

## 100 Gbit/s Optical Module Evaluate Solution

All-in-one Instrument for BERT and Eye-Pattern Analysis  
BERTWave MP2110A

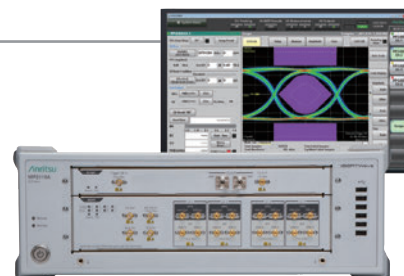


Data volumes are growing exponentially as providers offer new applications. On the other hand, data centers are trying to hold down system equipment costs while manufacturers of optical modules require less expensive but expandable test instruments supporting the transition from 10G to 25G and higher bit rates. The BERTWave MP2110A is targeted at production of optical module for 100 GbE/ 25 GbE and combines a BERT (Bit Error Rate Test) and Sampling Oscilloscope (Eye Pattern Analysis) in an All-in-one cabinet. It increases optical module production efficiency and helps reduce production costs.



### Flexible Configuration

- All-in-one: BERT + Sampling Oscilloscope
- Fast measurement: Simultaneous BER measurements and Eye pattern analysis
- Low price: Functions and performance for manufacturing
- Excellent usability: Simple GUI
- Compatibility: Command compatibility with MP2100A/B
- Stability: Stable built-in CPU



### Excellent Basic Functions

#### ■ Sampling Oscilloscope

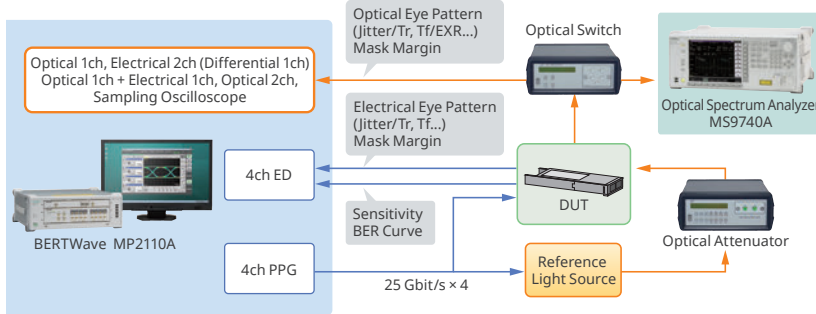
- Wide bandwidth  
Optical: 35 GHz (SMF), 25 GHz (MMF)  
Electrical: 40 GHz
- Fast sampling: 250 ksamples/s
- High sensitivity: -15 dBm (typ., SMF)
- Low noise O/E: 3.4  $\mu$ W (typ., SMF)
- Precision Trigger option: 200 fs rms (typ.)

#### ■ 4ch BERT

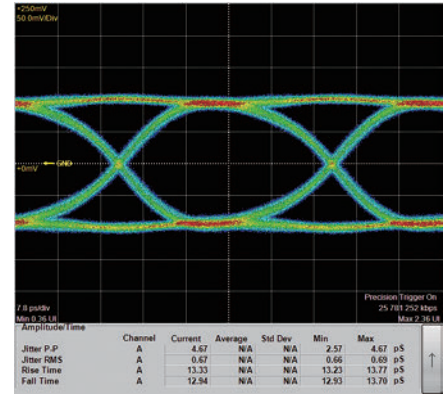
- Operation frequency: 24.3 Gbit/s to 28.2 Gbit/s
- High sensitivity ED: 25 mV (typ.)
- Selection of required channels from 1/2/4ch
- PPG with low Data Jitter (600 fs rms, typ.) and low waveform distortion

## Target Applications

- 25G/100G Optical Transceiver Module (CFP2/CFP4/QSFP28/SFP28)
- High-speed optical engine
- Active Optical Cable (AOC)/Direct Attached Cable (DAC)
- Optical devices (TOSA/ROSA)



## Typical Waveforms



25.78125 Gbit/s Electrical Loopback Waveform (PRBS 31, Amplitude 200 mV, Precision Trigger Option On)

## Specification

| BERT        |  |
|-------------|--|
| Bit Rate    | 24.3 Gbit/s to 28.2 Gbit/s<br>9.5 Gbit/s to 14.20 Gbit/s (MP2110A-093)                                     |
| Interface   | Differential, Channel: 1/2/4 ch (Option)   |
| Format      | NRZ  |
| Pattern     | PRBS 7, 9, 15, 23, 31,<br>1/2 Clock Pattern, 1/16 Clock Pattern  |
| Data Output | Amplitude : 0.1 V to 0.8 V (single)<br>Tr/Tf : 15 ps (typ., 20 to 80%)<br>Jitter (RMS) : 600 fs rms (typ.) |
| Data Input  | Sensitivity : 25 mVp-p (typ.)<br>Amplitude : 0.05 V to 0.8 V   |

| Scope          |                        |   |
|----------------|------------------------|---|
| Electrical     | Bandwidth (-3 dB)      | 40 GHz  |
|                | Flatness               | ±1 dB (10 MHz to 30 GHz, typ.)                  |
|                | Noise RMS              | 3.0 mV rms (typ.)                               |
| Optical        | Wavelength             | SMF: 860 nm to 1650 nm<br>MMF: 800 nm to 860 nm |
|                | Bandwidth (Unfiltered) | SMF: 35 GHz (typ.)<br>MMF: 25 GHz (typ.)        |
|                | Filter                 | 100 GbE, OTU4                                   |
|                | Sensitivity            | -15 dBm (typ., SMF)                             |
|                | Noise                  | 3.4 μW (typ., SMF)                              |
| Sampling Speed | 250 ksamples/s         |   |

## Ordering Information

Please specify the model/order number, name and quantity when ordering.  
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

| Model/Code  | Name   |
|-------------|--|
| MP2110A     | <b>Main Frame</b><br>BERTWave                |
| MP2110A-011 | <b>BERT</b><br>1ch BERT                      |
| MP2110A-012 | 2ch BERT                                     |
| MP2110A-014 | 4ch BERT                                     |
| MP2110A-093 | PPG/ED Bit Rate Extension                    |
| MP2110A-021 | <b>Oscilloscope</b><br>Dual Electrical Scope |
| MP2110A-022 | Dual Optical Scope                           |
| MP2110A-023 | Optical and Single-ended Electrical Scope    |
| MP2110A-025 | Optical Scope for Singlemode                 |
| MP2110A-026 | Optical Scope for Multimode                  |
| MP2110A-024 | Precision Trigger                            |

| Model/Code | Name   |
|------------|--|
|            | <b>Optional Accessory</b>                        |
|            | <Optical Switch>                                 |
| G0344F     | Optical Switch (1×4, SM9, FC/UPC)                |
| G0347F     | Optical Switch (1×4, GI62.5, FC/UPC)             |
| G0349F     | Optical Switch (2×4, GI62.5, FC/UPC)             |
|            | <Optical Attenuator>                             |
| G0350F     | Programmable Optical Attenuator (SM9, FC/UPC)    |
| G0354F     | Programmable Optical Attenuator (GI62.5, FC/UPC) |