

## 4302-QCW LaserSource, 2A, QCW



- 2A range
- 15V compliance
- Both CW and QCW operation
- 0.1mA resolution
- <20uA noise
- USB and RS-232 interfaces

The 4302-QCW LaserSource is the lowest current range in the 4300 LaserSource family, with the lowest noise and highest accuracy. Intended for use with higher power pump modules and other devices needing up to 2A of current, the 4302-QCW supports both CW and Quasi-CW (QCW) mode.

### High Compliance

The 4302 features a high 15V compliance for higher voltage applications, such as LED testing or quantum cascade lasers, as well as excellent performance with lower voltage laser diodes.

### Simple User Interface

The 4302-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 4302-QCW instead presents the information on a high contrast VFD display in an easy-to-read format. The 4302-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 4302-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 20 $\mu$ s, and pulse widths as narrow as 100 $\mu$ s, the 4302-QCW offers an effective and low-cost QCW solution. If you are looking for the non-QCW driver, see the 4302 LaserSource.

### Standard Computer Interfaces

The 4302-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 4302-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 4302-QCW's analog interface supports modulation rates up to 65kHz.

<b>Specifications</b>	
<b>CW Mode Specifications</b>	
<b>LASER CURRENT</b>	
Range (mA)	0 – 2000
Resolution (mA)	0.1
Accuracy ( $\pm$ [% set+mA])	0.05% + 0.4
Stability (ppm, time)	< 10, 1 hour
Temperature Coeff (ppm/°C)	50
Noise/Ripple ( $\mu$ A rms)	< 20
Transients ( $\mu$ A)	< 300
Compliance Voltage (V)	15
Modulation Bandwidth (kHz)	65
Modulation Input Range	0 – 10V, 10k $\Omega$
<b>PHOTODIODE CURRENT</b>	
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
<b>LASER VOLTAGE</b>	
Range (V)	0 – 15
Resolution (V)	0.001
Setpoint Accuracy ( $\pm$ [% set+V])	0.05% + 0.005
Measurement Accuracy ( $\pm$ [% reading+V])	0.05% + 0.004
<b>QCW Mode Specifications</b>	
<b>LASER CURRENT</b>	
Range (mA)	15 – 2000
Resolution (mA)	1
Setpoint Accuracy ( $\pm$ [% set+mA])	0.5% + 2
Measurement Accuracy ( $\pm$ [% reading+mA])	3% + 4
<b>LASER VOLTAGE</b>	
Resolution (V)	0.01
Measurement Accuracy ( $\pm$ [% reading+V])	2% + 0.04
<b>PHOTODIODE CURRENT</b>	
Resolution ( $\mu$ A)	10
Measurement Accuracy ( $\pm$ [% reading+ $\mu$ A])	2% + 100
<b>PULSE WIDTH</b>	
Range (ms)	0.1 – 600
Resolution (ms)	0.001
Accuracy (ms)	0.015
<b>FREQUENCY</b>	
Range (Hz)	1 – 1000
Resolution (Hz)	0.1
Accuracy (Hz)	0.5
<b>DUTY CYCLE</b>	
Range (%)	0.1 – 90
Resolution (%)	0.1
Rise/Fall Times ( $\mu$ s)	< 20 / < 10
Overshoot (%)	< 7
Zero Current (% of set)	7.5
<b>LIMITS</b>	
Current Limit Accuracy (mA)	20
Voltage Limit Accuracy ( $\pm$ % FS)	2.5%
<b>GENERAL</b>	
Display Type	2x20 VFD
Laser Connector	DB-9, female
Photodiode/Interlock	On LDD connector
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