PCX-7500-78

Pulsed Current Source - Datasheet





Precision Pulse Control

The PCX-7500-78 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, compliance voltage dependant on the model of system. The pulse width is adjustable between 4 μs to 5,000 μs , with a frequency of 8 Hz to 10,000 Hz.

Ease of Setup and Operation

The PCX-7500-78 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-7500-78 through a low impedance strip line cable, designed to preserve the fidelity of high-speed current pulses. The output connector is interlocked, so that the PCX-7500-78 is disabled when the connector is removed.

Internal or External Triggering

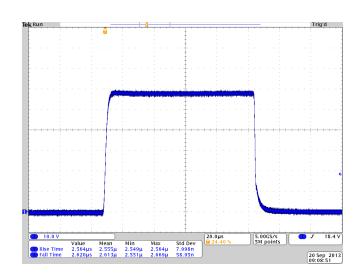
Conveniently located front panel BNC connectors allow the PCX-7500-78 to be externally triggered and synchronized for specialized interconnected equipment applications. The input impedance of the trigger is selectable to either 50Ω or $10,000\Omega$. The synchronization output pulse is synchronized to the leading edge of the output current pulse and is active with internal or external triggers.

Ordering Information

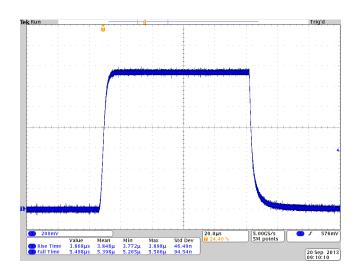
PCX-7500-**xxx**TBD

Output Strip Line Cable
TBD

Laser Output PCBA



PCX-7500-73 450 A, 73V compliance, 8 Hz, 96 μs pulsewidth



PCX-7500-12 10 A, 12V compliance, 8 Hz, 96 μs pulsewidth

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Pulse Amplitude

Output Current Range 10 A to 450 A **Setpoint Resolution** 0.1 A

±1 % of full scale current Setpoint Accuracy

Current Overshoot <2 % Current Rise/Fall Time ≤ 7 μs

Positive Polarity

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 between 8 Hz to 299 Hz 100 Hz between 300 Hz to 10,000 Hz

Frequency Accuracy ±1% Tjit(cc) (cycle to cycle jitter) ≤ 0.025 µs 4 μs to 5,000 μs Pulse Width Range

Pulse Width Resolution $32~\mu s$ between 8~Hz to 30~Hz

8.0 µs between 31 Hz to 122 Hz $2.0~\mu s$ between 123 Hz to 500 Hz $0.5~\mu s$ between 501 Hz to 10,000 Hz

Pulse Width Accuracy ± 0.5 us

External Trigger

Frequency Range ≤ 10,000 Hz Input Voltage Levels 0 V, output off 5 V, output on Trigger Pulse Width 5μs to 5,000μs Delay (external to output) $\leq 1 \mu s$ (typical) **Termination Impedance** 50 Ω or 10,000 Ω

Output Connector

Connector

Output Connector DB37 pin Female

Pin 1 to 16 = Out + Pin 20 to 35 = Out -

BNC

Pin 18 and 19 cable present loopback

All other pins not connected

Control Signals

Sync Termination 50 Ω Sync Connector **BNC**

0 to 0,800 mV **Current Monitor**

100 A output current = 170 mV

(typical)

Current Monitor Termination 50 Ω **Current Monitor Connector BNC**

Voltage Monitor 0 to 0,920 mV

50 V to output = 375 mV (typical)

Voltage Monitor Termination Voltage Monitor Connector BNC

 $1 M\Omega$

Computer Interfaces

Supported Interfaces RS232, Ethernet, USB **USB** Driver Support Windows 8, Windows 7,

Windows XP, Linux, and Mac OS X

Power Specifications

Voltage Requirements 100 VAC to 120 VAC ± 10% 220 VAC to 240 VAC ± 10%

50 Hz to 60 Hz Line Frequency **Power Requirements** 1800 W Connector Type IEC 320-C19



General

Size (H x W x D) 15 cm x 44 cm x 54 cm

Weight ~ 20 kg **Operating Temperature** Cooling

15° C to 35° C Air cooled

Available Models

Model #	Compliance Voltage ^{*1}	Max Output Power*1
PCX-7500-5	0 V to 5 V	100 W
PCX-7500-12	5 V to 12 V	225 W
PCX-7500-17	12 V to 17 V	400 W
PCX-7500-24	17 V to 24 V	450 W
PCX-7500-30	24 V to 30 V	600 W
PCX-7500-38	30 V to 38 V	700 W
PCX-7500-48	38 V to 48 V	700 W
PCX-7500-54	48 V to 54 V	700 W
PCX-7500-62	54 V to 62 V	700 W
PCX-7500-66	62 V to 66 V	700 W
PCX-7500-73	66 V to 73 V	700 W
PCX-7500-78	73 V to 78 V	750 W
PCX-7500-86	78 V to 86 V	800 W
PCX-7500-94	86 V to 94 V	900 W
PCX-7500-102	94 V to 102 V	950 W
PCX-7500-110	102 V to 110 V	1000 W

^{*1} Operation of an 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-7500-78 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. Document Rev 1 - 10 JULY 2013