

Coherent

Continuous-Wave

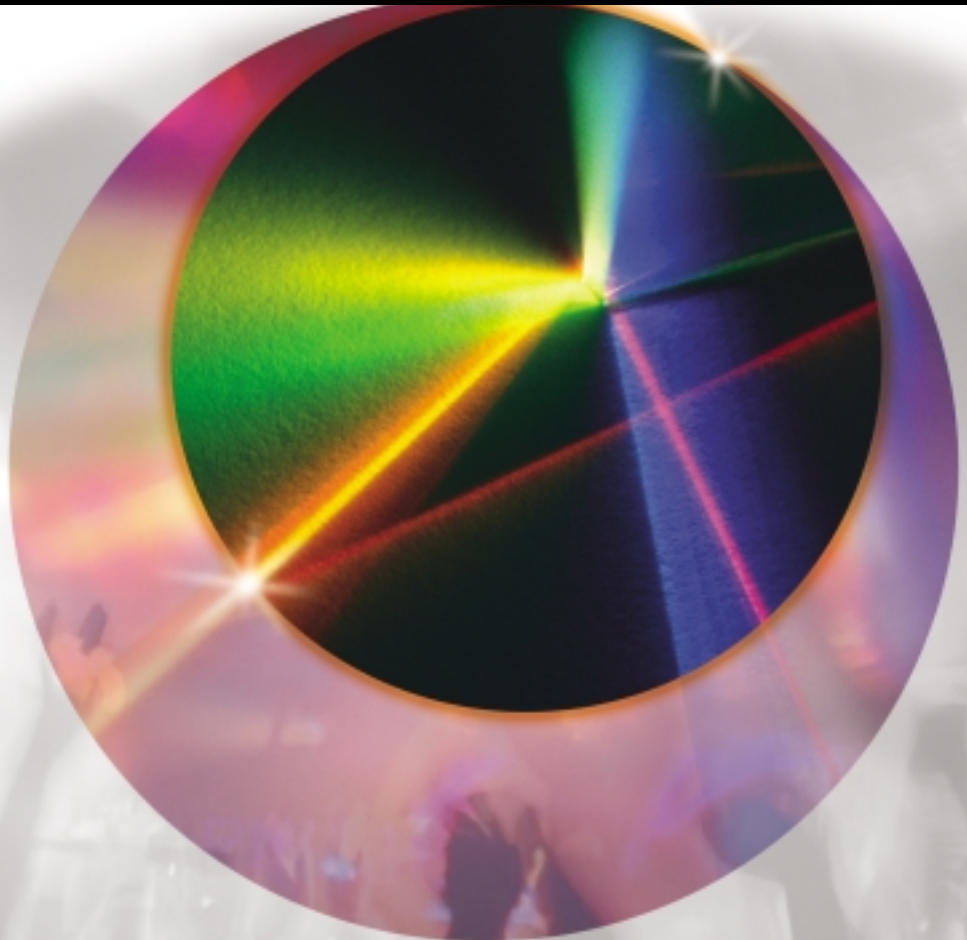
Ion



# STAR II

Entertainment Ion Laser Systems

*Serious power for serious fun.*



COHERENT®



# Entertainment

## STAR II:

Performance to match your application.

### **Performance to match your application**

Innova® Star™ II ion laser systems, designed especially for entertainment applications, include a water-cooled head, a power supply and a remote-control module.

Various models offer the color balance, superior beam divergence and power for demanding lighting requirements. And worldwide, sales/service representatives provide professional support both before and after the sale.

### **Inside the Star II laser head**

Sealed-mirror Innova Series V™ metal/ceramic plasma tubes, integral Super Invar\* resonators, and automated mirror alignment contribute to the Star II's exceptional performance and lifetime.

Sealed mirrors, mounted to the plasma tube with flexible bellows, eliminate windows/optics cleaning. This is important for systems installed in a non-ideal environment; or when the laser head is difficult to access.

Innova Series V tubes are metal/ceramic plasma tubes featuring gas circulation path modifications that enhance lifetimes—

\* Super Invar is a registered trademark of Carpenter Technology Corporation.

whether running at full power, or at lower power during simmer/standby periods. Series V tubes allow precise gas mixtures and pressure settings, resulting in higher output powers and improved color balance—without compromising lifetimes.

Three matched Super Invar rods help maintain consistent, stable output power, day-after-day. Super Invar also makes better beam pointing possible, leading to trouble-free system integration and easy optical alignment downstream.

The sealed-mirror plasma tube, with its integral resonator, lets you mount the Star II in most orientations. And at the touch of a button, an exclusive automated, on-demand Search-and-Peak function optimizes mirror alignment and system performance.

Overall, the Innova Star II is a rugged package that can withstand the rigors of shipment and vibration.

### **Star II power supply**

The Star II requires standard 3-phase, 208 VAC input power,  $\pm 10\%$ . The power supply provides current for the plasma tube and magnet assembly. The magnet confines the plasma in



the tube, increasing output power and improving color balance. The power supply uses a highly reliable linear passbank design, which regulates the plasma tube and magnet currents, independent of line voltage. This design also eliminates stray electro-magnetic interference.

### Standards and regulations

Star II lasers meet U.S. and international safety standards, and comply with European Community CE Mark requirements.

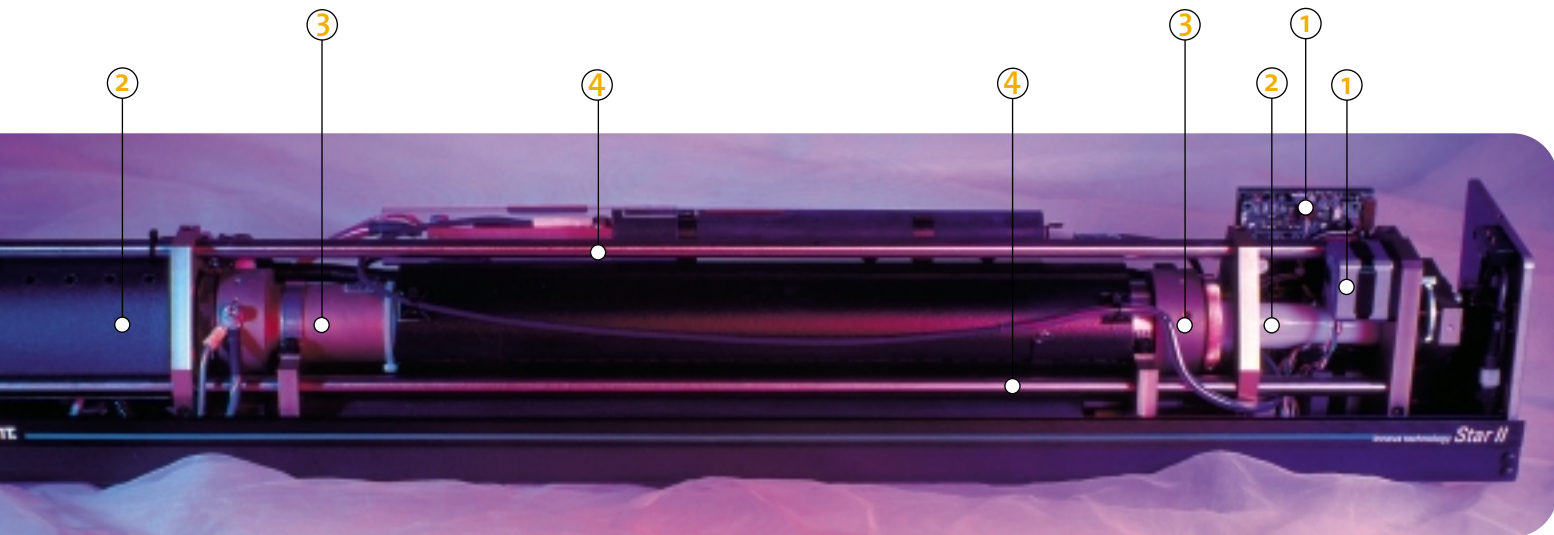
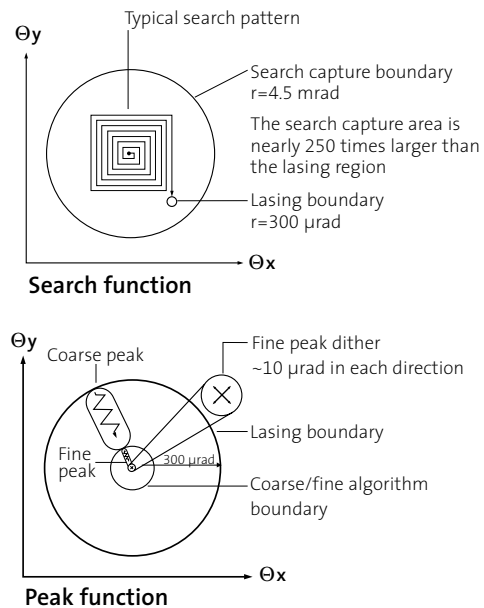
### Responsive support/service worldwide

Innova Star II lasers deliver reliable, hands-off performance, operates maintenance-free for extended periods, and requires minimal service. Most heads and power supplies are interchangeable. And a repair-by-replace service strategy significantly reduces downtime.

Field service, available worldwide, offers training courses, technical support, parts inventories and extended warranties. Customized support programs are also available.

### Making your application work

Star II Purelight mixed gas lasers come in Standard, Red-Enhanced and low divergence models. Argon—and Krypton—only systems are also available and come standard. Star versions without the Search-and-Peak function are also available.



#### 1 Search-and-Peak

Automated mirror alignment optimizes the alignment of the optical cavity. Allows for installation in locations that are difficult to reach.

#### 2 Series V sealed-mirror Innova plasma tube

Metal/ceramic design delivers longest lifetimes in the industry; sealed-mirror tube requires no optics maintenance and provides immunity to dirt/smoke. Lowest cost of ownership.

#### 3 Increased power and improved color balance

New gas mixtures, fill pressures, and optical coatings, together with automatic alignment optimization provide higher powers plus dramatically improved color balance.

#### 4 Integral SuperInvar resonator

Maintains optimum cavity alignment and imparts superior beam-pointing performance. Trouble-free downstream optical alignment. Highly rugged structure to withstand the bumps and bruises of shows/vibrations.

Performance Specifications Mixed-Gas Models

| Model                        | Star PL  | Star PL-R | Star PL-LD | Star PL-LD/R | Star II PL | Star II PL-R | Star II PL-LD | Star II PL-LD/R |
|------------------------------|----------|-----------|------------|--------------|------------|--------------|---------------|-----------------|
| All-lines power              | 3.5W     | 3.5W      | 2.5W       | 2.5W         | 3.5W       | 3.5W         | 3.0W          | 3.0W            |
| Red (647 nm)                 | 0.9 W    | 1.1W      | 0.7 W      | 0.9W         | 1.1W       | 1.3W         | 0.85W         | 1.1W            |
| beam diameter <sup>1</sup>   | 2.4 mm   | 2.4 mm    | 2.0 mm     | 2.0 mm       | 2.4 mm     | 2.4 mm       | 2.0 mm        | 2.0 mm          |
| beam divergence <sup>2</sup> | 1.9 mrad | 1.9 mrad  | 0.9 mrad   | 0.9 mrad     | 1.9 mrad   | 1.9 mrad     | 0.9 mrad      | 0.9 mrad        |
| Yellow (568 nm)              | 0.04 W   | n/a       | 0.03W      | n/a          | 0.05W      | n/a          | 0.04W         | n/a             |
| Green (521-515 nm)           | 0.7 W    | 0.7W      | 0.6W       | 0.6W         | 0.8W       | 0.8W         | 0.7W          | 0.7W            |
| beam diameter <sup>1</sup>   | 2.2 mm   | 2.2 mm    | 2.2 mm     | 2.2 mm       | 2.2 mm     | 2.2 mm       | 2.2 mm        | 2.2 mm          |
| beam divergence <sup>2</sup> | 1.8 mrad | 1.8 mrad  | 1.1 mrad   | 1.1 mrad     | 1.8 mrad   | 1.8 mrad     | 1.1 mrad      | 1.1 mrad        |
| Blue (488-477 nm)            | 0.7W     | 0.9W      | 0.6W       | 0.7W         | 0.8W       | 1.0W         | 0.7W          | 0.8W            |
| beam diameter <sup>1</sup>   | 2.5 mm   | 2.5 mm    | 2.5 mm     | 2.5 mm       | 2.5 mm     | 2.5 mm       | 2.5 mm        | 2.5 mm          |
| beam divergence <sup>2</sup> | 2.0 mrad | 2.0 mrad  | 1.3 mrad   | 1.3 mrad     | 2.0 mrad   | 2.0 mrad     | 1.3 mrad      | 1.3 mrad        |
| Deep Blue (458 nm)           | 0.035W   | 0.04W     | 0.03W      | 0.04W        | 0.045W     | 0.06W        | 0.04W         | 0.05W           |

Performance Specifications Argon or Krypton Models

| Model                             | Star SL-A5 | Star SL-A6 | Star II SL-A5 | Star II SL-A6 | Star SL-K | Star II SL-K |
|-----------------------------------|------------|------------|---------------|---------------|-----------|--------------|
| All-lines power                   | 5.0W       | 6.0W       | 5.0W          | 6.0W          | n/a       | n/a          |
| All-lines Red power               | n/a        | n/a        | n/a           | n/a           | 1.5W      | 1.75W        |
| Green (515 nm)                    | 2.0W       | 2.5W       | 2.0W          | 2.5W          | n/a       | n/a          |
| Blue (488-477 nm)                 | 1.7W       | 2.1W       | 1.7W          | 2.1W          | n/a       | n/a          |
| Deep Blue (458 nm)                | 0.25W      | 0.3W       | 0.25W         | 0.3W          | n/a       | n/a          |
| Avg. beam diameter <sup>1</sup>   | 1.9 mm     | 1.9 mm     | 1.9 mm        | 1.9 mm        | 2.0 mm    | 2.0 mm       |
| Avg. beam divergence <sup>2</sup> | 1.1 mrad   | 1.1 mrad   | 1.1 mrad      | 1.1 mrad      | 1.2 mrad  | 1.2 mrad     |

<sup>1</sup> Beam diameter at the 1/e<sup>2</sup> points measured at the output coupler.

<sup>2</sup> Full angle

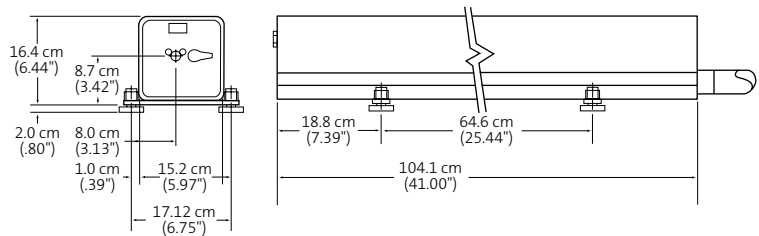
Star II Laser System: Utility and Environmental Requirements

|   |   |                  |
|---|---|------------------|
| Input Power                             | 3-phase with ground, 50 or 60 Hz, 208 vac (±10%), 40A per phase |                  |
| Cooling Water Flow Rate                 | 8.5 liters/minute (2.2 gpm)                                     |                  |
| Incoming Water Pressure                 | 1.8 to 4.2 kg/cm <sup>2</sup> (25 to 60 psi)                    |                  |
| Incoming Water Temperature <sup>1</sup> | 10 to 35°C  |                  |
| Ambient Air Temperature <sup>1</sup>    | 40°C (100°F) maximum  |                  |
| System Weights                          | Crated  | Uncrated         |
| Laser Head                              | 54.5 kg (120 lbs)   | 36.5 kg (80 lbs) |
| Power Supply                            | 43 kg (95 lbs) Uncrated   | 39 kg (86 lbs)   |

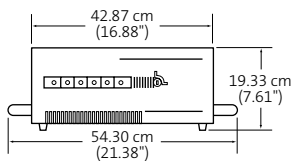
<sup>1</sup> Incoming water temperature must be above the dew point of the ambient air to avoid danger of condensation on high voltage circuitry. Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Dimensions

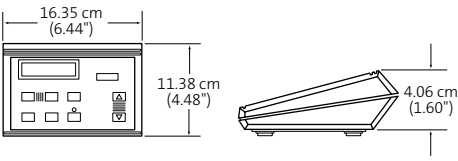
Laser Head



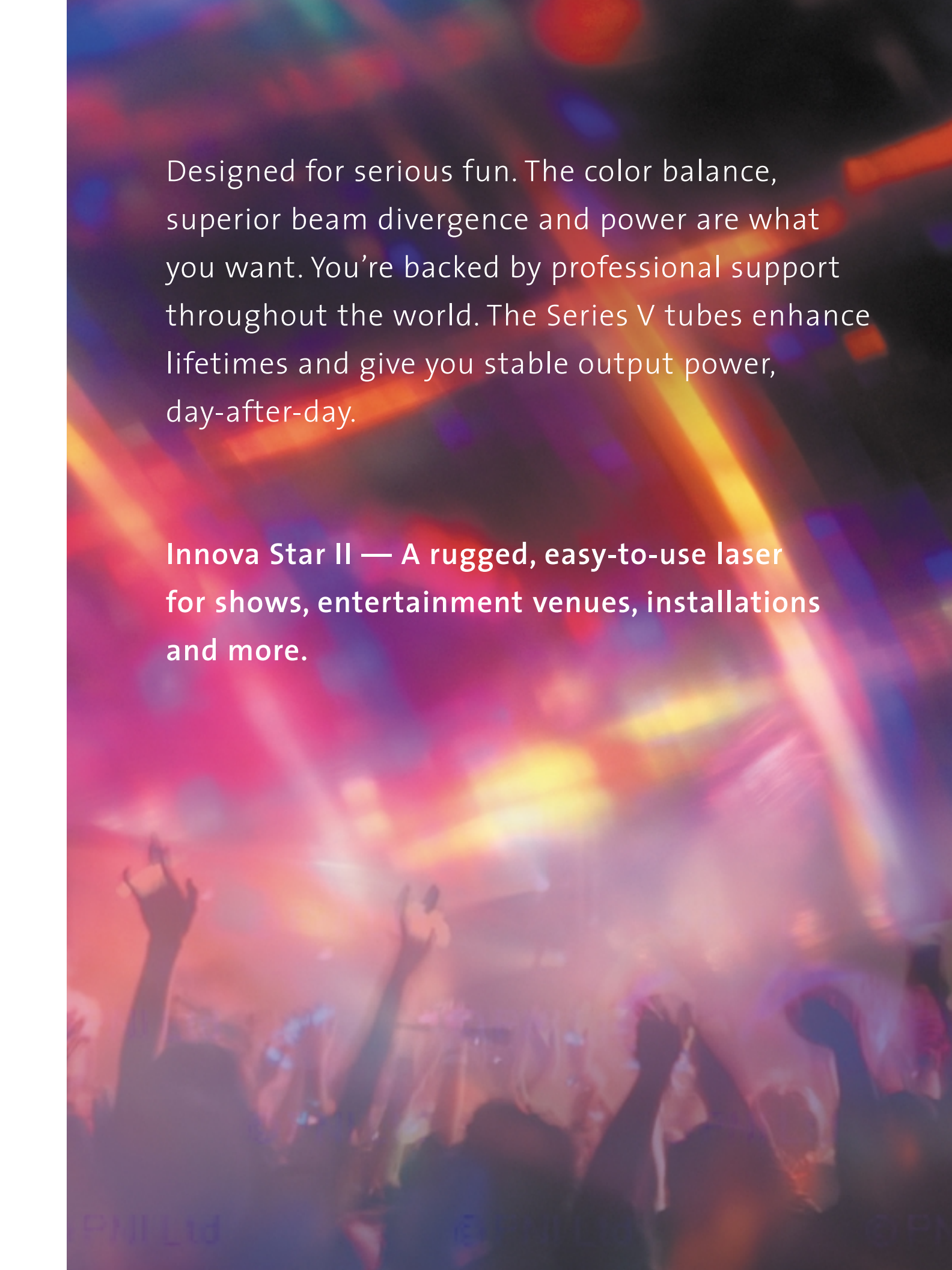
Power Supply



Remote Module







Designed for serious fun. The color balance, superior beam divergence and power are what you want. You're backed by professional support throughout the world. The Series V tubes enhance lifetimes and give you stable output power, day-after-day.

**Innova Star II — A rugged, easy-to-use laser for shows, entertainment venues, installations and more.**

### Coherent as your partner.

To compete and succeed in today's fast-paced research and manufacturing environments, you need a laser partner who understands your needs. A partner who can provide a wide range of technology solutions, and the support that goes with them.

Since 1966, Coherent has been helping customers by providing complete, laser-based solutions to a wide range of commercial, scientific, and medical applications.

With a heritage of innovation and an uncompromising position on quality, Coherent is the most forward-thinking and diversified manufacturer of solid-state, gas and semiconductor lasers.



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