

# Fibre Channel Module

MTT-30Z /MTT-30ZL



DATA SHEET

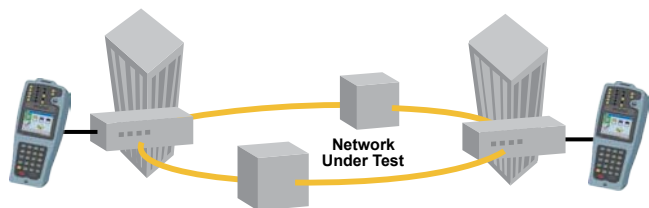


The SSMTT-30Z Fibre Channel Module, part of the SunSet® Modular Test Toolkit (MTT) family of products, is a rugged, battery-operated handheld test solution for the installation and maintenance of Storage Area Network (SAN) services such as Fibre Channel, ESCON, and FICON. A complete set of testing capabilities makes the SSMTT-30Z 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-30Z, allows technicians with limited SAN testing experience to verify performance parameters for Fibre Channel, ESCON, and FICON services. The test functionalities of the SSMTT-30Z Fibre Channel 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, 2.125 and 4.25 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
- 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
- Automated test suite based on RFC2544
- Test profiles for fast and efficient test set configuration and operation



AN 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

## 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 Ethernet modules

# Specifications

## Connectivity

### *Fibre Channel per ANSI INCITS 230*

Data rate: 1.0625 Gbps/2.125 Gbps/4.25 Gbps  
Connector type: Dual (SSMTT-30Z), Single (SSMTT-30ZL) Duplex LC  
Optical transceiver type: SFP field interchangeable

#### SA584-850

1.0625 / 2.125 / 4.25 Gb/s Fibre Channel

##### Transmitter

- Wavelength: 830 to 860 nm multi-mode
- Power: -9 dBm to -2.5 dBm max.

##### Receiver

- Wavelength: 770 to 860 nm
- Power: -20 to 0 dBm max.

#### SA584-1310

1.0625 / 2.125 / 4.25 Gb/s Fibre Channel

##### Transmitter

- Wavelength: 1285 nm to 1345 nm single-mode
- Power: -3 dBm max.

##### Receiver

- Wavelength: 1260nm to 1600 nm
- Power: -22 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-30Z 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, N\_Port Login and E\_Port Login

Test Patterns

Framed: All 1s, All 0s, Alt1010, CSPAT, CRPAT, CJTPAT, 2e31, 2e23, 2e20, 2e15 and User Defined (32 bits)

Unframed: High frequency, Mixed frequency, and Low frequency patterns or User Defined (4 bytes)

Frame length: 28 to 2140 bytes

Frame rate: From 1% 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 errors. No\_RRDY injection when buffer-to-buffer credits are configured.

Test duration

### *Measurements*

Performance statistics: Transmitted and received bandwidth utilization (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, 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 Alt1010  
    User defined: 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 utilization (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 synchronization counters  
Events recorder with timestamp

## Round Trip Delay Measurement

Fibre Channel and ESCON: With 1 micro-second resolution latency measurement

## Monitoring and Analysis (SSMTT-30Z only)

Fibre Channel

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.

## Product description

Module Size (W×L×H): 5.0 × 3.5 × 0.9 in (12.6 × 9 × 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-30Z** . . . . . Dual Port Fibre Channel Module (Includes software support for 1, and 2 Gbps Fibre Channel protocol)

**SSMTT-30ZL** . . . . . Single Port Fibre Channel Module. Includes software support for 1, and 2 Gbps Fibre Channel protocol

**SSMTT-30Z-ESCON** . . . . . ESCON option for the Fibre Channel Module. Includes on 1310nm optical transceiver and one optical patch cord.

**SWMTT30Z-4G** . . . . . 4G Fibre channel Option

**SA584-850** . . . . . 850 nm LC SFP Field Interchangeable Optical Transceiver

**SA584-1310** . . . . . 1310 nm LC SFP Field Interchangeable Optical Transceiver



For more information or a directory of sales offices: Phone: +1-800-701-5208 or +1-408-363-8000  
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