

MLC8100-8AG - December 21, 2017

Item # MLC8100-8AG was discontinued on December 21, 2017. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

PRO8 LASER DIODE MULTI CHANNEL CONTROL MODULES

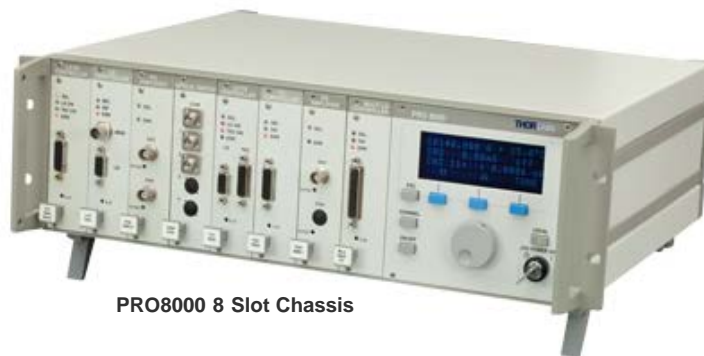
- ▶ Simultaneous Current Control for 8 Diodes
- ▶ Currents up to 200 mA
- ▶ Extensive Laser Diode Protection Features



MLC8025-8AG Modules



Easy-to-Read Display
For Operation, No PC is Required



PRO8000 8 Slot Chassis

OVERVIEW

8 Models To Choose From:

- 2 Versions (AG, CG): ± 5 mA & ± 25 mA Multi Channel Laser Diode Controller Modules: MLC8025
- 2 Versions (AG, CG): ± 10 mA & ± 50 mA Multi Channel Laser Diode Controller Modules: MLC8050
- 2 Versions (AG, CG): ± 25 mA & ± 100 mA Multi Channel Laser Diode Controller Modules: MLC8100
- 2 Versions (AG, CG): ± 50 mA & ± 200 mA Multi Channel Laser Diode Controller Modules: MLC8200

(AG = Anode Grounded, CG = Cathode Grounded)

Features:

- Independent Injection Current Control for 8 Laser Diodes by one Single MLC8000 Module
- Operation of up to 64 Laser Diodes with one PRO8000 Chassis
- Each Module Supports 2 Current Ranges: ± 5 /25 mA, ± 10 /50 mA, ± 25 /100 mA, ± 50 / 200 mA
- Support for Constant Current (CC) and Constant Power (CP) Mode
- Hardware Injection Current Limit (Common for All 8 Lasers)
- Laser Diode Polarity: AG or CG (Fixed Factory Setting)
- Both Polarities (AG or CG) of Monitor Diode are Supported
- Laser Protection can be Coupled to a Temperature Window (if TED8000 Modules are Present within the Same PRO8000 Mainframe)
- Multiple Built-In Laser Diode Protection Features
- All Models Occupy 1 PRO8 Slot

Introduction - MLC8000 Series Multi-Laser Controllers

The MLC8000 Series Laser Diode Controller Modules for the PRO8 platform are designed to control up to eight lasers from a single laser diode controller

module. When fully populated, a PRO8000 Chassis can simultaneously power up to 64 laser diodes.

Burn-In System Applications

The **MLC8000 Series Modules** have been designed for burn-in applications. The high density (64 lasers / chassis) drive capability coupled with the user-friendly advanced control features of the **PRO8000 Mainframe** make this product line an ideal choice for this application. This series provides eight different maximum drive current ranges. The **PRO8000 Chassis** can support up to a total of 16 A of laser diode drive current - the sum of the output drive currents from all installed modules - and can therefore easily support the demands of driving 64 lasers at 200 mA each. These modules have been field proven in demanding applications for many years.

Intuitive User-Friendly Controls

Each module provides eight independent outputs in which the laser injection current can be individually set for each laser. The current range, the hardware current limit and the operating mode (constant current or constant power mode) is set per module and thus is common for all 8 channels. The various modules of the **MLC Series** can be mixed and matched, along with modules from other **PRO8 Series Modules**, into any of the two chassis to implement a large variety of systems.

The PRO8 display menu allows to configure any module in the chassis individually. Mnemonic symbols provide user-friendly access to all operational parameters. All settings are retained in memory and automatically recalled upon powering on the mainframe as long as modules are not being moved to a different slot.

The polarity of the laser diodes (AG or CG) is factory fixed. The eight outputs are switched on together, the current control or power control is independent for each channel.

Built-in Laser Diode Protection

The **MLC8000 Series Modules** incorporate proven laser protection features to safeguard sensitive laser diodes. These features include a hardware current limit, a soft start circuit, and an interrupt sensing circuit that can detect a break in the connectors going to the laser diode, and then shut the driver down. Additionally, extensive precautions have been taken to protect the laser diodes during AC power interruptions or outage. When switched off, all lasers are electronically shorted.

The current limit is accessed via a front panel trim-pot which reduces the risk of accidental adjustment.

After activating the laser power, a soft-start function smoothly increases the laser current, preventing overshoots.

Even in case of an AC power interruption, the laser current remains transient-free. Voltage peaks on the AC line are effectively suppressed by electronic filters, shielding of the transformer, and careful grounding of the modules and chassis. The **MLC8000 Series** meets the international requirements regarding laser protection (e.g. CDRH US21 CFR 1040.10). All models include a key-operated power switch and interlock.

Connection Cables

For the **MLC8000 Series** there are no standard connection cables available. The corresponding male pins are 22-Gauge wire.

For further information, please contact our Tech Support Team.

S P E C S

| Item # (8 Channels Per Module) | MLC8025-8 | MLC8050-8 | MLC8100-8 | MLC8200-8 |
|--|--|------------------------------|-------------------------------|-------------------------------|
| Current Control | | | | |
| Current Range (2 Switchable Ranges) | 0 to 5 mA and 0 to 25 mA | 0 to 10 mA and 0 to 50 mA | 0 to 25 mA and 0 to 100 mA | 0 to 50 mA and 0 to 200 mA |
| Laser Diode Polarity | Fixed, Either Anode Ground (AG) ^a or Cathode Ground (CG) ^b | | | |
| Compliance Voltage | ≤4 V | | | |
| Setting Accuracy | ±15 µA / ±75 µA | ±30 µA / ±150 µA | ±75 µA / ±300 µA | ±150 µA / ±600 µA |
| Resolution | 1.2 µA / 6 µA | 2.5 µA / 12 µA | 6 µA / 25 µA | 12 µA / 50 µA |
| Noise Without Ripple (10 Hz to 10 MHz), Typical | <0.5 µA / <0.5 µA | | <0.5 µA / <1 µA | <0.5 µA / <1.5 µA |
| Ripple (50 Hz, rms), Typical | <0.5 µA / <0.5 µA | | <0.5 µA / <1 µA | |
| Transients (Other, Typical) | <25 µA | <50 µA | <100 µA | <200 µA |
| Drift (60 min, 0 to 10 Hz), Typical | <0.3 µA / <1 µA | <0.5 µA / <1.5 µA | <1 µA / <3 µA | <1.5 µA / <5 µA |

| | | | | |
|--------------------------------|--|----------------------------|-----------------------------|-----------------------------|
| Temperature Coefficient | <50 ppm / °C | | | |
| Power Control | | | | |
| Control Range of Photo Current | 5 µA to 2 mA | | | |
| Accuracy | ±6 µA | | | |
| Resolution Photo Current | 0.5 µA | | | |
| Reverse Bias Voltage | 0 V / 5 V (Wireable) | | | |
| Current Limit | | | | |
| Setting Range (20-Turn Pot) | 0 to 5 mA / 0 to 25 mA | 0 to 10 mA / 0 to 50 mA | 0 to 25 mA / 0 to 100 mA | 0 to 50 mA / 0 to 200 mA |
| Resolution | 1.2 µA / 6 µA | 2.5 µA / 12 µA | 6 µA / 25 µA | 12 µA / 50 µA |
| Accuracy | ±50 µA / ±125 µA | ±100 µA / ±250 µA | ±0.25 mA / ±0.5 mA | ±0.5 mA / ±1 mA |
| General Data | | | | |
| Connector | 44-pin HD D-Sub (F) (for Laser Diode, Photodiode and General Interlocks, etc.) | | | |
| Module Width | 1 PRO8 Slot | | | |
| Weight | <500 g | | | |
| Operating Temperature | 0 to 40 °C | | | |
| Storage Temperature | -40 to +70 °C | | | |

- a. AG: Laser Anode Grounded
- b. CG: Laser Cathode Grounded

All Data Valid at 23 ± 5 °C and 45 ± 15% Relative Humidity

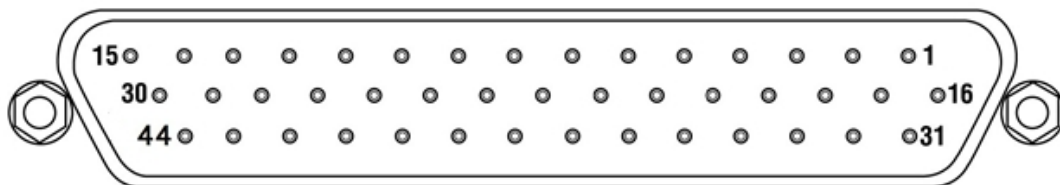
SHIPPING LIST

The following parts are included together with each of our MLC8000 Series Multi Channel Current Controllers:

- MLC8000 Series Multi Channel Current Controller Module
- Operating Manual

PIN DIAGRAMS

Output Connector
Anode Ground Version (Cathode Ground Version)



| Pin | Designation | Pin | Designation |
|-----|---|-----|---|
| 1 | +5 V | 23 | LD5A anode of laser # 5 (LD5C cathode of laser # 5) |
| 2 | -5 V | 24 | LD4A anode of laser # 4 (LD4C cathode of laser # 4) |
| 3 | LD8C cathode of laser # 8 (LD8A anode of laser # 8) | 25 | GND |
| 4 | PD7A anode photodiode # 7 (PD7C cathode photodiode # 7) | 26 | LD3A anode of laser # 3 (LD3C cathode of laser # 3) |
| 5 | LD7C cathode of laser # 7 (LD7A anode of laser # 7) | 27 | LD2A anode of laser # 2 (LD2C cathode of laser # 2) |
| 6 | LD6C cathode of laser # 6 (LD6A anode of laser # 6) | 28 | GND |

| | | | |
|----|---|----|---|
| 7 | PD5A anode photo diode # 5 | 29 | LD1A anode of laser # 1 (LD1C cathode of laser # 1) |
| 8 | LD5C cathode of laser # 5 (LD5A anode of laser # 5) | 30 | GND |
| 9 | LD4C cathode of laser # 4 (LD4A anode of laser # 4) | 31 | GND |
| 10 | PD3A anode photo diode # 3 | 32 | PD8C cathode photodiode # 8 |
| 11 | LD3C cathode of laser # 3 (LD3A anode of laser # 3) | 33 | PD8A anode photodiode # 8 |
| 12 | LD2C cathode of laser # 2 (LD2A anode of laser # 2) | 34 | PD7C cathode photodiode # 7 |
| 13 | PD1A anode photo diode # 1 | 35 | PD6C cathode photodiode # 6 |
| 14 | LD1C cathode of laser # 1 (LD1A anode of laser # 1) | 36 | PD6A anode photodiode # 6 |
| 15 | Interlock to be shortened to any GND pin | 37 | PD5C cathode photodiode # 5 |
| 16 | GND | 38 | PD4C cathode photodiode # 4 |
| 17 | GND | 39 | PD4A anode photodiode # 4 |
| 18 | LD8A anode of laser # 8 (LD8C cathode of laser # 8) | 40 | PD3C cathode photodiode # 3 |
| 19 | GND | 41 | PD2C cathode photodiode # 2 |
| 20 | LD7A anode of laser # 7 (LD7C cathode of laser # 7) | 42 | PD2A anode photodiode # 2 |
| 21 | LD6A anode of laser # 6 (LD6C cathode of laser # 6) | 43 | PD1C cathode photodiode # 1 |
| 22 | GND | 44 | LEDA out for a LED to show the on/off status |

| Part Number | Description | Price | Availability |
|-------------|--|------------|--------------|
| MLC8025-8AG | PRO8000 Multi Channel Laser Diode Controller, $\pm 5\text{mA}$ & $\pm 25\text{ mA}$, AG, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8025-8CG | PRO8000 Multi Channel LD Controller, $\pm 5\text{mA}$ & $\pm 25\text{ mA}$, Cathode Ground, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8050-8AG | PRO8000 Multi Channel Laser Diode Controller, $\pm 10\text{mA}$ & $\pm 50\text{ mA}$, AG, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8050-8CG | PRO8000 Multi Channel Laser Diode Controller, $\pm 10\text{mA}$ & $\pm 50\text{ mA}$, CG, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8100-8AG | PRO8000 Multi Channel Laser Diode Controller, $\pm 25\text{mA}$ & $\pm 100\text{ mA}$, AG, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8100-8CG | PRO8000 Multi Channel Laser Diode Controller, $\pm 25\text{mA}$ & $\pm 100\text{ mA}$, CG, 1 Slot Wide | \$1,279.00 | Lead Time |
| MLC8200-8AG | PRO8000 Multi Channel Laser Diode Controller, $\pm 50\text{mA}$ & $\pm 200\text{ mA}$, AG, 1 Slot Wide | \$1,309.00 | Lead Time |
| MLC8200-8CG | PRO8000 Multi Channel Laser Diode Controller, $\pm 50\text{mA}$ & $\pm 200\text{ mA}$, CG, 1 Slot Wide | \$1,309.00 | Lead Time |