



## Precision Pulse Control

The PCX-7500-EX is an air-cooled, high-power current source designed to drive laser diodes, bars, and arrays. The output current can be set from 10 A to 450 A. The compliance voltage is dependent on the model of system. The pulse width is adjustable between 4  $\mu$ s to 5,000  $\mu$ s. The pulse repetition rate is 8 Hz to 10,000 Hz.

The PCX-7500-EX uses an external DC power supply to source the laser diode forward voltage. By matching the DC supply to the diode's forward voltage, a single PCX-7500-EX current source can power a variety of laser diodes at full output current, from a single device to a 110 volt diode array.

## Ease of Setup and Operation

The PCX-7500-EX may be operated through its intuitive front panel controls. The color QVGA LCD provides immediate visual confirmation of all operating parameters, including 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 instrument is provided through RS-232, USB and Ethernet computer interfaces. Up to four system configurations may be stored in internal non-volatile memory, providing instant recall of frequently-used configurations.

## Low Inductance Output Cable

The laser diode is connected to the PCX-7500-EX through a low-impedance stripline cable designed to preserve the fidelity of high-speed current pulses. The output connector is interlocked so that the PCX-7500-EX is disabled when the connector is removed.

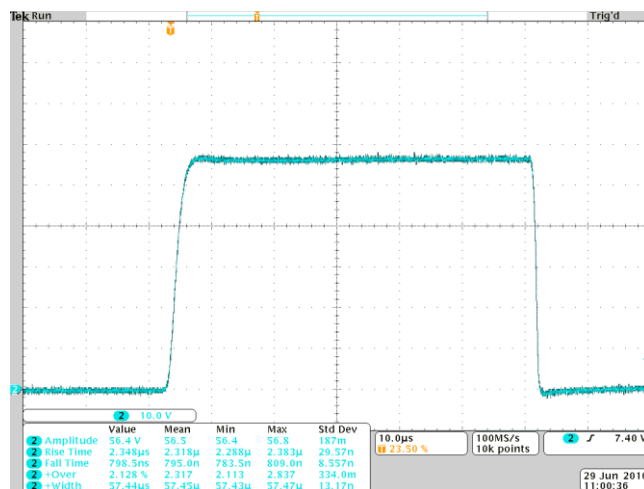
## Internal or External Triggering

Conveniently located front panel BNC connectors allow the PCX-7500-EX to be externally triggered and synchronized for specialized interconnected

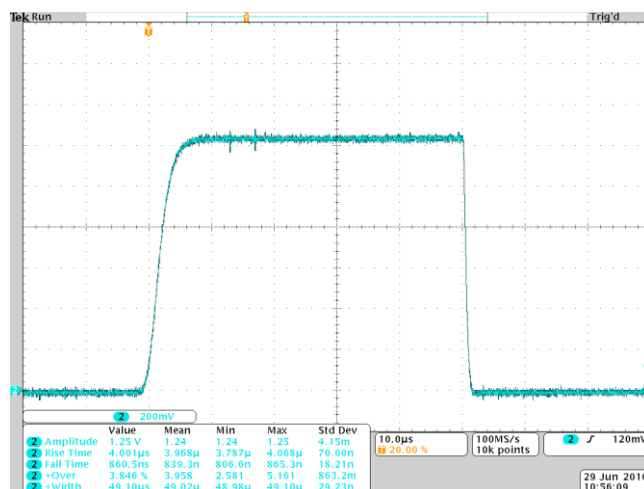
equipment applications. The input impedance of the trigger is selectable to either 50  $\Omega$  or 10,000  $\Omega$ . The synchronization output pulse is synchronized to the leading edge of the output current pulse and is active with internal or external trigger.

## Ordering Information

PCX-7500-EX	Current Source System
6045-0070	Output Stripline Cable



PCX-7500-EX  
450 A, 70 V compliance, 8 Hz, 57  $\mu$ s pulsewidth



PCX-7500-EX  
10 A, 12 V compliance, 8 Hz, 50  $\mu$ s pulsewidth

# PCX-7500-EX Pulsed Current Source —

## Datasheet



### Pulse Amplitude

Output Current Range	10 A to 450 A
Setpoint Resolution	0.1 A
Setpoint Accuracy	$\pm 1\%$ of full scale current
Current Overshoot	$< 2\%$
Current Rise/Fall Time	$\leq 15\ \mu\text{s}$ for current setpoint $\leq 150\ \text{A}$ $\leq 10\ \mu\text{s}$ for current setpoint $> 150\ \text{A}$

Polarity	Positive
Compliance Voltage	Depends on model
Maximum Output Power	Up to 1000 W, depends on model

### Internal Trigger

Frequency Range	8 Hz to 10,000 Hz
Frequency Resolution	1 Hz from 8 Hz through 299 Hz 100 Hz from 300 Hz through 10,000 Hz

Frequency Accuracy	$\pm 1\%$
Tjit(cc) (cycle to cycle jitter)	$\leq 0.025\ \mu\text{s}$

Pulse Width Range	4 $\mu\text{s}$ through 5,000 $\mu\text{s}$
Pulse Width Resolution	32 $\mu\text{s}$ from 8 Hz through 30 Hz 8.0 $\mu\text{s}$ from 31 Hz through 122 Hz 2.0 $\mu\text{s}$ from 123 Hz through 500 Hz 0.5 $\mu\text{s}$ from 501 Hz through 10,000 Hz

Pulse Width Accuracy	$\pm 0.5\ \mu\text{s}$
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### External Trigger

Frequency Range	$\leq 10,000\ \text{Hz}$
Input Voltage Levels	0 V, output off 5 V, output on
Trigger pulse width	5 $\mu\text{s}$ through 5,000 $\mu\text{s}$
Delay (external to output)	$\leq 1\ \mu\text{s}$ (typical)
Termination Impedance Connector	50 $\Omega$ or 10,000 $\Omega$ BNC

### Output Connector

Output Connector	DB37 pin Female Pin 1 to 16 = Out + Pin 20 to 35 = Out - Pin 18 and 19 cable present loopback All other pins not connected
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### Control Signals

Sync Termination Sync Connector	50 $\Omega$ BNC
Current monitor	0 V to 0.800 V 100 A output current = 0.170 V (typical)
Current monitor termination Current monitor connector	50 $\Omega$ BNC
Voltage monitor	0 V to 0.920 V 50 V to output = 0.375 V (typical)
Voltage monitor termination Voltage monitor connector	50 $\Omega$ BNC

### Computer Interfaces

Supported interfaces	RS232, Ethernet, USB
USB Driver Support	Windows 8, Windows 7, Windows XP, Linux, and Mac OS X

### DC Input

Voltage requirements	0 VDC to 125 VDC
Accuracy of DC input displayed on main screen	is $\pm 5\ \text{VDC}$ .

**Must never exceed  $V_{\text{load}} + 15\ \text{VDC}$**   
**Must be 0V until instrument is powered up at least 15 seconds.**  
**Must be 0V at least 1 second before instrument is powered down.**

Current Requirements	$\leq 20\ \text{A}$
Internal Capacitance	126,000 $\mu\text{F} \pm 20\%$
DC Input Cable 1 meter	6100-0105 A
Cable Connector Type	TE Connectivity # 1-179958-2
Connector pinout	pin 1 : Red : DC voltage pin 2 : Black : DC return

### Power Specifications

Voltage requirements	100 VAC to 120 VAC $\pm 10\%$ 220 VAC to 240 VAC $\pm 10\%$
Line frequency	50 Hz to 60 Hz
Power requirements	600 W
Connector Type	NEMA 5-15 to C13

### General

Size (HxWxD)	15 cm x 44 cm x 54 cm
Weight	20 kg
Operating Temperature	15 $^{\circ}\text{C}$ to 35 $^{\circ}\text{C}$
Cooling	Air cooled

**\* Operation of instrument outside of the listed compliance voltage and maximum power limits can cause permanent damage to the instrument and/or load. Please see SOA graphs in manual for more information.**

### Notes

Warranty—One year parts and labor on defects in materials and workmanship.

The PCX-7500-EX current source meets or exceeds these specifications.

All specifications are measured with a low inductance strip line interconnect cable to the laser diode, with less than 4 nH total inductance.

Specifications subject to change without notice.