

4205-DR LaserSource, 250mA/500mA



- User selectable 250mA or 500mA range
- 0.01mA resolution (250mA range)
- <1.5uA noise
- USB interface

The 4205-DR LaserSource is our most popular laser driver in the 4200-DR Series, offering an excellent combination of low noise, accuracy, and resolution. The 4205-DR will work well in low power pump lasers, high power LEDs, and other applications requiring up to 500mA of drive current.

Dual Range

One of the key new features of the 4205-DR is the dual range capability, which allows operation in either a 250mA range or 500mA range. For applications that need less than 250mA, the lower range offers higher accuracy, lower noise, and improved stability, while still maintaining the 500mA range for higher power devices.

Simple User Interface

The 4205-DR's user interface is remarkably simple... so easy to use, you'll have it up and running in no time. Unlike other instruments which rely on 7-segment LED displays and a confusing array of indicators and buttons, the 4205-DR instead presents the information on a high contrast VFD display in an easy-to-read format. The 4205-DR displays current, voltage, and photodiode current simultaneously... no need to toggle through the readings like on most instruments. Settings and error messages are in clear English, not cryptic codes and flashing status lights.

Programmable PD Bias Voltage

Unlike other laser drivers, the 4205-DR includes a software programmable PD bias voltage, from 0 to -5V, so selecting your bias voltage has never been easier. Simply adjust the voltage in the user menu or via a software command... no more fumbling around with a DMM and screwdriver to adjust the trim pot.

USB Interface Standard

The 4205-DR includes a USB computer interfaces, allowing for quick and easy connection to a PC for remote operation. In addition, the LaserSource's command set is compatible with ILX and Newport controllers, allowing you to leverage any existing software you may have already developed.

Ground Loops Eliminated

Like all LaserSources, the 4205-DR includes isolated inputs and outputs. In technical terms, this means that every input and output signal is electrically isolated, so that offset voltages, ground connections, and AC noise will not "bleed" into other parts of the electronics. Even the photodiode input is fully isolated from the laser output, ensuring full isolation of the laser output. In practical terms, this means it's impossible to create a ground loop through the LaserSource, a common problem in laboratory setups where several different instruments are used in the same test. No other driver on the market has this capability.

Analog Modulation

The 4205-DR's analog interface supports modulation via the rear BNC jack.

Specifications	
CW Mode Specifications	
LASER CURRENT (Low / High)	
Range (mA)	0 – 250 / 0 – 500
Resolution (mA)	0.01 / 0.02
Setpoint Accuracy (\pm [% set+mA])	0.025% + 0.08 / 0.025% + 0.12
Measurement Accuracy (\pm [% reading+mA])	0.025% + 0.08 / 0.025% + 0.12
Stability (ppm, time)	< 10, 1 hour
Temperature Coeff (ppm/ $^{\circ}$ C)	50
Noise/Ripple (μ A rms)	< 1.2 / < 1.5
Transients (μ A)	< 100
Compliance Voltage (V)	10
Modulation Bandwidth (kHz)	325
Modulation Input Range	0 – 10V, 10k Ω
PHOTODIODE CURRENT	
Range (μ A)	5 – 5,000
Resolution (μ A)	0.1
Setpoint Accuracy (\pm [% set+ μ A])	0.05% + 1
Measurement Accuracy (\pm [% reading+ μ A])	0.05% + 1
Stability (ppm, time)	< 200, 24 hours
Temperature Coeff (ppm/ $^{\circ}$ C)	< 200
PD Bias (V)	0 to -5V, software programmable
LASER VOLTAGE	
Range (V)	0 – 10
Resolution (V)	0.001
Setpoint Accuracy (\pm [% set+V])	0.05% + 0.005
Measurement Accuracy (\pm [% reading+V])	0.05% + 0.005
Stability (ppm, time)	< 50, 1 hour
Temperature Coeff (ppm/ $^{\circ}$ C)	< 100
LIMITS	
Current Limit Accuracy (mA)	5
Voltage Limit Accuracy (\pm % FS)	2.5%
GENERAL	
Display Type	2x20 VFD
Laser Connector	DB-9, female
Computer Interface	USB 2.0 Full Speed (Type B)
Input Power	100V / 120V / 230V 50 / 60Hz
Size (H x W x D) [inches (mm)]	1.82 (47) x 8.5 (215) x 11.13 (283)
Operating Temperature	+10 $^{\circ}$ C to +40 $^{\circ}$ C
Storage Temperature	-20 $^{\circ}$ C to +60 $^{\circ}$ C