

## 4320-QCW LaserSource, 20A, QCW



- 20A range
- Both CW and QCW operation
- 1mA resolution
- <5mA noise
- USB and RS-232 interfaces

The 4320-QCW LaserSource provides up to 20A of current, and is the highest current offered in the 4300 series. When your application demands up to 20A of current, the 4320-QCW is an excellent choice as a low cost, high value solution. The 4320-QCW supports both CW and Quasi-CW (QCW) mode.

### Simple User Interface

The 4320-QCW'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 4320-QCW instead presents the information on a high contrast VFD display in an easy-to-read format. The 4320-QCW 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.

### Quasi-CW (QCW) Mode

The 4320-QCW adds QCW mode, a feature not found in most other laser drivers in its class. Many applications require the low duty cycle, high current pulses that QCW offers to manage thermal loading on the device. With rise times of less than 50 $\mu$ s, and pulse widths as narrow as 100 $\mu$ s, the 4320-QCW offers an effective and low-cost QCW solution. If you are looking for the non-QCW driver, see the 4320 LaserSource.

### Standard Computer Interfaces

The 4320-QCW 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 4320-QCW 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 4320-QCW's analog interface supports modulation rates up to 10kHz.

Specifications	
CW Mode Specifications	
LASER CURRENT	
Range (mA)	0 – 20,000
Resolution (mA)	1
Accuracy ( $\pm$ [% set+mA])	0.05% + 4
Stability (ppm, time)	< 10, 1 hour
Temperature Coeff (ppm/°C)	50
Noise/Ripple ( $\mu$ A rms)	< 5000
Transients ( $\mu$ A)	< 50mA
Compliance Voltage (V)	5
Modulation Bandwidth (kHz)	10
Modulation Input Range	0 – 10V, 10k $\Omega$
PHOTODIODE CURRENT	
Range ( $\mu$ A)	25 – 20000
Resolution ( $\mu$ A)	1
Accuracy ( $\pm$ [% set+ $\mu$ 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 – 4
Resolution (V)	0.001
Setpoint Accuracy ( $\pm$ [% set+V])	0.05% + 0.005
Measurement Accuracy ( $\pm$ [% reading+V])	0.05% + 0.004
QCW Mode Specifications	
LASER CURRENT	
Range (mA)	150 – 20,000
Resolution (mA)	1
Setpoint Accuracy ( $\pm$ [% set+mA])	0.5% + 10
Measurement Accuracy ( $\pm$ [% reading+mA])	3% + 30
LASER VOLTAGE	
Resolution (V)	0.01
Measurement Accuracy ( $\pm$ [% reading+V])	2% + 0.04
PHOTODIODE CURRENT	
Resolution ( $\mu$ A)	10
Measurement Accuracy ( $\pm$ [% reading+ $\mu$ 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 ( $\mu$ s)	< 50 / < 10
Overshoot (%)	< 7
Zero Current (% of set)	7.5
LIMITS	
Current Limit Accuracy (mA)	200
Voltage Limit Accuracy ( $\pm$ % FS)	2.5%
GENERAL	
Display Type	2x20 VFD
Laser Connector	9W4, female
Photodiode/Interlock	DB-9, female
Computer Interface	USB 2.0 Full Speed (Type B), RS-232 (DB-9, male)
Input Power	100V / 120V / 230V, 50 / 60Hz
Size (H x W x D) [inches (mm)]	3.47 (89) x 8.5 (215) x 12 (305)
Operating Temperature	+10°C to +40°C
Storage Temperature	-20°C to +60°C