



# CW Distributed Feedback DFB Laser for Gas Detection

## GD Series

Data Sheet



### Overview

The GD series is a line of CW distributed feedback (DFB) lasers with TEM<sub>00</sub> mode that are specifically designed for gas detection applications. The laser series features TEM<sub>00</sub> mode, narrow linewidth up to 3MHz, no jump mode output in operating current range, compact design, high power and wavelength stability, and FDA-compliant system with driver. The laser is widely used in optical fiber gas detection system, optical sensing, fiber communications, measurement, communication, spectrum analysis, and many other applications.

### Features

- Distributed Feedback (DFB) laser
- CW operating mode
- Optical output power 3mW to 30mW
- Stable wavelength and output power
- Narrow linewidth
- No jump mode output in operating current range

### Applications

- Optical fiber gas detection system
- Optical sensing
- Fiber communication
- Measurement
- Communication
- Spectrum analysis

## 1268-1392 nm Specifications

Parameter	GD1268	GD1273	GD1278	GD1305	GD1310	GD1312	GD1368	GD1370	GD1392
Wavelength	1268±2 nm	1273±2 nm	1278±2 nm	1305±2 nm	1310±2 nm	1312±2 nm	1368±2 nm	1370±2 nm	1392±2 nm
Output power	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW, >20 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW	>3 mW, >5 mW, >10 mW
Transverse mode	TEM <sub>00</sub>								
Operating mode	CW								
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%								
Ellipticity	>0.95								
M <sup>2</sup> factor	<1.1								
Spectral linewidth	~3 MHz								
Beam diameter at aperture (1/e <sup>2</sup> )	~1.0 mm								
Beam divergence, full angle	<1.5 mrad								
SMSR	35 dB								
Warm-up time	<5 min								
Operating temperature	25+/-3°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.

## 1450-1567 nm Specifications

Parameter	GD1450	GD1470	GD1490	GD1512	GD1532	GD1540	GD1550	GD1560	GD1567
Wavelength	1450±2 nm	1470±2 nm	1490±2 nm	1512±2 nm	1532±2 nm	1540±2 nm	1550±2 nm	1560±2 nm	1567±2 nm
Output power	>3 mW, >5 mW, >10 mW, >20 mW	>3 mW, >5 mW, >10 mW, >20 mW	>3 mW, >5 mW, >10 mW, >20 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW, >20 mW	>5 mW, >10 mW, >20 mW	>10 mW, >20 mW, >30 mW	>5 mW, >10 mW, >20 mW	>5 mW, >10 mW, >20 mW
Transverse mode	TEM <sub>00</sub>								
Operating mode	CW								
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%								
Ellipticity	>0.95								
M <sup>2</sup> factor	<1.1								
Spectral linewidth	~3 MHz								
Beam diameter at aperture (1/e <sup>2</sup> )	~1.0 mm								
Beam divergence, full angle	<1.5 mrad								
SMSR	35 dB								
Warm-up time	<5 min								
Operating temperature	25+/-3°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.

## 1568-1625 nm Specifications

Parameter	GD1568	GD1573	GD1578	GD1579	GD1580	GD1590	GD1610	GD1620	GD1625
Wavelength	1568±2 nm	1573±2 nm	1578±2 nm	1579±2 nm	1580±2 nm	1590±2 nm	1610±2 nm	1620±2 nm	1625±2 nm
Output power	>5 mW, >10 mW, >20 mW	>5 mW, >10 mW, >20 mW	>5 mW, >10 mW, >20 mW	>3 mW, >5 mW	>5 mW, >10 mW, >20 mW	>5 mW, >10 mW, >20 mW	>10 mW, >20 mW, >30 mW	>3 mW, >5 mW	>3 mW, >5 mW
Transverse mode	TEM <sub>00</sub>								
Operating mode	CW								
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%								
Ellipticity	>0.95								
M <sup>2</sup> factor	<1.1								
Spectral linewidth	~3 MHz								
Beam diameter at aperture (1/e <sup>2</sup> )	~1.0 mm								
Beam divergence, full angle	<1.5 mrad								
SMSR	35 dB								
Warm-up time	<5 min								
Operating temperature	25+/-3°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.

## 1627-1683 nm Specifications

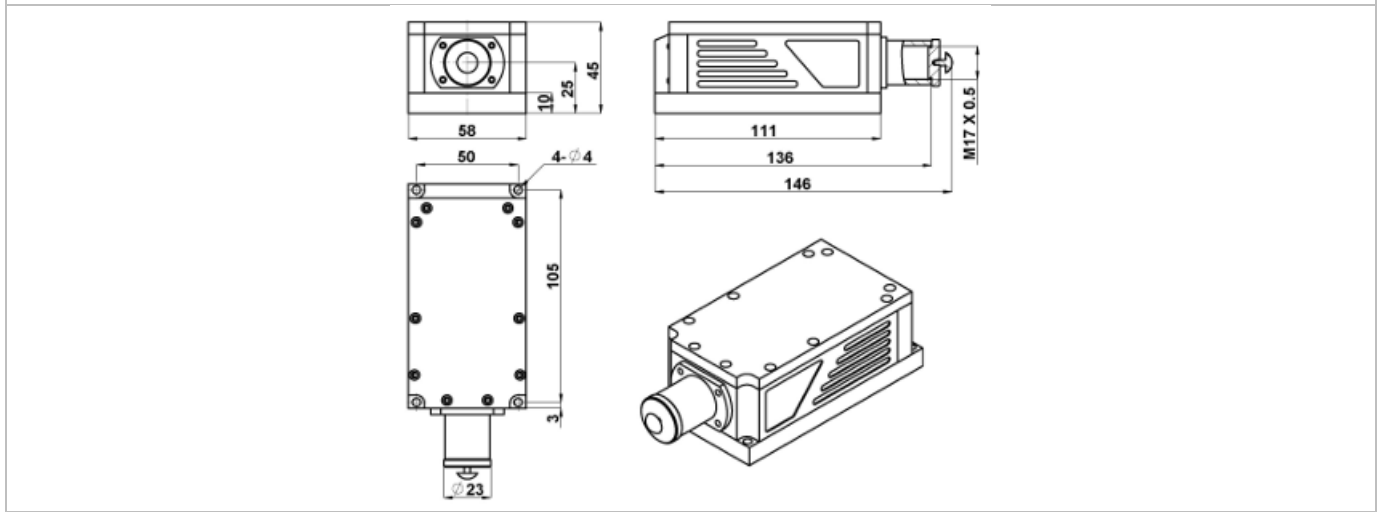
Parameter	GD1627	GD1647	GD1649	GD1650	GD1651	GD1653	GD1654	GD1660	GD1680	GD1683
Wavelength	1627±2 nm	1647±2 nm	1649±2 nm	1650±2 nm	1651±2 nm	1653±2 nm	1654±2 nm	1660±2 nm	1680±2 nm	1683±2 nm
Output power	>3 mW, >5 mW	>3 mW, >5 mW	>3 mW, >5 mW	>3 mW, >5 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW, >10 mW	>3 mW, >5 mW	>3 mW, >5 mW	>3 mW, >5 mW	>3 mW, >5 mW
Transverse mode	TEM <sub>00</sub>									
Operating mode	CW									
Power stability (rms, over 4 hours)	<2%, <1%, <0.5%									
Ellipticity	>0.95									
M <sup>2</sup> factor	<1.1									
Spectral linewidth	~3 MHz									
Beam diameter at aperture (1/e <sup>2</sup> )	~1.0 mm									
Beam divergence, full angle	<1.5 mrad									
SMSR	35 dB									
Warm-up time	<5 min									
Operating temperature	25+/-3°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.

**GD Series Laser Head Dimensions**

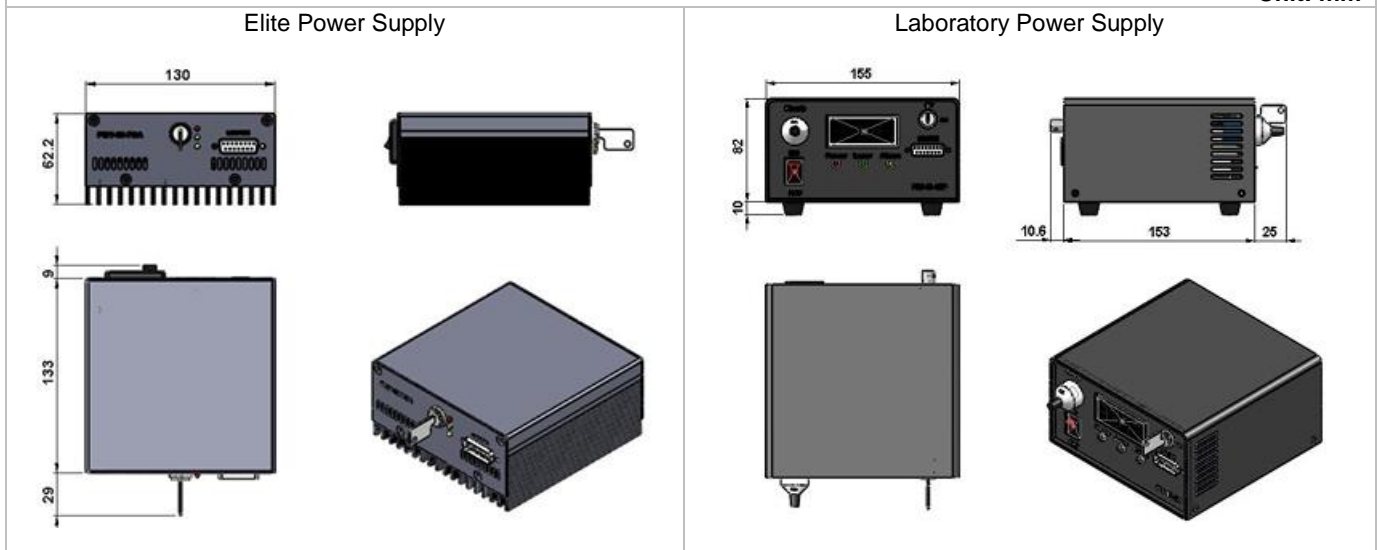
Unit: mm



Parameter	GD Series
Dimensions	146(L)×58(W) ×45(H) mm <sup>3</sup>
Weight	0.7 kg
Beam height from base plate	25 mm

**GD Series Power Supply Dimensions**

Unit: mm



Parameter	Elite Power Supply	Laboratory Power Supply
Dimensions	171(L) ×130(W) ×62.2(H) mm <sup>3</sup>	188.6(L) ×155(W) ×92(H) mm <sup>3</sup>
Weight	1.2 kg	1.5 kg
Input voltage	85-264VAC	85-264VAC
Feature	Standard	Adjustable power

## Ordering Information

For more information, please contact Lasermate directly at [sales@lasermate.com](mailto:sales@lasermate.com).

Part Number Configuration GD[1][2][3][4][5]					
GD = Laser Model Series	[1] = Wavelength	[2] = Output Power	[3] = Power Supply	[4] = Power Stability	[5] = Modulation
		3= >3mW 5= >5mW 10= >10mW 20= >20mW 30= >30mW	E=Elite Power Supply L=Laboratory Power Supply	2=<2% D=<1% S=<0.5%	0=None T1=TTL 1Hz-1kHz T2=TTL 1kHz-10kHz T3=TTL 10kHz-30kHz A1=Analog 1Hz-1kHz A2=Analog 1kHz-10kHz A3=Analog 10kHz-30kHz

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