Artisan Technology Group

Artisan Technology Group is your source for quality new and certified-used/pre-owned equipment

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NEW FOCUS Inc.

tunable external-cavity DIODE LASERS

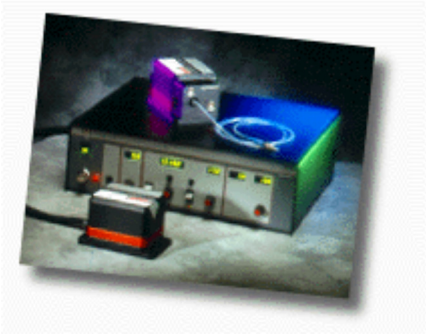
Tune a 5-MHz Linewidth
Continuously over 12-60 nm

What's So Special About These Lasers?

In this new family, our second generation of tunable, external-cavity, diode lasers, we've incorporated many of the suggestions from our first-generation laser customers. Improvements include:

- **Microprocessor-based laser controller:** with this new laser controller all operating parameters (power, wavelength, and wavelength scans) are set and monitored on the front panel. Switching wavelengths is as easy as plugging in a new head. No alignment needed!
- **Wavelength readout:** new wavelength readout and scan-speed display indicates operating wavelength, scan speed and start and stop wavelengths. Accuracy: 0.1 nm.
- **Remote tuning:** by incorporating our unique Picomotor and computer control (GPIB or RS-232), you get automatic operation. Coarse tuning resolution is 0.01 nm with 0.1-nm accuracy over the entire tuning range. A piezo transducer provides fine-frequency control with <10 MHz resolution.
- **Increased amplitude-modulation bandwidth:** the new laser head design has an amplitude-modulation bandwidth of greater than 100 MHz.

The combination of these improvements with the same narrow linewidths and truly continuous tuning make these reasonably priced lasers ideal replacements for dye-laser systems, hollow-cathode lamps, color-center lasers, and other compicated, more expensive and bulky solid-state laser sources.



Fiber-coupled 1300 and 1550 nm
lasers are also available.
Multiple heads may be used with a single controller.

characteristics

Model #	6202	6224	6226	6238	6248	6262
Typ. Center Wavelength (nm)	670-675	775-785	840-850	970-975	1305-1320	1530-1550
Min. Tuning Range (nm)	12	15	20	25	55	70
Min. Power (mW)	2	7	15	15	4	3
Min. Midband Power (mW)	5	10	20	20	7	5
Fine Freq. Tuning Range (GHz)	70 (0.10 nm)	75 (0.18 nm)	60 (0.17 nm)	50 (0.16 nm)	50 (0.29 nm)	30 (0.28 nm)
Fine Freq. Modulation Bandwidth (kHz)	2	2	2	2	2	2
Wavelength Stability (nm/day)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Coarse Tuning Resolution (nm)	0.01	0.01	0.01	0.01	0.01	0.01
Tuning Repeatibility (nm)	0.1	0.1	0.1	0.1	0.1	0.1
Displayed Wavelength Accuracy (nm)	0.1	0.1	0.1	0.1	0.1	0.1
Max. Coarse Tuning Speed (nm/min)	6	7	7	8	10	10
Repeatability (nm)	0.005	0.005	0.005	0.005	0.005	0.005
Linewidth (kHz) (50 ms)	<300	<300	<300	<300	<300	<300
Linewidth (MHz) (5 s)	<5	<5	<5	<5	<5	<5
Side Mode Suppression (dB)	40	40	40	40	40	40
Base Price (US$)	12,000	13,500	14,500	20,000	16,000	16,500

Some lasers are available with the option for a circularizing anamorphic prism pair (+$595) or an FC or ST connectorized fiber pigtail (+$5,250). Also available are additional laser heads without controllers.

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Explanation of Characteristics

Typical Center Wavelengths: the range of center wavelengths for standard lasers.

Min. Tuning Range: the minimum full tuning range over which the power is greater than that specified in Min. Power.

Min. Power: the minimum power over the specified tuning range.

Min. Midband Power: the minimum power in the center of the tuning range.

Fine Freq. Tuning Range: the measured range over which the laser can be piezoelectrically tuned.

Fine Freq. Modulation Bandwidth: the highest rate at which the laser frequency can be changed over the fine-frequency tuning range.

Wavelength Stability: the amount that the wavelength will drift over a period of one day once it is set at a given wavelength.

Coarse Tuning Resolution: the smallest wavelength change achievable with the coarse wavelength control knob.

Tuning Repeatability: the accuracy to which the laser will return to a given wavelength.

Displayed Wavelength Accuracy: the maximum difference between the wavelength displayed on the controller and the absolute wavelength.

Max. Coarse Tuning Speed: the highest speed at which the laser can be tuned across the entire tuning range.

Repeatability: how much the laser may vary when you power down then power up the laser.

Linewidth (50 ms): the measured linewidth over a 50-ms interval.

Linewidth (5 s): the measured linewidth over a 5-s interval. The broadening is mainly due to wavelength drift and mechanical vibrations of the laser.

Side-Mode Suppression: since these lasers operate at a single frequency, there is one dominant axial mode. Other axial modes, called side modes, are down from the center frequency by at least 40 dB.

Warranty: our external-cavity diode-laser products are guaranteed to be free from defects in workmanship and materials for 3000 hours of operation or one year from date of shipment, whichever comes first.

honors

Winner, Photonics Spectra
"1993 Circle of Excellence Award"

Winner, R&D Magazine
"1993 R&D 100 Award"

Winner, 1993 Lasers & Optronics
"Top 10 Products of 1992"

Finalist, Laser Focus World
"1993 Commercial Technology Achievement Award"

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