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LDD605 Laser Diode Driver
ILD605 Injection Locking Controller

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 MSA/MOA series of tapered amplifiers and high-power diodes for lasers and fibre amplifiers.

The ILD605 is a variant of the LDD605 that is enhanced with algorithms to autonomously operate the MOGLabs injection lock amplifier (ILA).

Features

- Low noise diode driver, 8 A at up to 5 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 0.41

Current	
Output current	LDD: 0 – 8A, ±1mA display/set point resolution (ILD: ±0.1mA)
Set-point accuracy	<0.5% Error
Noise	TBD
Compliance voltage	Max diode voltage 5V@6A
External modulation	0 – 40kHz (–3dB), 40mA/V, max 10Vp-p
Temperature	
Range	-20°C to +80°C, ±0.01°C display/set point resolution
Set-point accuracy	±10 mK/°C
TEC power	±5A, ±12V (60W)
Stability	±10mK/°C
Sensor	NTC 10kΩ (provided)
Computer interface	
Ethernet	10/100 TP, RJ45
USB	USB2.0, plug type USB-A
Safety Features	
Key	Front panel key required for laser operation
Interlock	Rear interlock (3.5mm mono jack) for quick laser current
Current limit	Laser current limit to avoid accidental diode over current
Temperature limit	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
Power consumption	18W standby 30/75W with 1A@2V diode and low/high TEC load 65/110W with 6A@2V diode and low/high TEC load
General	
Current connector	DE15 high density - 15 pin connector
Temperature connector	DE9 - 9 pin connector
Display type	2.8” 240x320 TFT colour LCD

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