



Available in:
 ✓ Production Quantities
 ✓ Custom Configurations

Precision Diode Laser Drivers

- Up to 3 A of low-noise drive current
- Integral thermoelectric cooler controller
- Up to 1 MHz analog modulation capability
- IEEE 488.2 interface
- Over 20 context-sensitive multiparameter displays
- CE compliant.

The 06 DLD 203A and 06 DLD 205 diode laser drivers combine microprocessor-driven low-noise current sources with precision TE temperature controllers. They feature constant-current and constant-power modes of operation, modulation capability, and the ability to preset all laser and temperature values prior to turning on the diode laser. The 06 DLD 203A is compatible with any diode laser requiring 300 mA or less of drive current. The 06 DLD 205 can provide up to 3 A of drive current for high-power applications.

LOW-NOISE CURRENT SOURCE

The 06 DLD 203A and the 06 DLD 205 have been carefully designed to provide the utmost in low-noise, stable current output. The output is fully floating, allowing case grounding of any diode laser. Two user-selectable bandwidth ranges allow the driver to be optimized for maximum bandwidth with minimal output-current noise.

An external modulation signal can be applied to the front-panel input for remote linear control of either the operating current or optical output power. The low-bandwidth option minimizes noise in continuous-wave or nearly-continuous wave applications.

PRECISION TEMPERATURE CONTROLLER

The TE cooler controller is integrated into the 06 DLD 203A and 06 DLD 205 interfaces with standard TE cooler modules, thermistors, and integrated circuit temperature sensors, to control the diode laser temperature from -35°C to $+60^{\circ}\text{C}$ with a 0.01°C resolution. An adjustable cooler current limit prevents devices from being accidentally overdriven, and intuitive front-panel controls make temperature sensor selection easy.

2× 16 CHARACTER ALPHANUMERIC DISPLAY

The 06 DLD 203A and 06 DLD 205 diode laser drivers include a two-row, 16 character-per-row backlit LCD. This highly visible display, along with the intuitive front-panel controls, simplifies the setup and operation of diode lasers. Over 20 context-sensitive screens

are available, depending on the mode chosen. For example, the laser current, photocurrent, and laser voltage are simultaneously displayed for maximum convenience. Similarly, the set point and actual temperature are displayed when thermoelectric cooling is used.

SETUP AUTOSAVE

Upon power-down, the driver saves its entire configuration menu to non volatile memory. This eliminates the need to reconfigure the unit for each session. Saved parameters include laser and photocurrent level and gain setting, current limit, active mode, bandwidth, external output configuration, temperature sensor type, TE cooler current limit, and temperature set point.

MONITOR CAPABILITIES

Any laser or temperature parameter displayed on the front-panel LCD may also be externally monitored via a front-panel BNC connector. This isolated high-speed port is useful for monitoring the dynamic properties of displayed values.

DIODE LASER PROTECTION

These drivers are equipped with an adjustable current limit setting. Once set, this limit cannot be exceeded. In addition, soft-start circuitry slowly applies current to the laser upon power-up and likewise removes it during power-down. The unit is compatible with all diode laser pin configurations, and the floating output permits case grounding of any type of laser.

CUSTOM DIODE DRIVERS

Melles Griot can design and manufacture diode laser drivers, including current sources, TE cooler drivers, and integrated detectors and detector amplifiers, that are customized for specific OEM applications. Contact your local Melles Griot office for more information.

SPECIFICATIONS: PRECISION DIODE LASER DRIVERS**06 DLD 203A 06 DLD 205**

	06 DLD 203A	06 DLD 205
Constant Current Mode		
Current Ranges:	5–100 mA 5–300 mA	10–1000 mA 30–3000 mA
Resolution:	100 μ A	0.1/1 mA
Temperature Coefficient:	<50 ppm/ $^{\circ}$ C	<100 ppm/ $^{\circ}$ C
Drift: (over 1 hour @25$^{\circ}$C)	<10 ppm	<100 ppm
Analog Modulation:	dc–1.0 MHz	dc–150 kHz
Noise (rms):		
Low Bandwidth:	<1.5 μ A	<15 μ A
High Bandwidth:	<4.9 μ A	<20 μ A
Constant Power Mode		
Range:	0.10–10 mA	0.01–10 mA
Resolution:		
Photo-low:		1 μ A
Photo-high:		10 μ A
Temperature Coefficient:		<100 ppm/ $^{\circ}$ C
Drift: (over 1 hour @25$^{\circ}$C)		<10 ppm
Analog Modulation:	dc–500 kHz	dc–50 kHz
Other Parameters		
Voltage Compliance:		5 Vdc
Display Accuracy (full scale):		\pm 0.2% (full scale)
Current Limit:		
Ranges:	10–300 mA	30–3000 mA
Accuracy (full scale):		\pm 1%
Resolution:		1 mA
Overshoot:		<3%
Temperature Controller		
Maximum Current:	2 A	4 A
Maximum Voltage:		8 V
Read Resolution:		10 mA
Read Accuracy:		\pm 50 mA
Current Limit Range:	0.1–2 A	0.1–4 A

General Information

Dimensions (W \times H \times D):	180 mm \times 300 mm \times 105 mm (7.1 in. \times 11.8 in. \times 4.1 in.)
Weight:	4.4 kg (9.7 lb)
Power Requirements:	100 Vac \pm 10%, 120 Vac \pm 10%, 220 Vac \pm 10%, 240 Vac \pm 10%, 50–60 Hz
Operating Temperature Range:	+5 $^{\circ}$ C to +40 $^{\circ}$ C
Storage Temperature Range:	–40 $^{\circ}$ C to +70 $^{\circ}$ C
Safety:	Complies with CDRH US21 CFR 1040.10 CE compliant

Precision Diode Laser Drivers

	PRODUCT NUMBER
Precision 300-mA Diode Laser Driver with IEEE 488.2 interface	06 DLD 203A/IEEE
Precision 3A-Diode Laser Driver with IEEE 488.2 interface	06 DLD 205/IEEE
Cable, 10-nsec rise time high-frequency	06 DLH 001
Cable, 100-kHz with flying leads	06 DLH 005
Cable, "Y", 8-pin female to 5- and 8-pin female	06 DLH 007
Cable, 56 DOL Laser Assemblies	56 DLH 001

Note: Melles Griot designs and develops OEM precision diode laser drivers. Contact your local Melles Griot office for more information.