

## FEATURES

- 5 nanometers tuning range
- ±10 picometer setpoint accuracy
- sub-picometer setpoint resolution
- 20mW output power
- 0.005 dB power stability
- Advanced coherence control
- Integrated function generator
- USB remote interface

The LDS-7200 Laser Diode Source provides the industries greatest wavelength tuning range and setpoint accuracy. The tuning range is nearly three times broader than the competitors products while maintaining a wavelength setpoint that is twice as accurate.

The standard product is available covering any wavelength in the range from 1260nm – 1625nm with an output power of 20mW or 1625nm – 1675nm with an output power of 15mW. In addition to the standard product, other wavelengths may be available as a custom configured product.

The LDS-7200 offers a very flexible modulation scheme, serving multiple applications. An internal function generator can be configured for coherence control or as a function generator with a maximum frequency of 1.2MHz and the following waveforms; square, triangle, and sinusoidal. In addition, an external modulation source can also be used.

All the features are easily controlled through the simple front panel menu entries, or via the full featured USB remote interface.

# LDS 7200 LASER DIODE SOURCE



PRECISE,  
COMPACT,  
BROAD WAVELENGTH TUNING

**PSE** TECHNOLOGY  
ASSISTING IN THE SCIENCE OF INNOVATION

# LDS 7200 LASER DIODE SOURCE

## HIGH STABILITY, LOW NOISE LASER OUTPUT

Standard features include a dual stage fully-independent low-noise temperature controller along with a proprietary low noise, closed loop, constant power laser driver. These are designed utilizing the newest low noise, low tempco, and ratio-metric matched electronic components. These modern advances ensure unbeatable stability, accuracy, and noise performance while delivering the full five nanometers of tuning range. We have engineered this laser source to meet the demands of the most challenging applications.

## COHERENCE CONTROL ENSURES STABLE OPTICAL POWER

With narrow linewidth DFB laser sources, back reflections from connectors and the effects of etalons can degrade source stability and cause measurement instability. In higher power applications, Stimulated Brillouin Scattering worsens this problem by providing narrow-band gain for light traveling back to the source. For these reasons, controlling source spectral linewidth is critical. The coherence control feature of the LDS-7200 broadens laser linewidth from 30 MHz to 1 GHz. This reduces spectral power density and decreases coherence length from several meters to around 20 cm. The final result is remarkably stable sources that provide accurate, repeatable measurements.

## FLEXIBLE MODULATION AND TRIGGERING

The modulation and triggering capabilities of this instrument are highly configurable; this ensures support for various applications. In addition to the coherence control, the built-in function generator can be configured to source a

square, triangle or sinusoidal waveform with a frequency up to 1.2MHz. This signal can be used both to modulate the instrument laser output and available as an output on the rear panel. The output signal can be cabled to additional instruments to provide synchronous modulation of multiple sources.

The rear panel modulation connector can be configured as either an input or output. As described above, when configured as an output the internal function generator output is available on the connector. Whereas when configured as an input, an external modulation source can be used to modulate the laser output. The laser output can be modulated with both an external modulation signal and the internal function generator. This provides the ability to apply coherence control to a modulated output.

Co-located on the rear panel is the trigger signal which can be configured as either an input or output. When set as an input, a low TTL signal will turn off the laser and a high TTL signal will enable the laser output. When configured as an output, a TTL trigger indicates the state of the internal function generator output. A high TTL signal is sourced when the function generator output is above 50% of the modulation depth and a low TTL signal otherwise.

## SIMPLE USER INTERFACE

The user interface is intentionally sparse yet provides full function, intuitive operation. Similar to popular MP3 players, the capacitive sense touch wheel provides all user setting functionality. The display consists of a high definition graphical LCD. Within the main operating menu, a dashboard provides a graphical representation of the instrument operation.

## PUT OUR EXPERTISE TO WORK

At PSE Technologies, our experienced technical staff has been working in the area of laser diode instrumentation for many years. Our people are recognized as experts in the field, if you have any questions or suggestions please don't hesitate to contact us. Every customer service contact is an opportunity for us to enhance a vital relationship; we welcome new ideas and feedback, and strive to enhance our products and services to exceed your needs. Our entire staff is dedicated to ensuring your satisfaction. For more information about the LDCM-7200 Laser Diode Controller Mount call us today or visit us at [www.psetech.com](http://www.psetech.com).

## CUSTOMER PHILOSOPHY

As a leading-edge innovator of products and services, we are committed to deliver advanced technology instruments that provide greater options than ever before. We are continuously looking for more ways to improve your experience as our customer, and we promise to strive for the highest levels of service.

LDS  
7200  
LASER DIODE  
SOURCE

# LDS 7200 LASER DIODE SOURCE

## SPECIFICATIONS<sup>1</sup>

### WAVELENGTH

Wavelength: . . . . . customer specified  
 Tuning Range: . . . . . 5 nm  
 Accuracy:<sup>2</sup> . . . . . ± 10 pm  
 Setpoint Resolution: . . . . . 0.1 pm  
 Spectral Width  
 Coherence Off: . . . . . < 30 MHz  
 Coherence On: . . . . . 1 GHz (typical)  
 Wavelength Stability  
 Short Term (15 minutes):<sup>3</sup> . . . . . ± 3 pm  
 Long Term (24 hours):<sup>4</sup> . . . . . ± 5 pm

### OUTPUT POWER

Maximum Power  
 1260 – 1625nm: . . . . . 20 mW  
 1625 – 1675nm: . . . . . 15 mW  
 Stability  
 Short Term (15 minutes):<sup>3</sup> . . . . . <0.005 dB rms  
 Long Term (24 hours):<sup>4</sup> . . . . . ± 0.03 dB  
 Attenuation Range: . . . . . Full Power to 0 dBm  
 Attenuation Accuracy:<sup>5</sup> . . . . . ± 0.1 dB  
 Optical Isolation: . . . . . > 30 dB  
 RIN:<sup>6</sup> . . . . . -145 dB/Hz  
 Side Mode Suppression Ratio: . . . . . > 40 dB  
 Signal-to-Peak Background Ratio:<sup>7</sup> . . . . . > 30 dB

### EXTERNAL MODULATION

Bandwidth (3dB): . . . . . 1.5 MHz  
 Input Voltage: . . . . . ± 15 V  
 Programmable Transfer Function  
 Maximum: . . . . . 200 mA/V  
 Minimum: . . . . . 1 µA/V

### GENERAL

Optical Connector:<sup>8</sup> . . . . . FC/APC  
 Operating Temperature: . . . . . 15 – 35 °C  
 Humidity: . . . . . < 80% RH, non-condensing

1. All values are measured after a 1-hour warmup period at 25 °C.
2. ± 10pm for first 90 days after factory calibration, < ± 25pm for one year.
3. Ambient temperature variation ±0.1 °C.
4. Ambient temperature variation ±1.0 °C.
5. Defined as  $\Delta P_{\text{measured}} - \Delta P_{\text{actual}}$  from maximum power to 5 dB down.
6. Measured ± 100nm about center wavelength.
7. Measured at output connector. Recommend using angled connectors to minimize noise.
8. Other connector types available, contact us with your requirements.

In keeping with our commitment to continuing improvement, PSE Technology reserves the right to modify specifications and products without notice and without liability for such changes. Although PSE has made every effort to ensure the information contained in this brochure is accurate, we accept no responsibility for any errors or omissions.



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