Data Sheet

VIAVI
ONT-800 Optical Network Testers

Simplify and Accelerate High Speed Network Test in Lab and Production

The ONT-800 mainframe is a highly-configurable, multi-protocol, multi-port test platform for R&D and system verification of optical transport ICs, modules, and systems. The ONT-800 builds on its predecessor, the industry reference ONT-600, to deliver the bandwidth, power and cooling requirements for testing at 600G per lambda and beyond. The ONT family features multiple mainframe options and compatible application modules, ranging from "single-slot" point tools up to a full rack-mounted multi-slot, multi-port and multi-user solution that satisfies sophisticated R&D SVT and manufacturing needs. All application modules share the same GUI, automation and scripting, for ease of use and versatility throughout product development cycles.

ONT-800 Use Cases

- R&D design testing

- System development

- System Verification Testing

- Manufacturing Testing

ONT-800 Mainframe Features

- Designed to meet power & cooling for 400G optics

- Highest port density in the ONT family

- Compatible for ONT-600 modules

- One common architecture for SW Scripts on ONT family

- High accuracy clock module to synchronize modules and test ports

- ONT-804D with built in touchscreen

- Linux operating system

- Modules are hot swappable

- Rack mountable

ONT-800 Key Benefits

- Ensures eco-system interoperability

- Enables reliable performance

- Accelerates product validation

Test Automation

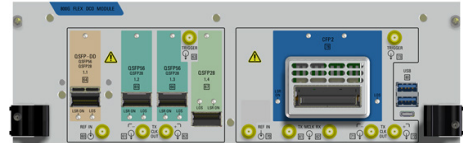Multi-user
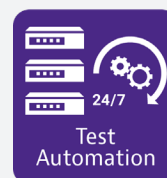
Available Modules for the ONT-800 Platform

800G FLEX Module

- Support for 2 x QSFP-DD / 6 x QSFP-56 / 8 x QSFP-28
- Ethernet 400GE and 200GE
- 4 x 100GE and 4 x 50GE breakout
- Hardware Validation
- FEC Validation including FEC Stress Testing
- Unframed, PCS and IP testing; FlexE/FlexO
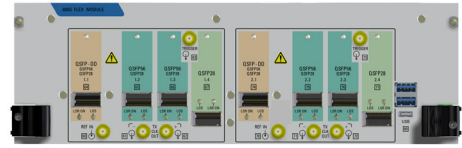
800G FLEX DCO Module

- Support for QSFP-DD, QSFP-56/28 and 400G CFP2-DCO
- Ethernet 400GE and 200GE
- 4 x 100GE and 4 x 50GE breakout
- FlexE/O
- OTUCn – OTUC1/ODUC1 to OTUC4/ODUC4

800G ETHERNET Module

- Support for 2 x QSFP-DD / 6 x QSFP-56 / 8 x QSFP-28
- Ethernet 400GE (IEEE 802.3bs) and 200GE (IEEE 802.3cd)
- 4 x 100GE and 4 x 50GE breakout
- Hardware Validation
- Unframed, PCS and IP testing
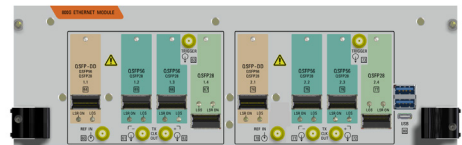
400G CFP8 and QFLEX Modules

- CFP8-based 400GE testing
- Unframed, PCS, Ethernet IP, OTUCn, FlexE and FlexO testing up to 400G via QSFP28 or CFP8
- Static and dynamic (NRZ) skew insertion
- PAM-4 and NRZ electrical adapters
- Support for QSFP-DD and OSFP via adapters
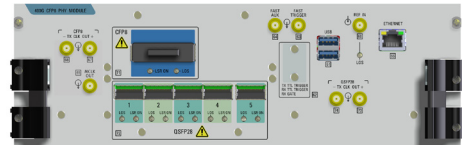
N-PORT Module

- Native support for 4 x SFP28 / 4 x QSFP28
- Ethernet including 10GE, 25GE, 40GE, 50GE and 100GE
- eCPRI over 10GE, 25GE, 40GE and 100GE
- OTN OTU-4, OTU-3, OTLC1, ODU Multi Channel
- Fibre Channel 16G and 32G
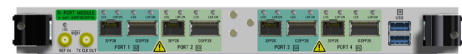
N-PORT ETHERNET Module

- Native support for 4 x SFP28 / 4 x QSFP28
- Ethernet including 10GE, 25GE, 40GE, 50GE and 100GE
- eCPRI over 10GE, 25GE, 40GE, 50GE and 100GE

40/100G CFP2 Dual Port Module

- CFP2-based 40GE, 100GE, and OTU3/4 testing
- Static and dynamic skew insertion
- Unframed, PCS, and Ethernet/IP testing
- Optional support for: OTU3, OTU3e1, OTU3e2, OTU4, and ODU multiplexing
- Support for CFP2, CFP2 DCO, QSFP28, and CFP4
- Access to electrical NRZ signals via adapters
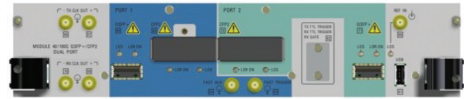
MTM-B Module

- Four fully independent SFP+/XFP ports
- 155 Mbps to 12.5Gbps unframed
- Ethernet: 10GE, 10GE WAN, 2.5GE, 1GE
- SDH/SONET: 155 Mbps – 9.9 Gbps
- SDH/SONET Multi-Channel
- OTN: OTU1, OTU2e/f and ODU Multi-Channel
- Fiber Channel: 1/2/4/8/10G FC
- CPRI Options 1 … 9

ONT-800 Mainframes

ONT-804D

- 4 slots for application modules
- 15″ TFT touch screen
- LINUX OS with support for VNC-based remote operation
- Runs stand-alone software like Wireshark
- Ideal for stand-alone lab use

ONT-804 and ONT-812

- 4 or 12 slots for application modules
- LINUX OS with support for VNC-based remote operation
- Runs stand-alone software like Wireshark
- Connectors for external keyboard, mouse, and display
- Ideal for cost-sensitive and scripted applications in SVT and manufacturing

Mainframe Specifications

Power supply (nominal range of use)

AC Line	ONT-804	ONT-804D	ONT-812	ONT-812A
Nominal voltage range	100 to 240 VAC			
Operating voltage range	85 to 265 VAC			
Operating frequency	50/60 Hz			
Max AC power (fully loaded mainframe)	1600 VA	1600 VA	4400 VA (2 x 2200 VA)	3200 VA (2 x 1600 VA)

Dimensions and weight (w/o modules)

Dimensions, including handle/bumpers (w x h x d)	400 x 200 x 495 mm	400 x 495 x 215 mm	483 x 666 x 460 mm	483 x 666 x 460 mm

Weight

	11.7 kg	14.2 kg	24 kg	24 kg

Touch screen display (ONT-804D only)

Color TFT	15 inches
Resolution	1024 x 768 (XGA)

Interfaces, storage, data transfer

Interfaces	Ethernet (RJ45), 4 x USB, external keyboard, mouse, HDMI
Processor	Intel, 16GB RAM
Hard drive for data/setup storage	≥ 64 GB

Instrument operation

The ONT-800 uses the Linux operating system and supports three types of operation:

Local GUI via built-in touch screen and by connecting screen/mouse/keyboard. Remote operation is provided via Java Web Start or VNC. Individual user programs may run on the controller board, for example Wireshark or similar tools used to analyze captured data.

Remote control for test automation

The ONT-800 can be controlled remotely via SCPI commands sent by the customer's program using the LAN port. Modules are addressed independently and in parallel and may be shared among multiple users. Universal driver libraries facilitate automation with specific support for individual applications. Scripting support is provided for Tcl/Tk, Python, C libraries, and LabView. The interactive GUI also works in parallel with remote control making it easy to develop automated scripts.

Ambient temperature

Nominal range of use	+5 to +35°C
Storage	−20 to +65°C
Transport	−20 to +65°C

Local Mini LCD display

Display type	Graphic LCD display 128 x 32 pixels
2 push buttons	Display and control: IP address and mainframe reference clock settings

Clock and synchronization

Internal master clock module accuracy	±1.0 ppm (Exceeds T1.101 stratum 3/3E accuracy)

External synchronization

Clock and time of day synchronization	NTP, PTP, external GPS, 1PPS, Time of Day
Connector, unbalanced	50 Ω, BNC jack
Clock source	DS1, E1; 1544, 2048 kHz, 1, 5, 10 MHz, 6312 kHz
Connector, balanced	110 Ω, Bantam jack
Clock source	DS1, E1; 1544, 2048 kHz, 1 MHz

Clock output	
Connector, unbalanced	50 Ω, BNC jack
Connector, balanced	110 Ω, Bantam jack
Clock frequencies	
E1, DS1, 2048 kHz, 1544 MHz	

GNSS synchronization and Rubidium oscillator (optional)

GNSS synchronization	
Antenna input [10]	Connector type: SMA 1.6/5.6, 50 Ω RF input power max. +10 dBm 3.0 V / 50 mA max
Supported satellite systems	GPS, Glonass, Beidou, Galileo
Time to first fix	< 30 s
Warm up time Rb oscillator	< 9 min to reach frequency accuracy better than ± 1E-9 at ambient temperature 25°C
Overall synchronization time	typical: < 60 min depends on satellite constellation and received signal quality
Time accuracy	< ± 2 ns (clear sky, good signal quality)
Frequency accuracy	< ± 1E-9 without receiving satellites (Rb oscillator) < ± 2E-8 during synchronization synchronized: long time stability of satellite system

Available ONT-800 Modules and their Capabilities

This table provides a portfolio overview to help you making the right module selection. Additional applications will be added over time, especially for the N-PORT and 400G/800G Modules.

	MTM-B	CFP2	N-PORT	400G CFP8	800G FLEX
Transponder Validation	Yes	Yes	Yes	Yes	Yes
PHY – Advanced Error Analysis		Yes		Yes	
Dynamic Skew Insertion		Yes		Yes	Yes
Electrical Adapter		Yes		Yes	Yes
400GE				Yes	Yes
200GE				Yes	Yes
100GE		Yes	Yes		Breakout 100GE
100GE - 802.3cd (NRZ)			Yes		
50GE		Yes	Yes		Breakout 50GE
40GE		Yes	Yes		
25GE		Yes	Yes		
10GE	Yes		Yes		
1GE, 2.5GE	Yes				
4 x 50GE/100GE breakout					Yes
1588 PTP/SyncE	Yes	Yes			
FlexE				Yes	Yes
FlexO/FOIC				Yes	Yes

	MTM-B	CFP2	N-PORT	400G CFP8	800G FLEX
OTN OTU 1/2	Yes	Yes			
OTN OTU 3/4		Yes	Yes		
MultiChannel OTN	Yes	Yes	Yes		
Fibre Channel up to 10G	Yes				
Fibre Channel 16G / 32			Yes		
CPRI	Yes				
eCPRI			Yes		
SONET/SDH	Yes	Yes	Yes, embedded in OTN		
SONET/SDH Multi-Channel	Yes				
Number of ports	4	2	4	1 - 4	2 - 8

ONT-800 Mainframes and Accessories

3078/04 ONT-804D	Mainframe with touchscreen display
3078/05 ONT-804	Mainframe without display, 19" / 21 " rack mount included
3078/07 ONT-812	Mainframe 12 slot rack mount version
3078/08 ONT-812A	Mainframe rack mount version for 110V AC with reduced power profile compared to ONT-812
3078/92.05	Rack Mount Kit 19" and 21" for ONT-804D
3078/92.02	ONT-800 Ultra-High Accuracy GNSS Rb Clock. Hardware option, can only be fitted in the factory

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• Maximize your time with on-demand training, priority technical application support and rapid service.

• Maintain your equipment for peak performance at a low, predictable cost.

Contact your local representative for more information on VIAVI Care Support Plan options or visit:

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Features

*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration	Accessory Coverage	Express Loaner
BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓

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