

EV4G Green Laser

Designed to Meet Precise Marking and Material Processing Applications

The Telesis® EV4G is a fiber-coupled, diode-pumped, solid state (DPSS), green wavelength laser marking system. The laser beam and Q-switched pulse characteristics are optimized for applications that require high beam quality and stability. In addition, the EV4G offers extra power and speed for precision marking and it is the ideal choice for laser marking, scribing, trimming, and other material processing applications. With average diode life of greater than 20,000 working hours, the EV4G offers the user “best-in-class” reliability. The robust mechanical and optical design of the Telesis EV4G enables operation in an industrial environment where shock, vibration, and dust are a concern.



The EV4G excels in beam quality and durability

- Reliable, long-life, maintenance-free performance
- Compact size and modular construction
- Remote, fiber-coupled pump diode
- Exceptional beam quality and stable output power
- Air cooling
- Thermo-electrical temperature control of the laser crystal and pump diode
- Separate temperature controller for non-linear crystal
- Active AO Q-switching
- Large digital display for marker status, settings, and error condition monitoring
- Standard 115/230VAC operation
- DoD compliant Unique Identification (UID) marking

Operation-enhancing options for the EV4G

- Desktop computer or notebook computer with powered cardbus-to-PCI expansion enclosure
- Externally-mounted focus-finder diode
- Tool post with manual hand crank for z-axis adjustment
- Pushbutton station (start/abort)
- I/O options:
 - TTL via PCI-DIO24 card (kit #53920)
 - Opto-isolated via Merlin® DCIO module (kit #53928)
 - TMC090 controller (for auxiliary axes; additional I/O)
- Programmable X-, Y-, or Z-axis (TMC090 required)
- Rotary drive fixture (TMC090 required)
- Vacuum system
- Workstation/work area enclosures

SPECIFICATIONS

EV4G Laser

| | |
|-------------------------------------|--|
| Compliance | CDRH |
| Laser Type | Fiber-coupled, diode pumped, Q-switched, Nd:YVO ₄ |
| Wavelength | 532 nanometers (nm) |
| Average Power | 4 watts at 532nm |
| Expected Diode Lifetime | Greater than 20,000 hours |
| Long Term Output Power Drift | Less than ±2% |
| Maximum Power Consumption | Less than 600 watts |
| Input Power | 95 – 250 VAC, 6 amps, 50/60 Hz – single phase |
| Supply Voltage Fluctuation | ±10%, maximum; clean ground line |
| Operating Temperature | 18° – 30°C (65° – 86°F) |
| Recommended Temperature | 20° – 25°C (68° – 77°F) |
| Operating Relative Humidity | 10% – 85% non-condensing |

Specifications measured at 20 kHz

Laser Marking Head

| | |
|-----------------------------------|--|
| Dimensions (L x W x H) | 685.50 x 245.31 x 191.11mm (26.988 x 9.658 x 7.524") |
| Surrounding Envelope | 840 x 305 x 250mm (33.0 x 12.0 x 10.0") |
| Mounting Weight | Approximately 25 kg (55 lbs.) |
| Mounting Holes | Six factory-tapped M5-0.80 |
| Field Resolution | 16 bit (65535 data points) |
| Galvanometer Repeatability | Less than 22 micro radian |
| Marking Field Size | Lens-dependent (see chart below) |
| Fiber-Optic Cable Length | 1.75m (5.73 ft.) |
| Cooling | Air cooled, active thermo-electric |

| Lens | Marking Field | Focal Clearance |
|-------|----------------------------|-----------------|
| 100mm | 55 x 55mm (2.17 x 2.17") | 90mm (3.54") |
| 160mm | 110 x 110mm (4.33 x 4.33") | 176mm (6.93") |
| 250mm | 170 x 170mm (Y) | 288mm (11.34") |

Operator Control Panel

The front panel includes the system key switch, laser off pushbutton, manual safety shutter control, function indicators, and LCD display. The display allows monitoring of the diode current, the crystal and diode temperatures, system status, and error conditions.



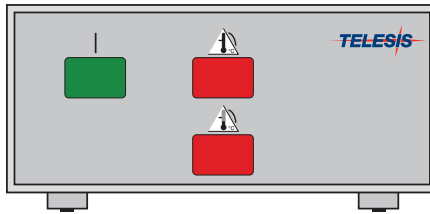
SPECIFICATIONS

Laser Controller

| | |
|-------------------------------|--|
| Dimensions (W x H x D) | 420 x 140 x 500mm (16.5 x 5.5 x 19.5") |
| Surrounding Envelope | 500 x 140 x 560mm (19.5 x 5.5 x 22.0") |
| Weight | Approximately 10 kg (22 lbs.) |
| Cooling | Air cooled, active thermo-electric |

Temperature Controller

The temperature controller contains a power supply and temperature stabilization circuits for the non-linear crystal. The controller front panel contains three indicators: power on, over temperature, and under temperature.



SPECIFICATIONS

Temperature Controller

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|-------------------------------|--|
| Dimensions (W x H x D) | 212.82 x 96.09 x 211.79mm (8.380 x 3.783 x 8.338") |
| Surrounding Envelope | 280 x 165 x 280mm (11.0 x 6.5 x 11.0") |
| Weight | Approximately 1.82 kg (4 lbs.) |
| Cooling | Air cooled, ambient air |

System Software

The powerful Telesis Merlin® II LS Laser Marking software is a Windows® based software package that comes standard with the laser marking system. It is a graphical user interface that makes marking pattern design quick and easy. The WYSIWYG (what-you-see-is-what-you-get) interface provides a to-scale image of the pattern as it is created. Just “click and drag” for immediate adjustment to field size, location, or orientation.

The Merlin® II LS includes tools to create and edit text (at any angle), arc text, rectangles, circles, ellipses, and lines. Multiple fields may be grouped and saved as a block to form a logo. Existing DXF files can also be imported for marking. Non-printable fields can be created to clearly display a graphical representation of the part being marked.

SPECIFICATIONS

Merlin II® LS Laser Marking Software

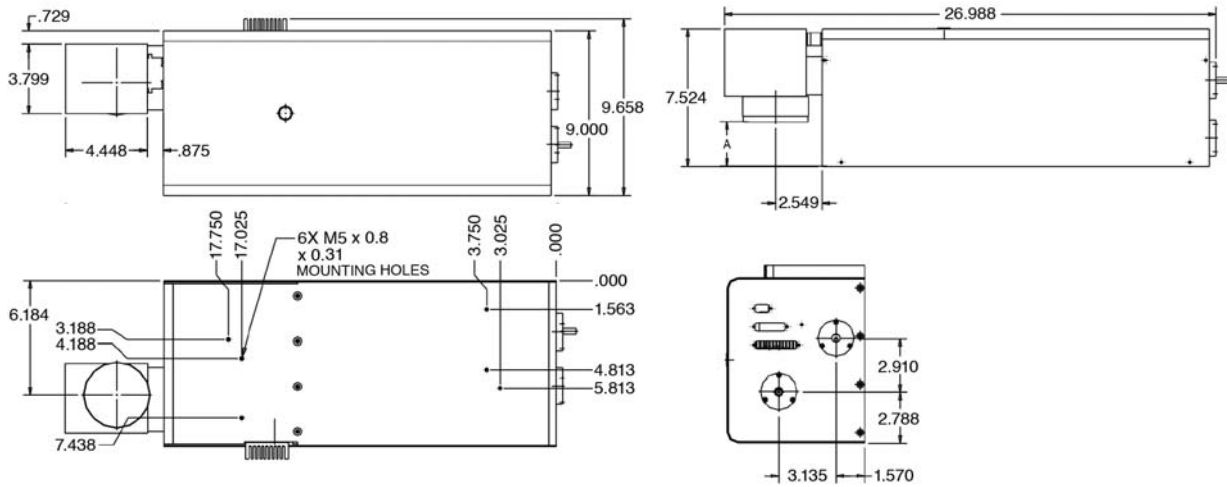
| | |
|----------------------------|--|
| Operating System | Windows® 2000, Windows® XP, or Windows® Vista™ Business using a desktop PC or notebook PC |
| Font Generation | True Type fonts |
| Barcodes and Matrix | 2-D Data Matrix, PDF417, BC 39, Interleaved 2 of 5, UPCA/UPCE BC 128, Maxi Code, Code 93, QR code and others |
| Graphic Formats | Raster and vector: BMP, GIF, JPG, WMF, EMF, PLT, DXF |
| Serialization | Automatic and manual input Host interface capable |
| Linear Marking | Scalable with letter spacing control |
| Arc Text Marking | Scalable and adjustable |
| Drawing Tools | Line, rectangle, circle, ellipse |

The modular and flexible EV4G system

- **Laser controller** – contains pump diode, RF driver, and other electrical components
- **Temperature controller** – contains power supply and temperature stabilization circuits for non-linear crystal
- **Fiber optic cable assembly**
- **Laser marking head** – contains sealed resonator, beam expander, and galvanometer assembly
- **Software** – Merlin® II LS Laser Marking software
- **System computer** – supplied by Telesis or by customer

Its unique modular design integration into a workstation or process line is a simple task.

EV4G Laser Marking Head Dimensions and Mounting Details



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