

SDH/SONET Module

MTT-38

Data Sheet



The SDH/SONET Module is part of a family of plug-in modules for the SunSet MTT® and xDSL test sets

The MTT-38 SDH/SONET Module, part of the Modular Test Toolkit (MTT) family of products, is a rugged, battery-operated handheld test solution for testing legacy SDH, SONET, PDH, and T-Carrier circuits from 2.5 Gbps to 2 Mbps/1.5 Mbps. Both in-service and out-of-service configurations cover installation, maintenance, and troubleshooting applications.

Auto-configuration takes the guesswork out of configuring the instrument to the circuit under test. Experienced users will appreciate advanced features like overhead monitoring and control, APS timing measurement,

and pointer test sequences. All measurements conform to industry standards, and circuit impairments are displayed in a variety of ways, giving operators insight into the possible causes of circuit impairments.

KEY FEATURES

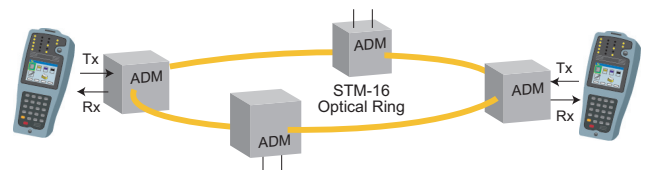
- Bit error ratio testing and performance analysis
- Pointer monitoring and test sequence generation
- Auto-configuration
- APS timing measurement
- Histogram and event log for errors and alarms
- Comprehensive payload mapping selection from VC4-16c/OC-48c (contiguous concatenation) to VC12/VT2, VC11/VT1.5, including PDH/T-Carrier payloads (1.5M, 2M, 34M, and 45M/DS1, E1, DS3, and T3)

BENEFITS

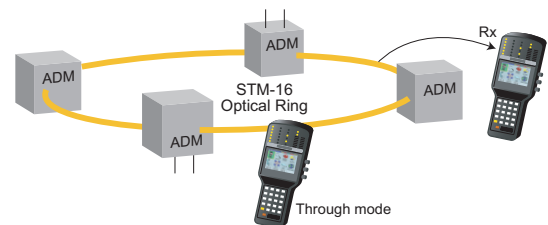
- SDH/SONET feature-rich
- Lightweight
- Flexible modular design
- Eliminates the need for multiple instruments
- Leverages existing MTT platform
- Intuitive and easy-to-use
- Cost-effective and future-proof

APPLICATIONS

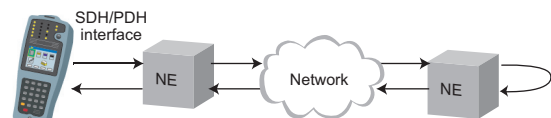
- Installation, maintenance, and troubleshooting
- Out-of-service testing



- In-service monitoring through protected monitoring points or optical splitters



- Round trip delay



SPECIFICATIONS

SDH/SONET

Operation Modes

Point-to-point
Payload through (2.5G and below)
Line through

SDH Optical (ITU-T G.707)

Connector: SFP, duplex LC
Rates: STM-16 (2.5 Gbps), STM-4 (622 Mbps), STM-1 (155 Mbps), STM-0 (52 Mbps)
Payloads: From 1.5/2M to VC4-16c
ITU-T mapping
Error injection
Alarm generation
Results measurements
Errors/Alarms
Performance: G.821, G.826, G.828, G.829, M.2101/2110
SDH pointer: Justification, increase, decrease

SONET Optical (Telcordia GR-253-CORE)

Connector: SFP, duplex LC
Rates: OC-48 (2.5 Gbps), OC-12 (622 Mbps), OC-3 (155 Mbps), OC-1/STS-1 (52 Mbps)
Payloads: From DS1/VT1.5 to STS-48c SPE
Error injection
Alarm generation
Results measurements
GR-253 bit performance
SONET defects
SONET pointer: Justification, increase, decrease

Test Patterns

PRBS, Fixed and User Programmable

Measurements Common to SDH/SONET

Optical power level measurement
Signal level measurement
Event log with timestamp
Frequency
Automatic tributary scan
Service Disruption measurement

SDH/SONET Overhead Features

ASCII decode of 16-byte or 64-byte HP/STS or LP/VT path trace bytes (J1/J2)
Programming K1/K2 APS signaling bytes
J0 Section trace generation
J1/J2 Path trace generation
S1 synchronization status messages decode and generation
Path overhead monitor
Programming of path overhead bytes
Pointer monitor: H1, H2, V1, V2 bytes
Pointer adjustment
Pointer test control
Pointer Test Sequences
Automatic Protection Switch Time Measurement
Tandem Connection Monitoring (HP/LP)

SFP Optical Transceivers

Lambda (nm)	Output Power (dBm)	Distance (km)	Rx Wavelength (nm)	Input Sensitivity (dBm)
STM-16/4/1/0, OC-48/12/3/1				
1310 SR	-10 to -3	< 2	1266 to 1580	-18 to -3
1310 IR	-5 to 0	< 15	1260 to 1580	-18 to 0
1310 LR	-2 to +3	< 40	1280 to 1335	-27 to 9
1550 IR	-5 to 0	< 40	1430 to 1580	-18 to 0
1550 LR	-2 to +3	< 80	1500 to 1580	-18 to 9
<i>Data rates supported: 2488, 022, 155, 52 Mbps SONET and SDH</i>				
STM-4/1/0, OC-12/3/1				
1310 IR	-15 to -8	< 15	1261 to 1360	-28 to -8
1310 LR	-3 to +2	< 40	1280 to 1335	-28 to -8
1550 LR	-3 to +2	< 80	1480 to 1580	-28 to -8
<i>Data rates supported: 022, 155, 52 Mbps SONET and SDH</i>				

Clock source: Internal, Loop, External

155 Mbps Electrical (STM-1) SSMTT-38-155ME

Connector: 75 ohm unbalanced SMG
External clock: Bantam

Transmitter

Clock source: Internal, Loop, External

Receiver

Frequency recovery range: 155.520 Mbps \pm 50 ppm

52 Mbps (STS-1)

Connector: BNC

Transmitter

Clock source: Internal, Loop

Receiver

Frequency recovery range: 51.840 Mbps \pm 50 ppm

PDH/T-carrier specifications

45 Mbps (DS3, T-Carrier)

Connector: BNC

Transmitter

Clock source: Internal, Loop
Alarm generation

Receiver

Frequency recovery range: 44.736 Mbps \pm 50 ppm

34 Mbps (E3, PDH)

Connector: BNC

Transmitter

Clock source: Internal, Loop
Error injection
Alarm generation
Receiver
Frequency recovery range: 34.368 Mbps \pm 50 ppm

2 Mbps (E1, PDH)

Connector: RJ-45
External clock: Bantam

Transmitter

Clock source: Internal, External, Loop
Error injection
Alarm generation
Fractional E1
Through mode

Receiver

Frequency recovery range: 2.048 Mbps \pm 50 ppm

1.544 Mbps (DS1, T-Carrier)

Connector: RJ-45
External clock: Bantam

Transmitter

Clock source: Internal, External, Loop
Error injection
Alarm generation
Fractional T1
Through mode

Receiver

Frequency recovery range: 1.544 Mbps \pm 50 ppm

PDH/T-Carrier Measurements

DS1, E1, E3, DS3

Error Performance: G.821, G.826 and M.2100
Errors/Alarms
Frequency measurements

Other Features

Loopback and Span Control
CSU/NIU Emulation
Propagation Delay
DS1 HDSL Span Control
DS3 FEAC
DS1/E1 View Received Data
E1 View FAS words
E1 View MFAS words
E1 Send Frame words

ATM Testing

Interface: UNI and NNI per ITU-T I.361
Quality of Service
Traffic Supervision

ATM View Test Records
VCC Scan
Cell Capture & Decode
Traffic Generation
DSLAM Testing
ATM/IP PING Test

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-38 SDH/SONET Module

SFP Transceiver Options

SSMTT-38-155ME	155M Electrical SFP with SMG connector, include a software option for 155ME testing. Requires SA326, Conversion Cable, BNC (m) 75 Ω to SMG (m) 75 Ω , 6'
SA582-1310-IR ²	622M/155M/52M, 1310 nm intermediate Reach Tx/Rx SFP, LCUPC/SMF Connector
SA582-1550-LR ²	622M/155M/52M, 1550 nm Long Reach Tx/Rx SFP, LCUPC/SMF Connector
SA581-1310-SR ³	2.5G/622M/155M/52M, 1310 nm Short Reach Tx/Rx SFP, LCUPC/SMF Connector
SA581-1310-IR ³	2.5G/622M/155M/52M, 1310 nm Intermediate Reach Tx/Rx SFP, LCUC/SMF Connector
SA581-1310-LR ³	2.5G/622M/155M/52M, 1310 nm Long Reach Tx/Rx SFP, LCUPC/SMF Connector
SA581-1550-IR ³	2.5G/622M/155M/52M, 1550 nm Intermediate Reach Tx/Rx SFP, LCUPC/SMF Connector
SA581-1550-LR ³	2.5G/622M/155M/52M, 1550 nm Long Reach Tx/Rx SFP, LCUPC/SMF Connector

Recommended Accessories

SA562	Optical Patch Cord, SMF, LC-SC duplex, 6'
SA563	Optical Patch Cord, SMF, LC-FC duplex, 6'

Software Options

SWMTT38-155M ²	155M/52M Testing
SWMTT38-622M ²	622M/155M/52M Testing
SWMTT38-25G ³	2.5G/622M/155M/52M Testing
SWMTT38-E1A	2M ATM Testing
SWMTT38-T1A	1.5M ATM Testing
SWMTT38-T3A	45M ATM Testing
SWMTT38-E3155MA	155M ATM Testing
SWMTT38-622MA	622M ATM Testing
SWMTT38-2.5GA	2.5G ATM Testing

Notes:

1. The SDH/SONET Module is not supported on the SSMTT-B chassis.
2. SWMTT38-155M or SWMTT38-622M must be ordered when any SA582-XXXX-XX transceiver is ordered
3. SWMTT-38-2.5G must be ordered when any SA581-XXXX-XX transceiver is ordered

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

