

BEOC

LPC
Laser Power Controller

BEOC's Laser Power

Controllers offer

precise, stable,

computerized control

of beam power for

CW lasers up to 65

Watts.



The Laser Power Controller (LPC) offers automated regulation and control of laser beam power. The LPC works with virtually any CW or mode-locked laser. The LPC can be controlled digitally using an RS-232 or optional GPIB interface, or via an analog input jack. An on-board microprocessor provides a 4-digit display of actual output beam power.

- Wavelength ranges from 425 to 1700 nm
- Adjustment of laser beam power over 40:1 range
- Stabilizes laser beam power to 0.03%
- Transmittance of 85%
- Reduction of laser noise from DC to 5 kHz

The LPC's precise control of laser power is valuable in numerous applications.

- Achieve precise powers for single molecule experiments
- Improve transmission and scattering measurements
- Remove baseline drift and 1/f noise from spectra
- Regulate beam power when scanning Ti:Sapphire laser
- CCD/Display characterizations
- Microscopy
- Metrology

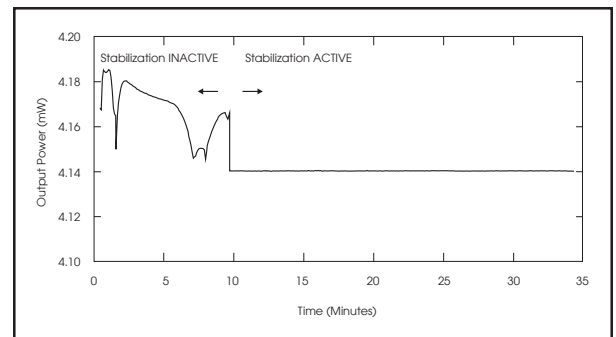


Figure 1. Control of 5 mW He-Ne laser.

The LPC is a patented intensity control system which fits externally in the beam of most lasers, including He-Ne, Ar⁺⁺, Kr⁺⁺, He-Cd, Nd:YAG, Ti:Sapphire, and others. It uses a high-speed liquid crystal element together with a thermally-controlled monitor photodiode to regulate the beam intensity at a user-selected level (see Fig. 2). The LPC operates by modulating the laser beam, with no connections to the laser itself.

Among the LPC's features are its compact size and large aperture, making it easy to align. Its liquid crystal modulator allows use with IR lasers, and offers high power handling. A modulation input permits analog selection of the desired output power, while a reference output provides a signal proportional to the monitor photodiode reading.

SPECIFICATIONS

Clear aperture	4.0 mm
Transmittance	85%
Long-term stability	0.03%
Digital resolution	0.024% of full scale
Noise attenuation	200:1 at 1 Hz (typical)
Servo bandwidth	5 kHz
Power display accuracy	5% (typical)
Minimum input laser power	0.5 mW
Operating temperature	+15°C to +35°C
Storage temperature	-10°C to +45°C
Operation	110/220 VAC @ 50/60Hz, 6 W

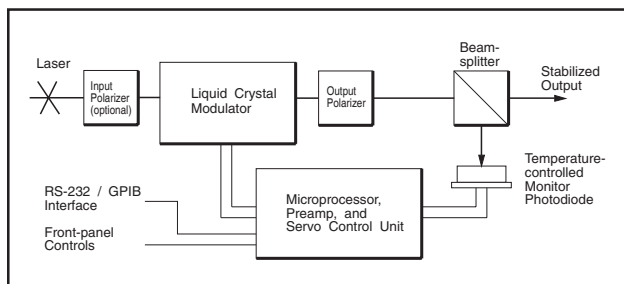


Figure 2. LPC system operational schematic. Photodiode output is compared against user-selected level, which may be digitally set; amplified difference signal adjusts modulator to maintain desired output beam power.

CUSTOM CAPABILITIES

The LPC can be customized to work with powers up to 65 watts. Custom OEM units are also available for integration into new or existing systems. Visit our website for additional information.

GENERAL

- Operates with collimated, polarized laser sources, either CW, mode-locked or with pulse rates greater than 100KHz
- Consists of an optics module and rack-mountable electronics module, connected by a 3.5-meter cable
- Can be controlled from the front panel, or via an RS-232 computer interface using ASCII commands (GPIB interface optional)

STANDARD MODELS

- LPC-VIS for lasers to 4 W, 425 - 780 nm
- LPC-NIR for lasers to 4 W, 700 - 1100 nm
- LPC-IR for lasers to 1 W, 950 - 1700 nm
- High power units to 65 watts are available
- Please contact us for details

OPTIONS AND ACCESSORIES

- RD-40-VIS/NIR, Remote detector for visible/near-IR
- RD-40-IR, Remote detector for IR
- RD-40-UV for use with doubled or tripled beams
- LPC-GPIB, GPIB interface
- LPC-IP, Input polarizer (for use with unpolarized lasers)
- LPC-EXT-CBL, Extended-length cable set (up to 6 meters)
- LPC-VIO for use with external detectors and preamps.

WARRANTY

One year full parts and labor warranty against defects in manufacture or materials.

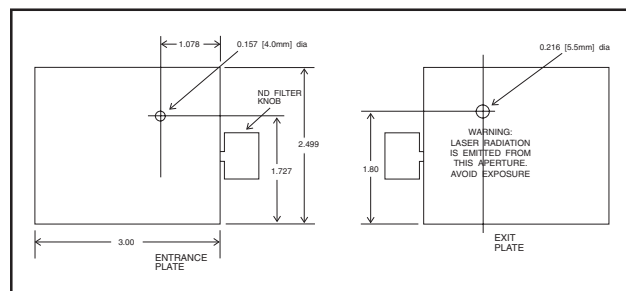


Figure 3. Mechanical diagram of LPC optics module.