Precision Pulse Control
The PCX-7401 offers the capability of providing both pulsed and bias outputs. A modern internal trigger source is capable of two modes of operation: duty cycle and single shot. External trigger is available for additional flexibility.

Low Inductance Output Cable
Connection to the laser diode is made through an innovative low-inductance stripline cable, designed to preserve the fidelity of high-speed current pulses. The output connector is interlocked so that the PCX-7401 is disabled when the cable is removed.

Output Protection
The PCX-7401 features advanced circuitry to protect both the laser diode and instrument. At turn on, and at any time the output is not enabled, the PCX-7401’s output is electronically shorted to ground, ensuring that no current flows through the laser diode. Safety features of the instrument include a separate output enable key switch, an output cable safety interlock, and an external enable control signal.

Ease of Setup and Operation
The PCX-7401 may be operated through the intuitive front panel controls. The color LCD provides immediate visual confirmation of all operating parameters.

Store and Recall User Settings
All system configurations may be stored and recalled in the internal non-volatile memory.

Complete System Integration
Automated applications can utilize RS-232, USB, or Ethernet computer interfaces.

Ordering Information
PCX-7401 Precision Pulsed Current Source
6045-0003 Output Stripline Cable
6045-0097 Laser Output PCBA
PCA-9550 Current/Voltage Monitor Cable
PCA-9410 BNC Shorting Connector

Each PCX-7401 is delivered with a Output Stripline Cable, Laser Output PCBA, Current/Voltage Monitor Cable and BNC shorting connector.

For more information contact us: 970.493.1901 or sales@directedenergy.com
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### PCX-7401

**Pulse Amplitude**

- **Output Current Range**: 0.000 A to 3.000 A
- **Setpoint Resolution**: ± 0.001 A
- **Setpoint Accuracy**: ± 0.001 A
- **Compliance Voltage**: ≤ 15 V
- **Overshoot**: < 2 %
- **Maximum Output Power**: 54 W

**Bias Amplitude**

- **Bias Current Amplitude**: 0.000 A to 0.550 A
- **Bias Current Resolution**: ± 0.001 A
- **Bias Current Accuracy**: ± 0.001 A

**Output Parameters**

- **Pulse Width Range**: 100 ns to DC
- **Rise/Fall Time**: ≤ 100 ns
- **Polarity**: Positive

**Internal Trigger**

- **Frequency Range**: 5 Hz to 1.000 MHz
- **Frequency Resolution**: 5 Hz to 995 Hz: 5 Hz
  
  1 kHz to 49.9 kHz: 100 Hz
  
  50 kHz to 1 MHz: 1000 Hz
- **Frequency Accuracy**: ≤ (0.01 x setpoint + 2) Hz
- **T_{jitter}**: ≤ 25 ns
- **Duty Cycle Range**: 1 % to 99 %
- **Duty Cycle Resolution**: 0.01 %
- **Duty Cycle Accuracy**: ± (0.01 x setpoint + 2.5) %

**Internal Single Shot Trigger**

- **Pulse Width Range**: 200 ns to 1.0000 s
- **Pulse Width Resolution**: 6 µs to 1,000 ms
- **Pulse Width Accuracy**: 6 µs to 50 µs: ± 5 ns
  
  501 µs to 2,000 µs: ± 5 µs
  
  2001 µs to 10,000 µs: ± 50 µs
  
  10,000 µs to 65,535 µs: ± 250 µs
  
  65,536 ms to 100 ms: ± 500 µs
  
  100.001 ms to 1,000 ms: ± 2,000 µs

**Pulsed Bias Output**

- **Main Pulsewidth**: 200 ns to 100 µs
- **Fixed Bias**: 100.1 µs to 350 µs
- **Pulsed Bias Output**: 350.1 µs to 1,000 ms

**Trigger Sync Output**

- **Termination**: Requires 50 Ω
- **Connector**: BNC
- **Output Voltage Levels**: 0 V to 4.5 V
- **Delay (sync to output)**: ~ 100 ns

**External Trigger**

- **Frequency Range**: ≤ 2,000,000 Hz
- **Minimum Pulsewidth**: 100 ns
- **Delay (external to output)**: ~ 130 ns
- **Termination Impedance**: 50 Ω or 10 kΩ
- **Connector**: BNC
- **Input Voltage Levels**: 0 V to 5 V
  
  5 V = Output to load
  
  0 V = No output to load

**Computer Interface**

- **RS232, Ethernet, USB**
- **USB Driver Support**: Windows 8, Windows 7, Windows XP, Linux, and MAC OS X

**General**

- **Power Requirements**: 47 Hz to 63 Hz
  
  100 VAC to 120 VAC ± 10 %
  
  220 VAC to 240 VAC ± 10 %

- **AC Inrush Current (typical)**: 35 A/115 VAC
  
  70A/230 VAC

- **AC Connector Type**: NEMA C-14

- **Size (H x W x D)**: 10.66 cm x 29.21 cm x 51.06 cm
- **Weight**: 7.8 kg

- **Operating Temperature**: 15° C to 40° C
- **Cooling**: Air cooled

- **User interface**: Color LCD with touch screen

**Notes**

* Current accuracy +/- 1 mA for output currents with pulse frequency below 100 kHz. Current accuracy between 100 kHz and 1 MHz is:

  +0 mA / −X mA

  Where X =

  (Output frequency in Hz) * (current setpoint in A) / 31,000

** In single shot mode bias is a fixed pulsewidth before and after the main pulsewidth, as shown above.

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

For more information contact us: 970.493.1901 or sales@directedenergy.com

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