Model 762
OEM PULSED LASER DIODE DRIVER

OEM Seed Laser Diode Driver Assembly

- OUTPUT CURRENT UP TO 2.5 AMPS
- OUTPUT PULSEWIDTH 20ns TO CW
- COMPLIANCE VOLTAGE TO 2.5V
- ON-BOARD PULSE GENERATOR
- DIGITAL OR ANALOG CONTROL
- +5VDC INPUT POWER
- RoHS COMPLIANT

DESCRIPTION:
AMI's Model 762 OEM programmable seed laser diode drivers are ideal for driving 14-pin butterfly packaged laser diode modules for use in CW or pulsed fiber MOPA systems. Applications include materials processing, LIDAR systems for remote sensing, laser communication and rangefinding.

SPECIFICATION:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>762</th>
<th>762-EXT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min.</td>
<td>Typical</td>
</tr>
<tr>
<td><strong>INPUT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power (Driver and TEC)</td>
<td>4.75</td>
<td>5.0</td>
</tr>
<tr>
<td>Current (Driver and TEC)</td>
<td>-</td>
<td>0.330</td>
</tr>
<tr>
<td>Power (Laser)</td>
<td>3.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Current (Laser) (Laser dependent)</td>
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<td>-</td>
</tr>
<tr>
<td>Control Voltage (50 Ω Impedance)</td>
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<td>N/A</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>0.1</td>
<td>-</td>
</tr>
<tr>
<td>Compliance Voltage</td>
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<td>2.0</td>
</tr>
<tr>
<td>Pulseswidth</td>
<td>20</td>
<td>CW</td>
</tr>
<tr>
<td>Repetition Rate</td>
<td>Single Shot</td>
<td>- 10</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Risetime (Optical) @ 2A</td>
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<td>10</td>
</tr>
<tr>
<td>Falltime (Optical) @ 2A</td>
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<td>10</td>
</tr>
<tr>
<td>Analog Back Facet Monitor</td>
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<td>-</td>
</tr>
<tr>
<td>TEC Voltage</td>
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<td>-</td>
</tr>
<tr>
<td>TEC Current</td>
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<td>-</td>
</tr>
</tbody>
</table>

Faster risetimes, shorter pulsedwidths, higher voltage, and CW operation possible under certain operating conditions (consult factory).

Specifications are subject to change without notice.

APPLICATIONS:
Seed Laser Diode Driver/Pump Laser Diode Driver for Pumping Fiber Lasers
### PROTECTION:
- Adjustable current limit
- Driver disabled when laser temperature exceeds temp window

### CONNECTIONS:
- **Back Facet Monitor:** Micro Coax Connector (Amphenol 908-24100)
- **Power:** 3 pin Terminal Block (Molex 0393570003)
- **Interface:** 8 & 14 Pin AMP MicroMatch Connectors (7-215460-8 & 8-215460-4)

### TEMPERATURE:
- **Operating:** 0ºC to +50ºC
- **Storage:** -20ºC to +70ºC

### SIZE:
- 2.9" x 3.00" x 0.5"

### DIGITAL CONTROL:
Asynchronous (9600bps, 8nl serial) protocol or I²C slave protocol (100 or 400kHz). All logic inputs are TTL, 5V CMOS compatible. Digital outputs are pulled up to +5V internally with 4.75kΩ except AMP SYNC1/AMP SYNC 2 pulled up to +5V with 300Ω.

### THERMAL:
On-board TEC Controller will provide heating and cooling as necessary to maintain desired operating point. Thermistor and the TE cooler are in the laser diode package (not included). Customer may need to provide thermal mass for heatsinking under high dissipation conditions.

### OPERATING NOTES:

The driver circuitry operates from a single +5V power source. Additional voltages are generated on the board by high efficiency switching power supplies. The laser power input may be operated down to +3V to conserve power at the expense of switching speed. Input laser power may also be increased up to +12V to enhance switching speed for high inductance lasers. For most applications laser power may be tied to the driver +5V supply, or through an external switch as an additional safety interlock.

An on-board field programmable gate array (FPGA) is programmed to handle communications, to modify adjustable features, and to provide external flags and signals to a host system. The FPGA also contains a comprehensive pulse generation system with many programmable features. Adjustments can also be made through analog operation by the use of multi-turn potentiometers and providing an external TTL trigger pulse so a serial interface is not required. A graphical user interface (GUI) program is included for easy control and programming from a PC. The driver supplies a bidirectional proportional-integral-derivative (PID) thermoelectric cooler (TEC) controller with current capability of 3A and voltage capability of 4.2V.

The 762-EXT is offered for those who require agile control of the laser current, want to modulate the current or drive the laser with arbitrary waveforms, pulses with variable rise/fall times or modified pulse flatness. An external control voltage with a calibration of 1A/V is required for this mode of operation and the potentiometer and digital control of the laser current are disabled.

The board is manufactured as a RoHS compliant assembly built to the Directive 2002/95/EC requirements. A heatsink adapter plate to mount to an external heatsink and all required mating cables are supplied with each unit. Contact AMI today to discuss your custom requirements.
Sample Optical Output Waveforms

Data taken with 3S Photonics Model 1064CHP

- 20ns Pulsewidth, 2A Drive Current, 1KHz Frequency

Data taken with Oclaro Model LC96A1060-20R

- 20ns Pulsewidth, 2A Drive Current, 1KHz Frequency

Effects of increased laser voltage on output

- 3S Photonics, 20ns Pulsewidth, 2A Drive Current, 1KHz Frequency, 6V Laser Voltage
- Oclaro, 200ns Pulsewidth, 2A Drive Current, 1KHz Frequency, 12V Laser Voltage
Included Graphical User Interface Program