



LDD605 Laser Diode Driver



The LDD605 laser diode driver is a combination current and temperature controller with sophisticated front-panel menu operation and plain text computer command interface via ethernet and USB. A high-precision low-noise current source drives a wide range of diodes at up to 6 amps. The precision temperature controller, with flexible computer-defined PID response, provides 60 W capacity for a wide range of TEC devices. The LDD605 is designed for use with our MOA series of tapered amplifiers and high-power diodes for lasers and fibre amplifiers.

Features

- Low noise diode driver, 6 A at up to 7.8 V
- Precision temperature controller
- Fully adjustable digital PID temperature servo
- Peltier TEC driver, 60 W
- Current modulation, 40 kHz bandwidth
- External control via USB and ethernet
- Text command

Applications

- Laser cooling and trapping
- Bose-Einstein condensation
- Quantum optics: pump-probe
- Electromagnetic transparency and slow light
- Time and frequency standards
- Laser spectroscopy
- Physics teaching labs

Laser Diode Driver

Specifications LDD605 Rev 0.10

| Current | |
|-----------------------|---|
| Output current | LDD: 0 – 6A, ± 1 mA display/set point resolution |
| Set-point accuracy | <0.5% Error |
| Noise | TBD - below 100nA/ $\sqrt{\text{Hz}}$ (DC to 1MHz) |
| Compliance voltage | Max diode voltage 7.8V@6A |
| External modulation | 0 – 40kHz (-3 dB), 10mA/V, max 10Vp-p |
| Temperature | |
| Range | 0 – 80°C, ± 0.01 °C display/set point resolution |
| Set-point accuracy | ± 5 mK/°C |
| TEC power | ± 5 A, ± 12 V (60W) |
| Stability | ± 5 mK/°C |
| Sensor | NTC 10k Ω (provided), reads °C in all cases |
| Computer interface | |
| Ethernet | 10/100 TP, RJ45 |
| USB | USB2, plug type USB-A |
| Safety Features | |
| Key | Front panel key required for laser operation |
| Interlock | Rear interlock (3.5mm mono jack) for quick disable of laser current |
| Current limit | Laser current limit to avoid accidental diode over current |
| Temperature limit | Both high and low limits on temperature to ensure safe operation |
| Power and dimensions | |
| IEC input | 100/110/120V or 220/240V, 50/60 Hz, 1A |
| Dimensions | 250mm x 79mm x 292mm (WxHxD), 2.4kg |
| General | |
| Current connector | DE15 high density - 15 pin connector |
| Temperature connector | DB9 - 9 pin connector |
| Display type | 128 x 64 LCD Graphic Display |