



# Premier & Acculase Modulatable

**premier & acculase modulatable/machine vision lyte-mv/dragonfly green/  
imatronic/laserlyte/laserlyte-flex/guideline/hawkeye detector/  
firefly green/firefly green mini/thread mountable cameo/15mm blue/  
survelase/survelase maxi/beta tx/bluelyte/varilite lc/dca/microblock/  
accessories/projection lenses/energy efficient/customised solutions.**

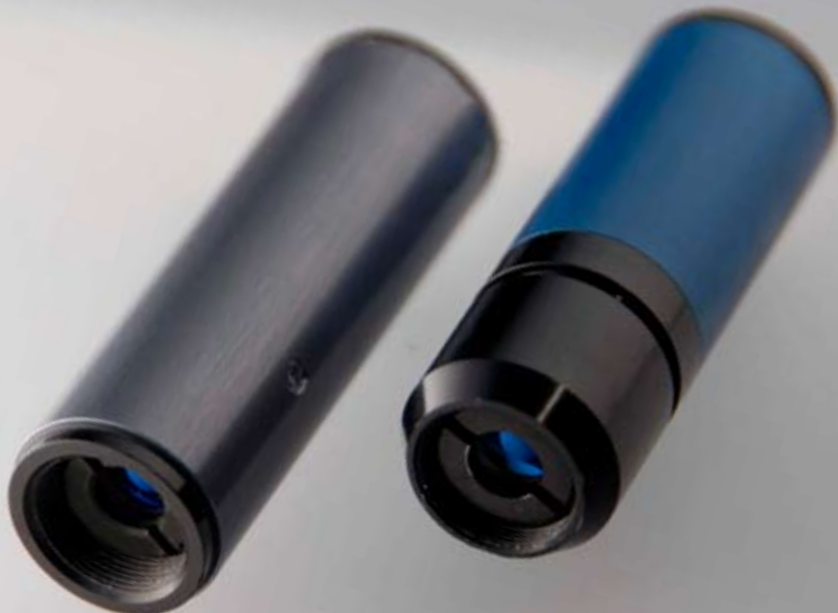
# Premier & Acculase Range.

The Premier & Acculase laser diode modules represent the highest level of optical and electrical performance at an economical price, a combination that is unmatched in the marketplace. The Acculase also has the additional benefit of the output beam being accurately aligned to the outer sleeve during manufacture.

The secret of their superiority is a control circuit design that not only gives you excellent output power stability over time and temperature, but also offers fast, closed-loop modulation with an extinction ratio as high as 10,000:1. Two control circuits are available either the LC (Linear Control) or the PWM (Pulse Width Modulation).

The LC version allows you to control the output intensity linearly by applying a voltage of between 0 to 1 volts, to the control input. The output intensity will faithfully replicate any arbitrary signal you wish to apply within the limits of the laser module's maximum rise and fall time. The PWM version allows you to use pulse width modulation of the output intensity from a TTL level input signal, within the limits of the laser module's maximum rise and fall time. You can therefore control the mean intensity of the laser beam simply by changing the mark to space ratio or modulate the laser with coded information.

A wide range of wavelengths, powers and lens options are available, each combination having been carefully selected to provide you optimum performance, while ensuring the laser diode is never over driven.



# Premier LC & PWM.



Key Features:-

- Choice of visible or IR wavelengths
- Power up to 150mW
- Choice of lenses to provide circular/elliptical beams or lines
- Linear Control or Pulse Width Modulation internal driver board
- Electrically isolated case
- Reverse polarity protected

# Acculase LC & PWM.



Key Features:-

- High bore sighting accuracy <math><1\text{mrad}</math>
- Choice of visible and IR wavelength
- Powers up to 150mW
- Choice of lenses to provide circular/elliptical beams or lines
- Linear Control or Pulse Width Modulation internal driver board
- Electrically isolated case
- Reverse polarity protected

# Mounting Options.

## Heavy Duty Mounting Clamp

The optional heavy duty mounting clamp allows the Premier & Acculase range to be securely fixed at any required direction or angle. The base plate has a series of threaded holes which allows the clamp to be fixed directly onto a machine or workbench.

## Magnetic Mount

A magnetic base is also available which allows the heavy duty clamp to be magnetically attached to a ferrous surface, negating the need for any mounting holes.

## Swivel Mount Clamp

The optional swivel clamp allows the Premier & Acculase to be mounted securely. It offers the user up and down movement as well as  $\pm 45^\circ$  horizontal swivel. The base plate has a series of holes which allows the clamp to be fixed directly onto a machine or workbench.

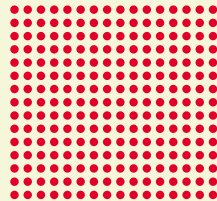


# Projection Options.

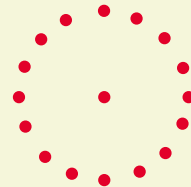
A range of DOE's (diffractive optical elements) are available to provide various patterns such as crosses, circles & dot matrices for applications such as 3D Mapping, surface texture analysis, alignment & general machine vision applications. Please see projection lens datasheet for further information.



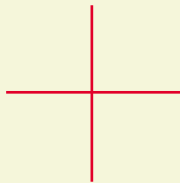
Circle with center dot



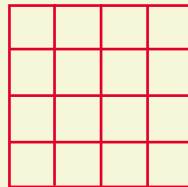
Dot Matrix



Dot Circle



Cross



Grid



Multiple Lines

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We offer a range of DOE's to provide various patterns such as crosses, circles & dot matrices for such applications as 3D mapping, surface texture analysis, alignment & general machine vision applications.

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# Lens Options.

3 standard user collimating adjustable lens type are available for the Premier and Acculase range. These are as follows:-

## Standard Lenses:-

S Lens: Produces an elliptical collimated beam or focussed spot

C2 Lens: Produces a circular collimated beam or focussed spot

HG: Produces an elliptical collimated beam or well defined spot over working distance

*Please note we have a number of other collimating lens options. If the listed lenses do not meet your requirements please call us.*

## Optimal Line Lens Assemblies:-

L4 Line Lens: Produces a gaussian line with a full fan angle of typically 8°

L8 Line Lens: Produces a gaussian line with a full fan angle of typically 16°

LW53: Produces a gaussian line with full fan angle of typically 90° (Premier only)

Aligned Rod Lens: Produces gaussian line with a full angle of typically 90° (Acculase only)

*Please note other fan angles are available on request.*

# Power Options.

Wavelength	Power	Maximum Power Output With Lens	
		S & HG Lens	C2 Lens
635nm	1, 3, 5, 10, 15, 20mW	20mW	10mW
650/660nm	1, 3, 5, 10, 20, 35, 50, 80mW	80mW	20mW
670nm	1, 3, 5mW	5mW	1mW
685nm	10, 20, 35mW	35mW	10mW
785nm	1, 5, 10, 20, 35, 50, 75mW	75mW	20mW
808nm	55, 100, 150mW	150mW	55mW
850nm	1, 3, 5mW	5mW	1mW
Custom	Please call with your requirements		
<i>Please note that all wavelength tolerance can vary typically by <math>\pm 10\text{nm}</math></i>			
<i>Not all the powers are available with all lens options</i>			

# Specifications.

	Acculase LC	Acculase PWM	Premier LC	Premier PWM
<b>Mechanical Information</b>				
Mass (grams)	14		17	
Dimensions (mm)	15 x 47		15 x 47	
Housing	Anodised Aluminium			
Isolated Body	Yes			
Lead Length (mm)	500 (Other lead lengths available on request)			
Connector Type	JST PHR4 4pin			
<b>Optical Information</b>				
Diode Power (mW)	1 to 150*			
Typical Power Stability over Temperature range (%)	≤1%#			
Wavelength (nm)	635 to 850			
Beam Size at Aperture	*			
Beam Divergence	*			
Bore Sighting	< 1mrad (Note 1)		≤10mrad (Note 1)	
Pointing Stability vs. Temperature	< 0.01 mrad/°C			
<b>Environmental Information</b>				
Operating Case Temperature (°C)	-10 to +45*			
Storage Temperature (°C)	-10 to +80			
Operating Humidity (%RH)	90 (non condensing)			
MTTF @ 25°C (hrs)	>30,000*			
<b>Electrical Specifications</b>				
Input Voltage V+ (Red Lead - Pin 1)	5 Vdc ±5% (Note 2)			
Input Voltage (Black Lead - Pin 2)	0 Vdc			
Operating Current Drive Circuit (mA)	4mA (Typical)			
Operating Current (mA)	Varies with laser diode type and temperature			
Reverse Polarity Protection	Yes			
Rise & Fall Times	DC to 300KHz (Note 3)	DC to 1MHz	DC to 300KHz (Note 3)	DC to 1MHz
Linear Control Voltage Range (Yellow Lead - Pin 3) LC Version	0-1V (See Chart)	N/A	0-1V (See Chart)	N/A
Modulation Voltage Range (Yellow Lead - Pin 3)	0-1V	<0.4V = Off > 2V = On	0-1V	<0.4V = Off > 2V = On
TTL Enable (Blue Lead - Pin 4)	N/A	Low = Off High = On	N/A	Low = Off High = On
Earth (Yellow/Green Lead - Pin 4)	Earth	N/A	Earth	N/A
NOTES # Varies with laser diode type and output power. Data based on Premier 650nm 1mW C2 Lens * Varies with laser diode type Note 1 - @ factory set focus Note 2 - Some models may run on 3.3 to 5 volts. Please contact us for availability Note 3 - Measure with 90% modulation depth sine wave to -3dB All specifications are typical @ 25°C				

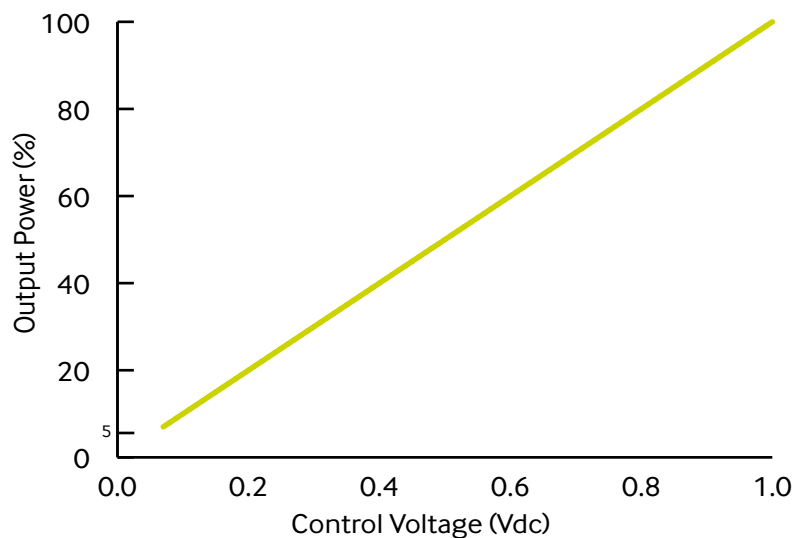
# Standard Driver Types.

Two driver boards are available for the Premier & Acculase laser, either a Linear control or Pulse Width Modulation.

## Linear Intesity & Analogue Modulation Control (LC Model)

### User Adjustable Intensity Control

Using the yellow control lead output power intensity may be linearly controlled from zero to the maximum factory setvalue. This may be achieved using a simple resistor or by applying a control voltage between 0 and 1V where 0Vdc is off and +1 Vdc is maximum. with a linear relationship for every value between, e.g. an input of 0.5V would produce an output intensity of half maximum.



### Modulation

Using the yellow control lead the laser may be modulated by using an external signal. The required voltage range is 0 to +1 Vdc (to set the maximum intensity), frequency range is DC to 300 KHz. Please note: applying more than 1 V does not increase the power above maximum but it can reduce the maximum frequency of modulation.

*Note: Intensity control and modulation functions may be used together.*

### 4th Pin - Earth

The LC versions have a 4th pin which provides a highly resistive path from 0V in order to safely displace any unwanted over voltages

### Pulse Width Modulation TTL Digital Control (PWM Model)

The Acculase/Premier laser is also available with a TTL driver board that allows the unit to be gated on and off, or pulse-width modulated at TTL voltage levels via the yellow control lead.

Rise Time: < 0.5us\*

Fall Time: , 0.5us\*

\* = *Varies with model*

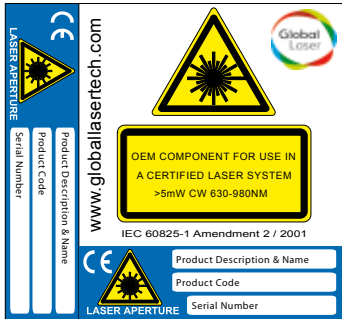
### 4th Pin - Enable Function

The PWM/TTL versions have a 4th pin enable function which is also responsive to TTL volatage levels and functions as an electronic switch to quickly turn the laser on and off without the need to disturb the power supply. A TTL level high turns the laser on and a TTL level low turns the laser off.

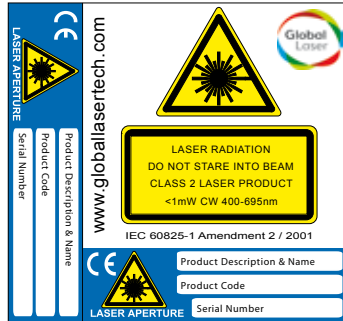


# Laser Safety.

Our lasers are compliant to IEC 60825-1 standards. The lasers fall within one of the following classifications depending on power and wavelength.



OEM Laser Label



Class 2 Laser Label



Class 3R Laser Label

# Quality & Warranty.

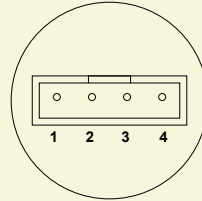
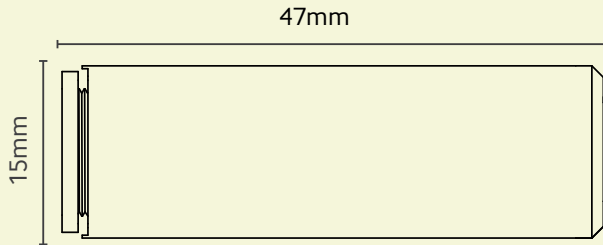
The Premier and Acculase range is supplied with a 12 month parts and labour warranty. Our manufacturing operations are certified to ISO9001.





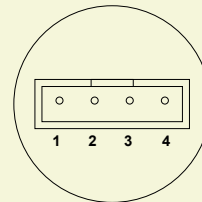
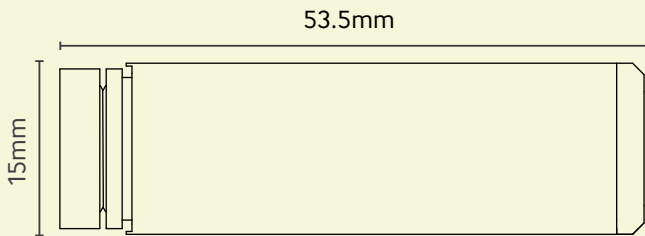
# Mechanical Drawings.

## Acculase LC & PWM



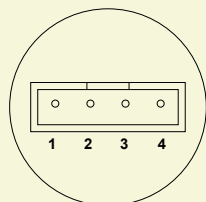
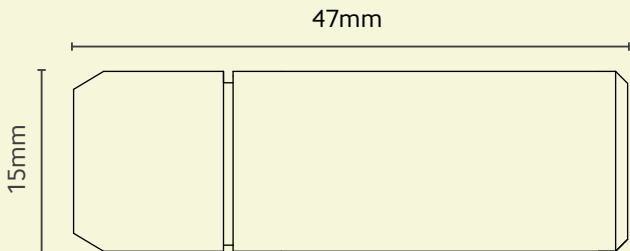
- Pin 1 - Red
- Pin 2 - Black
- Pin 3 - Yellow
- Pin 4 - LC = Green/Yellow
- Pin 4 - PWM = Blue

## Acculase LC & PWM with L4/L8 Line



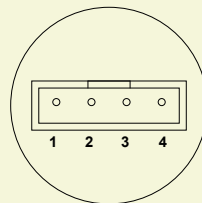
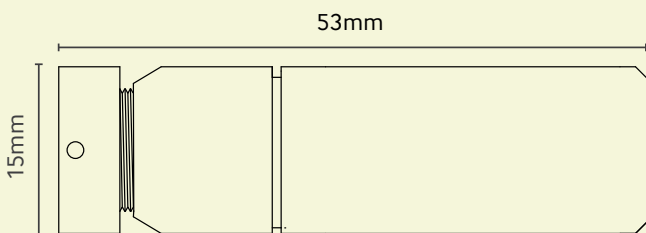
- Pin 1 - Red
- Pin 2 - Black
- Pin 3 - Yellow
- Pin 4 - LC = Green/Yellow
- Pin 4 - PWM = Blue

## Premier LC & PWM



- Pin 1 - Red
- Pin 2 - Black
- Pin 3 - Yellow
- Pin 4 - LC = Green/Yellow
- Pin 4 - PWM = Blue

## Premier LC & PWM with L4/L8/LW53 Line

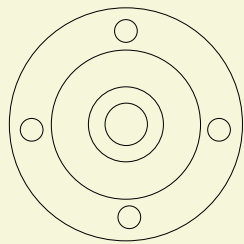
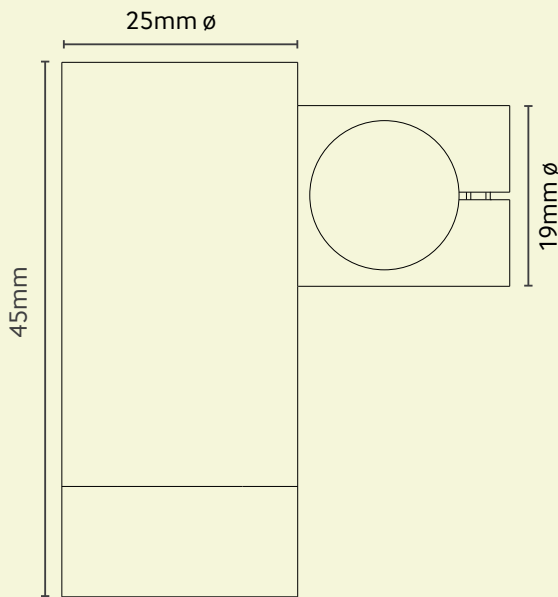


- Pin 1 - Red
- Pin 2 - Black
- Pin 3 - Yellow
- Pin 4 - LC = Green/Yellow
- Pin 4 - PWM = Blue

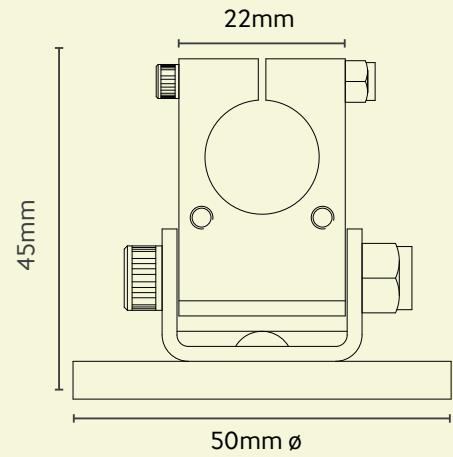
*Drawings not to scale*

# Mechanical Drawings.

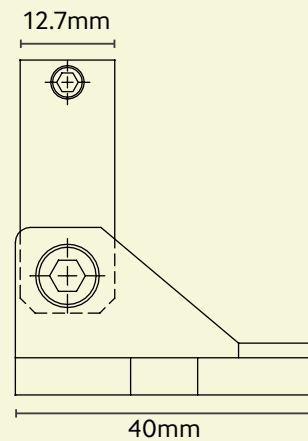
## Heavy Duty Mounting Clamp



## Swivel Clamp



Mounting hole on base 4 x 4.5mm



*Drawings not to scale*

For further information about any of our products please contact your local distributor or you can contact Global Laser in the UK. Your Local Distributor Is:



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