



**PCX-7451**

**225A QUASI-CW LASER DIODE DRIVER/PULSED CURRENT SOURCE**

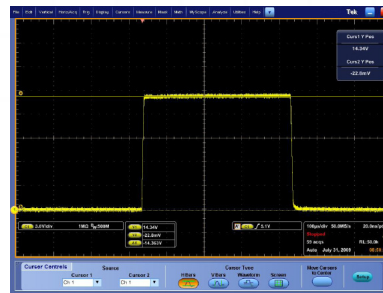
**Features:**

- Output Current Up To 225A
- Output Voltage Up To 120V
- Adjustable Rise & Fall Time from 5µS to 1mS
- Pulse Widths from 15µS to 5mS
- 5KHz Maximum Frequency
- Up to 120V out, drives up to 50 diodes simultaneously
- RS-232 Computer Interface

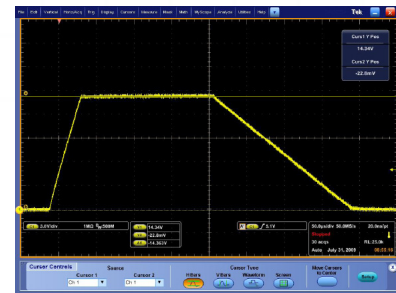


The PCX-7451 is an air-cooled, high power pulsed current source designed to drive diode lasers, bars and arrays. It delivers current pulses variable from 20A to 225A, pulse widths variable from 15µS to 5mS, with rise times and fall times of 5µS to 1mS, and pulse repetition frequencies variable from single shot to 5 KHz with duty cycles limited by total power dissipation. A microprocessor-controlled front-panel and RS-232 interface provide individual control of each electronic function, while the backlit display provides immediate visual confirmation of all operating parameters, including output current setpoint and amplitude, pulse width, repetition frequency, duty cycle, and error and fault messages. The front panel controls allow the user to set pulse width and frequency independently, or to set frequency and duty cycle, which then sets the pulse width accordingly. The front panel display monitors both the set points, and the actual current delivered to the diode. Analog current and voltage monitors and a synchronization output are also provided for monitoring of the current and voltage to the laser diode. In addition to stand-alone operation, the PCX-7451 can be externally triggered. Pulse rise and fall times can be set independently from the front panel. Each can be independently adjusted in the range is 5µS to 1mS. The rise and fall are linear ramps. Connection to the laser diode is made through an innovative front panel, low impedance, high current stripline cable, designed to preserve the fidelity of high-speed, large-amplitude current pulses.

The output connector is interlocked, so that the PCX-7451 is disabled when the connector is removed. The PCX-7451 features advanced circuitry to protect both the diode and driver. At turn on, and at any time the driver is not pulsing, the PCX-7451's output is electronically shorted to ground, ensuring that no current flows through the diode except during the on period of the pulse. In addition, the actual current through the diode is monitored in real-time. If the actual current ever exceeds the user-adjustable current set point, the driver truncates the output current pulse, electronically shorts the output to ground, and displays an error message on the front panel display. In addition, the PCX-7451 has a factory-set hardware-controlled current-limit and an independent, user adjustable current limit. This provides a fail-safe mechanism to prohibit the user from setting the current amplitude set point above the usercontrolled current limit. Safety features of the PCX-7451 include a laser enable keyswitch, an output cable safety interlock, remote interlock, and delayed output enable.



Standard Fast Pulse

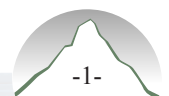


Pulse With Adjusted Rise and Fall Times

For sales information or technical questions contact your local IXYS representative or IXYS Colorado directly at:

Sales: **970.493.1901** or **sales@ixyscolorado.com**

Technical Support: **techsupport@ixyscolorado.com**



<b>PARAMETER</b>	<b>PCX-7451</b>
Output Pulse Amplitude Range	20A to 225A
Output Current Resolution	0.2A
Accuracy At 25A Set point	~1%
Pulse Rise Time	Adjustable 5 $\mu$ s to 1000 $\mu$ s
Pulse Fall Time	Adjustable 5 $\mu$ s to 1000 $\mu$ s
Pulse Width	15 $\mu$ s to 5ms (Measured from the beginning of the rising edge to the end of the falling edge)
Frequency Range	Single Shot or 0.1Hz to 5kHz
Maximum Output Power	300 Watts - 20 Amp output current to 150Amps 250 Watts - 150 Amp output current to 200Amps 200 Watts - 200 Amp output current to 225Amps
Propagation Delay	Less than 2 $\mu$ s to start up ramp
Output Pulse Width Stability	~ $\pm$ 0.5% at 1000 $\mu$ s pulse width, 125A at 120V output voltage
Output Pulse Amplitude Stability	~ $\pm$ 0.5% at 1000 $\mu$ s pulse width, 125A at 120V output voltage
Output Pulse Flatness	~ $\pm$ 0.1% at 1000 $\mu$ s pulse width, 125A at 120V output voltage
Over/undershoot	<2%
Jitter	<10ns shot-to-shot
Output Connector	8 Pin D-sub
<b>COMPLIANCE VOLTAGE</b>	
Range	Up to 120V
Resolution	1V
<b>OVER CURRENT LIMIT</b>	
Range	20A to 225A
Resolution	0.1A
<b>TRIGGER IN</b>	
Trigger Input	TTL or +5V $\pm$ 1V, into 50 $\Omega$ or 1k $\Omega$ , user selectable
Minimum Trigger Pulse Width	500ns
Input Trigger Connector	BNC, Front Panel
<b>SYNC MONITOR OUTPUT</b>	
Sync Monitor	TTL output into 50 $\Omega$
Sync Monitor Connector	BNC, Front Panel
<b>CURRENT MONITOR OUTPUT</b>	
CVR Monitor	75A/V in to 50 Ohms or greater, typically within 0.5% of the displayed actual current
CVR Monitor Connector	BNC, Front Panel
<b>VOLTAGE MONITOR OUTPUT</b>	
Voltage Monitor	25V/1V, typically within 1% of the actual voltage
Voltage Monitor Connector	BNC, Front Panel
<b>GENERAL</b>	
Input AC Power	120-240VAC Nominal, 50/60Hz, Fused at 5A
Dimensions (H X W X D)	19" Rack Mountable, 3 1/2" x 17" x 16"
Weight	Approx. 20 lbs
Cooling	Air
Operating Temperature Range	10C to 35C
Safety	Complies with CDRH US21 CFR 1040.10

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