



MCS/6500-LDX

Five Channel High Power Laser Diode Source System; Up to 50 Watts of Fiber-Coupled Laser Diode Output Power per Channel

All Channels offer Adjustable Output Power 0 to 50 Watts (max power is wavelength dependent)

Peltier (TEC) Cooled Mounting Plates for Each Laser Diode Channel

All Channels Communicate Over Isolated USB Interface Virtual Com Port or Isolated RS232 Interface with 9600 Baud Rate

User Adjustable Current and Temperature Control

**WORLD LEADING PRODUCTS
FOR LASER SCIENTISTS AND ENGINEERS**

OVERVIEW

Product Overview:

The MCS/6500-LDX high power laser diode source and control system is a completely integrated, turn-key five channel system for R&D and industrial testing applications. These pre-configured multi-channel instruments give the user full control over the integrated high power laser diodes. The user can adjust each laser diode's optical output power and temperature set-point as well as set each channel to operate in CW or QCW (pulse) mode. Each fiber coupled laser diode is mounted to a Peltier cooled mounting plate inside the five channel instrument. The laser is precisely calibrated and controlled to deliver a highly stable output.

These all-inclusive instruments include the laser diodes (fiber coupled rear panel output), precision current sources to bias the laser diodes, high power TEC controllers to stabilize the temperature and a TEC / Peltier cooled mounting plate for each laser diode.

Factory Configured Protection Settings for the Laser Diode:

The MCS series instruments ship with factory configured protection settings to make sure that the integrated laser diode is run safely and operates within the specified maximum operating limits. These limits include the upper current limit and upper temperature limit. Additionally, a soft-start current ramp is set to 300 milliseconds to protect the laser from thermal shock when the bias current is applied. This soft-start ramp time can be customer configured through the front panel or digital interface. These units also have clamping circuitry to protect the laser against power surges and ESD.

Peltier Based Temperature Control System:

These units have separate integrated TEC controllers with a full P.I.D. control loop to deliver fast and efficient heat removal from the laser diode source. Each laser diode is mounted to a Peltier cooled mounting plate. The mounting plate material is nickel plate copper. The internal mounting plates are machined with very high surface finish and flatness to provide low thermal resistance. Typical thermal resistance is less than 0.06 K/C. These laser diode mounting plates are attached to a fan cooled air duct to remove the waste heat and keep the laser temperature stable.

specifications

LASER DIODE AND FIBER SPECIFICATIONS (TYPICAL @ 25°C)

- Number of Laser Diode Channels per System: 5
- Laser Diode Center Wavelength (each channel): 808nm, 915nm or 940nm
- Laser Diode Adjustable Output Power (each channel): 0 to 50 Watts (max power is wavelength specific)
- Typical Wavelength Temperature Tuning: 0.1 nm / °C
- Fiber Termination: SMA905 (six rear panel outputs)
- Fiber Numeric Aperture (NA): 0.22
- Fiber Core Diameter: 400 μm (200 μm on request)
- Detachable Fiber Outputs: 5 x Rear Panel Outputs
- Typical Laser Diode Spectral Line Width (FWHM, typical, 3 dB): 5 nm

5 CHANNEL CONTROL UNIT LASER DIODE PROTECTION FEATURES

- Soft-Start Current Ramp to Setpoint (User Programmable)
- Soft-Start Current Ramp Factory Default Set to 300 Milliseconds
- Factory Pre-Set Maximum Current Limit
- Factory Pre-Set Upper Temperature Limit
- ESD and Power Surge Clamp
- Reverse Voltage Transient Clamp
- AC Line Filter
- Keylock Switch and Safety Interlock
- Short Circuit when Laser Diode Current Turned OFF
- Front Panel e-Stop Button Emergency Shut-Down
- Factory Pre-Set Upper Temperature Limit
- Open Circuit Detection and Fast Shut-Down

FIVE CHANNEL CONTROL UNIT TEMPERATURE CONTROLLER AND TEC COOLED LASER DIODE MOUNTING PLATE SPECIFICATIONS

- Cooling Design: Peltier (TEC) Cooled Laser Diode Mounting Plate
- Laser Diode Mounting Plate Material: Nickel Plated Copper
- Laser Diode Mounting Plate Thermal Resistance: < 0.06 K/W
- TEC Controller Output Power Total: 128 Watts
- TEC Controller Output Current Range (bipolar): ± 7.00 Amps
- TEC Controller Output Voltage Range (bipolar) : ± 16.00 Volts
- Laser Temperature Setpoint: User Adjustable within Factory Pre-Set Range (Upper Limit Pre-Set to Protect Laser)
- TEC Control Loop Algorithm: Full P.I.D.
- P.I.D. Variables: Factory Pre-Set for Optimum Performance
- Temperature Control Accuracy: 0.05°C
- TEC Controller Setpoint Resolution: 0.01°C
- Laser Diode Upper & Lower Temperature Limits: Factory Pre-Set
- Control Unit Waste Heat Removed by Fan

QCW PULSING MODE AND MODULATION SPECIFICATIONS

- Per Channel QCW Pulse Rise and Fall Time: < 10 μs to CW (1 μs on request)
- Per Channel QCW Trigger: Internal Function Generator or External Trigger
- Per Channel QCW Pulse Modes: Continuous Pulses, Single Pulses, Bursts
- Per Channel Pulse Time Base Accuracy: $\pm 1.0\%$
- MODULATION Signal: Accepts External Digital (TTL) or Analog
- MODULATION Input Connector: BNC, Input Impedance 10K ohm
- MODULATION Input Voltage Range: 0 ~ 4 Volts (4V = Max Current)

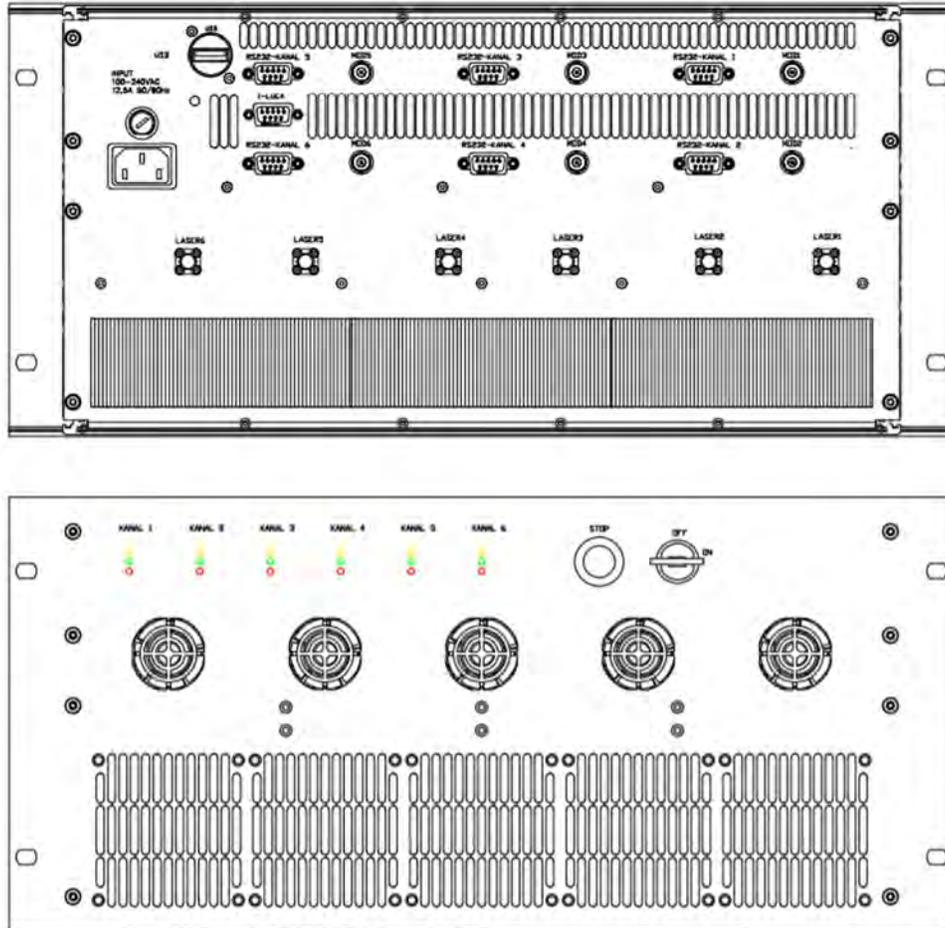
SYSTEM DIMENSIONS AND POWER REQUIREMENT

- System Height: 5U (5 Standard Rack Units Height)
- System Depth: 340 mm
- System Width: 483 mm (1 Standard 19 Inch Rack Unit Width)
- Input Power: Universal 100V ~ 230 VAC, 50/60Hz (request shore power requirements for your configuration)
- Includes Front Panel Mounting Brackets and Bottom Panel Feet
- System Weight: 23.5 kg

MAINFRAME USER INTERFACE

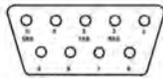
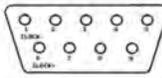
- RS232 Standard
- USB Optional (\$100.00 per Channel)
- LabView Drivers included
- GUI Control Software Included
- Terminal Control Software Program Included

DIMENSIONS

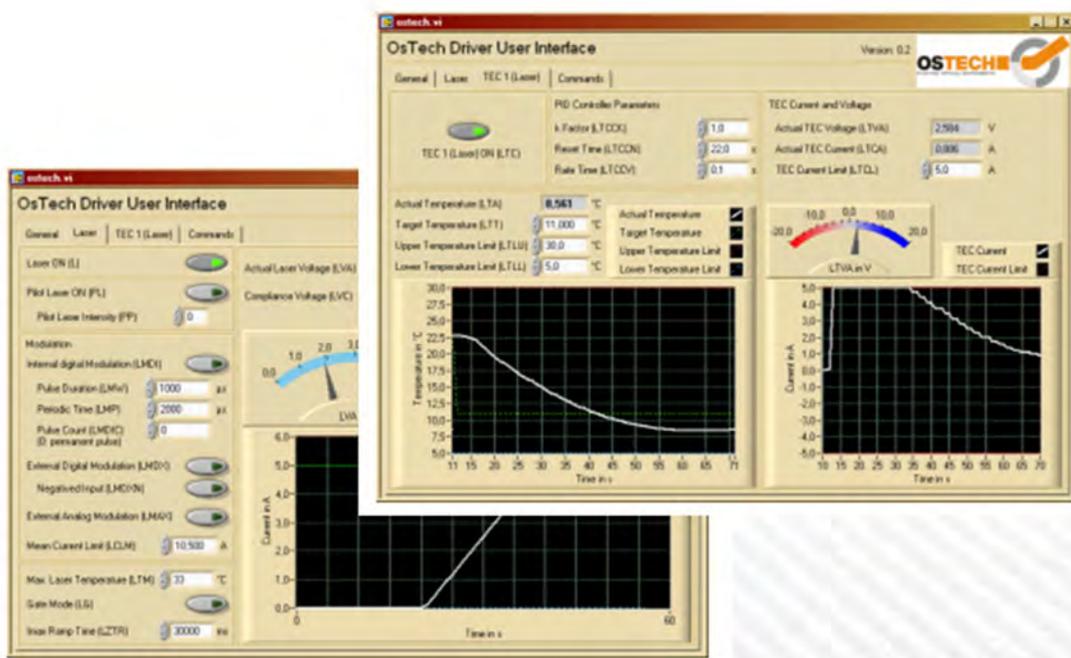


Device dimensions: 19" (483mm), 5HU (221.5mm), 340mm depth excluding front and rear handles

CONNECTORS

RS232 Connector	AMOD/DMOD Connector	Interlock Connector
 <p>Sub-D 9, female</p>	 <p>BNC Coaxial Connector</p>	 <p>Sub-D 9, male</p>
<p>Standard RS232-Connector connected to PC (No Null-Modem Cable !)</p>	<p>Input-Impdanz 10kOhm Digital Modulation with TTL-Pegel Analog Modulation 0-4[V] => 0-Imax[A]</p>	<p>Interlock - Laser runs only if closed (ca. 5mA over 2V -> $R_{\text{Interlock}} \leq 400\Omega$)</p>

LABVIEW DRIVERS



Users have full control of the fiber coupled laser module power through a PC controlled digital interface. The units are supplied with RS232 I/O and LabView drivers. They can also be ordered with a USB interface adapter. Laser output power is set by adjusting the current level (ACC mode) or adjusting the laser in automatic power (APC) control mode. The APC mode utilizes the laser diode's internal monitor photo-diode to feedback to the bias current and temperature controller.



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PRODUCT SALES AND SERVICE:

Orders for this product are fulfilled by the Laser Lab Source marketplace in North America and select international regions. It is manufactured for sale through Laser Lab Source by Ostech GmbH.

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.



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