# Laser Diode Driver (LDD) Module Specifications

| | 8505 | 8510 | 8530 | 8560 |
|---|---|---|---|---|
| **Laser Output** | | | | |
| Output Current Range (mA) | 0–500 | 0–1000 | 0–3000 | 0–6000 |
| Output Current Resolution (mA) | 0.0076 | 0.0153 | 0.0458 | 0.0916 |
| Output Current Accuracy[2] | ±(0.03% + 15 µA) | ±(0.03% + 30 µA) | ±(0.03% + 90 µA) | ±(0.03% + 180 µA) |
| Compliance Voltage (V) | 7 | 5 | 5 | 5 |
| Temperature Coefficient (ppm FS/°C) | <50 | | | |
| Short-Term Stability (1 h) (ppm FS) | <10 | | | |
| Long-Term Stability (24 h) (ppm FS) | <50 | | | |
| **Noise/Ripple (rms) (µA)[1]** | | | | |
| Hi BW | <8.0 | <10 | <15 | <25 |
| Lo BW | <4.0 | <8.0 | <10 | <25 |
| **Current Limit** | | | | |
| Range (mA) | 0–500 | 0–1000 | 0–3000 | 0–6000 |
| Resolution (mA) | 1 | | | |
| Accuracy (mA) | ±2 | ±2 | ±4 | ±6 |
| **Internal Function Generator** | | | | |
| Waveforms | Sinewave, Squarewave | | | |
| Frequency Range[3] | 200 Hz –300 kHz | | | |
| Squarewave Duty Cycle | 50 ±5% | | | |
| Independent Output Set Points | $I_{max}$, $I_{min}$ | | | |
| **Analog Modulation** | | | | |
| Input Range, Input Impedance | 0–10 V, 10 kΩ | | | |
| Transfer Function (mA/V) | 50 | 100 | 300 | 600 |
| Bandwidth (3dB ±10%), Hi (APC mode only) (kHz) | DC to 350 | DC to 250 | DC to 100 | DC to 100 |
| Bandwidth (3dB ±10%), Lo (APC mode) (kHz) | DC to 10 | | | |
| Bandwidth (3dB ±10%) (APC mode) (Hz) | DC to 20 | | | |
| **Photodiode Input** | | | | |
| Monitor Current Range (mA) | 0–5 | 0–5 | 0–20 | 0–20 |
| Monitor Current Stability (24 h) | ±0.02% FS | | | |
| Monitor Current Accuracy[2] | ±(0.004% + 0.5 µA) | ±(0.004% + 0.5 µA) | ±(0.004% + 1 µA) | ±(0.004% + 1 µA) |
| Temperature Coefficient | <0.02% FS/°C | | | |
| Photodiode Reverse Bias | 0–5 V ±10% | | | |
| **Measurement Display** | | | | |
| Output Current Range (mA) | 0–500.00 | 0–1000.0 | 0–3000.0 | 0–6000.0 |
| Output Current Resolution (mA) | 0.01 | 0.1 | 0.1 | 0.1 |
| Output Current Accuracy[2] | ±(0.02% + 20 µA) | ±(0.02% + 200 µA) | ±(0.02% + 200 µA) | ±(0.02% + 200 µA) |
| Forward Voltage Range (V) | 0.000–7.000 | 0.000–5.000 | 0.000–5.000 | 0.000–5.000 |
| Forward Voltage Resolution (mV) | 1 | | | |
| Forward Voltage Accuracy[2] | ±(0.005%+1 mV) | | | |
| Photodiode Current Range (µA) | 5–5000 | 5–5000 | 15–20,000 | 15–20,000 |
| Photodiode Current Resolution (µA) | 0.1 | | | |
| Photodiode Current Accuracy[2] | ±(0.01% + 0.5 µA) | ±(0.01% + 0.5 µA) | ±(0.01% + 1 µA) | ±(0.01% + 1 µA) |
| PD Response Range (µA/mW) | 0.00–600.00 | | | |
| PD Response Resolution (µA/mW) | 0.01 | | | |
| Optical Power Range (mW) | 0.00–500.00 | 0.00–1000.00 | 0.00–3000.00 | 0.00–6000.00 |
| Optical Power Resolution (mW) | 0.01 | 0.1 | 0.1 | 0.1 |

1) True rms, 3 Hz–300 kHz, 1/2 FS, resistive load
2) ± (x% Reading + Fixed Error)
3) Output current may begin to roll-off at higher frequencies