, symbol and disparity errors,
    loss of signal, loss of synchronization, loss of pattern synchroni-
    zation counters
Events recorder with timestamp

Round Trip Delay Measurement
Fibre Channel and ESCON: With 1 micro-second resolution latency
    measurement

Monitoring and Analysis (SSMTT-30 only)
Fibre Channel and ESCON*
In-service monitoring with or without splitter
Measurements
    Signal and Frame Synchronization
    RX Data Rate (Min, Max, Average)
    RX Frames received, RX Frames per second (Min, Max, Average)
    CRC, Symbol, Disparity errors
    Loss of Signal and Loss of Synchronization
    Optical Power Measurement
Events recorder with timestamp

Note: Check with factory for availability.

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-30	Dual Port Multi-Protocol Module with 850 nm Transceiver Bundle *[Includes software support for Fibre Channel protocol, two 850 nm SFP Optical Transceivers (SA580-850), two Optical Patch Cords (SA561), and Optics Container (SA148)]*
SSMTT-30L	Single Port Multi-Protocol Module with 850 nm Transceiver Bundle *[Includes software support for Fibre Channel protocol, one 850 nm SFP Optical Transceiver (SA580-850), one Optical Patch Cord (SA561), and Optics Container (SA148)]*
SSMTT-30-ESCON	ESCON option for the Multi-Protocol Module with ESCON SFP Optical Transceiver *[Includes software support for ESCON protocol, one ESCON Optical Transceiver, and one Optical Patch cord (SA561)]*
SA580-850	850 nm LC SFP Field Interchangeable Optical Transceiver
SA580-1310	1310 nm LC SFP Field Interchangeable Optical Transceiver
SA580-ESCON	ESCON 1310 nm MM Optical Transceiver

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

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