**Product Features**

**Output current to 220A QCW and 125A CW**

**Compliance voltage up to 35V**

**Proven high power laser diode protection features**

**Precision current control with 10 mA setpoint resolution**

**Hard pulse capability with pulse widths to 2 seconds and duty cycle to 90%**

**Peak and CW forward voltage and photodiode measurement**

**TTL trigger input and output with adjustable delay**

**Temperature measurement with thermistor input**

IEEE488/GPIB interface

The LDX-36000 Series High Power Laser Diode Drivers are a family of high performance current sources designed specifically for controlling and testing high power laser diodes. Over ten models offer maximum current ranges from 10 amps to 220 amps QCW and 125 amps CW with maximum compliance voltages from 12V to 35V. Each instrument offers high setpoint accuracy, low output noise with forward voltage and photodiode measurements in CW, QCW-Pulse and hard pulse operating modes making these instruments ideal for precision, high power laser diode testing.

Multiple laser diode protection features include adjustable voltage and current limits, output shorting relays, slow turn on/off circuits, fast error detection circuits, and transient protection during power up and laser operation. A thermistor based temperature monitor provides additional protection through a programmable temperature limit which can be used to disable the laser output when the limit is exceeded.

Designed for automated laser diode testing in CW or pulse mode, these drivers combine precision control and measurement and an IEEE488/GPIB interface with on-board data storage for high power laser diode characterization. For virtual instrument programming, LabVIEW instrument drivers are available free of charge and can be downloaded from the Newport website.

**Specifications**

**LASER DIODE PROTECTION**

- **Output Shorting Relay**: Normally closed
- **Hardware Fault Response Time**: < 2 μs
- **Open Circuit**: < 50 μs
- **Transistor Protection**: < 2 μs
- **Peak and CW forward voltage and photodiode measurement**
- **TTL trigger input and output with adjustable delay**
- **Temperature measurement with thermistor input**

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Model</th>
<th>Current Range</th>
<th>Voltage Range</th>
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<tbody>
<tr>
<td>LDX-36010-12</td>
<td>10A/20A</td>
<td>12V Laser Diode Current Source</td>
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<tr>
<td>LDX-36010-25</td>
<td>25A/50A</td>
<td>12V Laser Diode Current Source</td>
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<td>LDX-36010-50</td>
<td>50A/100A</td>
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<td>LDX-36010-85</td>
<td>85A/170A</td>
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<td>125A/220A</td>
<td>12V Laser Diode Current Source</td>
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<tr>
<td>LDX-36010-35</td>
<td>10A/20A</td>
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<tr>
<td>LDX-36018-35</td>
<td>18A/40A</td>
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<td>40A/80A</td>
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<td>70A/160A</td>
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<tr>
<td>LDX-36125-24</td>
<td>125A/220A</td>
<td>24V Laser Diode Current Source</td>
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**Safety**

- **EN60950**
- **CE: EN61326-1:2006**
- **EN55011:2007**
- **EMC: 98/336/EEC**
- **21 CFR 1040.10**
- **EN60601 Low voltage directive**
- **EN61010**

**GPIB Interface**

- IEEE488/GPIB
- On-Board Memory Storage: 1000 points
- On-Board Upload Rate: 30 ms/point

**Current Source**

- **Model**: LDX-36010-12
- **Max Current**: 220A QCW
- **Max Voltage**: 35V

**Weight**

- LDX-36010-12: 10.9 kg (24 lbs.)
- LDX-36025-12: 11.9 kg (26 lbs.)
- LDX-36050-12: 13.5 kg (30 lbs.)
- LDX-36085-12: 15.6 kg (34 lbs.)
- LDX-36125-12: 19.2 kg (42 lbs.)
- LDX-36010-35: 12.3 kg (27 lbs.)
- LDX-36018-35: 14.5 kg (32 lbs.)
- LDX-36040-30: 16.3 kg (36 lbs.)
- LDX-36070-30: 18.9 kg (41 lbs.)

**Operating Temperature**

- 0°C to 40°C

**Storage Temperature**

- -40°C to 70°C

**Humidity**

- 20-90% non-condensing

**Regulatory Compliance**

- **CE**: EN55011:2007, EN55022:2007
- **EN61010**
- **EN60601**
- **EN61326-1:2006**
- **EN55011:2007**
- **EMC: 98/336/EEC**
- **Safety: 21 CFR 1040.10**
- **EN60601 Low voltage directive**
- **EN61010**

**Connection**

- **Hybrid D-sub**: Bus Bar
- **Bus Bar**: OR S, rear panel
- **Terminal block, rear panel**: BNC, front panel

**High Voltage Current Sources for High Power Laser Diode Testing**

For information call 1-800-459-9459

ILX Lightwave

31950 Frontage Road, Bozeman, MT 59715 - FAX: 406-586-9405

www.newport.com/ilxlightwave
HIGH POWER PRECISION LASER DIODE TESTING

Each LDX-36000 Series Laser Diode Driver was designed as a current source specifically for high power laser diodes. Ideal for R&D or manufacturing testing, precision low noise current control with set point accuracy of 0.1% of reading is delivered to the lasers, with four-wire voltage measurement and a photodiode monitor with adjustable reverse bias for CW and QCW LIV testing, laser qualification testing, or pulse testing.

A CHOICE OF LASER CURRENT CONTROL MODES

Each LDX-36000 can be operated at full scale current and voltage in CW or QCW mode saving time and reducing cost of test by eliminating multiple instruments and test set-ups. Conduct CW L-I-V testing and pulse testing of high power laser diodes all at the same test station, without moving the laser or changing the output cable. With the 36000’s there is no need for another QCW instrument, simply change operating modes from the front panel or through the GPIB interface, set up the test parameters and start testing quickly in either mode. In QCW mode, the pulse output can be generated either internally with programmable pulse width, duty cycle and frequency parameters or through an external pulse trigger.

For some applications, long pulse widths are required during testing. All 36000 models offer a ‘hard’ pulse mode where the pulse width can be adjusted from 1 ms to 2 seconds with a duty cycle up to 90%.

Additionally, a unique power display mode allows laser diode power to be set based on programmable slope efficiency and threshold current parameters.

PRECISION PULSE CONTROL FOR HIGH POWER LASER TESTING

The LDX-36000 Series offer several QCW operating modes delivering clean pulses with low overshoot and fast rise and fall times. Digital control of pulse width, duty cycle and frequency provide quick and easy control of pulse parameters for maximum flexibility in varying test applications. The pulsed output can be generated in one of three modes; internal pulse, hard pulse, and triggered pulse. If the LDX-36000 is being used in diode-pumped solid state laser and amplifier testing, programmable input and output trigger delays allow for optimizing Q-switch timing and energy extraction without the need for any external delay generators.

DESIGNED TO PROTECT HIGH POWER LASER DIODES

Eliminate problematic current spiking common with voltage sources. Each LDX-36000 Series Laser Diode Driver was designed as a current source specifically for high power laser diodes. The drivers provide multiple laser diode protection features such as current and voltage limits, slow start turn-on, floating outputs, fast error detection, and immunity to operational and power line transients. Careful attention to design has resulted in minimal overshoot in QCW mode or while rapidly stepping current in CW mode at any output current level. Transients from normal instrument operation such as output on/off have been thoroughly tested and minimized as well as transients from inadvertent instrument operation (such as mode switching).

In case of a device failure with multiple devices connected in series, low overshoot and closed-loop power supply control ensure the remaining devices safety. A temperature monitor provides additional protection with a programmable temperature limit which disables the current source output in a limit condition.

HIGH POWER HIGH POWER LASER TESTING

Remote instrument operation is available on all of the LDX-36000 High Power Drivers through an IEEE488/ GPIB interface. All instrument controls and functions are accessible through the interface for easy remote programming and control in automated test systems where repeatable and accurate test sequencing, measurements, and data handling are required. Whether the application is data intensive L-I-V testing, pulsed control for thermal characterization, or R&D evaluations, remote operation of the LDX-36000’s saves time and ensures systematic data collection and instrument operation.

PRECISION L-I-V TESTING

Each LDX-36000 Series Laser Diode Driver was developed specifically for precision L-I-V testing of high power laser diodes with 0.1% set point accuracy, low noise and precision forward voltage measurement capability in CW or QCW pulsed modes. Additionally, the instrument can perform power measurements through an independent photo-diode input calibrated with a user-programmable responsivity. An adjustable 0 to -15V reverse bias ensures linear measurements and fast conversion speed. Accurate forward voltage measurements even with high current and long cable lengths are accomplished real time through a four wire measurement system. Reduce total system cost with these high current drivers; there is no need for separate pulsed sources, voltage measuring instruments, or low current measuring instruments for high power L-I-V testing.

EASE OF OPERATION

Designed for ease of use and readability, the front panel features dual 7-segment LED displays with instrument controls grouped by mode and function. The dual display lets you view laser parameters simultaneously with the bright 7-segment LED display highly visible from a distance in darkened labs. Parameters such as output current setpoint, current and voltage limits and calibration constants are easily selected and adjusted with the rotary digital encoder. Each display is easily configured to indicate laser parameters such as current, voltage, power, and temperature with discrete control push buttons located below each display. System errors such as open circuits and current or voltage limits are indicated with discrete LED’s with an error code indicated on the appropriate seven-segment LED display.

SAVE AND RECALL INSTRUMENT SETTINGS

For multiple instrument test configurations, the LDX-36000 Series Laser Diode Drivers offer a SAVE and RECALL feature. The SAVE function allows you to store all the front panel settings for any given instrument configuration to a numbered bin. The RECALL function allows you to retrieve any of the saved configurations at any time through simple front panel button presses or remotely through the GPIB interface. This saves time in instrument re-configuration for different manufacturing runs or R&D experiments.

PUT OUR EXPERTISE TO WORK

ILX Lightwave is a recognized world leader in Laser Diode Instrumentation and Test Systems. Our products are not only renowned for their reliability, quality, and value, they’re backed by industry-leading after sales support. For more information about the LDX-36000 Series High Power Laser Diode Drivers, and our complete family of Laser Diode instrumentation and Test Systems, call us today or visit our website at www.newport.com/ilxlightwave.
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For some applications, long pulse widths are required during testing. All 36000 models offer a ‘hard’ pulse mode where the pulse width can be adjusted from 1 ms to 2 seconds with a duty cycle up to 90%.

Additionally, a unique power display mode allows laser diode power to be set based on programmable slope efficiency and threshold current parameters.

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In case of a device failure with multiple devices connected in series, low overshoot and closed-loop power supply control ensure the remaining devices safety. A temperature monitor provides additional protection with a programmable temperature limit which disables the current source output in a limit condition.

REMOTE INSTRUMENT OPERATION

Remote instrument operation is available on all of the LDX-36000 Series High Power Drivers through an IEEE488/GPIB interface. All instrument controls and functions are accessible through the interface for easy remote programming and control in automated test systems where repeatable and accurate test sequencing, measurements, and data handling are required. Whether the application is data intensive L-I-V testing, pulsed control for thermal characterization, or R&D evaluations, remote operation of the LDX-36000’s saves time and ensures systematic data collection and instrument operation.

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PUT OUR EXPERTISE TO WORK

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Specifications

**GENERAL**

- GPIB Interface: IEEE488
- On-Board Memory Storage: 1000 points
- On-Board Upload Rate: 30 ms/point
- Current Draw: 100-120VAC ±10% @ 200-240VAC ±10%

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Current</th>
<th>Voltage Range</th>
<th>Current Limit</th>
<th>Voltage Limit</th>
<th>Output Enable Delay</th>
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<tbody>
<tr>
<td>LDX-36010-12</td>
<td>4A</td>
<td>12V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36025-12</td>
<td>6A</td>
<td>12V</td>
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<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36050-12</td>
<td>10A</td>
<td>12V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36085-12</td>
<td>15A</td>
<td>12V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36125-12</td>
<td>20A</td>
<td>12V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36010-35</td>
<td>7A</td>
<td>35V</td>
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<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36018-35</td>
<td>10A</td>
<td>35V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
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<tr>
<td>LDX-36040-30</td>
<td>20A</td>
<td>10V</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
<tr>
<td>LDX-36070-30</td>
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<td>10V</td>
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<td>2s</td>
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<td>LDX-36125-24</td>
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<td>16A</td>
<td>0 to full scale</td>
<td>0 to full scale</td>
<td>2s</td>
</tr>
</tbody>
</table>

Size (HxWxD) **168mm x 450mm x 451mm** 
Size (10 1/4 x 9 3/4 x 17 3/4 in.)

Weight: LDX-36010-12: 10.9 kg (24 lbs.)
LDX-36025-12: 11.9 kg (26 lbs.)
LDX-36050-12: 13.5 kg (30 lbs.)
LDX-36085-12: 17.5 kg (39 lbs.)
LDX-36125-12: 21.5 kg (46 lbs.)
LDX-36010-35: 12.9 kg (28 lbs.)
LDX-36018-35: 15.6 kg (34 lbs.)
LDX-36040-30: 18.3 kg (40 lbs.)
LDX-36070-30: 24.7 kg (54 lbs.)
LDX-36125-24: 33 kg (72 lbs.)

Operating Temperature: 0°C to 40°C
Storage Temperature: -40°C to 70°C
Humidity: 20-85% non-condensing
EMC: 95/105/EEC
Safety: 21CFR1040.10
EN60950

Regulatory Compliance:
- EN60950 Low voltage directive

Connection:
- Current Output (+/0A): 4-pin D-sub
- Current Input (0A): Bus Bar
- Measurement Input: DIP 9-pin rear panel
- Interlock: Terminal block; rear panel
- Input/Output Trigger: BNC; front panel
- Pulse Out: BNC; rear panel

ORDERING INFORMATION

- LDX-36010-12: 10A/20A, 12V Laser Diode Current Source
- LDX-36025-12: 25A/50A, 12V Laser Diode Current Source
- LDX-36050-12: 50A/100A, 12V Laser Diode Current Source
- LDX-36085-12: 85A/170A, 12V Laser Diode Current Source
- LDX-36125-12: 125A/220A, 12V Laser Diode Current Source
- LDX-36010-35: 10A/20A, 35V Laser Diode Current Source
- LDX-36018-35: 12A/24A, 35V Laser Diode Current Source
- LDX-36040-30: 20A/40A, 30V Laser Diode Current Source
- LDX-36070-30: 30A/60A, 30V Laser Diode Current Source
- LDM-4409: Temperature Controlled C-Mount Fixture
- LDM-4415: Temperature Controlled CB Bar Mount Fixture
- LDM-4894: High Power Butterfly Mount
- LDM-4894ST: High Power Butterfly Mount with Case Control
- LDM-4896: High Power 2-Pin Module Mount
- LDM-4896ST: High Power 2-Pin Module Mount with Case Control
- LDM-489801: 10640 Terminal Block for JDS Uniphase Devices

In keeping with our commitment to continuing improvement, ILX Lightwave reserves the right to change specifications without notice or liability for such changes.

**LASER DIODE PROTECTION**

- Output Shorting Relay: Normally closed
- Hardware Fault Response Time: < 2 μs
- Open Circuit: < 50 μs
- Transient Protection: Output On/Off EFT/Surge
- Repairable Current Limit: 0 to full scale
- Interlock Response Time: < 6 ms
- Peak and CW forward voltage and photodiode measurement
- TTL trigger input and output with adjustable delay
- Temperature measurement with thermistor input

**PRODUCT FEATURES**

- High power laser diode protection features
- Precision current control with 10 mA setpoint resolution
- Hard pulse capability with pulse widths to 2 seconds and duty cycle to 90%
- Peak and CW forward voltage and photodiode measurement

**SAFETY**

- UL: 60601-1
- UL: 60950
- IEC: 898:2010
- Interlocks: Terminal block; rear panel
- Input/Output Trigger: BNC; front panel
- Pulse Out: BNC; rear panel

- Input: 100-120VAC +10% 200-240VAC +10%

The LDX-36000 Series High Power Laser Diode Drivers are a family of high performance current sources designed specifically for controlling and testing high power laser diodes. Over ten models offer maximum current ranges from 10 amps to 220 amps QCW and 125 amps CW with maximum compliance voltages from 12V to 35V. Each instrument offers high setpoint accuracy, low output noise with forward voltage and photodiode measurements in CW, QCW-Pulse and hard pulse operating modes making these instruments ideal for precision, high power laser diode testing.

Multiple laser diode protection features include adjustable voltage and current limits, output shorting relays, slow turn on/off circuits, fast error detection circuits, and transient protection during power up and laser operation. A thermistor based temperature monitor provides additional protection through a programmable temperature limit which can be used to disable the laser output when the limit is exceeded.

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**Specifications**

### DRIVE CURRENT OUTPUT

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<th>Current Range</th>
<th>CW</th>
<th>Pulse</th>
<th>HiPulse</th>
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<tr>
<td>125A</td>
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| Resolution    | 10 mA | 10 mA | 10 mA | 10 mA | 10 mA |

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<tr>
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<td>20 µs</td>
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<td>100 µs</td>
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### CURRENT LIMIT

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<th>100A</th>
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<td>131.2A</td>
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| Resolution    | 10 mA | 10 mA | 10 mA | 10 mA | 10 mA | 10 mA | 10 mA |

### MEASUREMENT

**Forward Voltage**

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<th>0.00 to 6.250V</th>
<th>0.00 to 13.000V</th>
<th>0.00 to 19.750V</th>
<th>0.00 to 26.500V</th>
<th>0.00 to 33.250V</th>
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<tr>
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<td>10 mV</td>
<td>10 mV</td>
<td>10 mV</td>
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**Accuracy**

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<th>±0.05% of full scale</th>
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**Reverse Bias**

<table>
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<th>Range</th>
<th>0 to -20V</th>
<th>0 to -40V</th>
<th>0 to -60V</th>
<th>0 to -80V</th>
<th>0 to -100V</th>
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<td>Resolution</td>
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<td>10 mV</td>
<td>10 mV</td>
<td>10 mV</td>
</tr>
</tbody>
</table>

**Accuracy**

| ±0.1% | ±0.2% | ±0.3% | ±0.4% | ±0.5% |

<table>
<thead>
<tr>
<th>Rise/Fall Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 µs</td>
</tr>
</tbody>
</table>

**PD Responsivity**

<table>
<thead>
<tr>
<th>Range</th>
<th>0 to 100 µA</th>
<th>0 to 1000 µA</th>
<th>0 to 10000 µA</th>
<th>0 to 10000 µA</th>
<th>0 to 10000 µA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>100 µV</td>
<td>100 µV</td>
<td>100 µV</td>
<td>100 µV</td>
<td>100 µV</td>
</tr>
</tbody>
</table>

**Noise and Ripple**

| ±5 mA rms | ±10 mA rms | ±20 mA rms | ±40 mA rms | ±60 mA rms |

**Temperature Coefficient**

| ±100 ppm/°C | ±200 ppm/°C | ±300 ppm/°C | ±400 ppm/°C |

**Stability**

| ±1% | ±2% | ±3% | ±4% |

<table>
<thead>
<tr>
<th>Event Triggering (All Models)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTL Level: active high</td>
</tr>
</tbody>
</table>

**Notes**

1. All specifications subject to 1-hour warm-up and ±5°C.
2. ±0.01% is +0.01% or <0.01%; ±0.03% is +0.03% or <0.03%.
3. From the initial condition of the laser in operation.
4. All values measured at 25°C.
5. All values measured at 25°C ±5°C.
6. ±0.1% accuracy is ±0.1% of setpoint range + ±0.01%.
7. ±0.5% measured at room temperature and at ±5°C.
8. ±1% accuracy at 10K Thermistor temperature sensor.
9. ±0.1% at ±15% for standard laser, ±0.2% for standard laser with ±15% accuracy.
10. ±0.3% at ±15% for standard laser, ±0.6% for standard laser with ±15% accuracy.
11. ±0.5% accuracy at ±15% for standard laser, ±1.1% for standard laser with ±15% accuracy.
12. +0.05% of full scale + ±2%.
13. ±2% of full scale + ±2%.
14. ±5% of full scale + ±2%.
15. ±10% of full scale + ±2%.
16. ±15% of full scale + ±2%.
17. ±20% of full scale + ±2%.
18. ±25% of full scale + ±2%.
19. ±30% of full scale + ±2%.
20. ±35% of full scale + ±2%.
21. ±40% of full scale + ±2%.
22. ±45% of full scale + ±2%.
23. ±50% of full scale + ±2%.
24. ±55% of full scale + ±2%.
25. ±60% of full scale + ±2%.
26. ±65% of full scale + ±2%.
27. ±70% of full scale + ±2%.
28. ±75% of full scale + ±2%.
29. ±80% of full scale + ±2%.
30. ±85% of full scale + ±2%.
31. ±90% of full scale + ±2%.
32. ±95% of full scale + ±2%.
33. ±100% of full scale + ±2%.
### Specifications

**Drive Current Output**

<table>
<thead>
<tr>
<th>CW</th>
<th>Pulse</th>
<th>ICPR</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>15A</td>
<td>25A</td>
<td>50A</td>
<td>85A</td>
</tr>
</tbody>
</table>

**Supply Current Resolution**

<table>
<thead>
<tr>
<th>-80 mA</th>
<th>+80 mA</th>
<th>+80 mA</th>
<th>+120 mA</th>
<th>+20 mA</th>
<th>+20 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
</tr>
</tbody>
</table>

**Supply Point Accuracy**

| ±0.1% | ±20 mV | ±0.2°C | - |

**Setting Time**

| 10 µs | 20 µs |

**Reverse Bias**

| 0.05% | 0.1% |

**Current Source**

| ±3 µA | ±3 µA |

**Temperature Coefficient**

| +50 ppm/°C | +50 ppm/°C |

**Voltage Limit**

| ±3100 V |

**Trigger Controller**

| 100 µs | ±0.05% |

**Noise and Ripple**

| ±5 mA | ±10 mA |

**1kV EFT/Surge**

| ±480 mA | ±800 mA |

**Stability**

| ±50 µµA/µs |

**Jitter**

| ±100 µs |

**Power Control Range**

| ±0.01% | ±0.5 µs |

**Rise/Fall Time**

| ±0.1% | ±0.1% |

**Rise/Fall Time**

| ±100 µs |

**Jitter**

| ±200 ns |

**Power Controller**

| ±0.01% | ±200 µs |

**Pulse Delay**

| ±200 µs |

**Trigger Output**

| TTL Level |

**Trigger Pulse Width**

| ±10 µs |

**Current Source Accuracy**

| ±0.01% | ±10 mA |

**VOLTAGE LIMIT**

| ±200 V |

**Voltage Range**

| ±100 mV | ±100 mV |

**Voltage Resolution**

| ±100 mV |

**Voltage Accuracy**

| ±2% | ±200 mV |

**Current Source Output**

| ±200 mV |

**Current Source Specifications**

| ±200 mV |

**Notes**

1. Actual measurements made on <500 mA output at 40°C.
2. All specifications are for 360° operation with ILX Lightwave's ILX Lightwave TS-510 calibration thermistor.
3. Maximum power available from the laser diode in the specified range, with all stated temp. and voltage limits.
4. From the rated range at the 50% duty cycle.
5. All specifications for ±100% duty cycle, ±5% output voltage, ±10% output current, ±5°C/°C temperature range, ±50 ppm/°C temperature coefficient, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
6. Measurement range limited to ±150°C; higher temperature measurement will result in measured temperature error.
7. ±100 ppm/°C temperature coefficient; accurate within ±10%. 
8. All specifications measured with ±100% duty cycle and ±5% output voltage. 
9. Standard conditions assumed of typical laser diode and ±1% current or ±1% voltage, ±10°C/°C temperature range, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
10. From the rated range at the 50% duty cycle.
11. All specifications for ±100% duty cycle, ±5% output voltage, ±10% output current, ±5°C/°C temperature range, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
12. All specifications measured with ±100% duty cycle and ±5% output voltage. 
13. ±100 ppm/°C temperature coefficient; accurate within ±10%. 
14. Maximum power available from the laser diode in the specified range, with all stated temp. and voltage limits. 
15. From the rated range at the 50% duty cycle.
16. All specifications for ±100% duty cycle, ±5% output voltage, ±10% output current, ±5°C/°C temperature range, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
17. All specifications measured with ±100% duty cycle and ±5% output voltage. 
18. ±100 ppm/°C temperature coefficient; accurate within ±10%.
19. Standard conditions assumed of typical laser diode and ±1% current or ±1% voltage, ±10°C/°C temperature range, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
20. From the rated range at the 50% duty cycle.
21. All specifications for ±100% duty cycle, ±5% output voltage, ±10% output current, ±5°C/°C temperature range, ±100 mV/°C voltage coefficient, ±100 mV/°C current coefficient.
22. All specifications measured with ±100% duty cycle and ±5% output voltage. 
23. ±100 ppm/°C temperature coefficient; accurate within ±10%.
### Specifications

#### DRIVE CURRENT OUTPUT

<table>
<thead>
<tr>
<th>Current Range</th>
<th>CW</th>
<th>Pulse</th>
<th>HPulse</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 A</td>
<td>10 A</td>
<td>10 A</td>
<td>10 A</td>
</tr>
<tr>
<td>45 A</td>
<td>45 A</td>
<td>45 A</td>
<td>45 A</td>
</tr>
<tr>
<td>60 A</td>
<td>60 A</td>
<td>60 A</td>
<td>60 A</td>
</tr>
<tr>
<td>100 A</td>
<td>100 A</td>
<td>100 A</td>
<td>100 A</td>
</tr>
<tr>
<td>125 A</td>
<td>125 A</td>
<td>125 A</td>
<td>125 A</td>
</tr>
</tbody>
</table>

#### Set-Point Resolution

<table>
<thead>
<tr>
<th>10 mA</th>
<th>10 mA</th>
<th>10 mA</th>
<th>10 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
<td>10 mA</td>
</tr>
<tr>
<td>20 mA</td>
<td>20 mA</td>
<td>20 mA</td>
<td>20 mA</td>
</tr>
</tbody>
</table>

#### Set-Point Accuracy

<table>
<thead>
<tr>
<th>±(0.1% ±20 mV)</th>
<th>±(0.1% ±20 mV)</th>
<th>±(0.1% ±20 mV)</th>
<th>±(0.1% ±20 mV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±(0.1% ±20 mV)</td>
<td>±(0.1% ±20 mV)</td>
<td>±(0.1% ±20 mV)</td>
<td>±(0.1% ±20 mV)</td>
</tr>
</tbody>
</table>

#### Setting Time

<table>
<thead>
<tr>
<th>±20 µs</th>
<th>±20 µs</th>
<th>±20 µs</th>
<th>±20 µs</th>
</tr>
</thead>
<tbody>
<tr>
<td>±20 µs</td>
<td>±20 µs</td>
<td>±20 µs</td>
<td>±20 µs</td>
</tr>
</tbody>
</table>

#### Event Triggering (ALL MODELS)

**Notes**

1. All values measured after 1-hour warm-up at 25°C.
2. Measured from 10% to 90% points at half-scale output at the end of an ILX CC-390 cable into a high impedance 10 kΩ thermistor.
3. Measured with a 0.5% accuracy reference laser with a 0.01% deviation at ±0.05 µA, with an uncertainty of ±20 ppm.
4. Measured with a 0.1% accuracy reference laser with a 0.05% deviation at ±0.5 µA, with an uncertainty of ±50 ppm.
5. Measured with a 0.01% accuracy reference laser with a 0.001% deviation at ±5 µA, with an uncertainty of ±500 ppm.

**Trigger Output**

- TTL Level: active high

**Delay to Output**

- Programmable

**Pulse Mode**

- Pulse Output Trigger: TTL Level, high impedance

**Power Control Range**

- CW: 0 to 10.5 A
- Pulse: 0 to 22.0 A
- HPulse: 0 to 43.0 A
- QCW: 0 to 85.0 A

**Pulse Frequency**

- Range: 0.1 to 1000 Hz
- Resolution: 0.1 Hz
- Accuracy: ±(2% + 2 µs)

**Pulse Width**

- Range: 0.01 ms to 20 ms
- Resolution: 0.01 ms
- Accuracy: ±(2% + 2 µs)

**Pulse Mode**

- 2 µs to 1 ms
- HPulse Mode: 1 ms to 20 ms

**VOLTAGE LIMIT**

- CW: 0.00 to 35.00 V
- Pulse: 0.00 to 30.00 V
- HPulse: 0.00 to 24.00 V

**Reverse Bias**

- Range: 0 to -15 V
- Resolution: 500 mV
- Accuracy: ±100 ppm

**Reverse Bias**

- Range: 3 to 10000 µA
- Resolution: 3 µA
- Accuracy: ±0.1% + 0.5 µs

**Power Control Range**

- CW: 0 to 10.5 A
- Pulse: 0 to 22.0 A
- HPulse: 0 to 43.0 A
- QCW: 0 to 85.0 A

**Forward Voltage**

- Range: 0.00 to 35.00 V
- Resolution: 10 mV
- Accuracy: ±2% + 10 mV

**Noise and Ripple**

- Range: 0 to 10000 µA
- Resolution: 3 µA
- Accuracy: ±0.1% + 0.5 µs

**Compliance Voltage**

- Range: 30 V
- Resolution: 10 mV
- Accuracy: ±2% + 10 mV
### Specifications

#### Drive Current Output

<table>
<thead>
<tr>
<th>Specifications</th>
<th>36000 Series</th>
<th>36125-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW</td>
<td>10 A</td>
<td>16 A</td>
</tr>
<tr>
<td>Pulse</td>
<td>20 A</td>
<td>45 A</td>
</tr>
<tr>
<td>HPulse</td>
<td>10 A</td>
<td>16 A</td>
</tr>
<tr>
<td>Set Point Resolution</td>
<td>10 mA</td>
<td>15 mA</td>
</tr>
<tr>
<td>Set Point Accuracy</td>
<td>5%</td>
<td>10 mA</td>
</tr>
<tr>
<td>Setting Time</td>
<td>20 µs</td>
<td>30 µs</td>
</tr>
<tr>
<td>HPulse</td>
<td>80 µs</td>
<td>80 µs</td>
</tr>
<tr>
<td>Maximum CW Power</td>
<td>300 W</td>
<td>630 W</td>
</tr>
<tr>
<td>Compliance Voltage</td>
<td>350 V</td>
<td>600 V</td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>50 ppm/C°</td>
<td>50 ppm/C°</td>
</tr>
<tr>
<td>Stability</td>
<td>200 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>Noise and Ripple</td>
<td>&lt;10 mV rms</td>
<td>&lt;10 mV rms</td>
</tr>
<tr>
<td>Transient</td>
<td>&lt;40 mA</td>
<td>&lt;40 mA</td>
</tr>
</tbody>
</table>

#### QCW Mode

- **Pulse Mode**:
  - Range: 40 µs to 1 ms
  - Resolution: 100 µs

- **HPulse Mode**:
  - Range: 1 ms to 3 ms
  - Resolution: 1 ms

- **Pulse Frequency**:
  - Range: 0.1 to 1000 Hz
  - Resolution: 0.1 Hz

- **Duty Cycle**:
  - Range: 0.5 to 100%
  - Resolution: 0.1%

- **Max Pulsel Rate**
  - Range: <10 µs
  - Resolution: 50 µs

- **HPulse Mode**: 200 µs to 200 µs

#### Voltage Limit

- **Range**: 0–38 V
- **Resolution**: 100 mV
- **Accuracy**: ±5% of 200 mV

### Current Limit

<table>
<thead>
<tr>
<th>Specifications</th>
<th>36010-35</th>
<th>36018-35</th>
<th>36040-30</th>
<th>36070-30</th>
<th>36125-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW</td>
<td>0 to 10.5 A</td>
<td>0 to 18.9 A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>QCM</td>
<td>0 to 22.0 A</td>
<td>0 to 43.0 A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>10 mA</td>
<td>10 mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firmware Accuracy Limit</td>
<td>±2%</td>
<td>±2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware Accuracy Limit</td>
<td>±2%</td>
<td>±2%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Measurement

- **Forward Voltage**:
  - Range: 0.00 to 35.00 V
  - Resolution: 10 mV

- **Reverse Bias**:
  - Range: 0 to -15V
  - Resolution: 100 mV

- **Temperature**:
  - Resolution: 0.01°C

- **Transients**:
  - Range: 0 to 38 V
  - Resolution: 100 µA

- **Trigger Output**:
  - TTL Level: active high
  - Delay of Output: Programmable
  - Pulse Output: Programmable

### Notes

1. All values measured after 1-hour warm-up and at 25°C.
2. 1% current drain at maximum output power is expected in continuous waveform mode.
3. From the time the trigger pulse is applied.
4. Achieve and ECG-300 input pulse in CPM mode (200µs, 90°) the input pulse in the DPM mode.
5. High swing output current measured with a standard coaxial cable on a 1000:1 current transformer.
6. Output current and input impedance with forced convection at maximum power output and the highest stress temperature.
7. Output current and input impedance with maximum power and the highest stress temperature.
8. Power control range accuracy is subject to output power change.
9. The responsivity value is user-defined and is used to calculate optical power.
10. At 25°C, accuracy while using ILX Lightwave TS-510 calibrated 10k thermistor.
11. Interlock fault time measured from event to device shorting protection enabled.
12. Total external dimensions including handles and support feet. Handles add 1.5” (3.8 cm) and feet add 0.56” (1.4 cm) to overall dimensions.
13. Total external dimensions including handles and support feet. Handles add 1.5” (3.8 cm) and feet add 0.56” (1.4 cm) to overall dimensions.
14. In keeping with our commitment to continuous improvement, ILX Lightwave reserves the right to change specifications without notice.