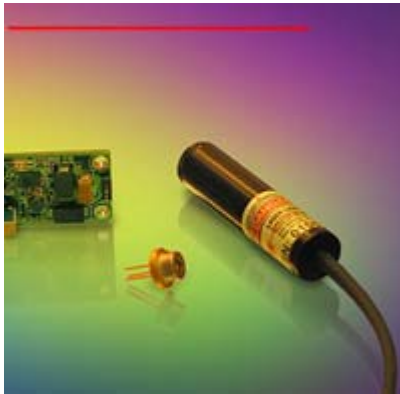


# UTL Series Modulated Red Laser Line Module



Part No: UTL5-3.5G-650-\*\*



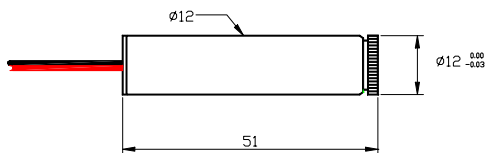
## Product Features

- TTL Modulation from CW up to 155MHz
- High Stability and low noise
- Adjustable focus
- Custom Options Available

## Application

- Measurement
- Scanning
- Automation
- Alignment

## Mechanical Drawing



**Operational Hazard-Semiconductor Laser Diode Module:** This laser module emits radiation that is visible and harmful to human eye. When in use, do not look directly into the laser emitting aperture. Direct viewing of laser diode emission at close range may cause eye damage.

**Limited Warranty:** One year. No warranty coverage for disassembly, modifications or damage due to abuse or misapplication.

## Specification

### OPTICAL

Wavelength	650 nm
Optical Output Power	3.5 mW
Stability	<1%
Wavelength Drift	0.2nm/°C
Noise (20MHz Bandwidth)	<0.5% RMS
Laser Operation <sup>1</sup>	CW or TTL Modulation
Laser Structure	Single Mode Laser
Line Thickness	Adjustable
Minimum Line Thickness	<1mm up to 1 meter
Pointing Stability	<50µrad

### ELECTRICAL

Operating Voltage	3.5 to 5 VDC
Operating Current	<60 mA
Modulation	0 Hz to 155 MHz
TTL Input	Low (0V ), High(3~5V)
Electrical Connections	+(Red), -(Black), TTL(White)

### MECHANICAL

Dimension	12mm(Dia) × 55mm(L)
Cable	200mm
Operating Temperature	-10°C to +50°C
Storage Temperature	-40°C to +80°C
Heat Sink Requirements <sup>2</sup>	Recommended for extended use

### Notes

1. For CW Operation: Connect the white wire to the red wire.
2. Heat Sink: The UTL Series Red Laser Line Module is designed to operate without heat sink. Do not restrict air circulation around the device; an additional heat sink can be used to maximize the performance and life time of the laser.

**Caution:** The case is internally connected to the circuit; damage to the anodized surface may result in failure of the laser module.



Complies with CDRH 21CFR 1040.10

## World Star Tech.

321 Lesmill Rd. Toronto, Ont. M3B 2V1 Canada  
Tel: (416) 363-3332 Fax: (416) 363-3112 www.worldstartech.com



ISO9001:2000 Registered



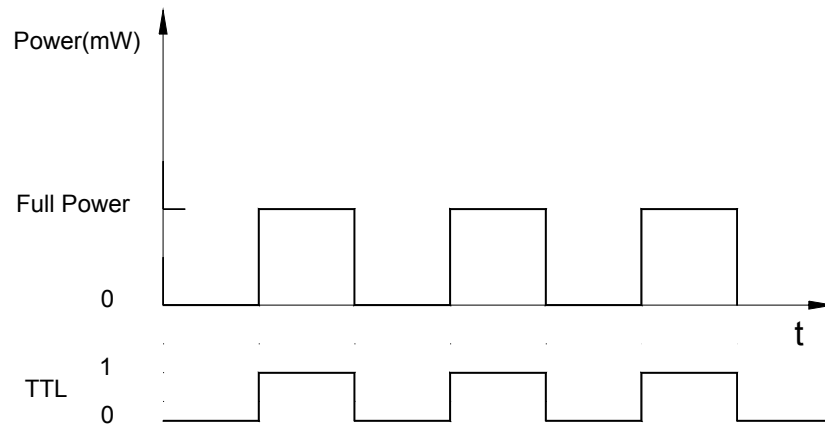
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Part No: UTL5-3.5G-650-\*\*

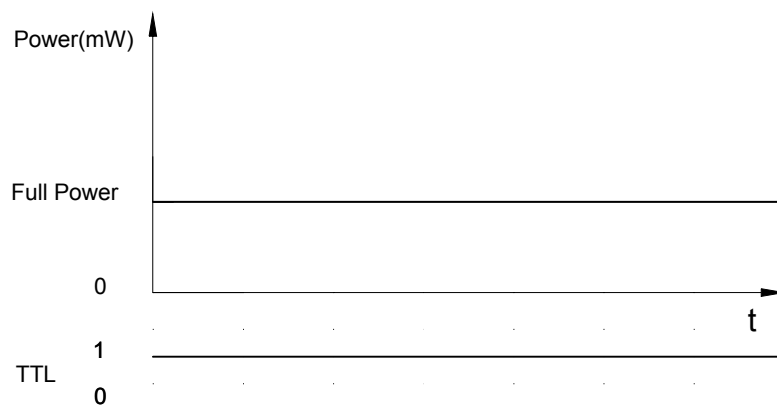
## TTL Modulation

The UTL series red laser line module is TTL modulatable between 0 and the full power by applying an external TTL input signal (e.g. from function generator) using third white wire. When the TTL input is Low the laser power is completely off. When the TTL input is high the laser output is at Full Power. The TTL signal can be any on-off time combination.



## Continuous Operation

The UTL series red laser line module can be operated continuously by applying a high signal to the TTL input which can be done by connecting the white wire and red wire together.



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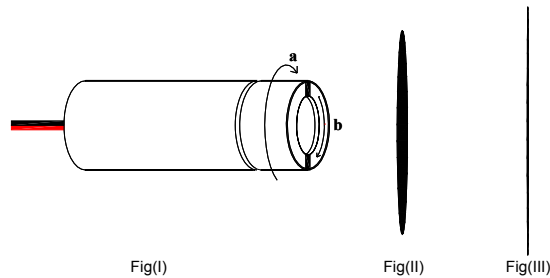


# UTL Series Modulated Red Laser Line Module



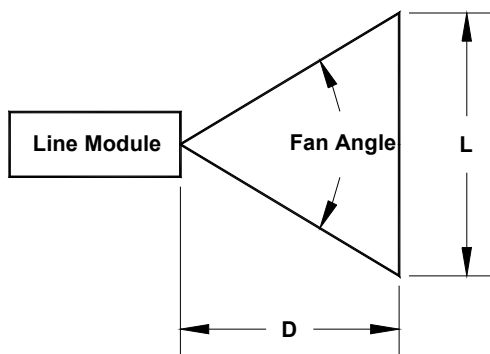
Part No: UTL5-3.5G-650-\*\*

## Focus Adjustment of Line Generators



The line generator lens assembly consists of: aspherical lens assembly *a* and cylindrical lens assembly *b*. Lens assembly *a* adjusts the coarse thickness of the line and lens assembly *b* adjusts the fine thickness of the line. To focus the line at a given distance rotate lens assembly *a*, until you get the thinnest possible line. Your line at this point may look the line in Fig (II), thick in the center and thin along the edges. To adjust to a thin line focused line (Fig (III)), keep lens assembly *a* fixed and gently rotate lens assembly *b* (<90°) (making sure not to move lens assembly *a* during this process) until you get a thin uniform line as shown in Fig (III).

## Fan Angle Selection Guide



L: Line Length  
D: Distance  
a: Factor

For given Fan Angle, the Line Length **L** at distance **D** is calculated using the equation :

$$L = a \times D$$

For Example: using 4 ° Fan Angle at distance of 1.5m, the Line Length will be  $L = 0.07 \times 1.5\text{m} = 0.105\text{m}$ ;

Part No.	Fan angle	Factor a	Line Length(m)			Laser Class	Dimension (Diameter × Length)
			D=0.5m	D=1m	D=3m		
UTL5-3.5G-650-04	4 °	0.07	0.04	0.07	0.21	IIIa	12mm × 55mm
UTL5-3.5G-650-15	15°	0.26	0.13	0.26	0.78	II	12mm × 55mm
UTL5-3.5G-650-30	30 °	0.54	0.27	0.54	1.62	II	12mm × 55mm
UTL5-3.5G-650-45	45°	0.83	0.42	0.83	2.49	II	12mm × 55mm
UTL5-3.5G-650-60	60 °	1.15	0.58	1.15	3.45	II	12mm × 55mm
UTL5-3.5G-650-75	75 °	1.53	0.77	1.53	4.59	II	12mm × 55mm
UTL5-3.5G-650-90	90°	2.00	1.00	2.00	6.00	II	12mm × 60mm