Power Technology Incorporated

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Please let us know if you have any questions.

High Power Diode Laser Systems

HAM & HPM System

Key Features

High-Power Laser Diodes

Drive Electronics for Laser TE Cooler

Quasi-Collimating Optics

Complete Single Enclosed Unit

High Power CW Systems

These laser diode systems are designed for the family of high power laser diodes that have a typical operating current greater than 200ma. For effective thermal management, the system incorporates an internal fan, and heatsinking. Depending on the type of laser diode selected, they will operate in either constant current or in constant optical output power mode. The HPM incorporates drive electronics for those laser diodes with a built-in thermoelectric cooler.

These systems are fully self-contained with power supply, laser diode, and collimating optics. The output power and wavelength of the system are dependent upon the model chosen.

The systems have optional optic assemblies that include a Telescope Collimator Assemblies, Fiber Optic Pigtail Lens Assemblies, and various Line Generating Packages.

Designed for the OEM, these are ideal for a wide range of high power laser applications such as illumination, imaging, printing, and medical systems.

Standard Features [3]

Optical:

- Standard Lens (G3) [2]
- Lens Compatibility [2] — Any
- Adjustable Focus Thread Resolution (factory focused at 3.05m) — 60 TPI
- Optional Line Generating Lens [2]

Mechanical:

- Case Material — Aluminum, Black Anodized
- Input Wire Length — 304.8mm (±12.7mm)
- Beam Angle Static Alignment — ± 0.5mrad

System Specifications		HPM	HAM
Thermoelectric Control	Yes/No	Yes	No
Dimensions (Ø x L)	mm	44.45 x 200	44.45 x 200
Operating Mode [4]	CP/CC	CP or CC	CP or CC
Mode Control (Standard or Option #)		standard	standard
Operating Voltage Range (±0.25)	VDC	12.0	12.0
Operating Current (max.)	mA	3000	3000
Laser Diode Drive Current (max.)	A	2.6	2.6
Beam Size at Exit	mm	3.9 x 1.1	3.9 x 1.1
Options: [3]			
Digital Control Options Compatibility		D1, D2, D3	D1, D2

Notes:

1 *See Laser/Price Brochure for Specifications*
Detailed optical and laser characteristics are presented in this separate document. It will also list the lasers compatible with each system.

2 *See Options Page for Specifications of lenses compatible with each system.*

3 *See Options Page for Specifications.*

4 *"CP" - Constant Optical Output Power*
"CC" - Constant Drive Current
System operating mode will depend upon the laser diode chosen.

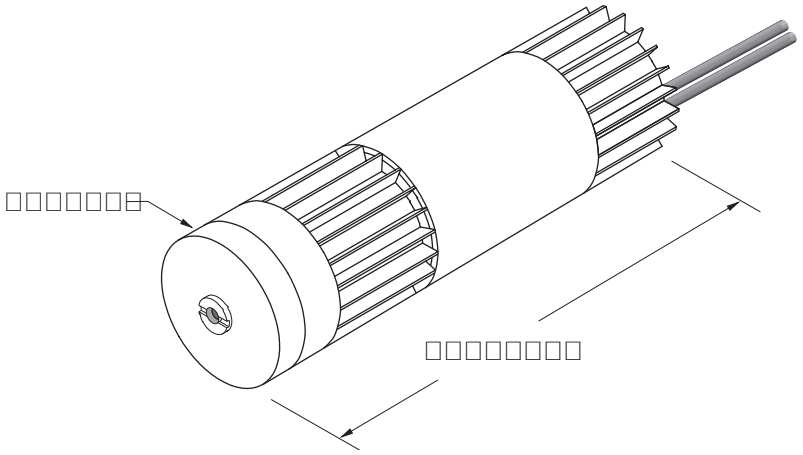
Key Features

CW to 20MHz Modulation

0 to Full Power Modulation Depth

Drive Electronics for Laser TE Cooler

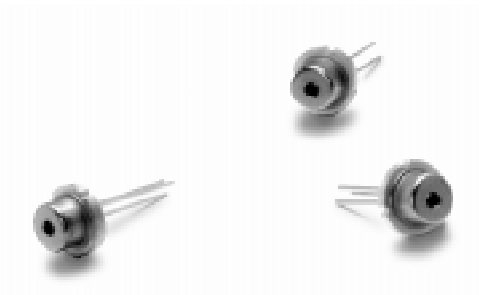
Quasi-Collimating Optics



Modulated Systems

The method of modulation employed in these TTL compatible systems requires an external trigger signal from a user provided source.

These systems are fully self-contained with drive and control electronics, laser diode[1], and a basic single-element aspheric lens to produce a quasi-collimated beam. The HPMT system incorporates drive electronics for those lasers with a built-in Peltier cooler.



Standard Features [3]

Optical:

- Standard Lens (G3) [2]
- Lens Compatibilty [2] — Any
- Focus Adjustable (factory focused at 3.05m) — 60 TPI
- Optional Line Generating Lens [2]

Electrical/Modulation:

- System Operating Mode — Constant Current Only
- Modulation Depth (100:1) — 0 - Full
- Propagation Delay — < 30ns

Mechanical:

- Case Material — Aluminum, Black Anodized
- Input Wire Length — 304.8mm (±12.7mm)

System Specifications		HPMT	HAMT
Thermoelectric Control	Yes/No	Yes	No
Modulation Trigger Signal Type		External TTL	External TTL
Modulation Frequency Range	MHz	CW - 20	CW - 20
Dimensions (Ø x L)	mm	44.45 x 200	44.45 x 200
Mode Control (Standard or Option #) [3]		Standard	Standard
Operating Voltage (±0.25)	VDC	12.0	12.0
System Operating Current (max.)	mA	2000	2000
Laser Diode Drive Current (max.)	mA	200	200
Modulation Signal Input Connector		BNC	BNC
Beam Size at Exit	mm	3.9 x 1.1	3.9 x 1.1
Options: [3]			
Digital Control Options Compatibility		D2, D3	D2

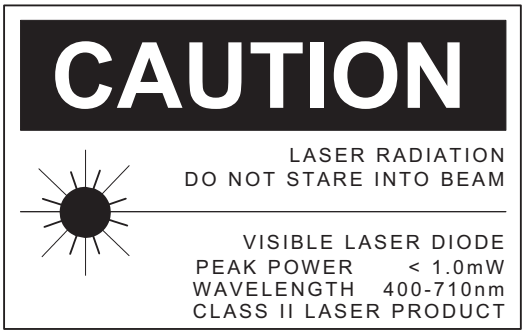
Handling and Safety

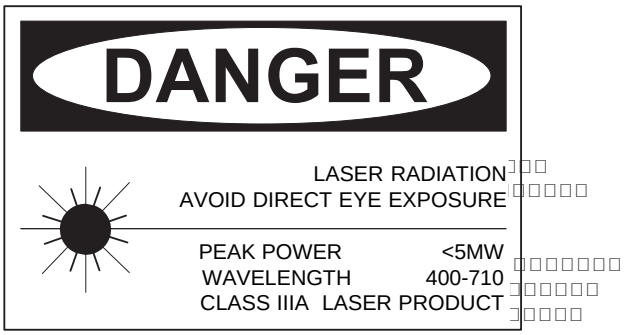
Safety Precautions

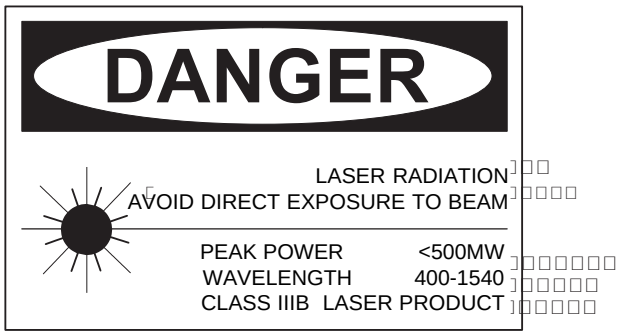
These Laser Diode Systems are visible and infrared laser sources. The energy emitted may be invisible to the human eye. These systems emit radiation anywhere in the 630 to 2100 nm wavelength range, depending on the model ordered. Use CAUTION to avoid hazardous exposure from the laser system beam.

Never look directly into the beam from the laser system under any conditions, and take precautions to eliminate exposure to a direct or reflected laser beam. Make sure to turn on laser systems in a safe and controlled area.

All of the laser systems, which Power Technology manufacturers, emit sufficient optical power to constitute a possible hazard to the human eye.







Handling/Operation Precautions

Power Technology Incorporated Laser Diode Systems are very reliable under normal operating conditions. However, if not properly handled or operated the diode can easily be damaged or destroyed. The following precautions should be taken to ensure that the laser is protected.

1. Do not adjust the focus, on systems that operate in Constant Optical Output Power Mode, while operating at full power. The photodiode feedback circuit relies on the reflections off the lens to monitor the laser power. Adjusting the focus changes these reflections which could result in laser burn-out.
2. Do not operate equipment near the laser diode which may generate high frequency electrical surges. The laser diode leads can pick up electrical surges which may destroy the diode in the induced electric field.
3. Avoid touching the laser system lens. Contamination and scratches on the lens may result in decreased optical output power and distorted far-field patterns. If the lens becomes contaminated, clean using a cotton swab with ethanol.

Most of the systems in this catalog are designated solely as OEM components for incorporation into the customer's end products. Therefore, they do not comply with the appropriate requirements of FDA 21 CFR, Section 1040.10 and 1040.11 for complete laser products.

The complete laser product manufacturer is responsible for complying with these requirements (see above for the appropriate warning labels).

Power Technology Inc. will supply labeled systems or, upon written request, loose labels for use by the customer. Retaining this safety label does not guarantee the final product will fully comply with FDA requirements.

These systems have been registered but not certified as per FDA 21 CFR, Section 1040.10(a)(3)(i).
For further information call CDRH (301) 427-1172.

The CPM and RS systems are certified as a complete laser products. However, this certification is void if the unit is enclosed or otherwise inaccessible, or if the labels are modified or removed. Refer to the RS specifications for more details on certification of this system.