Laser Diode/TEC Controllers – Benchtop Kit

up to 1A laser current, , constant current/power mode, up to 2A TEC current, ultra-stable feedback control

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The Agiltron LDCB Series Benchtop is a versatile laser diode and TEC controller kit, designed for customer-installed laser diodes mounted either inside or on top of the unit. It supports three types of pluggable laser mounts — Butterfly, DIL, and TOCAN — accommodating most diode packages. The TOCAN mount includes an external TEC to maintain constant case temperature for wavelength stability. Featuring high-precision, low-noise drive electronics, the LDCB offers both constant current mode for diodes without an internal photodetector and auto-feedback mode for stabilized output power using an internal photodiode. An integrated temperature control unit maintains optimal operating conditions for diodes with either internal or external TECs (within Agiltron mount). The system delivers up to 1A of driving current and 2A of TEC cooling current. User control is intuitive via an LCD display and two front-panel knobs for independent adjustment of output power and temperature. The LDCB includes a universal 100–240 VAC power supply and convenient rear-panel fuse access.

Features

- Compact
- Easy to User
- LD Current up to 1A
- Compatible with All Laser Types
- Adjustable Laser Diode Current
- Constant Current or Constant Power
- Ultra-Stable Feedback Control

Applications

- Laser Modules
- Laboratory Use
- Systems

CE

Specifications

Parameter		Min	Typical	Max	Unit
Output Laser Control Current				1	A
Noise Ripple			150	180	µA RMS
Stability [1]	1hr	0.08			%
	24hr	0.04			
Slow Start Ramp		15			mA/msec
External Modulation Bandwidth [1]		DC		500	kHz
External Modulation Depth [2]		97			%
External Modulation Rise/Fall [3]		300		-	ns
Power Supply Voltage		4.5	5	6	V
Power Supply Current				6	A
Internal Power Dissipation [4]				2	W
Operating Temperature		-40		80	°C
Storage Temperature		-60		85	°C
TEC Control Current				2.2	A
Lase Temperature Stability [4]		0.02		0.3	°C

Notes:

[1] Constant current

[2] 100 kHz since wave

[3] laser current 500 mA

[4] 25°C

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All versions of this laser are Class 1M laser products, tested according to IEC 60825-1:2007 / EN 60825-1:2007. An additional warning for Class 1M laser products. For diverging beams, this warning shall state that viewing the laser output with certain optical instruments (for example eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. For collimated beams, this warning shall state that viewing the laser output with certain instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.

Wavelength = 1.3/1.5 µm. Maximum power = 30 mW.

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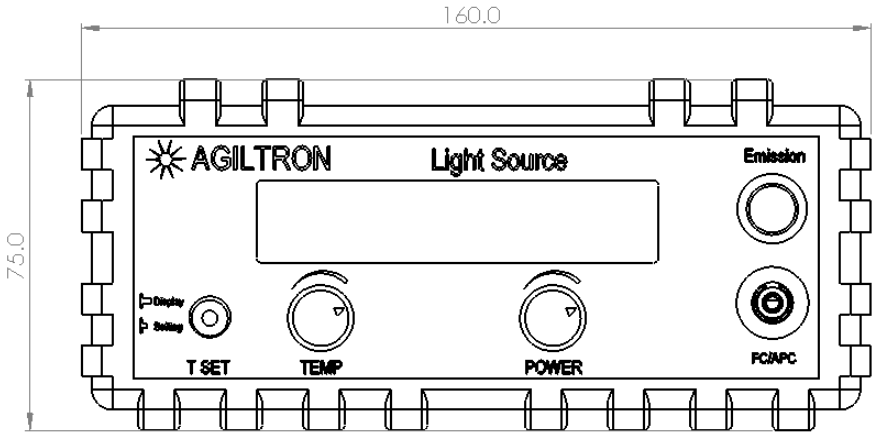
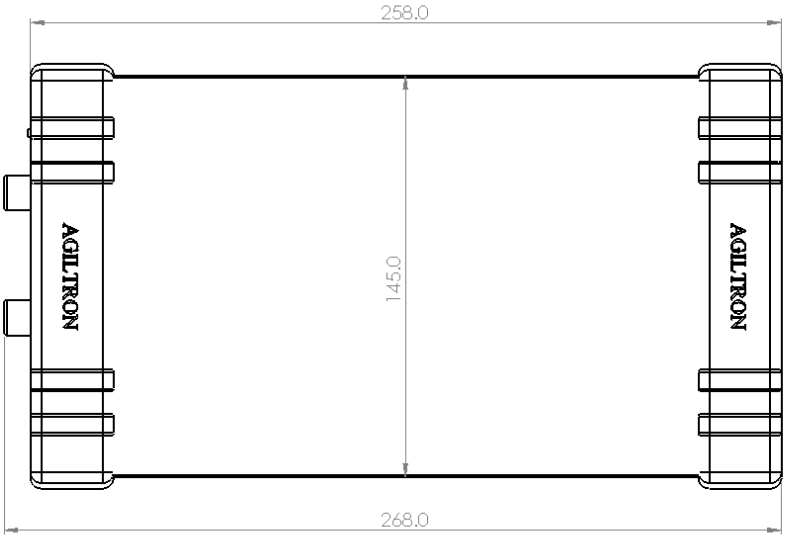
Mechanical Dimension (mm)





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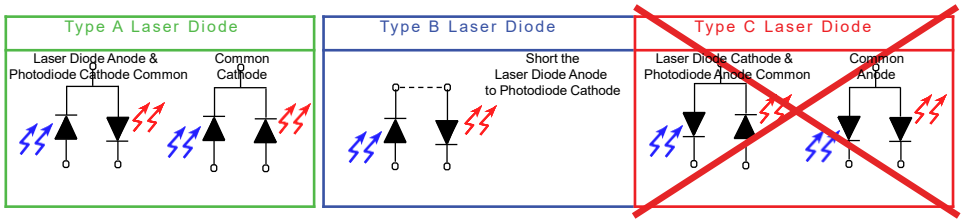
Connection Guide

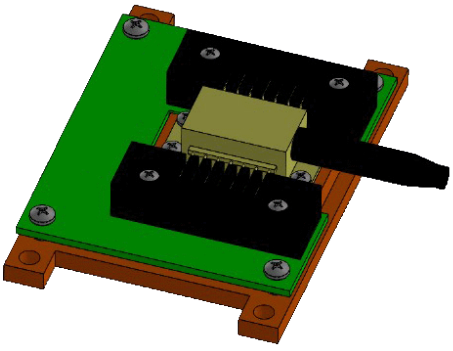
Note: only suitable to driver lasers with connection type of A and B of both butterfly and TOCAN packages

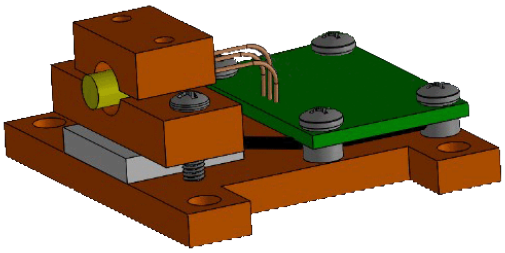


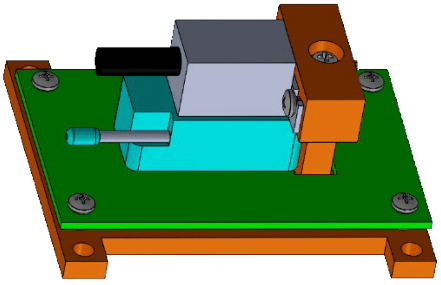
Laser Mounts

Note: we offer laser mounts for butterfly, DIL, and TOCAN packages with cable direct connect to the LDCD laser driver module

- Butterfly
- TOCAN with external TEC cooling
- 14-pin DIL







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Operation Manual

- EN/DIS Enable or Disable Laser Control
- LLIM Hard Setting the Maximum Laser Current Limit
- ISET Set the Laser Current for Internal Control Mode
- TLIM Hard Setting the Maximum TEC Current

Ordering Information (Part Number) System

	1	1	1	☐	☐	1	2	1	☐
Prefix	**Configuration**	**Laser Current**	**TEC Current**	**Type**	**Modulation**		**Package**	**Power Supply**	**Laser Mount**
LDCB-	Standard = 1 Special = 0	1A = 1 Special = 0	2.2A = 1 Special = 0	Diode Inside = 1 Diode on Cover = 2	Non = 1 Yes = 2		Benchtop = 2 Special = 0		TOCAN A = 1 Butterfly A = 2 Butterfly B = 3 Butterfly C = 4 TOCAN B = 5 DIL A = 6 DIL B = 7

Red is non-standard specially made at a higher cost

Caution Extremely Electrostatic Sensitivity

- Never touch laser diode and the module using hands
- Always use protections when handle a laser diode
- Recommend mounting the laser diode using an ionic gun and ESD finger cots

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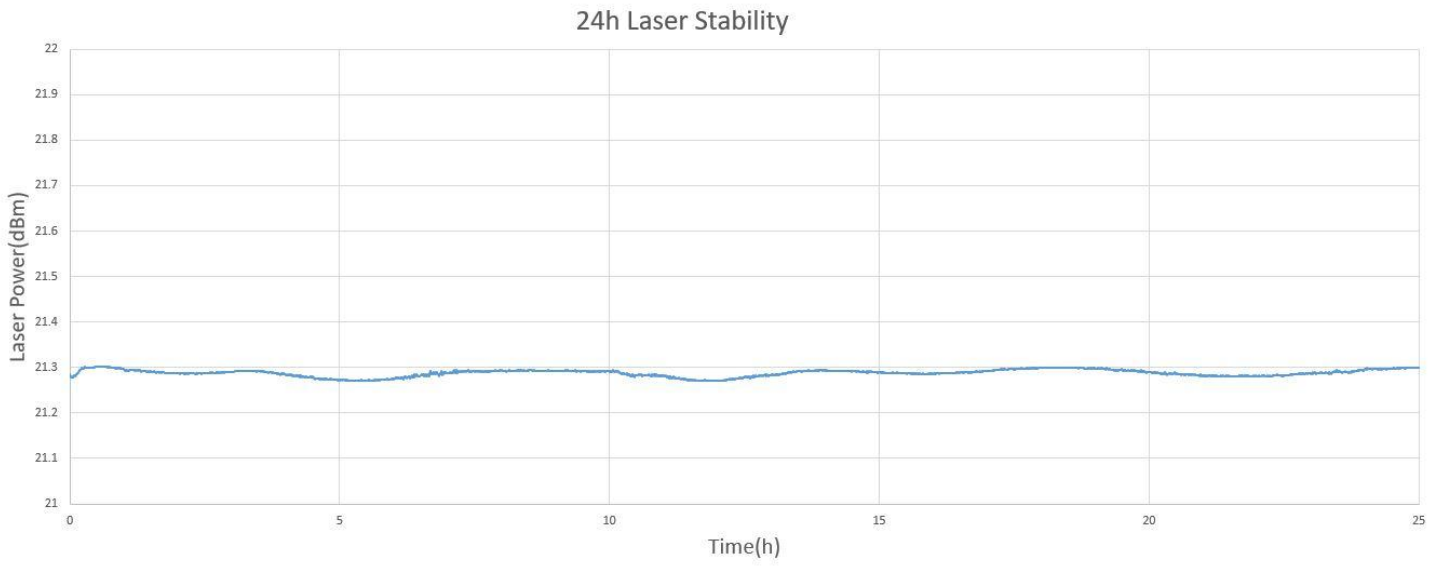
Typical Laser Output Stability (butterfly package with temperature control)



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