

# Lyte-MV-Excel Machine Vision Laser

## Features

Unique user adjustable focus without removing line optics

Max powers Red up to 100 mW & IR up to 200 mW

Uniform non-Gaussian line with fan angles from 15 to 90 degrees

Laser classification maintained during focus adjustment

CW, Linear modulation or TTL control

Excellent focus & line quality

Rugged design

Case electrically isolated

Improved line thickness

Accurately aligned



The Lyte-MV-Excel range of laser 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.

Available in visible wavelengths up to 100 mW, infrared up to 200 mW, the laser beam output is a uniform intensity line with excellent focus control.

## Applications

Automotive

Ceramics

Timber & packaging

Aerospace

Triangulation

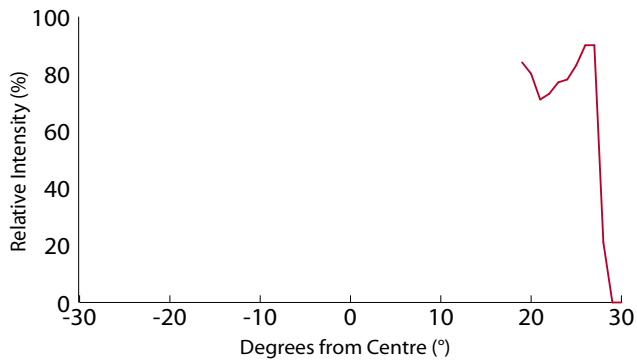
Tomography

Conventional machine vision lasers are adjusted in focus by removing the line optics and inserting a focusing tool into the laser to adjust the position the collimating lens. This process is time consuming and also can result in the laser changing power classification. The unique focusing mechanism of the Lyte-MV-Excel allows the focus to be adjusted without the need for removing line optics by simply rotating the rear end of the laser. This novel design produces improved line quality whilst maintaining accurate alignment.

Line lengths from a few mm to several metres are available from a variety of standard optics, with custom optics to suit specialised requirements.

Requiring only a standard low voltage supply the Lyte-MV-Excel range is ready to use in arduous environments and demanding applications.





### UNIFORM INTENSITY

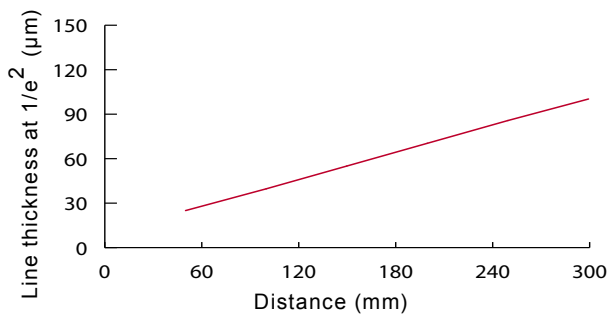
The profile opposite shows the typical intensity along the length of the line. The uniform power distribution in the centre with sharp ends makes this laser suitable for use with a wide range of commercial CCD cameras.

### FOCUSING AND DEPTH OF FIELD CHARACTERISTICS

The following charts show the typical focusing and depth-of-field performance of the Lyte-MV-Excel 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 linewidth increases by a factor of  $\sqrt{2}$ .

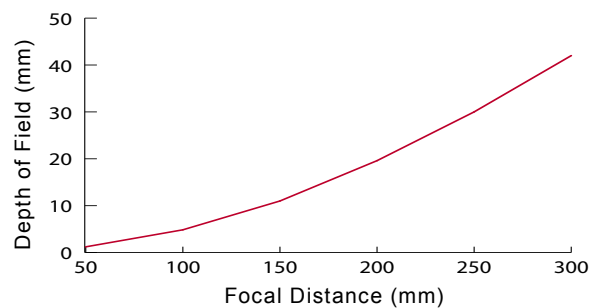
#### Focusing

Short range

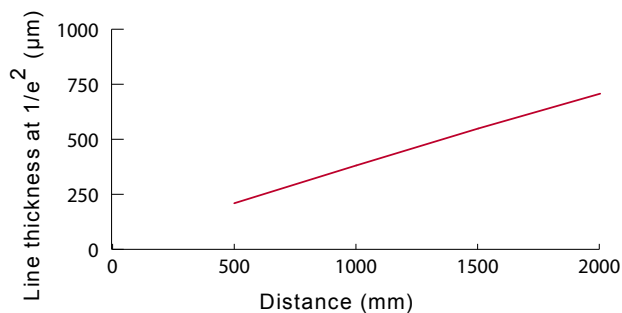


#### Depth-of-field (Rayleigh range)

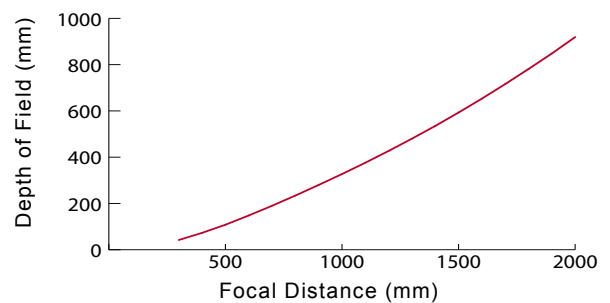
Short range



Long range



Long range



## SPECIFICATIONS

### MECHANICAL SPECIFICATIONS

Weight	50 grams
Dimensions	19 mm dia x 86.2 mm <i>(not including connector)</i>
Housing	Bronze anodized Aluminium
Isolated Body	Yes
Input Leads	4, Red (+ve), Black (0 V), Yellow (Control), Blue (Enable switch)
Lead length	250 mm

### OPTICAL SPECIFICATIONS

Diode Power	1 mW to 200 mW *
Wavelength	635 nm to 980 nm *
Intensity distribution	Uniform along length, Gaussian along width
Fan Angles	15 degrees to 90 degrees *
Line Thickness	Varies with distance & wavelength
Bore sighting	< 3 mrad

### ENVIRONMENTAL SPECIFICATIONS

Operating case temperature	-10°C to +50°C
Storage temperature	-10°C to +80°C
Operating Humidity (%RH)	90 (non condensing)

### ELECTRICAL SPECIFICATIONS

Input voltage	3.5 Vdc to 5 Vdc <small>(standard)</small>
	12 Vdc or 24 Vdc <small>(via optional 11-32 Vdc adaptor)</small>
	110 Vac/240 Vac <small>(via optional adaptor)</small>
Connector type	4 pin BINDER
Reverse - Polarity protection	Yes

\* = *Varies with model*

*Specifications are typical at 25°C unless otherwise stated*

### MOUNTING CLAMPS

The optional heavy duty mounting clamp allows the Lyte-MV-Excel 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.



## STANDARD DRIVER TYPES

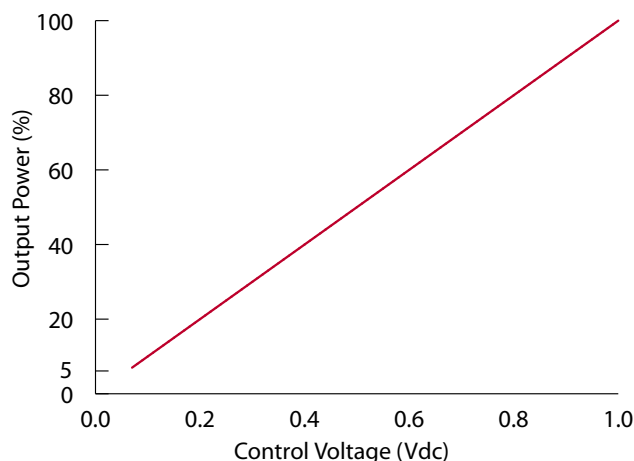
Two driver boards are available for the Lyte-MV-Excel either a Linear or TTL control.

### • LINEAR INTENSITY & ANALOGUE MODULATION CONTROL

#### User adjustable intensity control

Via the yellow control lead output power may be linearly controlled from the maximum factory set value to all lower values including off. This may be changed via a simple resistor or by a control voltage. 0 Vdc is off, +1 Vdc is on, all values in-between are linear.

*See power adjustment curve below.*



### Modulation & Synchronization

Using the yellow control lead the laser may be modulated or synchronised to the camera by using an external signal. Required voltage range is 0 to +1 Vdc (to set the maximum intensity), frequency range is DC to 200 KHz

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

### • TTL DIGITAL CONTROL

The Lyte-MV-Excel 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: < 0.5  $\mu$ s  
Fall Time: < 0.5  $\mu$ s

## STANDARD WAVELENGTHS AND POWER OPTIONS

635nm	1, 3, 5, 10 mW
650nm	1, 5, 10 mW
660nm	20, 30, 35, 50, 100 mW
670nm	1, 3, 5, 10 mW
780nm	5, 20 mW
808nm	100 mW
980nm	200 mW
Custom	Please call for further details

Please note wavelength tolerance can vary typically by  $\pm 10\text{nm}$ .

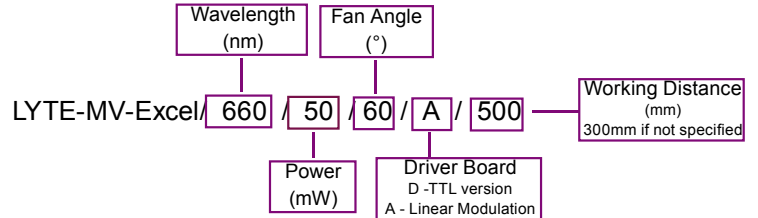
## FAN ANGLE OPTIONS

The Lyte-MV-Excel is available in the following fan angles. These angles are full angles.

15°
30°
45°
60°
75°
90°

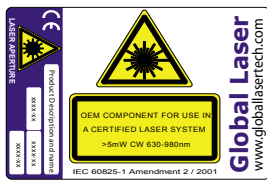
## ORDERING GUIDE

To order the correct Lyte-MV-Excel please follow the guidelines below:



## LASER SAFETY

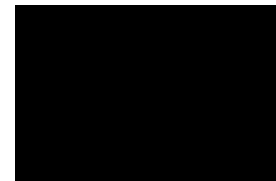
Our lasers are compliant to IEC 60825-1 standards. The lasers fall within one of the following classifications depending on power, wavelength and fan angle. The labels supplied with the units are shown below.



OEM Laser Label



Class 2M Laser Label



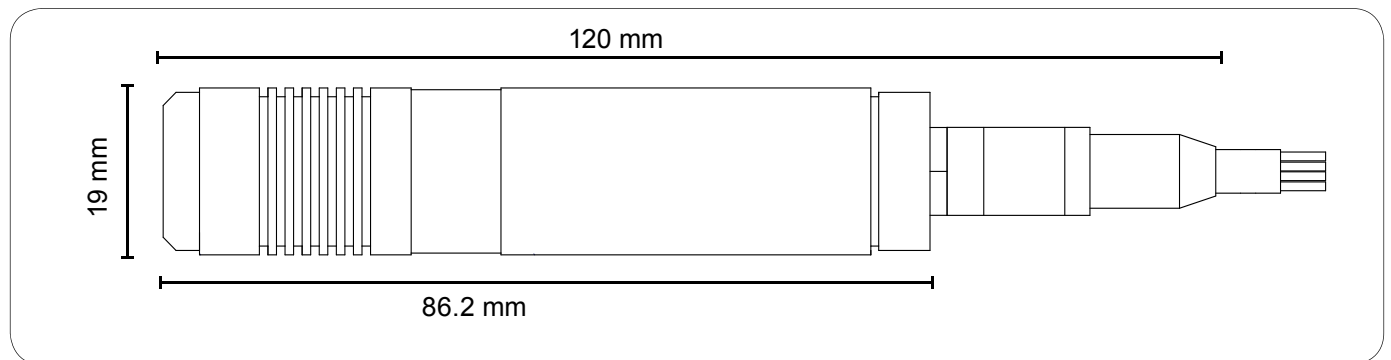
Class 3R Laser Label

## QUALITY & WARRANTY

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



## DIMENSIONS



Please note: Global Laser reserve the right to change descriptions and specifications without notice



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For further information about the Lyte-MV-Excel you can contact your local distributor or you can contact Global Laser in the UK.

Your Local Distributor Is: