



**Active Cooled Laser Diode
Horizontal Arrays**

**Up to 250W QCW
Center Wavelength: 808-940nm**

Introduction

Apollo Instruments' high-powered laser diode bars deliver up to 250W in QCW. They are available in the following wavelengths: 808nm and 940nm.

These laser diode bars are micro-channel water-cooled. They have been demonstrated to be of high quality with long lifetime.

Key Features

- High power
- Long lifetime
- Narrow spectrum
- Easy to repair
- Wavelength 808-940nm
- QCW operation
- Fast delivery time

Applications

- DPSSL & Fiber Laser Pumping
- Medicine
- Selective Soldering/Desoldering
- Heat Treatment
- Welding/Blazing
- Quick Cure of Epoxy
- Transformation Hardening
- And more

Active Cooled Laser Diode (Horizontal Arrays) – Specification Sheet

HA-QCW-092011

Specifications

	Units	HAXx-Y -150-808(Q) ¹	HAXx-Y -200-808(Q) ¹	HAXx-Y -250-808(Q) ¹	HAXx-Y -200-940(Q) ¹
Optical Specifications ^{3,5}					
Center wavelength, λ	nm	808 \pm 3	808 \pm 3	808 \pm 3	940 \pm 3
Output power per bar ²	W	150	200	250	200
Number of bars	-	2 to 25			
Fill factor	%	83	80	75	75
Number of emitters	-	75	40	62	62
Emitter width	μ m	100	200	100	100
Spectral width FWHM	nm	\leq 4	\leq 3	\leq 3.5	\leq 6
Spectral width FW90%E	nm	\leq 7	\leq 6	\leq 7	\leq 8
Fast axis divergence (FWHM)	°	40			
Slow axis divergence (FWHM)	°	8			
Polarization mode	-	TE			
Wavelength temp. coefficient	nm/°C	\sim 0.28	\sim 0.28	\sim 0.28	\sim 0.32
Electrical Parameters ^{3,5}					
Operating current, I_{op}	A	\leq 160	\leq 190	\leq 250	\leq 200
Threshold current, I_{th}	A	\leq 15	\leq 26	\leq 26	\leq 18
Operating voltage, V_{op}	V	\leq 2			
Slope efficiency	W/A	\geq 1	\geq 1.1	\geq 1.15	\geq 1.1
Power conversion efficiency	%	\geq 45	\geq 50	\geq 50	\geq 50
Pulse width	ms	\leq 0.3			
Duty cycle	%	\leq 20			
Thermal Parameters					
Operating temperature	°C	15 to 35			
Storage temperature ⁴	°C	-40 to 60			
Coolant	-	Deionized water			
Flow rate per bar	L/min	0.25 to 0.30			

1. Model Name Breakdown - HAXx-Y-60-808(Q): xx = Structure Code (04), Y = Number of bars, 60 = Output power (W), 808 = Center wavelength (nm), (Q) = QCW mode.
2. Reduced lifetime if used above nominal operating conditions.
3. Data at 25°C temperature, unless otherwise stated.
4. A non-condensing environment is required for storage and operation below ambient dew point.
5. If there are any other requirements, please contact us.

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ESD - Like most semiconductor devices, laser diodes can be easily damaged or destroyed by inadvertent electrical or static discharges. Laser Diodes are very sensitive to electrostatic discharge (ESD) and may suffer latent catastrophic damage unless they are handled according to proper ESD procedures. The resulting decreased performance of the laser may appear immediately, or long after the damage occurs. A static free environment is mandatory. Grounded tweezers and a grounded wrist strap on the user, a grounded work surface, anti-static floors and case ground for the laser diode all reduce risk of damaging static discharge through the diode. Retain the laser diode in a static free environment when not in use (such as the shipping container). Short the diodes at all times when not in use. (Note: An unshorted laser can be damaged by ESD even without touching it!) The user should never try to service and repair the device without authorization of Apollo Instruments. Apollo Instruments is not responsible to any damages resulted by unauthorized repair and services. Any attempt to opening the laser unit will void the limited warranty to the device.