

SDH/SONET Analyser - DTA-100A/B/C

155M/622M/2.5G

PRODUCT OVERVIEW

The DTA-100A/B/C SDH/SONET Module, part of the platform family of products, is a rugged, battery-operated handheld test solution for testing legacy PDH/DSn, SDH/SONET circuits from 2.5Gbps to 2Mbps/1.5Mbps. Both in-service and out-of-service configurations installation, maintenance, and troubleshooting applications. Experienced users will appreciate advanced features like overhead monitoring and control, APS timing measurement, and point monitoring and adjustment. 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



PLATFORM HIGHLIGHTS

PLATFORM intelligent network test platform provides a full range of communication technology connection and service test functions, supporting the OTN, SDH / SONET, MSTP, PDH/DSn, Packet Ethernet, SyncE, IEEE1588v2 PTP, OTDR, Metro/Carrier Ethernet, Cable and Antenna Analysis, Spectrum Analysis and so on.

- ▶ Compact and Lightweight designed, highly portable
- ▶ Powerful modular intelligent network test platform
- ▶ Graphical user interface, easy to use
- ▶ Dial, number keys and function keys for flexible scrolling and selecting.
- ▶ 6.5 inches outdoor-enhanced LCD colour touch screen
- ▶ Fast and efficient test result transfer to USB memory stick
- ▶ Remote control by PC using 10/100M Base-T port
- ▶ Ultra-high capacity field-exchangeable Li-ion battery pack extends testing time

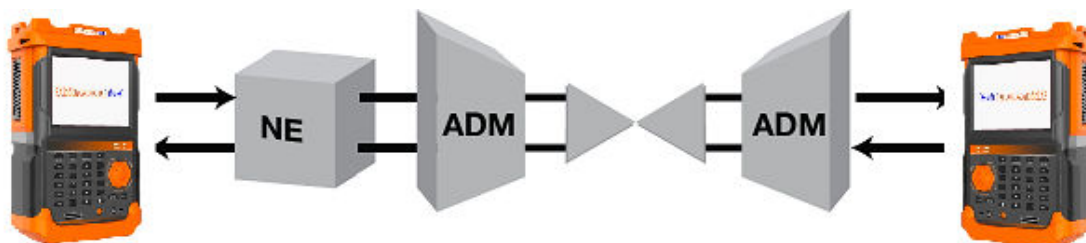
FEATURES

- ▶ BNC port for DS1/DS3, E1/E3/E4/STM-1
- ▶ RJ48 port for E1
- ▶ SFP port for STM-1/4/16 and OC-3/12/48 SDH/SONET
- ▶ Bit error ratio testing and performance analysis
- ▶ SDH/SONET overhead control and decode
- ▶ Pointer monitoring and adjustment, G.783 Pointer Test Sequences generation
- ▶ APS Timing measurement
- ▶ Comprehensive payload mapping selection from VC4-16c/STS-48c (contiguous concatenation) to VC12/VT2, VC11/VT1.5, including PDH/DSn payload (E1/E2/E3/E4, DS1/DS3)



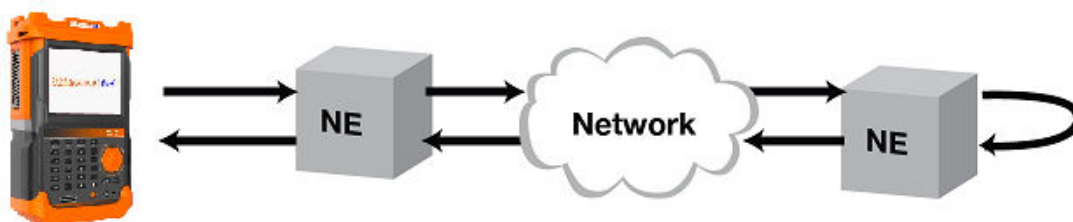
APPLICATIONS

OUT-OF-SERVICE TESTING

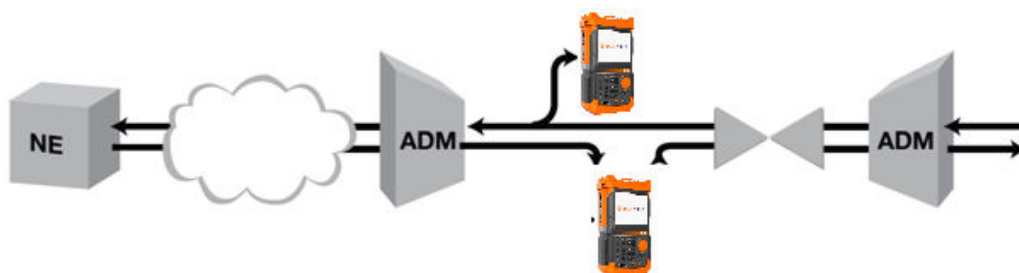


- End-to-End error-free transmission verification
- Automatic Protection Switching verification
- SDH/SONET mapping verification down to VC12/VT1.5

ROUND TRIP DELAY



IN-SERVICE TESTING



- Through mode
- In-service monitoring protected monitoring points or optical splitters
- Overhead bytes monitoring and decoding
- Pointer monitoring

GENERAL SPECIFICATIONS

User Interface	
Screen	6.5 inch TFT touch screen (640×480)
Other Interface	
USB	USB, type A port, 2; USB type B port, 1
Ethernet	10/100M Base-T, RJ45 (port)



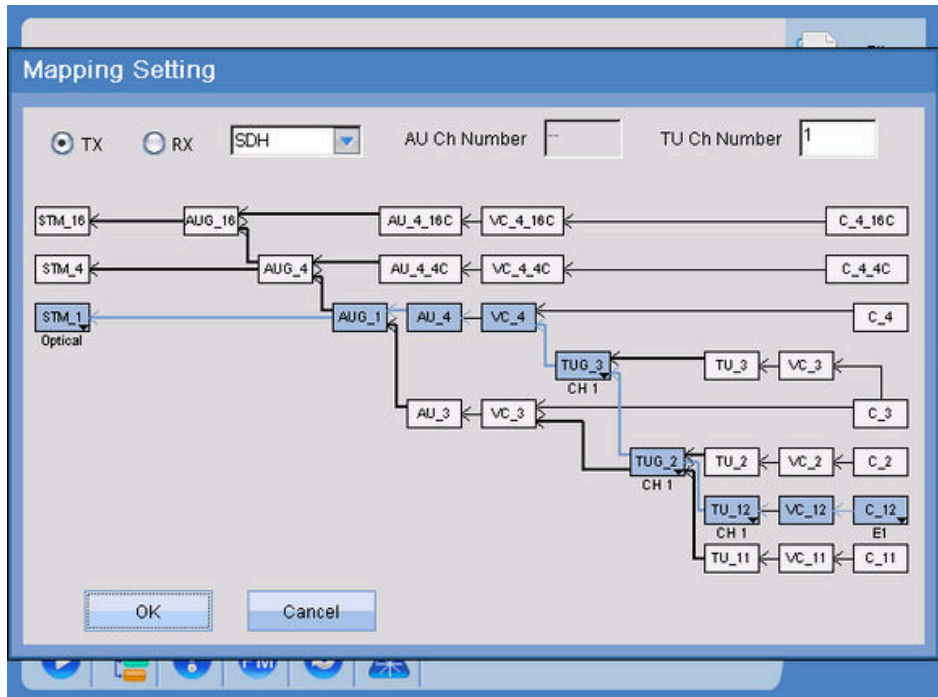
Other Parameters	
Storage	8G
Size and Weight	Platform: 319(H)x202 (W) x 105(D) mm; 2.8kg DTA-100A/B/C: 25(H)x 97 (W) x 259(D) mm; 0.4kg
Temperature	Operating: -10°C to 50°C; storage: -40°C to 70°C
Relative Humidity	0% to 95% (non-condensing)
EMC	EN55022/CIPSR22, EN61000-3-2, EN55024
Battery and Power supply	
Battery	Rechargeable Li-Ion battery; Working time: 4 hour Charging time: <6 hours (typical: 25°C).
Power supply	Input: 100-240V AC, 50-60Hz, 2A Output: 19V DC, 4A.

TECHNICAL SPECIFICATIONS

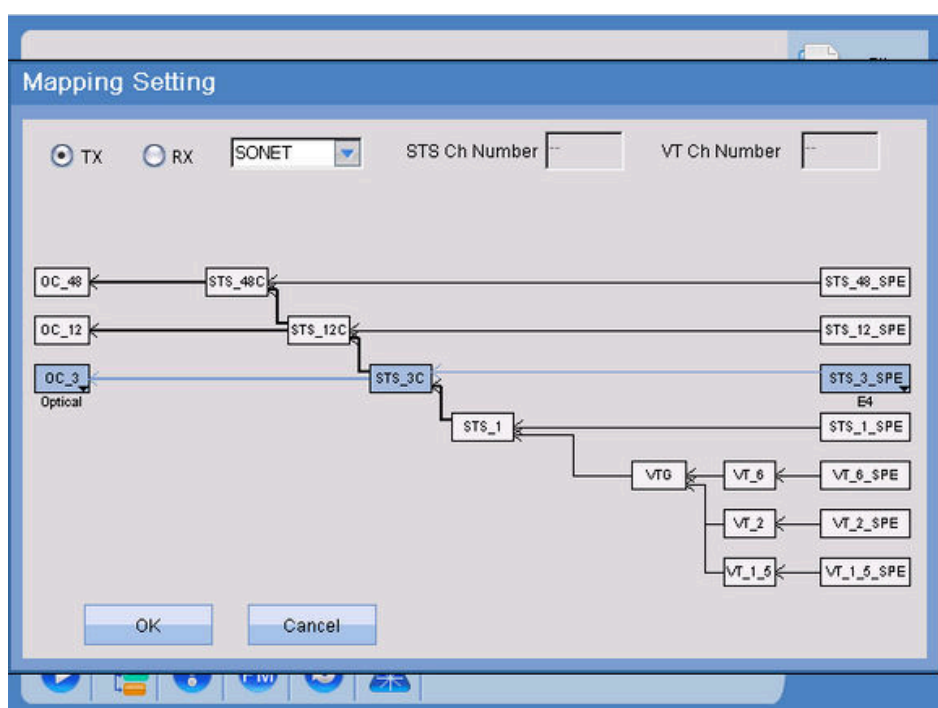
SDH and SONET Test	
Test Port	STM-16/STM-4/STM-1, OC-48/OC-12/OC-3 optical interface: SFP, 1 port User selectable optical module: 1310nm, 1550nm STM-1e, STS-3 electrical interface: BNC, 1 port
Measurement Mode	Out-of-Service Mode In-Service Mode
Operator Mode	Pointer-to-Pointer Mode Through Mode Enhance Through Mode: Can be changed SOH/TOH, can injection alarms and errors
Framing	SDH: Complies with latest version ITU-T G.707 SONET: Complied with latest version Telcordia GR-253
Line Code	NRZ
Transmitter Clock	Internal clock accuracy: 4.6 ppm, up to 2 ppm Clock offset: ±50ppm (1 ppm steps) Recovered clock TTL Level external 2.048MHz clock EI: 2.048Mbps, DS1: 1.544Mbps
Receive Single Rate	±50ppm Frequency deviation indication resolution: ±1ppm
TCM Frame Format	ITU-T G.783, G.707 Annex D and Annex E, POH bytes: HP-N1/LP-N1/LP-N2 for SDH, Z5/Z6 for SONET TCM Access Point Identifier(Apid): 15 bytes ASCII sequence, CRC-7
Scrambling	SDH: Complies with latest version ITU-T G.707 SONET: Complied with latest version Telcordia GR-253



SDH MAPPINGS



SONET MAPPINGS



Alarms	Alarm Generation and Monitor SDH: LOS, LOF,OOF,MS-AIS,MS-RDI,AU-AIS,AU-LOP,HP-PLM, HP-UNEQ, HP-TIM,HP-RDI,TU-LOM,TU-AIS,TU-LOP,LP-PLM,LP-UNEQ, LP-TIM, LP-RDI,LP-RFI,LSS SONET: LOS, LOF,OOF,AIS-L,RDI-L,AIS-P,LOP-P,TIM-P,PLM-P,UNEQ-P, RDI-P,LOM-V,AIS-V,LOP-V,PLM-V,UNEQ-V,RDI-V,TIM-V,LSS TCM: TC-LTC, TC-TIM,TC-UNEQ,TC-AIS,TC-RDI,TC-ODI Alarm generation: Continuous, Alternate, Burst
Errors	Error Injection and monitor SDH: FAS, B1,B2,MS-REI,HP-B3, HP-REI, LP-B3,LP-BIP2,LP-REI, Bit Error SONET: FAS, B1,B2,REI-L,B3, REI-P, B3-V,BIP2-V,REI-V, Bit Error TCM: TC-IEC, TC-BIP2,TC-REI,TC-OEI Error Injection: Continuous, Alternate, Rate, Single, Burst
BER Test Pattern	Pattern generation and monitor for O.181 bulk test pattern Test patterns supported: PRBS9, PRBS11,PRBS15,PRBS20.PRBS23,PRBS31 PRBS pattern support normal and inverted User defined patterns support 16-bit length step
Pointer	Support AU/TU, STS/VT pointer monitor and generation Support ITU-T G.783 pointer test sequences Display pointer value of receiver side
Overhead	Generation of section/transport and path overhead bytes Display of current section/transport and path overhead bytes All overhead can be decoded, including decoded J0, J1, J2 byte Just All overhead and anyone overhead PRBS BER (Including with DCC) testing 256 Frames overhead capture and decode
SDH Tributary Scan	DS1 signals embedded in selected VC-11 E1 signals embedded in selected VC-12 E3/DS3 signals embedded in selected VC-3 E4 signals embedded in selected VC-4
SONET Tributary Scan	DS1 signals embedded in selected VT-1.5 E1 signals embedded in selected VT-2 E3/DS3 signals embedded in selected STS-1 E4 signals embedded in selected STS-3c
Smart Scan	Remote single auto detects and auto setup for SDH Analyser
SDH and SONET Results	
Status	Current port information Alarms and errors on monitored line Input level indication for optical signals Actual bit rate Frequency deviation Frequency deviation
Statistics	Event log: Alarms (seconds and ratio), errors (count or count and rate), pointer operations, start/stop time, all events refresh with 1 second resolution
Histogram	All alarms and errors detected can be display in histogram, user can see all issues directly.



Error Performance	G.821/G.826/G.828/G.829/M.2100/M.2110/M.2101 analysis of received signals based on detected errors and alarms: ES, SES, BBE, AS, UAS and so on
APS	APS (Automatic Protection Switching) test and analysis APS switching time is measured Trigger events (user selectable) All SDH/SONET alarms and errors, Bit error, errors with threshold Number of switchovers indicated by APS protocol K1/K2 bytes set and displayed Resolution of SDH/SONET APS switching time measurement: 1us
Propagation Delay	Resolution: 0.1us
Measurement	Measurement Max. time: 10.0s

PDH and DSn Test

Test Port	PDH: E1, E3, E4 1 port DSn: DS1, DS3 1 port Connector: BNC, RJ48(Only for E1 interface)
Measurement Mode	Out-of-Service Mode In-Service Mode
General	E1: Complies with latest version ITU-T G.703 for 2048kbps DS1: Complies with latest version ANSI T1.102 for 1544kbps E3: Complies with latest version ITU-T G.703 for 34368kbps DS3: Complies with latest version ANSI for 44736kbps E4: Complies with latest version ITU-T G.703 for 139264kbps
Impedance	E1: 75Ω(unbalanced), 120Ω(balanced) DS1: 100Ω E3: 75Ω E4: 75Ω DS3: 75Ω
Line Code	E1: HDB3, AMI DS1: B8ZS, AMI E3: HDB3 DS3: B3ZS, E4: CMI
Framing	E1: Unframed, PCM30, PCM31, PCM30CRC, PCM31CRC DS1: Unframed, SF-D4, ESF E3: Unframed, Framed (G.751) DS3: Unframed, Framed E4: Unframed, Framed (G.751)
Transmitter Clock	Internal clock accuracy: 4.6 ppm Clock offset: ±125ppm (1 ppm steps) Recovered clock TTL Level external 2.048MHz clock E1: 2.048Mbps, DS1: 1.544Mbps
Receive Single Rate	±150ppm Frequency deviation indication resolution: ±1ppm



Impedance Mode	E1: Terminate, Monitor DS1: Terminate, Monitor E3: Terminate, Monitor DS3: Terminate, Monitor E4: Terminate
Alarms	Alarm generation and monitor E1: LOS, LOF, OOF, RAI, AIS, CRCLOFM, MFASOOF, LOFMFAS, MFASRAI, LSS DS1: LOS, LOF, OOF, RAI, AIS, LSS E3: LOS, LOF, AIS, RDI DS3: LOS, LOF, AIS, RAI, LSS, IDLE E4: LOS, LOF, AIS, RAI, LSS Alarm generation: Continuous, Alternate, Burst
Errors	Error injection and monitor E1: FAS, CRC4, E-BIT, Code, Bit DS1: FAS, Code, Bit, CRC6 E3: FAS, Bit DS3: FAS, C-BIT, P-BIT, FEBE, BIT E4: FAS, Bit Error injection: Continuous, Alternate, Rate, Single, Burst
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PDH and DS_n Results	
Status	Current information Alarms and errors on monitored line Input level indication Actual bit rate Frequency deviation
Statistics	Event log: Alarms (seconds and ratio), errors (count or count and rate), pointer operations, start/stop time, all events refresh with 1 second resolution
Histogram	All alarms and errors detected can be display in histogram, user can see all issues directly.
Error Performance	G.821/G.826/M.2100 analysis of received signals based on detected errors and alarms: ES, SES, BBE, AS, UAS and so on
APS	APS (Automatic Protection Switching) test and analysis APS switching time is measured Trigger events (user selectable) All PDH/DS _n alarms and errors, Bit error, errors with threshold Number of switchovers indicated by APS protocol Resolution of PDH/DS _n APS switching time measurement: 0.25ms
Propagation Delay Measurement	Resolution: 0.1us Measurement Max. time: 10.0s



ORDERING INFORMATION

Model	DTA-100A/B/C 155M/622M/2.5G SDH/SONET Analyser
Main Frame	
Platform	Modular intelligent network test platform
DTA-100A	155M SDH/SONET Analyser, support E1/E3/E4/STM-1, DS1/DS3/OC-3 electrical port and STM-1/OC-3 optical port testing
DTA-100B	622M SDH/SONET Analyser, support E1/E3/E4/STM-1, DS1/DS3/OC-3 electrical port and STM-1/STM-4, OC-3/OC-12 optical port testing
DTA-100C	2.5G SDH/SONET Analyser , support E1/E3/E4/STM-1, DS1/DS3/OC-3 electrical port and STM-1/STM-4/STM-16, OC-3/OC-12/OC-48 optical port testing
Standard accessory	
16080010	LC/PC to LC/PC full-duplex single-mode fiber, 3 meter, one
16060090	2M 75ohm BNC cable, two
14020090	1.25G 1310nm 15km LC SFP Optical Module, for DTA-100A/B, one
14020350	2.5G 1310nm 15km LC SFP Optical Module for DTA-100A/B/C, one
43170020	100-240V input and 19V output AC/DC Power Adapter, one
43160031	PLATFORM Lithium Polyme Rechargeable Battery, one
19070010	PLATFORM Package - one Factory Test Report - one Calibration Certification -one Year warranty card - one
Software Options	
OPAP-OHSeqCapture	256 frames SDH/OTN overhead capture and decode capability
OPAP-TCM	SDH N1 and N2 bytes for Tandem Connection Monitoring capability
Hardware Options	
43160031	PLATFORM Lithium Polymer Rechargeable Battery
14020160	1.25G SFP Optical Module, 850nm, 550m, SX
14020090	1.25G SFP Optical Module, 1310nm, 15km, LX
14020340	1.25G SFP Optical Module, 1550nm, 40km, ZX
14020350	2.5G SFP Optical Module, 1310nm, 15km, LX
14020380	2.5G SFP Optical Module, 1550nm, 80km, ZX
OPAP-Two warranty	Two years extended warranty service

* Specifications subject to change without notice

