Precision Pulse Control
The PCX-7420 B is an air-cooled, high-powered CW/QCW current source designed to drive diode lasers, bars, and arrays. The pulsed output current is adjustable from 3.0 A to 21.5 A. The pulse width is adjustable from 50 ns to 500 ms, and the rise time is under 25 ns. The pulse repetition rate is selectable from 40 Hz to 100,000 Hz when using the internal pulse source, and from single-shot to 1 MHz when using an external source.

The PX-7420 B provides both QCW (pulsed) and CW (DC) outputs. It can serve as a CW driver at currents from 3.0 A to 5.8 A, and as a pulsed/QCW driver at currents from 3.0 A to 21.5 A. Furthermore, the output may be biased to any CW current from 0.050 A to 5.8 A, then pulsed above this bias current up to 15.7 A maximum. A new feature allows the bias current to be pulsed and triggered independently from the main current.

Ease of Setup and Operation
The PCX-7420 B may be operated through its intuitive front panel controls. The OLED display provides immediate visual confirmation of all operating parameters, including bias and pulsed current set points, internal trigger pulse width, internal trigger frequency, and error/fault messages.

Complete System Integration
For automated applications, complete control of the driver is provided through RS-232, and USB computer interfaces. Up to five system configurations may be stored in internal non-volatile memory, providing instant recall of frequently-used configurations.

Low Inductance Output Cable
Connection to the laser diode is made through an innovative rear panel, low-impedance twisted pair cable designed to preserve the fidelity of high-speed, large-amplitude current pulses. The front panel of the PCX-7420 B has an interlock key. When the key is off, the output is disabled. To enable, the key must be on and the system enable must be made, either manually or through computer interface.

Output Protection
The PCX-7420 B features advanced circuitry to protect both the diode and driver. At turn-on, and at any time the output is not enabled, the PCX-7420 B’s output is electronically shorted to ground, ensuring that no current flows through the diode. Safety features include a separate enable key-switch and a remote interlock.

Ordering Information
PCX-7420 B Precision Pulsed Current Source
6100-0119 Output Cable, requires 2
6045-0134 Laser Output PCBA
PCA-9410 BNC Shorting Connector
Each PCX-7420 B is delivered with 2 output twisted pair cables, 1 Laser Output PCBA, and a BNC shorting connector.

Internal trigger: 100 kHz, 2.5 µs bias and 5.0 µs main pulse width, 6 A bias current, 16 A main current.

Internal trigger: 100 kHz, 3.5 µs bias and 3.5 µs main pulse width, 1 A bias current, 3 A main current.
PCX-7420 B Laser Diode Driver Datasheet

### Pulse Amplitude
- **Main current output range**: 3.0 A to 15.7 A
- **Setpoint resolution**: 1 mA
- **Compliance voltage**: 24 V

### Bias Amplitude
- **Bias current output range**: 50 mA to 5.8 A
- **Setpoint bias resolution**: 1 mA

### Internal Trigger
- **Frequency range**: 40 Hz to 100 kHz
- **Frequency resolution**:
  - 40 Hz to 300 Hz: 1 Hz
  - 300 Hz to 5000 Hz: 100 Hz
  - 5 kHz to 10 kHz: 1000 Hz
- **Pulse width range**: 100 ns to 500 ms
- **Pulse width resolution**:
  - 40 Hz to 300 Hz: 6400 ns
  - 300 Hz to 5000 Hz: 1600 ns
  - 5 kHz to 10 kHz: 100 ns
- **Rise time**: < 25 ns
- **Polarity**: Positive

### Trigger Sync Output
- **Termination**: 50 Ω
- **Connector**: BNC
- **Output voltage levels**: 0 V to 2.7 V

### External Trigger
- **Frequency range**: ≤ 1 MHz
- **Minimum pulse width**: 50 ns
- **Maximum pulse width**: 100% duty cycle, up to 250 W
- **Termination**: 50 Ω or 1000 Ω
- **Connector**: BNC
- **Input voltage levels**: 0 V to 5.0 V
- **High** = output to load, **Low** = no output to load

### Computer Interface
- **RS232, USB**
- **USB driver support**:
  - Windows 7—10, Windows XP, Linux, and MAC OS X

### General
- **Power requirements**: 47 Hz to 63 Hz
- **100 V AC to 120 V AC ± 10%**
- **220 V AC to 240 V AC ± 10%**
- **AC connector type**: NEMA C-14
- **Size (H x W x D)**: 8.9 cm x 28.5 cm x 53.4 cm
- **Standard with rack mount ears**: 33.6 cm wide at ears
- **Requires 2U spacer**
- **Weight**: 8.4 kg
- **Operating temperature**: 15° C to 40° C
- **Air cooled, flow from front to the rear of unit**

### Notes
- **Warranty**: One year, parts and labor, on defects in materials and workmanship.
- The PCX-7420 B current source meets or exceeds these specifications. All specifications are measured with a low inductance twisted pair interconnect cable to a load.
- Specifications information subject to change without notice.
- Laser diode drivers are current sources. The compliance voltage is the maximum voltage available to maintain the programmed current.

### Laser Output PCBA

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**Safe Operating Area PCX-7420 B**

For more information: 970.493.1901 or sales@directedenergy.com

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