



Machine Vision Lyte-MV

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.

The Machine Vision Range

The Lyte-MV range of laser diode modules provides reliable high power, industrial laser light sources with well-defined line illuminations. Used primarily with industrial cameras, they are suitable for a wide range of inspection, measurement and control systems.

The Lyte-MV modules are available in red, infrared and green wavelengths with powers up to 200mW.

The lasers have a wide range of options and accessories including mounting kits, power supplies and projection options. The range of modules are qualified to European specifications and are one of the most controllable lasers in the machine vision market.



Selection Guide

This catalogue covers our complete Lyte-MV range and is broken down into various sections. Please use the guide below to go straight to the relevant section.

Section	Product	Description
S.1	Lyte-MV	The Lyte-MV is our original machine vision laser and provides well defined line illumination.
S.2	Lyte-MV Excel	The Lyte-MV Excel is based on the same technology used in the Lyte-MV but, has a unique external focusing method and gives improved line width.
S.3	GreenLyte-MV Excel	The Greenlyte-MV Excel is the green output variant of the Lyte-MV Excel and has a brighter output in comparison with the red variants.
S.4	Specifications	Compare the detail of the Machine Vision Laser Range.
S.5	Modulation	The Lyte-MV range of lasers has different modes of function, in this section each part is explained.
S.6	Options	Here you will find power supplies, mounting brackets and projection options suited to our range of lasers.
S.7	Mechanical Dimensions	Detailed technical drawing of the Machine Vision range.

S1. Lyte-MV

The main features of the Lyte-MV:-

- Uniform non-Gaussian line with fan angles from 5° to 90°
- Max powers Red up to 100mW & Infrared up to 200mW
- CW, Linear modulation or TTL control
- Excellent focus & line quality
- Rugged design
- Case electrically isolated
- Qualified to EN61000
- Wide range of line generating optics
- User adjustable focus

S2. Lyte-MV Excel

The main features of the Lyte-MV Excel:-

- The Lyte-MV Excel has all the features of the Lyte-MV plus the below
- Unique user adjustable focus without removing line optics
- Laser classification maintained during focus adjustment
- Excellent focus & line quality
- Improved line thickness
- Accurately aligned

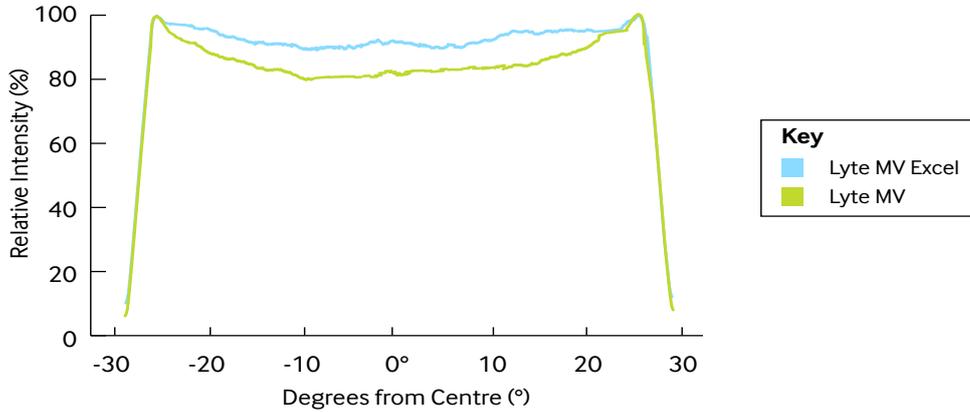
The Lyte-MV range is certified to a wide range of European testing, please see our website for further information.



Output Specification.

Uniform Intensity

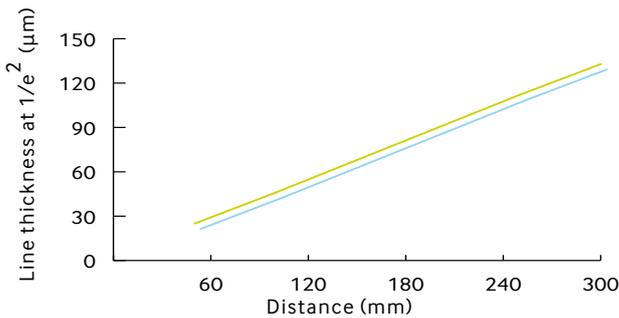
The profile below shows the typical intensity along the length of the line. The uniform power distribution in the centre with sharp ends makes this laser suitable for use with a wide range of commercial CCD cameras.



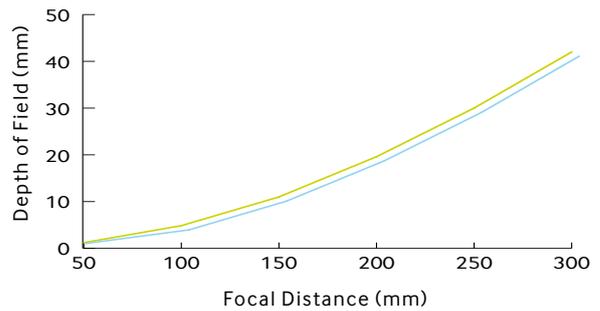
Focussing and depth-of-field characteristics

The following charts show the typical focussing and depth-of-field performance of the Lyte- MV in comparison with the Lyte-MV Excel. The focus charts indicate the minimum line thickness (at $1/e^2$) achievable for a specific projection distance. The depth-of-field is defined as the distance between two points either side of the pre-set focus at which the line width increases by a factor of $\sqrt{2}$.

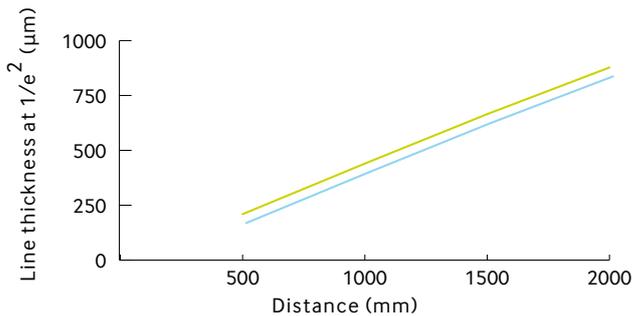
Focussing
Short range



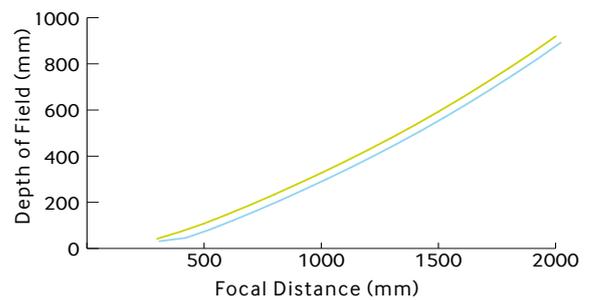
Depth-of-field (Rayleigh range)
Short range



Long range



Long range



S3. GreenLyte-MV Excel

The GreenLyte-MV Excel is a green 532nm machine vision laser with the following features.

- Highly visible green line
- Stable power without thermoelectric (TE) cooling
- Uniform non-Gaussian line with fan angles from 5° to 90°
- CW, Linear modulation or TTL control
- Unique user adjustable focus without removing line optics
- Laser classification maintained during focus adjustment
- Electrically isolated case
- Powers up to 50mW
- Low operating current
- Rugged design
- High boresight accuracy

Suitable applications
include:

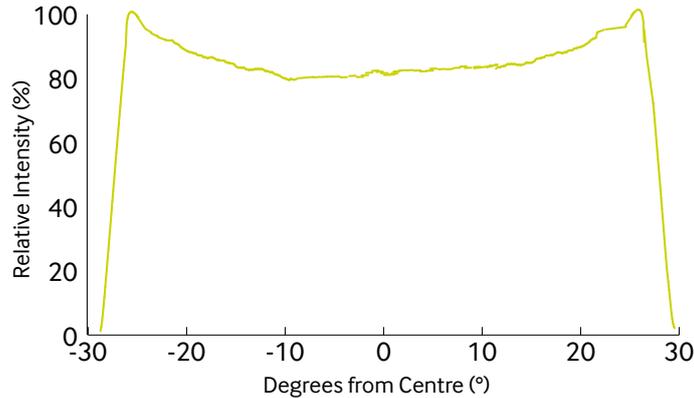
Automotive
Ceramics
Timber & Packaging
Aerospace
Triangulation
Tomography
Alignment
Inspection



Output Specification.

Uniform Intensity

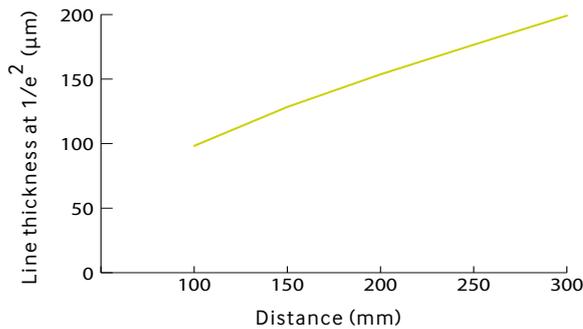
The profile below shows the typical intensity along the length of the line. The uniform power distribution in the centre with sharp ends makes this laser suitable for use with a wide range of commercial CCD cameras.



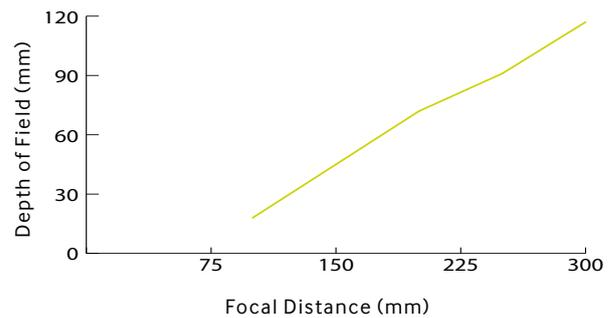
Focussing and depth-of-field characteristics

The following charts show the typical focussing and depth-of-field performance of the GreenLyte-MV laser. The focus charts indicate the minimum line thickness (at $1/e^2$) achievable for a specific projection distance. The depth-of-field is defined as the distance between two points either side of the pre-set focus at which the line width increases by a factor of $\sqrt{2}$.

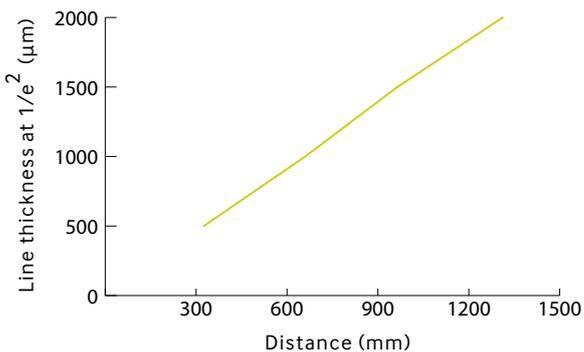
Focussing
Short range



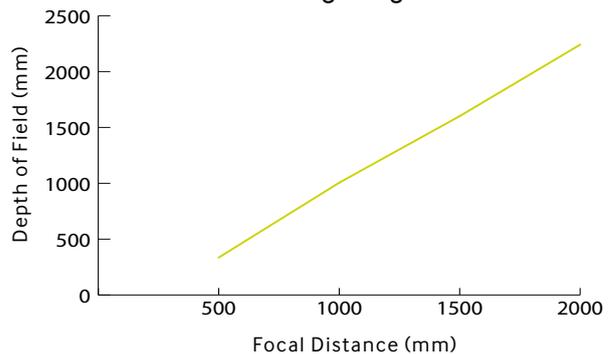
Depth-of-field (Rayleigh range)
Short range



Long range



Long range



S4. Specifications.

	Lyte-MV	Lyte-MV Excel	GreenLyte-MV Excel
Mechanical Information			
Weight (grams)	44	52	74
Diameter (mm)	19		
Length (mm)	73.5	88	108
Housing	Bronze Anodized Aluminium		Green Anodized
Isolated Body	Yes		
Input Leads	4 Leads, / Red (+Ve) / Black (0V) / Yellow (Control) / Blue (Enable Switch)		
Lead Length (mm)	300		
Optical Information			
Wavelength (nm)	Power (mW)	Power (mW)	Power (mW)
405	Please call for with requirements		N/A
532	N/A	N/A	5, 10, 20, 35, 50
635	1, 5, 10, 15, 35	5, 10, 15, 35	N/A
650 / 660	1, 5, 10, 20, 35, 50, 100	5, 10, 20, 35, 50, 100	N/A
670	1, 5, 10	5, 10	N/A
685	20, 50	20, 50	N/A
785	5, 20, 35, 50, 75, 90	5, 20, 35, 50, 75, 90	N/A
808	200	200	
850	5, 30	30	N/A
980	50	50	
Custom	Please call for with requirements		
Intensity Distribution	Uniform along length, Gaussian along width		
Fan Angles (°)	5, 15, 20, 30, 45, 60, 75, 90		
Line Thickness	Refer to focus charts on product information		
Bore Sighting (mrad)	< 3 *	< 3	< 3
Minimum working distance (mm)	N/A		160
Turn on time to 75% of full power (s)	N/A		< 30
Environmental Information			
Operating Case Temperature (°C)	-10 to +45 **		+5 to +35
Storage Temperature (°C)	-10 to +80		-10 to +80
Operating Humidity (%RH)	90 (non condensing)		
Electrical Specifications			
Input Voltage (Vdc)	5.0 ± 10 %		3.5 to 5.0
Connector Type	4 Pin Binder		
Reverse Polarity Protection	Yes		
Internal current limiter	Yes		

NOTES -
 * = At factory set focus, ** = Varies with laser diode type
 All Specifications are typical @ 25 °C

S5. Modulation.

The Lyte-MV range of lasers has two options of modulation available. These are Analogue Modulation and Digital TTL Modulation.

Version: Analogue **A**

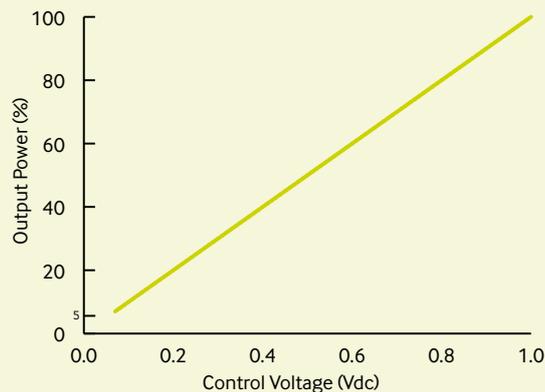
Intensity Control Function

This function allows the user to adjust the output power via the control lead, it is linearly controlled from the maximum factory set power to off.

Power Adjustment Chart

0 V = Off

1 V = Max Power



Modulation & Synchronization

The laser may be modulated or synchronised to a camera by using an external signal. (Voltage range 0 to 1Vdc)

Frequency Range of Lyte-MV and Lyte-MV Excel = DC to 200kHz *

Frequency Range of Greenlyte-MV Excel = DC to 10kHz *

Please note: Intensity control and modulation functions may be used together.

** = Measured at 90% modulation depth, sine wave to -3dB*

Version: Digital **D**

The Digital TTL driver board allows the unit to be gated on and off, or pulse-width modulated at TTL voltage levels via the control lead. Two versions are available either non-inverting TTL or inverting TTL. For non-inverting $< 0.4V = \text{off}$ and $> 2V = \text{on}$ and vice versa for the inverted model.

Lyte-MV and Lyte-MV Excel
Rise Time: $< 0.5\mu\text{s}$ (Typically)
Fall Time: $< 0.5\mu\text{s}$ (Typically)

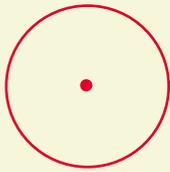
GreenLyte-MV Excel
Rise Time: $< 10\mu\text{s}$ (Typically)
Fall Time: $< 10\mu\text{s}$ (Typically)

S6. Options

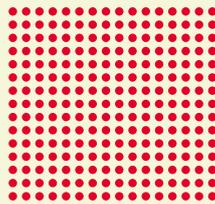
The Lyte-MV laser modules have a wide range of options to suit a variety of applications. These options include projection optics, power supplies, waterproof housing and laser safety glasses.

Projection Options

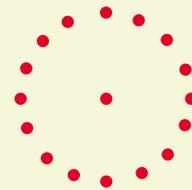
A range of diffractive optical elements (DOE) are available to provide various patterns such as cross, circles & dot matrix for applications such as 3D mapping, surface texture analysis, alignment & general machine vision applications. Please see projection lens datasheet for further information.



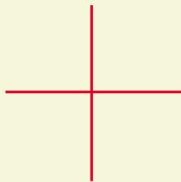
Circle with center dot



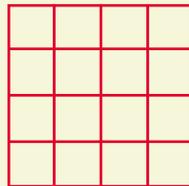
Dot Array



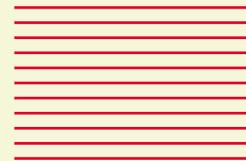
Dot Circle



Cross



Grid



Multiple Lines

IP68 Waterproof Housing

For applications where a laser will be subject to submersion in water, high pressure wash downs or there are high levels of dust, Global Laser waterproof housing provides the ideal solution. Manufactured from stainless steel 316 and certified to IP68 (dust tight and continuous submersion) it is compatible with our Lyte-MV, Lyte-MV Excel and GreenLyte-MV-Excel range. Further flexibility is offered by the ability for the user to be able to remove the laser module from the housing and refocus the unit if required. For more information on any of the options please refer to the accessories datasheet.



IP68 Waterproof Housing

Power Supplies

For users that require a off the shelf power supply that can power the range of machine vision lasers we have two options, the 110 / 240 Vac which is best suited to mains power and the 12 / 24 Vdc which is better suited to applications where power is to be supplied from a machine power source. For more information on any of the options please refer to the accessories datasheet.



110 / 240 Vac Power adaptor



12 / 24 Vdc Power adaptor

Mounting Clamps

The optional heavy duty mounting clamp allows the Lyte-MV range of machine vision lasers 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. For more information on any of the options please refer to the accessories datasheet.



Heavy Duty Mounting Clamp



Magnetic Mounting Clamp

Laser Safety Glasses

To compliment the Lyte-MV range there are a number of laser safety glasses, below is an example of some of the available glasses. For more information on any of the options please refer to the Laser Safety Glasses datasheet.



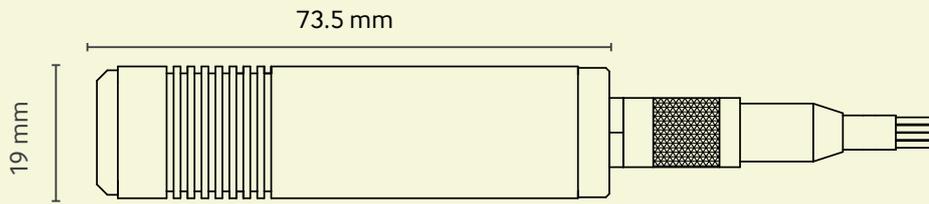
DIA - Protection against Red
50mW



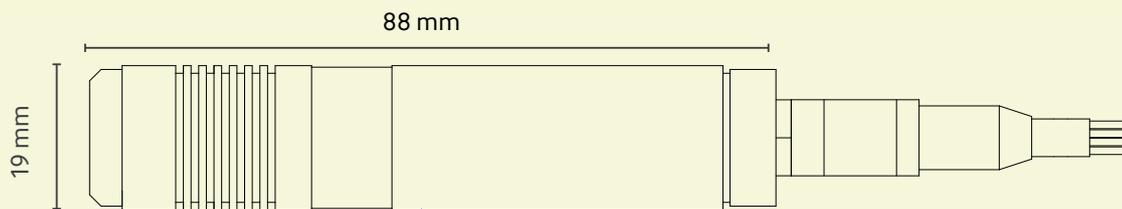
AL3 - Protection against Green
50mW

Mechanical Dimensions

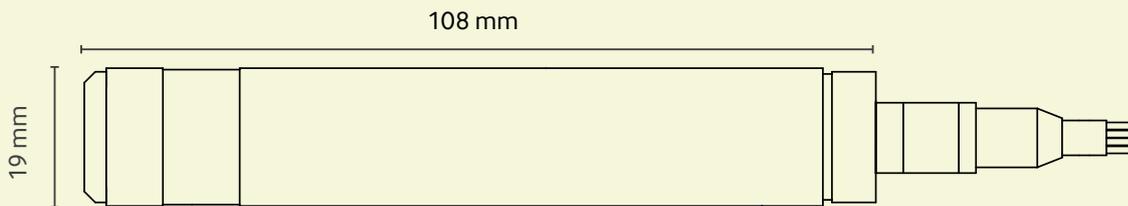
Lyte-MV



Lyte-MV Excel



Greenlyte-MV Excel



Drawings are not to scale



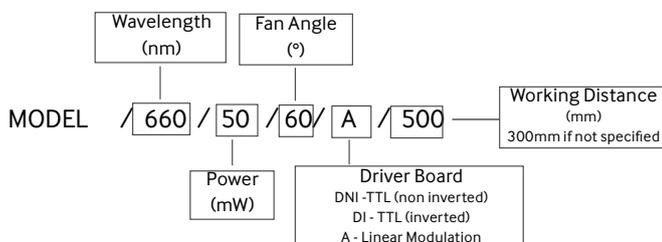
ISO9001 Certified

Quality & Warranty

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

Laser Safety

Our lasers are compliant to IEC 60825-1 standards. For further information please contact us.



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:



Please Note: Global Laser reserve the rights to change descriptions and specifications without notice.

T: +44 (0)1495 212213
 F: +44 (0)1495 214004
 E: sales@globalasertech.com
 www.globalasertech.com
 Global Laser Ltd, Cwmtillery Industrial Estate
 Abertillery, Gwent NP13 1LZ UK