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PCX-7500-73

Pulsed Current Source - Datasheet





Precision Pulse Control

The PCX-7500-73 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 μ s to 5,000 μ s, with a frequency of 8 Hz to 10,000 Hz.

Ease of Setup and Operation

The PCX-7500-73 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

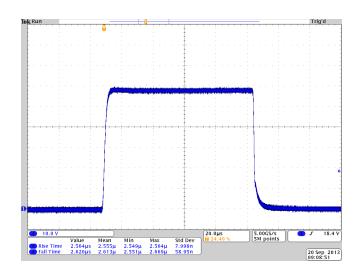
The laser diode is connected to the PCX-7500-73 through a low impedance strip line cable, designed to preserve the fidelity of high-speed current pulses. The output connector is interlocked, so that the PCX-7500-73 is disabled when the connector is removed.

Internal or External Triggering

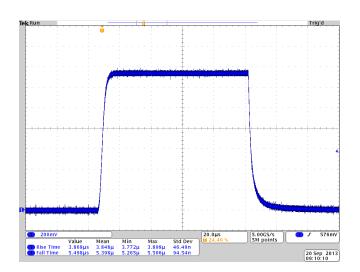
Conveniently located front panel BNC connectors allow the PCX-7500-73 to be externally triggered and synchronized for specialized interconnected equipment applications. The input impedance of the trigger is selectable to either 50Ω or $10,000\Omega$. The synchronization output pulse is synchronized to the leading edge of the output current pulse and is active with internal or external triggers.

Ordering Information

| PCX-7500- xxx | See models on next page |
|----------------------|-------------------------|
| 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 Setpoint Resolution Setpoint Accuracy Current Overshoot Current Rise/Fall Time

Polarity Compliance Voltage Maximum Output Power

Internal Trigger

Frequency Range Frequency Resolution

Frequency Accuracy Tjit(cc) (cycle to cycle jitter) Pulse Width Range Pulse Width Resolution

Pulse Width Accuracy

External Trigger

Frequency Range Input Voltage Levels

Trigger Pulse Width Delay (external to output) Termination Impedance Connector

Output Connector

Output Connector

Control Signals

Sync Termination Sync Connector

Current Monitor

Current Monitor Termination Current Monitor Connector

Voltage Monitor

Voltage Monitor Termination Voltage Monitor Connector

Computer Interfaces

Supported Interfaces USB Driver Support 10 A to 450 A 0.1 A ±1 % of full scale current <2 % ≤ 7 μs

Positive depends on model up to 1000 W, depends on model

8 Hz to 10,000 Hz 1 Hz between 8 Hz to 299 Hz 100 Hz between 300 Hz to 10,000 Hz ± 1 % ≤ 0.025 μs 4 μs to 5,000 μs 32 μs between 8 Hz to 30 Hz 8.0 μs between 31 Hz to 122 Hz 2.0 μs between 123 Hz to 500 Hz 0.5 μs between 501 Hz to 10,000 Hz ± 0.5 μs

≤ 10,000 Hz 0 V, output off 5 V, output on 5µs to 5,000µs ≤ 1µs (typical) 50 Ω or 10,000 Ω BNC

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

50 Ω BNC

0 to 0,800 mV 100 A output current = 170 mV (typical)

50 Ω BNC

0 to 0,920 mV 50 V to output = 375 mV (typical) 1 M Ω BNC

RS232, Ethernet, USB Windows 8, Windows 7, Windows XP, Linux, and Mac OS X

Power Specifications

Voltage Requirements

Line Frequency Power Requirements Connector Type



General

Size (H x W x D)15 cm x 44 cm x 54 cmWeight~ 20 kgOperating Temperature15° C to 35° CCoolingAir 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-7500-73 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

100 VAC to 120 VAC ± 10% 220 VAC to 240 VAC ± 10% 50 Hz to 60 Hz 1800 W IEC 320-C19