



## Ultra-Low Noise Laser Diode Control Electronics & Butterfly Mount Module



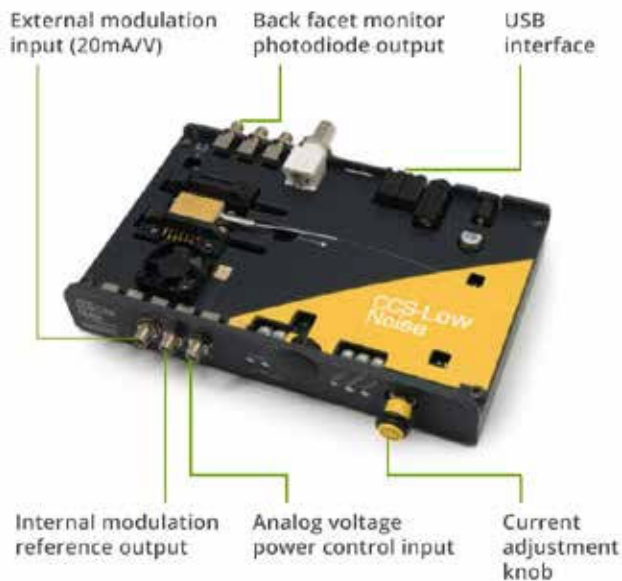
### **CCS-LN / Control and Mount Module**

- o 1,500 mA Ultra-Low Noise Current Source
- o 14 Watt TEC Controller with Butterfly Mount
- o MilliKelvin Temperature Stability
- o 2 Nanosecond Pulse Resolution
- o User Adjustable Laser Output Power by On-Board Control Knob, Analog Voltage Signal, or USB
- o USB Interface, Includes Programming Tools, Software Suite, DLL Library and GUI



## ULTRA-LOW NOISE / HIGH TEMPERATURE STABILITY CONTROLLER

These fully integrated laser diode control and mounting modules are designed for precision control of single frequency laser diode modules in research labs. These ultra-low noise laser diode drivers are a precision control solution with noise performance that performs similar to battery-powered laser diode drivers. Please refer to frequency domain noise plot in the attached data sheet. Applications of these pulse delay generators include component testing, laser timing control, laser pulse-picking and laser diode pulsing.



## PRECISION TEMPERATURE CONTROL FOR MAXIMUM WAVELENGTH STABILITY

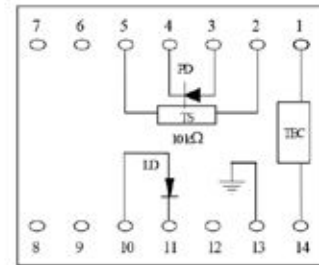
The controller is equipped with a high-stability temperature controller to ensure the highest level of power and wavelength stability. The temperature controller delivers up to 14 W power to the TEC and provides 1 mK stability.

## COMPREHENSIVE LASER DIODE PROTECTION

The integrated laser diode protection circuits protect your device at all times. The user-set current limit and user-set temperature limit clamp both the bias current and the operating temperature to prevent damage to the laser. Soft-start current ramp to the user defined current set-point protects the laser from the possibility of thermal shock or current surges.

Standard Pin Configuration Model T1:  
"Type 1" floating (anode not tied to case ground)

Also available with "Type 2" Pin Configuration - Model T2:



Finally, the integration of the mounting socket directly with the current source eliminates the need for cables and connectors from the current path, which greatly reduces the likelihood of ESD damage to the laser from plugging and unplugging cables, and prevents external electronic noise affecting the diode drive current signal.

## USB INTERFACE AND VERSATILE CONTROLLER SOFTWARE

The controller is equipped with a USB interface, and delivered with easy-to-use GUI software. Several software control libraries are provided for custom control software development, including Labview, DLLs, Hexa, and Python.



## CCS-LN / Control and Mount Module Performance Specifications

### LASER DIODE CURRENT SOURCE

- Output Current: 0.00 mA - 1,500.00 mA
- Output Compliance Voltage Maximum: 5 Volts
- Current Set-Point Resolution: 0.025 mA
- Back-Facet Monitor: Yes (Variable Gain)
- External Photodiode Measurement: Yes (Variable Gain)
- Modulation Bandwidth: 100 Hz
- Internal Modulation Generator: Square, Triangle, Sine
- External Modulation: 0 - 20 mA/V
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- **CURRENT NOISE:** Refer to Data Sheet & Image Carousel to View 1/f Noise Spectrum Plot (RIN)

### TEC CONTROLLER & MOUNTING SOCKET

- Zero Insertion Force Mounting Socket with Clamping Arms
- Low Thermal Resistance Anodized Aluminum Butterfly Mount Plate
- Pre-Configured Pin Wiring for Type 1 and Type 2 Configurations
- All Pin Configurations Available (request)
- TEC Current:  $\pm 3$  A
- TEC Voltage: 4.6V
- Temperature Sensor Compatibility: NTC Thermistors
- Temperature Control Stability (typ) : 0.001°C
- TEC Control Loop Type: Bipolar

### LASER DIODE PROTECTION

- User Set Current Limit
- User Set Temperature Limit
- Safety Interlock
- Soft-Start Ramp to Current Set-Point
- Transient and ESD Surge Clamp
- Closed Short Circuit (when laser OFF)

## CCS-LN / Control and Mount Module Performance Specifications

### MODULATION, USER INTERFACE, AND POWER INPUT

- PC Interface: USB with GUI and Control Software
- Analog Voltage Control Input: 0 to 5 V (DC to Full Output Current)
- Side Panel Manual Control Adjustment Knob
- External Modulation Input Bandwidth: DC ~ 100 Hz
- Modulation Transfer Function: 20 mV/V

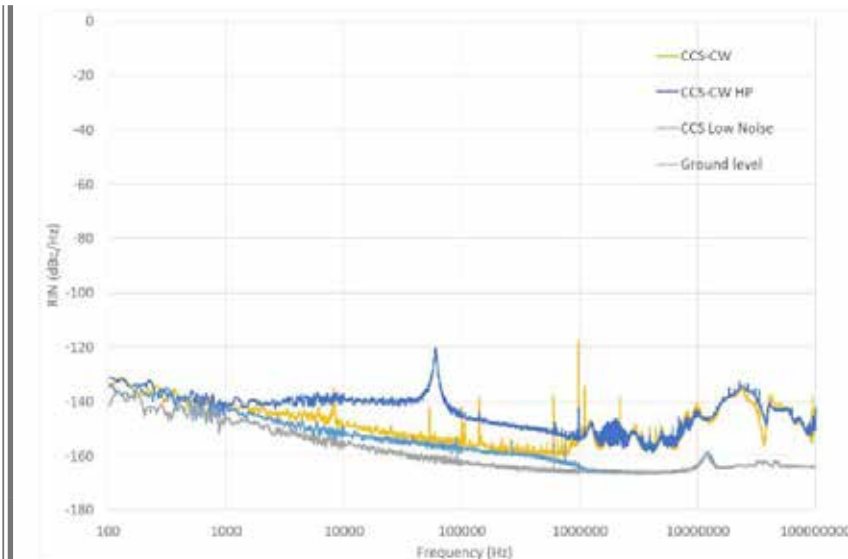
### DIMENSIONS AND INCLUDED PARTS

- Dimensions: 170.0 mm (W) 126.8 mm (L) 32.5 mm (H)
- Weight: < 0.5 kgs
- Power Supply: +24 VDC Power Supply Included
- USB Cable: Micro-Connector to Standard PC USB Connector Included

### PIN CONFIGURATIONS

- Standard Pin Configuration: Type-1
- Also Available: Type-2 and Type-2 Bias-T

## CCS-LN Noise Performance





Offered by  
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LASER  
DIODE  
CONTROLLERS



## PRODUCT SALES AND SERVICE:

Unlimited phone and email support is provided for products purchased through Laser Lab Source. Orders for this product are fulfilled by Laser Lab Source in North America and select international regions. It is manufactured by AeroDIODE, Talence, France.

## PRODUCT WARRANTY:

This product is sold with a full one-year warranty. It is warranted to be free from defects in material and/or workmanship for a period of one year from the date of shipment. The warranty does not cover damage to the to the product due to mishandling or use of the product outside of its specified maximum ratings.



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