

4400-20-48 LaserSource, 20A/48V/960W, 13W3



- 20A / 48V range
- Both CW and QCW operation
- 1mA resolution
- USB and RS-232 interfaces

The **4400-20-48 LaserSource** provides up to 20A of current at up to 48V compliance, with excellent noise and accuracy specs. The 4400-20-48 is an excellent choice for applications that demand high compliance voltages, such as laser modules with many diodes in series. It supports both CW and Quasi-CW (QCW) mode.

Pilot Laser

In addition to the primary laser output, the 4400 includes control of a secondary pilot (or pointing) laser that is often integrated into high power laser modules.

Simple User Interface

The 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 4400 instead presents information on a high contrast VFD display in an easy-to-read format., and displays current, voltage, and photodiode current simultaneously... no need to toggle through the readings as you would on most instruments. Settings and error messages are in clear English, not cryptic codes and flashing status lights.

Quasi-CW (QCW) Mode

The 4400 includes QCW mode, as many applications require the low duty cycle, high current pulses that QCW offers to manage thermal loading on the device.

Standard Computer Interfaces

The 4400 includes both USB and RS232 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 4400 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 4400 supports analog modulation via a front panel BNC for arbitrary control of the current output using an external function generator or other voltage source.

Specifications

CW Mode Specifications

LASER CURRENT

Range (A)	0 – 20
Resolution (A)	0.001
Accuracy (\pm [% set+A])	0.05% + 0.01
Stability (ppm, time)	< 10, 1 hour
Temperature Coeff (ppm/°C)	50
Noise/Ripple (mA rms, low BW)	< 10
Transients (mA)	< 40
Compliance Voltage (V)	48

PHOTODIODE CURRENT

Range (μ A)	25 – 20000
Resolution (μ A)	1
Accuracy (\pm [% set+ μ A])	0.05% + 2
Stability (ppm, time)	< 200, 24 hours
Temperature Coeff (ppm/°C)	< 200
PD Bias (V)	0 to -5V, software programmable

LASER VOLTAGE

Range (V)	0 – 48
Resolution (V)	0.001
Accuracy (\pm [% set+V])	0.05% + 0.005
Stability (ppm, time)	< 50, 1 Hour
Temperature Coeff (ppm/°C)	< 100

EXTERNAL MODULATION

Modulation Input Range	0 – 10V, 10k Ω
Modulation Bandwidth (kHz)	35

QCW Mode Specifications

LASER CURRENT (ACC)

Range (A)	1.5 - 20
Max Resolution (A)	0.001
Setpoint Accuracy (\pm [% set+A])	0.1% + 0.020
Measurement Accuracy (\pm [% reading+A])	2.5% + 0.025
Compliance Voltage (V)	48

LASER VOLTAGE

Resolution (V)	0.01
Measurement Accuracy (\pm [% reading+V])	2% + 0.04

PHOTODIODE CURRENT

Resolution (μ A)	10
Measurement Accuracy (\pm [% reading+ μ A])	2% + 100

PULSE WIDTH

Range (ms)	0.1 – 600
Resolution (ms)	0.001
Accuracy (ms)	0.015

FREQUENCY

Range (Hz)	1 – 1000
Resolution (Hz)	0.1
Accuracy (Hz)	0.5

DUTY CYCLE

Range (%)	0.1 – 90
Resolution (%)	0.1
Rise/Fall Times (μ s)	< 50 / < 12
Overshoot (%)	< 7
Zero Current (A)	< 0.040

LIMITS

Current Limit Accuracy (\pm [% set+A])	1% + 0.1
Voltage Limit Accuracy (\pm [% set+V])	1% + 0.2

GENERAL

Display Type	4x20 VFD
Laser Connector	13W3, female
Computer Interface	USB 2.0 Full Speed (Type B), RS-232 (DB-9, male)
Input Power	90 - 240V, 50 / 60Hz
Size (H x W x D) [inches (mm)]	3.5 (90) x 12 (305) x 14 (356)
Weight (lbs [kg])	13 [5.9]
Operating Temperature	+10°C to +40°C
Storage Temperature	-20°C to +60°C