Precision Pulse Control
The Mini-10 is a compact and lightweight pulsed current source designed to drive laser diodes, bars, arrays, or any low-impedance load. The key specifications are output current from 1 A to 10 A, rise and fall times below 8 µs at 10 A, pulse widths from 25 µs to 4000 µs, forward voltage from 0 V to 48 V, and pulse repetition rate from single shot to 5,000 Hz.

System Operation
The Mini-10 output current may be set with an internal potentiometer or an analog voltage. The pulse width is controlled with the input trigger signal.

The system requires two DC voltages for operation, 12 V and compliance voltage equal to 12 V above the laser diode’s forward voltage.

Output Cable
The laser or load is connected to the Mini-10 with 22 AWG twisted pair cable (included) with a length of 15 cm (6 inches) or less.

What is included?

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<th>Mini-10</th>
<th>Mini-10 Pulser</th>
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Ordering Information
Mini-10

10 A, 22 V compliance, 20 Hz, 4000 µs pulse width

5 A, 17 V compliance, 20 Hz, 4000 µs pulse width

1 A, 13 V compliance, 20 Hz, 4000 µs pulse width
Pulse Amplitude
Output Current Range 1 A to 10 A
Setpoint Accuracy ±1 % of full scale current
Current Overshoot < 0.1 %
Current Rise/Fall Time
≤ 60 µs : 0.25 A ≤ current setpoint ≤ 0.5 A
≤ 40 µs : 0.5 A ≤ current setpoint ≤ 1 A
≤ 30 µs : 1 A ≤ current setpoint ≤ 2 A
≤ 20 µs : 2 A ≤ current setpoint ≤ 3 A
≤ 15 µs : 3 A ≤ current setpoint ≤ 4 A
≤ 12 µs : 4 A ≤ current setpoint ≤ 5 A
≤ 10 µs : 5 A ≤ current setpoint ≤ 6 A
≤ 8 µs : 6 A ≤ current setpoint ≤ 10 A

Polarity Positive
Forward Voltage 0 V to 48 V

Trigger (J1-Pin 6)
Frequency Range ≤ 5,000 Hz * See SOA graphs on next page
Input Voltage Levels 0 V, output off
5 V, output on
Termination impedance 50 Ω
Trigger pulse width 25 µs to 4000 µs
Delay (external to output) ≤ 1 µs (typical)

Current Setpoint Control (J1-Pin 4)
Input Voltage Levels 5 V or open : internal potentiometer control
0 V : external control
Termination impedance 9,000 Ω
Response time on change ≤ 0.5 µs

Analog Current Setpoint (J1-Pin 5)
Input Voltage Levels 0 V to 2.0 V
0.0 V = 0 A output
2.0 V = 10 A output
Termination impedance 90,000 Ω
Response time on change ≤ 0.5 µs

Current Monitor
Current monitor 0 V to 0.500 V
10 A output current = 0.500 V (typical)
Current monitor termination 50 Ω
Current monitor connector SMB

Control Signal Connector (J1)
Connector Molex # 70553-0110
Pin 1: 12 V DC
Pin 2: 12 V return
Pin 3: 12 V return
Pin 4: Current setpoint control
Pin 5: Analog current setpoint
Pin 6: Trigger

Output Connector (J6)
Connector Molex # 22-12-2024
Pin 1: Out +
Pin 2: Out –

12 V Power Specifications (J1-Pin 1)
Voltage requirements 12 V DC ± 5%
Current requirements 0.100 A

DC Input Connector (J2)
Connector Molex # 22-12-2024
Pin 1: DC +
Pin 2: DC –

DC Input Power Specifications
Voltage requirements forward voltage + 12 V DC ± 5%
Voltage Range 12 V DC to 60 V DC
Current requirements 5.0 A

* Operation of instrument outside of this voltage can cause permanent damage to the instrument and/or load.

General
Size (HxWxD) 11.3 cm x 12.65 cm x 5.4 cm
(4.425” x 4.975” x 2.125”)
Weight 0.5 kg
(16 oz)
Mounting hole diameter 4.5 mm
(0.180”)
Mounting hole placement 3.49 cm x 11.6 cm
(1.375” x 4.575”)
Operating Temperature 10°C to 40°C
Cooling Convection air cooled

Notes
Warranty—One year parts and labor on defects in materials and workmanship.
The Mini-10 current source meets or exceeds these specifications.
All specifications are measured with 10 cm of 22 AWG twisted pair wire connecting the Mini-10 to a low impedance/inductance load (HPL-2400-1.00).
Specifications subject to change without notice.