

Emulation Instruments for System and Network Characterization

**Polarization Dependent Loss Source/Emulator- PDLPro™**



High speed fiber optic transceivers, including those deploying coherent detection technology for 40Gb/s and 100Gb/s data transmission, must meet stringent PDL tolerance specifications. In addition, the PDL tracking speed and response time of the PDL mitigation algorithm of a coherent detection receiver must be quantified. The PDLE-101 is specially designed for such PDL-related tests. This PDL source/emulator can generate individual PDL values between 0 dB and 20 dB, with a resolution of 0.1 dB for PDL tolerance testing. It can also generate variable PDL with user defined range, waveform, and speed for PDL tracking speed and recovery time tests. The instrument can be controlled via the front panel keypad or by remote control via USB, RS-232, GPIB, or Ethernet interfaces. The residual PMD of the unit is less than 0.1 ps.

**Specifications:**

|                                 |  |
|---------------------------------|--|
| Wavelength Range <sup>1</sup>   | C band or L band   |
| Insertion Loss (max.)           | 2 dB at PDL = 0, excluding connectors                              |
| PDL Dynamic Range <sup>2</sup>  | 0.1 to 20 dB   |
| PDL Resolution <sup>2</sup>     | 0.1 dB   |
| PDL Accuracy <sup>2</sup>       | ± (0.1 dB +1% of PDL)  |
| PDL Switching Time <sup>3</sup> | 5 ms max., 1 ms typical  |
| Residual PMD                    | < 0.1 ps at PDL = 0  |
| Return Loss                     | > 50 dB  |
| PDL Control                     | Front panel control or remote control with communication interface |
| PDL Waveforms                   | Sine, square, triangle, random                                     |
| Fiber Type                      | SMF-28   |
| Optical Connector Type          | FC/PC, FC/APC, SC/PC, or SC/APC                                    |
| Optical Power                   | 500 mW   |
| Damage Threshold                |  |
| Display                         | 2 x 20 character LCD   |
| Communication Interface         | USB, RS-232, Ethernet, and GPIB                                    |
| Operating Temperature           | 0 to 40 °C   |
| Storage Temperature             | -20 to 60 °C   |
| Electrical Power Supply         | 100 – 240 VAC, 50 – 60 Hz (16W)                                    |
| Dimensions                      | 2U, 19" half rack width, 14" (L) x 8.5" (W) x 3.5" (H)             |

**Features:**

- Large PDL range
- High speed
- High PDL resolution
- Low residual PMD
- PDL scanning
- Random PDL generation

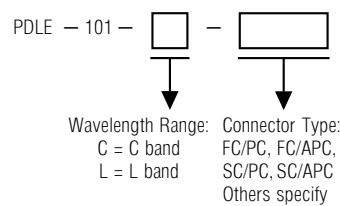
**Applications:**

- PDL tolerance test
- PDL tracking speed test
- PDL recovery time test
- PDL emulation
- Code development for PDL compensation in coherent systems
- System PDL response test

**Notes:**

1. Other wavelength ranges available upon request.
2. At 23 ± 5°C.
3. Rise time for square wave transition.

**Ordering Information:**



**Related Products:**

- PMD Source
- Multifunction Polarization Controller
- Polarization Measurement System
- Polarimeter
- PDL Multimeter
- Rack Mount Kit

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### Polarization Dependent Loss Source/Emulator- PDLPro™

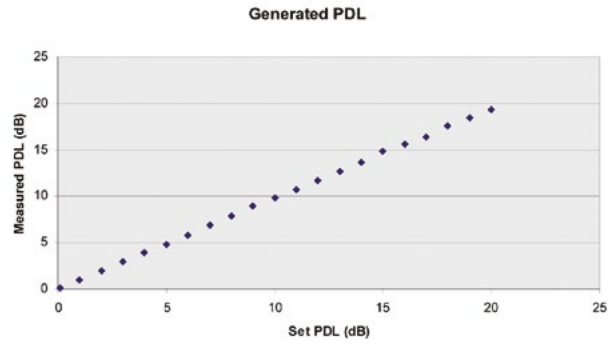
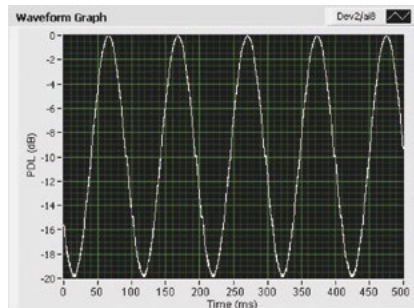
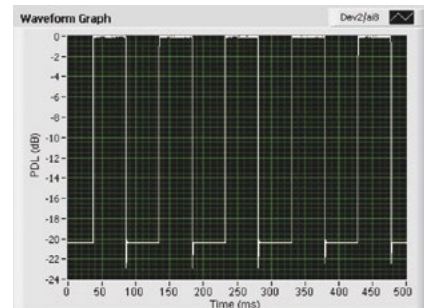


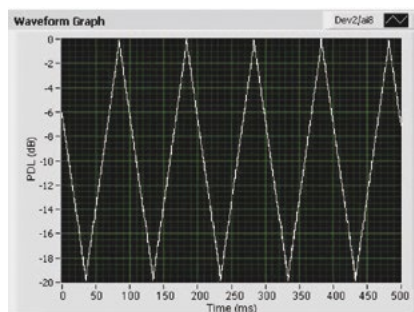
Figure 1. PDL generation accuracy: PDL generated by the PDLE-101 PDL Source/Emulator, measured using a PDL-101 PDL meter.



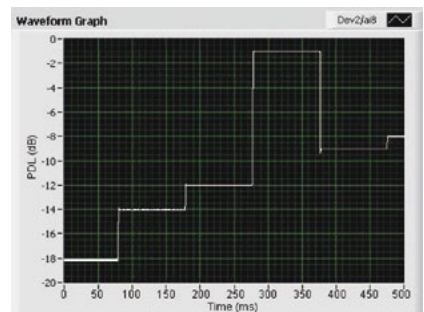
(a)



(b)



(c)



(d)

Figure 2. PDL variation functions for PDL tracking speed and recovery time tests: (a) Sine wave PDL variation (b) Square wave variation. (c) Triangle wave variation (d) Random-amplitude square wave variation.