



# Varilite Alignment Kit

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The Varilite PWM Development Kit provides a complete solution to a wide range of visual alignment applications, including positioning of garments, cloth, paper, wood and metal and a wide range of machine vision applications. Three versions of the kit are available in 635nm, 1mW & 5mW and 660nm 20mW. The kit is supplied in a robust case, comprises of a Varilite laser diode module, five interchangeable optics which produce a range of line and cross and pattern projections, a heavy duty mounting clamp for easy set up and adjustment and a 110V/240V voltage adaptor, including leads for UK, Euro and US main sockets.

The Laser can produce either a elliptical dot or a projection when fitted with one of the supplied interchangeable optics. A user adjustable collimating lens allows the user to adjust the focus (size) of the beam at the desired working distance via a supplied key. Each of the five interchangeable optics are simply screwed into the end of the laser diode module to produces the required projection, which include a line, cross projection, multiple circles, multiple lines and a dot array.

The laser can be either operated from a 110/240 adaptor supplied with the kit or from a 5Vdc supply. When used with a 5Vdc supply the optical output of the laser can be pulse width modulated from a TTL level input signal, within the limits of the laser modules 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 or synchronised it with an external device such as a camera or photo detector.

The heavy duty mounting clamp is also supplied which allows the Varilite 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. The Varilite has a threaded barrel to simplify bulkhead mounting and ensure a good thermal contact between the module and the mount thus assisting with a good heat dissipation. It represents the highest level of optical and electrical performance at an economical price, a combination that is unmatched in the marketplace.

# Varilite



## Key Features

- 635nm 1mW, 5mW or 660nm 20mW
- User adjustable focus
- 5 interchangeable optics supplied including, Cross, Line, 7 Line, 5 Concentric Circles, 21x21 Dot Array.
- Two year warranty
- Heavy duty clamp allows the laser to be adjusted and securely fixed at any required direction or angle.
- Power Supply 110/240 Vac to 5V DC with UK, Euro & US plug

# Accessories

## Heavy Duty Mounting Clamp

The heavy duty mounting clamp allows the Varilite 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.

## Line & Cross Optics

A set of 5 interchangeable pattern optics have been supplied with your Varilite Alignment Kit including:-

- Cross Lens Optic 100°
- Line Optic 0°
- 7 Line Optic 21.7°
- 5 Concentric Circles 28.6°
- 21x21 Dot Array 7°

The following lens assembly's stocked by Farnell will also fit in to the

Farnell Part Number	Imatronic Part Number	Description
2065362	1125-225-000	Line Optic 60°
2065364	1125-226-000	Cross Optic 60°
2065361	1125-227-000	Line Optic 33°
2065363	1125-228-000	Line Optic 105°
2065365	1125-229-000	4x4 Grid 4.57°

## Power Supply

An 110/240V voltage adaptor, which includes leads for UK, Euro and US main sockets is supplied with the kit. The voltage adaptor is CE marked and also has a power on indicator. A 1 meter lead to connect the laser diode module to the adaptor is also supplied.



# Modulation

A common requirement for applications which use photo detectors, cameras and other non-visual sensing is the ability to rapidly switch the laser output ON and OFF. Simply applying and removing the supply voltage is rarely satisfactory and in certain cases can result in the destruction of the module. This is because laser diodes are very sensitive to spikes and surges, which are often the result of uncontrolled supply switching. To overcome this limitation, the Varllite has two additional inputs that are provided to control the output of the laser module in a reliable and predictable way. These inputs can be used via a supplied four wire lead, the laser will need to be run from a regulated DC power supply with an output voltage of 5Vdc  $\pm$ 5% when used this way.

## Modulation Input

A PWM input is available via the third wire logic LOW level turns the output completely OFF(= $<$ 5%). However, applying a logic HIGH turns the laser ON after a control input delay. This sets the maximum rate at which the module can switch fully ON and OFF. Bandwidth is 1Mhz. RT is  $\sim$ 0.5us

## Enable Input

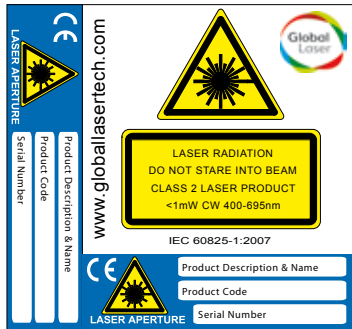
An on/off switch function is available via the fourth input wire. Applying 0V will switch the laser off whilst applying Vsupply leaves the laser on. This is partially useful for safety interlocks or enable switch's required for laser safety systems A TTL switch can also be utilised via this lead. TTL High = on and TTL Low = off. Maximum frequency is typically 100 Hz. If not using these function please connect the lead to the V supply or the laser will not switch on.

# Specifications

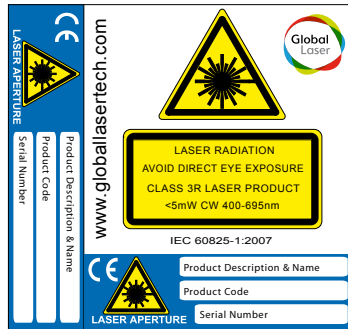
Product Specification			
<b>Farnell Part Number</b>			
<b>Imatronic Part Number</b>	1954-03-000	1954-04-000	1954-05-000
<b>Model</b>	Varilite PWM 635nm, 1mW, Alignment Kit	Varilite PWM 635nm, 5mW, Alignment Kit	Varilite PWM 635nm, 20mW, Alignment Kit
<b>Output Power (mW)</b>	1	5	20
<b>Wavelength (nm)</b>	635		6
<b>Laser Class</b>	2	3R	3R
<b>Operating Voltage (Vdc)</b>	5 ±5%		
<b>Operating Current (mA)</b>	30-50	50-75	70-100
<b>Operating Case Temperature (°C)</b>	-10 to +45		-10 to +55
<b>Storage Temperature (°C)</b>	-10 to +80		
<b>Beam Size At Aperture (mm) (Typ)</b>	5 x 2.2		
<b>Beam Divergence (half angle) (mrad)</b>	<0.5		
<b>Bore Sighting (mrad)</b>	≤10		
<b>User Adjustable Focus</b>	Yes		
<b>Focus Range (mm)</b>	25 to infinity		
<b>MTTF at 25°C (Hours)</b>	30,000	48,000	100,000
<b>Power Stability Over Temperature Range (Typ)</b>	±1.5%		
<b>Mass (g)</b>	16		
<b>Dimensions (mm)</b>	Ø15 x 49.5 (14mm of M12x1 Thread)		
<b>Housings</b>	Anodised Aluminium		
<b>Isolated Body</b>	Yes		
<b>Reverse Polarity Protection</b>	Yes		
<b>Lead Length (mm)</b>	1000		
Connection detail when using a stand low power supply and modulation			
<b>Connector Type</b>	JST PHR4 4 Pin		
<b>Lead Length (mm)</b>	500		
<b>Input Leads</b>	<b>Red Lead</b>	+Ve	
	<b>Black Lead</b>	0V	
	<b>Yellow Lead</b>	TTL Modulation: Off = <50mV /On = >2V	
	<b>Blue Lead</b>	TTL Enable: Off = <0.4V /On = >2V	
<b>Frequency Range (Khz)</b>	≥100		
<b>TTL Enable (ms)</b>	2		
NOTES All specifications are typical @ 25°C			

# Laser Safety

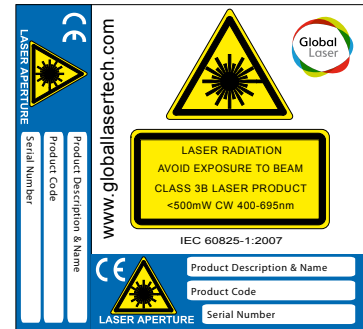
Our lasers are compliant to IEC 60825-1 2007 standards. The lasers fall within one of the following classifications depending on power and wavelength.



Class 2 Label



Class 3R Label



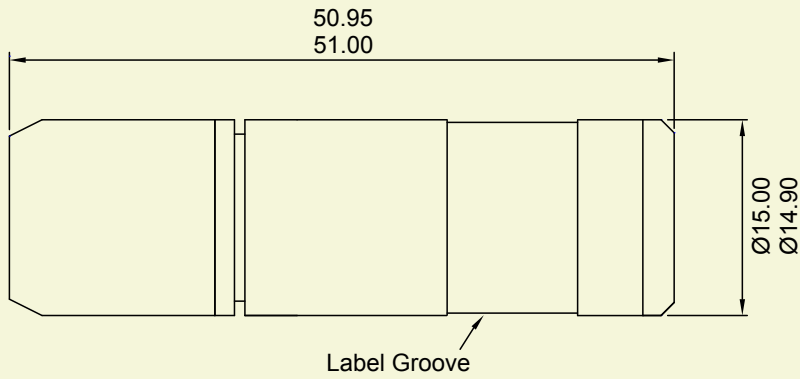
Class 3B Label

# Quality & Warranty

The Varilite Alignment Kit is supplied with a 24 month parts and labour warranty. Our manufacturing operations are certified to ISO9001.

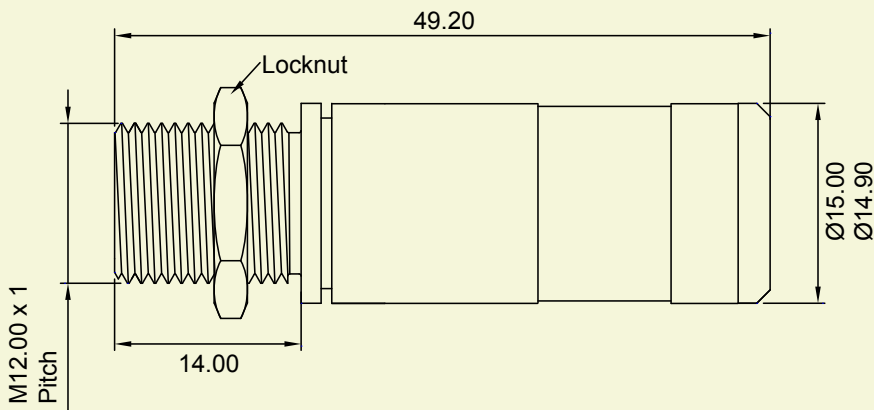
# Mechanical Drawings

## A) Varilte PWM



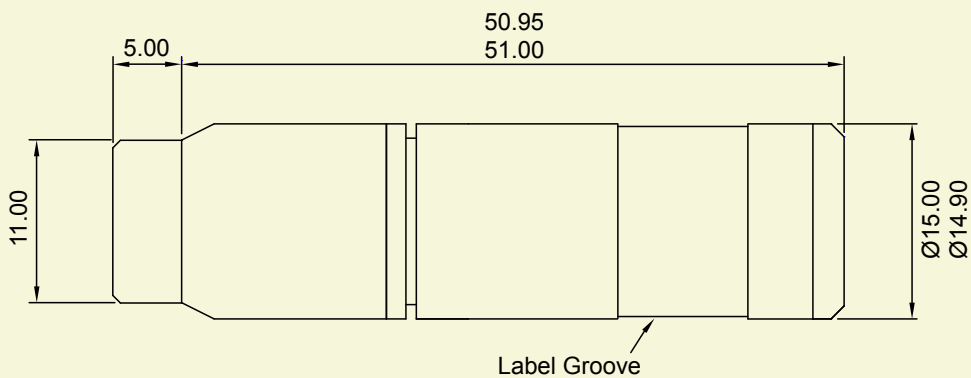
Pin 1 - Red  
Pin 2 - Black  
Pin 3 - Yellow  
Pin 4 - Blue

## B) Varilte PWM with Front Barrell Removed



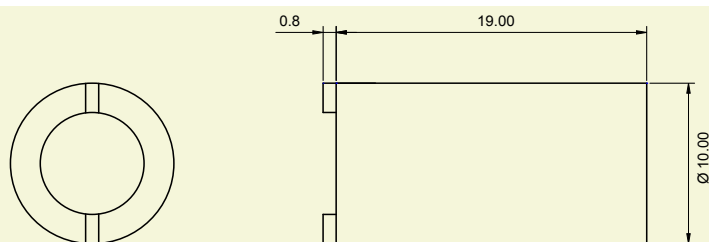
Pin 1 - Red  
Pin 2 - Black  
Pin 3 - Yellow  
Pin 4 - Blue

## C) Varilte PWM with DOE Lens Fitted

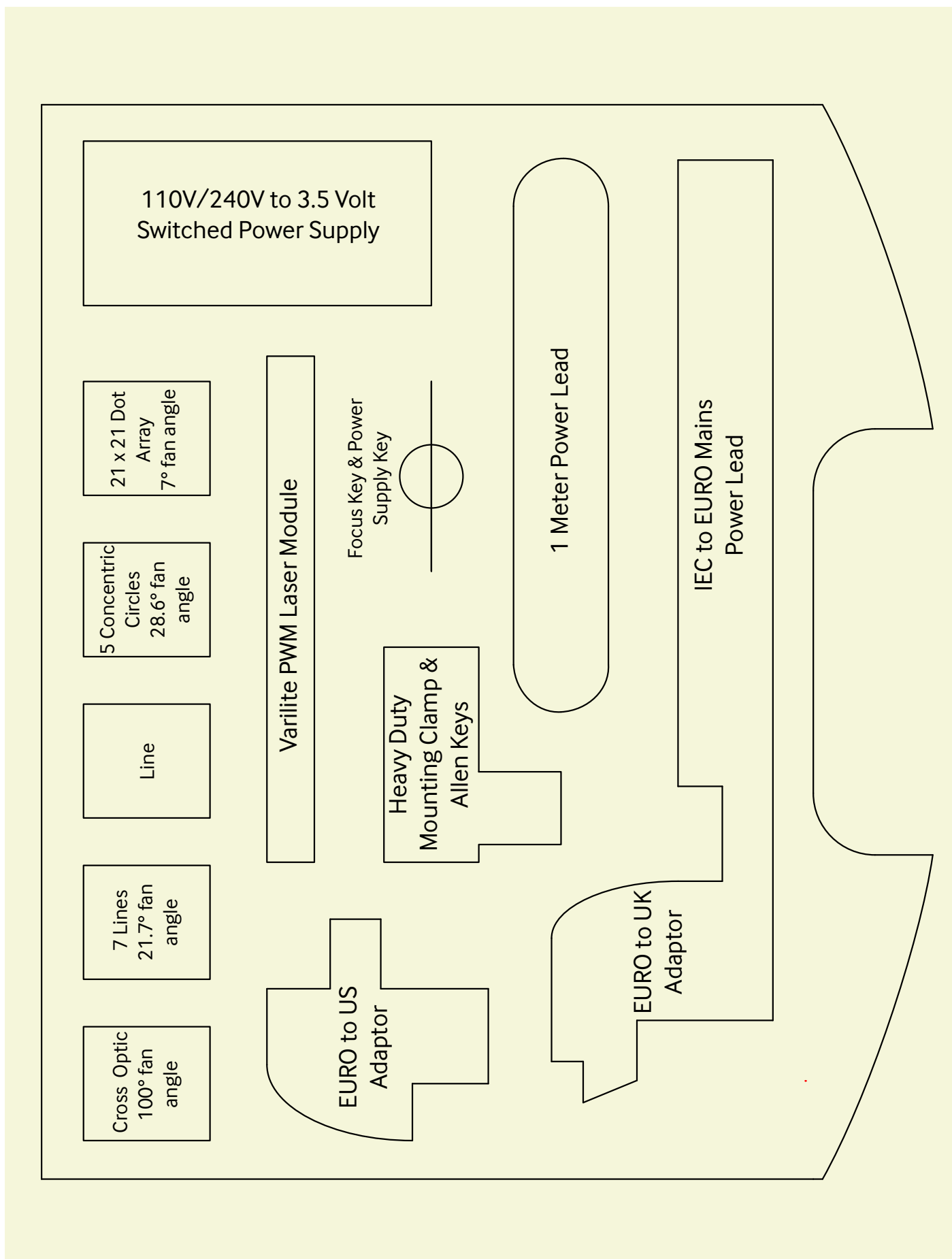


Pin 1 - Red  
Pin 2 - Black  
Pin 3 - Yellow  
Pin 4 - Blue

## D) Focus Key



# Case Contents





# Notes.

Please note: Imatronic reserve the right to change descriptions and specifications without notice.



ISO9001 Certified



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