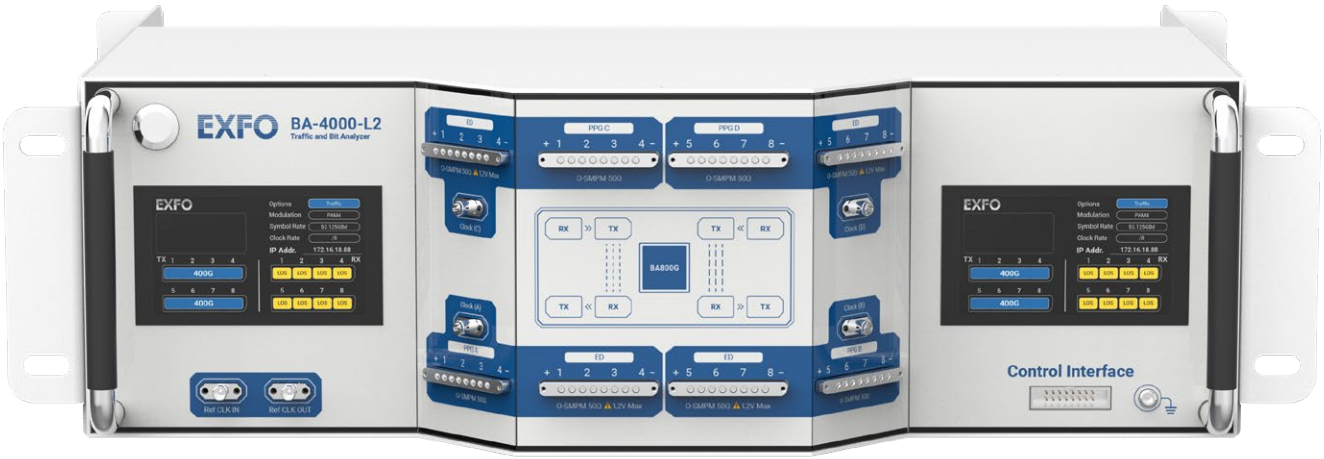
SPEC SHEET

BA-4000-L2 Traffic and Bit Analyzer

800G/1.6T TESTER OF L2 TRAFFIC PLUS L1 BER

- Combined L1 BER tester and L2 traffic analyzer for 800G DR4/FR4/LR4 optical engines.



KEY FEATURES

- Inherits BA-4000 signal integrity and BER test function
- Powerful and user-friendly graphical user interface (GUI)
- L2 frame test
- Real-traffic FEC analysis
- Supports breakout cable testing scenario
- Latency testing for AI/ML transceiver
- Supports various frame sizes from 64 to 16000

BA-4000-L2 READY FOR ADVANCED 800G TESTING

The BA-4000-L2 is an industry-leading 800G/1.6T traffic analyzer and BER tester from L2 system view.

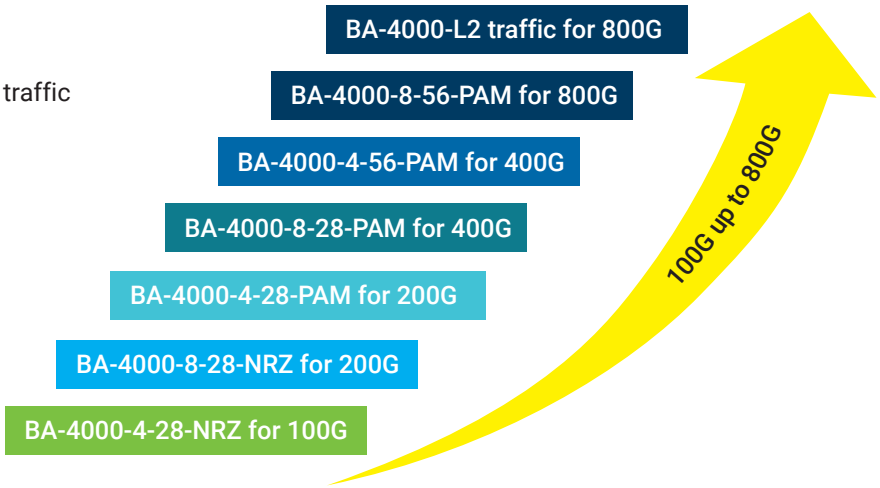


Figure 1. Part of the BA-4000 series of optical test solutions (from 100G to 800G+), the BA-4000-L2 features powerful layer-2 functions.

POWERFUL AND SIMPLIFIED USER INTERFACE

The BA-4000-L2 graphical user interface (GUI) provides simplified and real-time test results per channel. It requires an external Windows-based PC with Ethernet capability to run the GUI and API.

Figure 2. User-friendly GUI.

COMBINED L1 BER TESTER AND L2 TRAFFIC ANALYZER

The BA-4000-L2 supports up to 32-tap feed-forward equalizer (FFE). It detects intersymbol interference (ISI) and far-end reflection.

Figure 3. Detect ISI and far-end reflection.

Monitor key parameters such as Rx/Tx frame counts and line utilization. Real-time FEC analysis provides testing of pre/post FEC BER, symbol error distribution and FEC margin.

Figure 4. Test pre/post FEC BER, symbol error distribution and FEC margin.

SPECIFICATIONS

All specifications are typical, at 23 °C ± 2 °C unless otherwise specified.

TECHNICAL SPECIFICATIONS	
Interface	4×O-SMPM RF connector (67 GHz bandwidth)
Number of channels	8
Modulation	PAM4
Data rate per lane (GBd)	53.125
Unframed BERT (pattern supported by PPG)	PPRBS 9Q/11Q/15Q/23Q/31Q/SSPRQ and user-defined pattern
Unframed BERT (pattern supported by ED)	PRBS 9Q/11Q/15Q/23Q/31Q
Maximum amplitude (mV_{ppd})	800 [a, b]
PAM4 eye width (zero hit) (ps)	5.5 [a]
Ethernet frame L2 configurable into 2×400G or 8×100G	Tx/Rx frame counts Frame loss ratio Frame size 64 to 16000 bytes, EMIX supported Line utilization Frame size distribution Traffic shaping Alarms/Errors: link down, no traffic, pattern loss, LOA local fault detected, local fault received, remote fault, local degraded SER detected, local degraded SER received, remote degraded SER
L2 MAC address	Configurable
FEC statistics/distribution	FEC margin/distribution plot
Channel polarity	Support Tx/Rx invert
Tx pre-emphasis	7 taps (3 pre-cursors, a main cursor, and 3 post-cursors)
Unframed BERT (error injection)	Inject bit error in PRBS pattern
Sensitivity (mV_{ppd})	250 [c, d]
Rx equalizer	Auto adaptive CTLE, 32-tap FFE, and DFE
Rx equalizer tap value display	Display on dashboard
Clock output	For sampling scope & sync, and clock ratio /4,/8,/16,/32
Clock in	For sync with another unit to support 1.6 T (16×100G)
Low speed control interface I2C	Control transceiver with EXFO 800G MCB
Option – PCSA	
PCS error generation	FEC-UNCOR-CW, 66B Block, FEC-COR-CW, FEC-SYMB, Alignment marker errors
PCS information monitor	Pre-FEC BER/SER by PCS lanes, PCS lane mapping etc.
PCS skew generation and measurement	TBD
PCS alarms and errors	LOAML, Exc. Skew, Inv. Marker, Alarms Adv.
Latency measurement	2×400G, 8×100G, able to be turned on/off
Software latency	Set and align
Frequency offset injection	Unframed mode: ±300 ppm Framed mode: ±300 ppm
Frequency offset monitoring	Supported

GENERAL SPECIFICATIONS		
Size (H × W × D)		139 mm × 443 mm × 229 mm (5 ½ in × 17 ½ in × 9 in)
Weight		≤ 10 kg (22 lb)
Temperature	Operating Storage	5 °C to 40 °C (41 °F to 104 °F) –20 °C to 70 °C (–4 °F to 158 °F)
Relative humidity		20 % to 80 % (80 % for temperatures up to 31 °C decreasing linearly to 50 % at 40 °C)
Power		100 to 127 V, 50/60 Hz 200 to 240 V, 50/60 Hz 400 W max.

a. Measured by 50 GHz bandwidth scope with 50 GHz 2.4 mm, 15 cm RF cable.

b. Support overdrive 900 mVppd

c. Measured by direct loopback from PPG to ED with 67 GHz O-SMPM, 20 cm RF cable.

d. BER ≤ 10–10

ORDERING INFORMATION

BA-4000-XX-XX

Model
L2 = 800G 8-channel traffic analyzer and BER tester

Option
PCSA = Advanced PCS functions

Example: BA-4000-L2-PCSA

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