Precision Photonics

Cutting Edge Engineering at the Speed of Light

Compact Semiconductor Red Laser

AIMPICO compact diode laser systems deliver stable, high-quality coherent output across ultraviolet, visible, and near-infrared wavelengths — engineered for laboratory, clinical, and OEM environments where wavelength accuracy, power stability, and long-term reliability are essential.

Built on direct-emission semiconductor technology, AIMPICO lasers require no optical pumping, harmonic conversion, or consumables, offering exceptional wall-plug efficiency and a significantly simplified thermal footprint compared to gas or lamp-pumped alternatives. The laser source, drive electronics, and thermal management are integrated into a single compact platform, with active closed-loop stabilization maintaining output power within ±1% RMS across the full operating temperature range.

Applications

- Medical imaging
- Flow cytometry
- Fluorescence microscopy
- DNA sequencing

Key Feature Highlights

• **Compact, Integration-Ready Design**	Fits standard optical breadboards and cage systems; Compact design enables direct drop-in to instrument assemblies
• **Stable Output (±1% RMS)**	Active closed-loop control ensures consistent power across the full operating range
• **30 kHz TTL/Analog Modulation**	Hardware-level synchronization with cameras, lock-in amplifiers, and instrument timing systems
• **Efficient Thermal Management**	Low thermal load and passive heat dissipation reduce the need for active cooling, simplifying optical table layouts
• **Long Operational Lifetime**	Semiconductor gain medium with no consumables, no gas fill, and no electrodes — operate without scheduled maintenance interventions

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Technical Specification

OPTICAL PARAMETERS

Center Wavelength	730 nm ± 10 nm
Operating Mode	Continuous Wave
Output Power	1 – 1,500 mW
Power Stability (rms, 4 hours±3℃)	< 1%
Transverse Mode	Multimode
Beam Divergence (full angle)	< 3.0 mrad
Beam Diameter at the aperture ($1/e^2$)	~ 5.0 mm x 8.0 mm

ELECTRICAL PARAMETERS

Power Supply (100-240VAC)	LPS-I/LPS-II/LPS-III/LPS-OEM-I
Modulation Options	DC-1kHz, 1kHz-10kHz, 10kHz-30kHz, 30kHz-100kHz optional; TTL/analog optional

MECHANICAL PARAMETERS

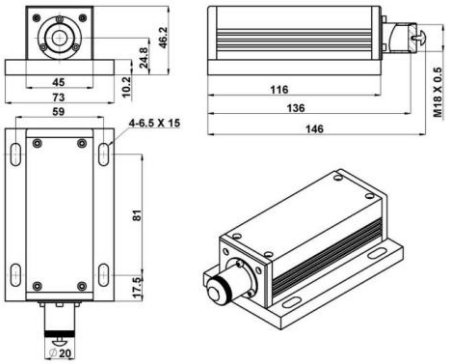
Dimensions	146(L) × 73(W) × 46.2(H) mm^3
Weight	0.7 kg
Cooling Method	Conduction
Beam Height from Base Plate	24.8 mm

ENVIRONMENTAL

Operating Temperature	10 – 35 °C
Laser Warmup Time	< 5 min
Expected Lifetime	> 10,000 hours

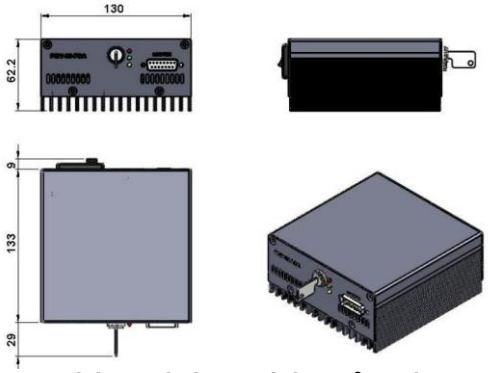
Mechanical Drawings

Laser Head



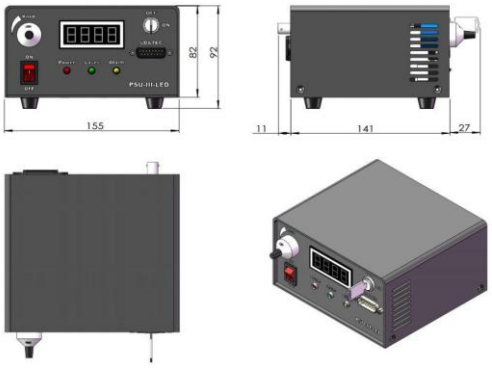
146(L)×73(W)×46. 2(H) mm³, 0.7kg

Compatible Power Supply (LPS-I[1])



171(L)×130(W)×62.2(H) mm³, 1.2kg

Compatible Power Supply (LPS-II[2])

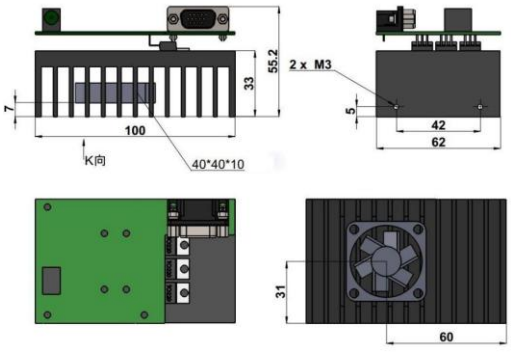


179(L)×155(W)×92(H) mm³, 1.5kg

Compatible Power Supply (LPS-III[3])

162(L)×144(W)×70(H) mm³, 1.0kg

Compatible Power Supply (LPS-OEM-I[1])



100(L)×62(W)×55.2(H) mm³, 0.5kg

Product Certifications

[1,2,3]: Sold separately

[1]: Fixed output power, modulation frequency up to 30KHz.

[2]: Output power adjustable 10-100%, modulation frequency up to 30kHz.

[3]: Output power adjustable 10-100%, modulation frequency up to 100kHz.