# Infrared CW DPSS Laser System
## DPU Series (IR)

**Data Sheet**

## Overview

The DPU series is a family of near infrared diode pumped solid state (DPSS) lasers that can deliver up to 4000 mW output power. The DPU laser series features an ultra-compact design, long lifetime, easy operation, and FDA-compliant system with driver. The DPU series laser is widely used in scientific experiment, optical instrument, optical sensor, measurement, communication, spectrum analysis, and many other applications.

## Features

- Infrared at 914nm, 946nm, 1047nm, 1053nm, 1064nm, 1085nm, 1112nm, 1122nm, 1177nm, 1313nm, 1319nm, 1342nm, and 1444nm
- CW operating mode
- Optical output power 30mW to 4000mW
- Ultra-compact design
- FDA compliant

## Applications

- Scientific experiment
- Optical instrument
- Optical sensor
- Measurement
- Communication
- Spectrum analysis

## 914-1112 nm Specifications

| Parameter | DPU914 | DPU946 | DPU1047 | DPU1053 | DPU1064 | DPU1085 | | DPU1112 |
|---|---|---|---|---|---|---|---|---|
| Wavelength | 914±1 nm | 946±1 nm | 1047±1 nm | 1053±1 nm | 1064±1 nm | 1085±1 nm | | 1112±3 nm |
| Output power | >800 mW, >1200 mW, >1500, >1700 mW | >1000 mW, >1200 mW, >1500 mW | >2000 mW, >4000 mW | >2000 mW, >3000 mW, >4000 mW | >3000 mW, >4000 mW | >100 mW, >200 mW, >300 mW | >500 mW, >800 mW, >1000 mW | >800 mW, >1000 mW, >1500 mW, >2000 mW |
| Transverse mode | $TEM_{00}$ | $TEM_{00}$ | $TEM_{00}$ | $TEM_{00}$ | $TEM_{00}$ | $TEM_{00}$ | | $TEM_{00}$ |
| Operating mode | CW | | | | | | | |
| Power stability (rms, over 4 hours) | <5%, <3%, <2% | <5%, <3%, <2% | <5%, <3% | <5%, <3% | <5%, <3%, <2% | <3%, <2%, <1% | <5%, <3%, <2% | <5%, <3%, <2% |
| $M^2$ factor | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | | <1.5 |
| Beam diameter at aperture ($1/e^2$) | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | | ~1.0 mm |
| Beam divergence, full angle | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | | <1.5 mrad |
| Polarization ratio | >100:1 | / | >100:1 | >100:1 | >100:1 | >100:1 | | / |
| Warm-up time | <5min | <5min | <5min | <5min | <5min | <5min | | <5min |
| Pointing stability after warm-up | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | | <0.05 mrad |
| Operating temperature | 10-35°C | | | | | | | |
| Modulation option | / | / | TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz | | | | | |
| Expected lifetime | 10,000 hours | | | | | | | |
| Warranty period | 10 months | | | | | | | |

Remarks:

- The laser head needs to be used on a heat sink with good heat dissipation.
- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.

## 1122-1444 nm Specifications

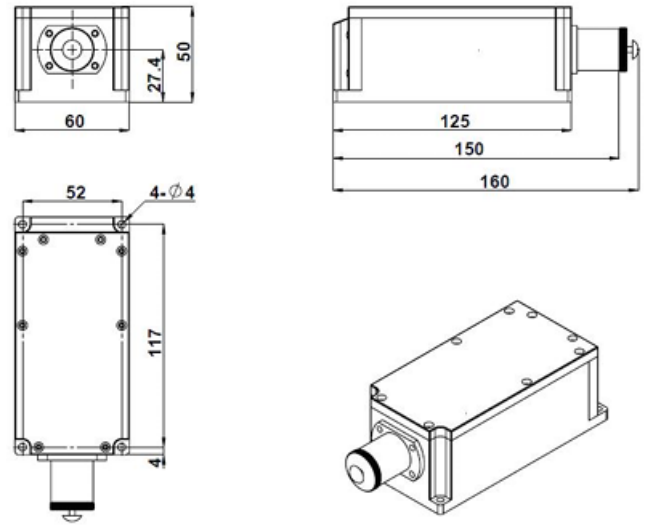
| Parameter | DPU1122 | DPU1177 | DPU1313 | DPU1319 | DPU1342 | DPU1444 | |
|---|---|---|---|---|---|---|---|
| Wavelength | 1122±1 nm | 1177±1 nm | 1313±1 nm | 1319±1 nm | 1342±1 nm | 1444±2 nm | |
| Output power | >1000 mW, >1200 mW | >50 mW, >80 mW, >100 mW, >200 mW, >300 mW, >400 mW | >1000 mW, >1500 mW, >1800 mW, >2000 mW | >100 mW, >200 mW, >300 mW, >500 mW | >2000 mW, >3000 mW | >30 mW, >50 mW, >80 mW, >100 mW | >200 mW, >300 mW, >400 mW |
| Transverse mode | $TEM_{00}$ | $TEM_{00}$ | $TEM_{00}$ | Near $TEM_{00}$ | Near $TEM_{00}$ | Near $TEM_{00}$ | |
| Operating mode | CW | | | | | | |
| Power stability (rms, over 4 hours) | <5%, <3%, <2% | <3%, <2% | <5%, <3%, <2% | <5%, <3% | <5%, <3%, <2% | <5%, <3%, <2% | <5%, <3% |
| $M^2$ factor | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | |
| Beam diameter at aperture ($1/e^2$) | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | ~1.0 mm | |
| Beam divergence, full angle | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | <1.5 mrad | |
| Polarization ratio | / | >100:1 | >100:1 | >100:1 | >100:1 | >100:1 | |
| Warm-up time | <5min | <5min | <5min | <5min | <5min | <5min | |
| Pointing stability after warm-up | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | <0.05 mrad | |
| Laser head consumption | / | 15W (typical), <25W (40°C) | 15W (typical), <25W (40°C) | 15W (typical), <25W (40°C) | 15W (typical), <25W (40°C) | 15W (typical), <25W (40°C) | |
| Max. laser head base plate temp | / | 50°C | 50°C | 50°C | 50°C | 50°C | |
| Operating temperature | 10-35°C | 10-40°C | | | | | |
| Modulation option | TTL/Analog: 1Hz-1kHz, 1kHz-10kHz, 10kHz-30kHz | | | | | | |
| Expected lifetime | 10,000 hours | | | | | | |
| Warranty period | 10 months | | | | | | |

Remarks:

- The laser head needs to be used on a heat sink with good heat dissipation.
- Specifications of the CW laser is based on the laser performance at full power output after the specified warmup period. The stability of output power may change when output power is adjusted at a different power level.

## DPU Series (IR) Laser Head Dimensions

**Unit: mm**

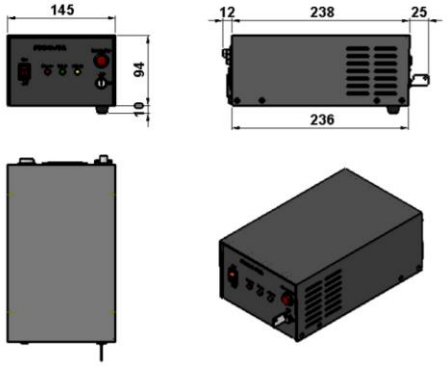



| Parameter | DPU Series (IR) |
|---|---|
| Dimensions | 160(L)×60(W) ×50(H) mm$^3$ |
| Weight | 0.9 kg |
| Beam height from base plate | 27.4 mm |

## DPU Series (IR) Power Supply Dimensions

**Unit: mm**

High Power Elite Power Supply




High Power Laboratory Power Supply


High Power S Version Laboratory Power Supply


| Parameter | High Power Elite Power Supply | High Power Laboratory Power Supply | High Power S Version Laboratory Power Supply |
|---|---|---|---|
| Dimensions | 275(L) ×145(W) ×104(H) mm$^3$ | 277(L) ×145(W) ×106(H) mm$^3$ | 188(L) ×145(W) ×83(H) mm$^3$ |
| Weight | 2.3 kg | 2.6 kg | 1.2 kg |
| Input voltage | 90-264VAC | 90-264VAC | 90-264VAC |
| Features | Standard | Adjustable power | Adjustable power |

## Ordering Information

For more information, please contact Lasermate directly at sales@lasermate.com.

| Part Number Configuration<br>DPU[1][2][3][4][5] | | | | | |
|---|---|---|---|---|---|
| **DPU = Laser Model Series** | **[1] = Wavelength** | **[2] = Output Power** | **[3] = Power Supply** | **[4] = Power Stability** | **[5] = Modulation** |
| | 914= 914nm<br>946= 946nm<br>1053= 1053nm<br>1064= 1064nm<br>1085= 1085nm<br>1112= 1112nm<br>1122= 1122nm<br>1177= 1177nm<br>1313= 1313nm<br>1319= 1319nm<br>1342= 1342nm<br>1444= 1444nm | 30= >30mW<br>50= >50mW<br>80= >80mW<br>100= >100mW<br>…<br>1W= >1000mW<br>1F= >1200mW<br>1H= >1500mW<br>1E= >1800mW<br>2W= >2000mW<br>3W= >3000mW<br>4W= >4000mW | H=High Power Elite Power Supply<br>M=High Power Laboratory Power Supply<br>S=High Power S Version Laboratory Power Supply | A= <5%<br>E= <3%<br>2= <2%<br>D= <1% | 0=None<br>T1=TTL 1Hz-1kHz<br>T2=TTL 1kHz-10kHz<br>T3=10kHz-30kHz<br>A1=Analog 1Hz-1kHz<br>A2=Analog 1kHz-10kHz<br>A3=10kHz-30kHz |

Note: The above specifications are subject to change without notice.