



PCX-7500-110

Pulsed Current Source - Datasheet



Precision Pulse Control

The PCX-7500-110 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-7500-110 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

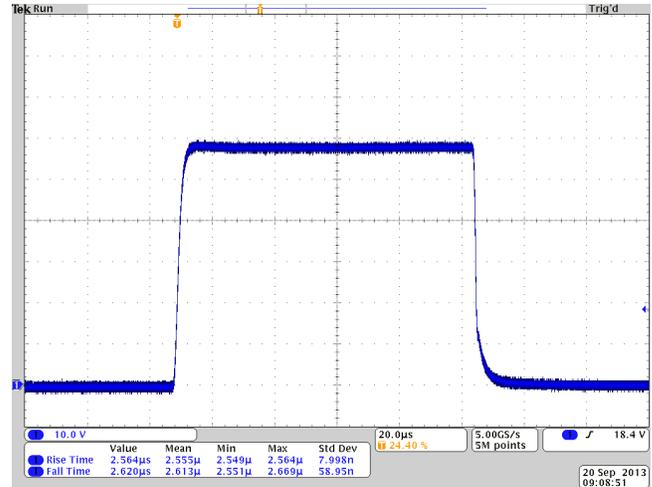
The laser diode is connected to the PCX-7500-110 through a low impedance strip line cable, designed to preserve the fidelity of high-speed current pulses. The output connector is interlocked, so that the PCX-7500-110 is disabled when the connector is removed.

Internal or External Triggering

Conveniently located front panel BNC connectors allow the PCX-7500-110 to be externally triggered and synchronized for specialized interconnected equipment applications. The input impedance of the trigger is selectable to either 50 Ω or 10,000 Ω . The synchronization output pulse is synchronized to the leading edge of the output current pulse and is active with internal or external triggers.

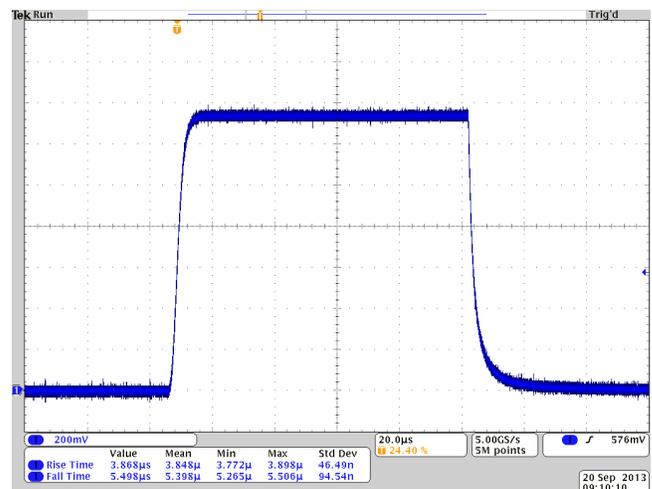
Ordering Information

| | |
|--------------|-------------------------|
| 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 μ s pulsewidth



PCX-7500-12

10 A, 12V compliance, 8 Hz, 96 μ s pulsewidth



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Pulse Amplitude

| | |
|------------------------|--------------------------------|
| Output Current Range | 10 A to 450 A |
| Setpoint Resolution | 0.1 A |
| Setpoint Accuracy | ±1 % of full scale current |
| Current Overshoot | <2 % |
| Current Rise/Fall Time | ≤ 7 μs |
| | |
| 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 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 |
| Pulse Width Range | 4 μs to 5,000 μs |
| Pulse Width Resolution | 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 |
| Pulse Width Accuracy | ± 0.5 μs |

External Trigger

| | |
|----------------------------|-----------------------------------|
| Frequency Range | ≤ 10,000 Hz |
| Input Voltage Levels | 0 V, output off 5 V, output on |
| Trigger Pulse Width | 5 μs to 5,000 μs |
| Delay (external to output) | ≤ 1 μs (typical) |
| Termination Impedance | 50 Ω or 10,000 Ω |
| Connector | 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 |

Control Signals

| | |
|-----------------------------|--|
| Sync Termination | 50 Ω |
| Sync Connector | BNC |
| | |
| Current Monitor | 0 to 0,800 mV 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 | 1 MΩ |
| Voltage Monitor Connector | BNC |

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% |
| Line Frequency | 50 Hz to 60 Hz |
| 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 | 15° C to 35° C |
| Cooling | 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-7500-110 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.

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