Machine Vision Development Kit Userguide

Product Overview

Thank you for purchasing the Machine Vision Development Kit. The module in this kit emits a red spot or projection.

The Machine Vision Development Kit provides a reliable, industrial laser light source in the form of Global Laser's Lyte-MV 660nm 35mW module. The Lyte MV has a user adjustable focus making it easy to focus over a wide range of distances and includes a uniform line optic and five interchangeable pattern optics. A heavy duty mounting clamp and a power supply is included in a rugged and attractive plastic carrying case designed to securely store all kits components.

If you have any queries or require help when using the please call us on +44 (0)1495 212213 or contact your local representative.

Product Opertation

Operating with a PS-1
Your Machine Vision Development Kit is supplied as standard with a 110V/240V to 5Volt PS-1 fitted with a key switch You will have the following items

Lyte-MV Laser Module
1 Meter Extension Lead
Large Heavy Duty Mounting Clamp
110V/240V to 5 Volt Switched PS-1
IEC to Euro mains power lead
Euro to US Adaptor
Euro to UK Adaptor (fitted to the IEC lead as standard)

1. Connect the DC jack on the Lyte MV to PS-1 cable into the DC socket on the PS-1 power supply and screw binder connector into the connector on the end of laser.
2. If you wish to use the power lead in a Euro socket simply unscrews the two screws in the front of the adaptor and open the lid and removes the adaptor from the power lead.
3. If you wish to use the power lead in a US socket simply unscrews the two screws in the front of the adaptor and open the lid and removes the adaptor from the power lead. Fit the plug in to the US adaptor, close the lid and tighten the screws.
4. Connect IEC plug to PS-1 power adaptor.
5. Plug the mains plug/adaptor into a mains socket.
6. Switch on the power supply via the supplied key switch.

Note: Euro to US adaptor is fitted with tamperproof screws.

Focus Adjustment

The focus of the laser can be adjusted by using the supplied focus key (as shown in diagram C). Should you need to adjust the focus please follow the instructions below:

1. Remove any interchangeable pattern optics, where fitted (see diagram D).
2. Insert focus key into laser barrel and align with focus control grooves (see diagram C).
3. Turn the focus key until desired focus is achieved .
4. Replace the interchangeable pattern optics and rotate to achieve the desired projection.

Fan Angle & Working Distance

The size of the fan angle (or spread of the beam) will determine how long the line is. When viewed from the same distance and at 90° to the surface a line with a fan angle of 90° will be longer then a line with a fan angle of 30°.

Fan Angle (°)	Distance to Object (mm)	Line Length (mm)
30	100	54
80	100	168

As a guide to relationship between working distance, line length and fan angle please see table below.

		Fan Angle (Degrees)						
		4.57	7	21.7	28.6	37	45	
Distance From Object (mm)	250	20	31	96	127	167	207	Pattern/Line Length (mm)
	500	40	61	192	255	335	414	
	750	60	92	287	382	502	621	
	1000	80	122	383	510	669	828	
	1250	100	153	479	637	836	1036	
	1500	120	183	575	765	1004	1243	
	1750	140	214	671	892	1171	1450	
	2000	160	245	767	1020	1338	1657	
	2250	180	275	862	1147	1506	1864	
	2500	200	306	958	1274	1673	2071	
	2750	219	336	1054	1402	1840	2278	
	3000	239	367	1150	1529	2008	2485	
	3250	259	398	1246	1657	2175	2692	
	3500	279	428	1342	1784	2342	2899	
	3750	299	459	1437	1912	2509	3107	
	4000	319	489	1533	2039	2677	3314	
	4250	339	520	1629	2167	2844	3521	
	4500	359	550	1725	2294	3011	3728	
	4750	379	581	1821	2422	3179	3935	
	5000	399	612	1917	2549	3346	4142	
	5250	419	642	2012	2676	3513	4349	
	5500	439	673	2108	2804	2681	4556	

Changing The Optics

A set of 5 interchangeable pattern optics have been supplied with your Machine Vision Development Kit including:

- Cross (37° fan angle)
- 7 Lines (21.7° fan angle)
- 4x4 Grid (4.57° fan angle)
- 5 Concentric Circles (28.6° fan angle)
- 21x21 Dot Array (7° fan angle)

To change the pattern please follow the instructions below:

1. Remove any interchangeable pattern optics if fitted (see drawing D)
2. Replace the interchangeable pattern optics and rotate to achieve the desired projection
3. Please ensure that any optics not fitted to the laser module is keep away from sources of dust etc.

Mounting

To ensure the lifetime and the stability of the laser it is recommended that it is mounted in a suitable heat sink/mount. The case temperature should be kept within the specified range at all times, failure to do this could result in shortened lifetime or catastrophic failure. As a guide, laser diode lifetime decreases by a factor of two (approx.) for every ten degree increase in operating temperature.

Global Laser's Heavy Duty Clamp is supplied as standard for the Machine Vision Development Kit.

A. Mounting the Lyte-MV in the Heavy Duty Clamp

1. Secure the clamp to a surface. There are two methods:
   a. Screw an M5 stud to the bottom of the base, or
   b. Remove the base by removing 2 x grub screw B with the supplied Allen key, then thread an M5 cap screw through the top of the base. Then re-attach the base to the body of the clamp
2. Loosen Allen screw A with the supplied Allen key
3. Slide your laser into the mounting hole and then tighten Allen screw A
4. Loosen grub screw A
5. Adjust the vertical angle of your laser and then tighten grub screw A
6. Loosen 2 x grub screw B. This will allow the main body of the mount to be rotated independently of the base
7. Adjust the horizontal angle of your laser and then tighten 2 x grub screw B

Warranty & Repair

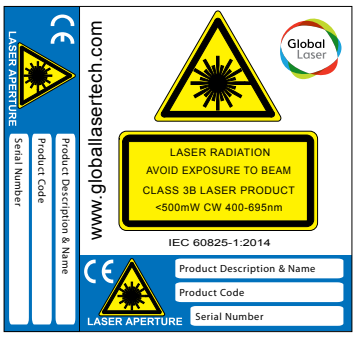
The Machine Vision Development Kit is supplied with a 12 month parts and labour warranty. Our manufacturing operations are certified to ISO9001.

If your product develops a fault within 12 months from the date of purchase Global Laser will repair/ replace your product. If you wish to return a faulty product then please contact your local representative or Global Laser to obtain a RMA code (Return Material Authorisation). Then package your product carefully, including a note of your RMA code, and return to the address below:

Global Laser Ltd
Units 9-10
Roseheyworth Business Park
Abertillery
Gwent, NP13 1SP
United Kingdom

Safety & Classification

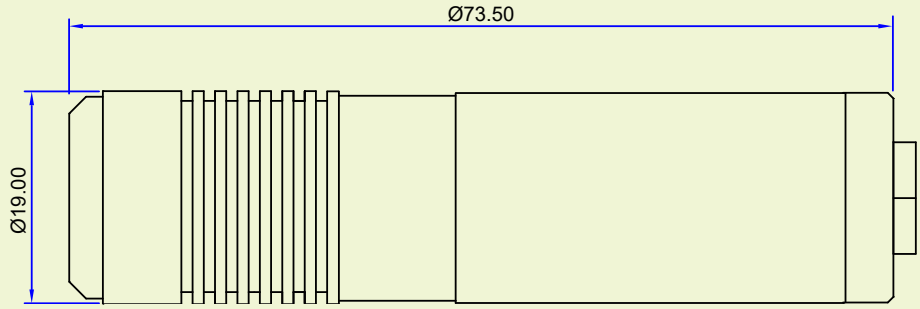
These modules are intended for incorporation into customer equipment. They are classified in accordance with IEC60825-1 2014, which should be consulted prior to designing or using any laser product. The following labels are supplied for attachment to the customer's equipment, but responsibility for compliance with the standard remains with the user.



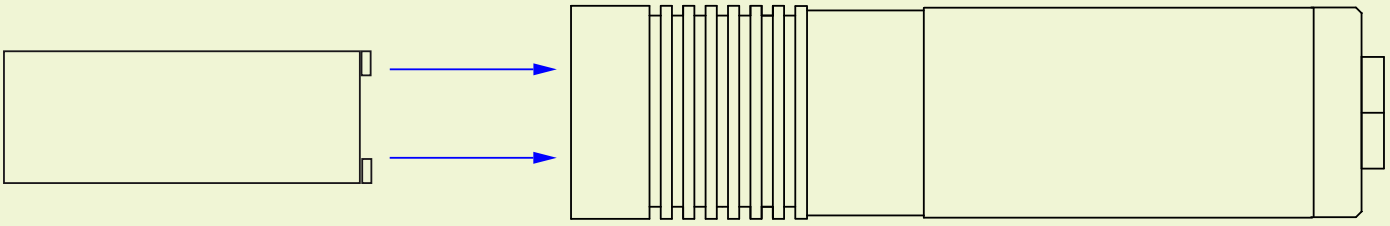
Class 3B Laser Label

Mechanical Dimensions

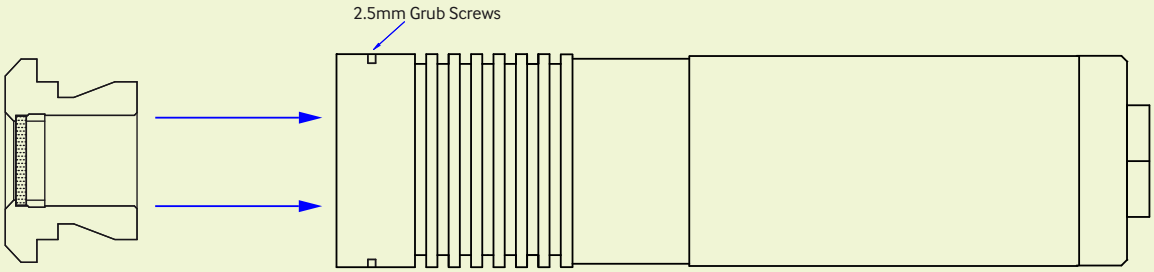
A) Lyte-MV



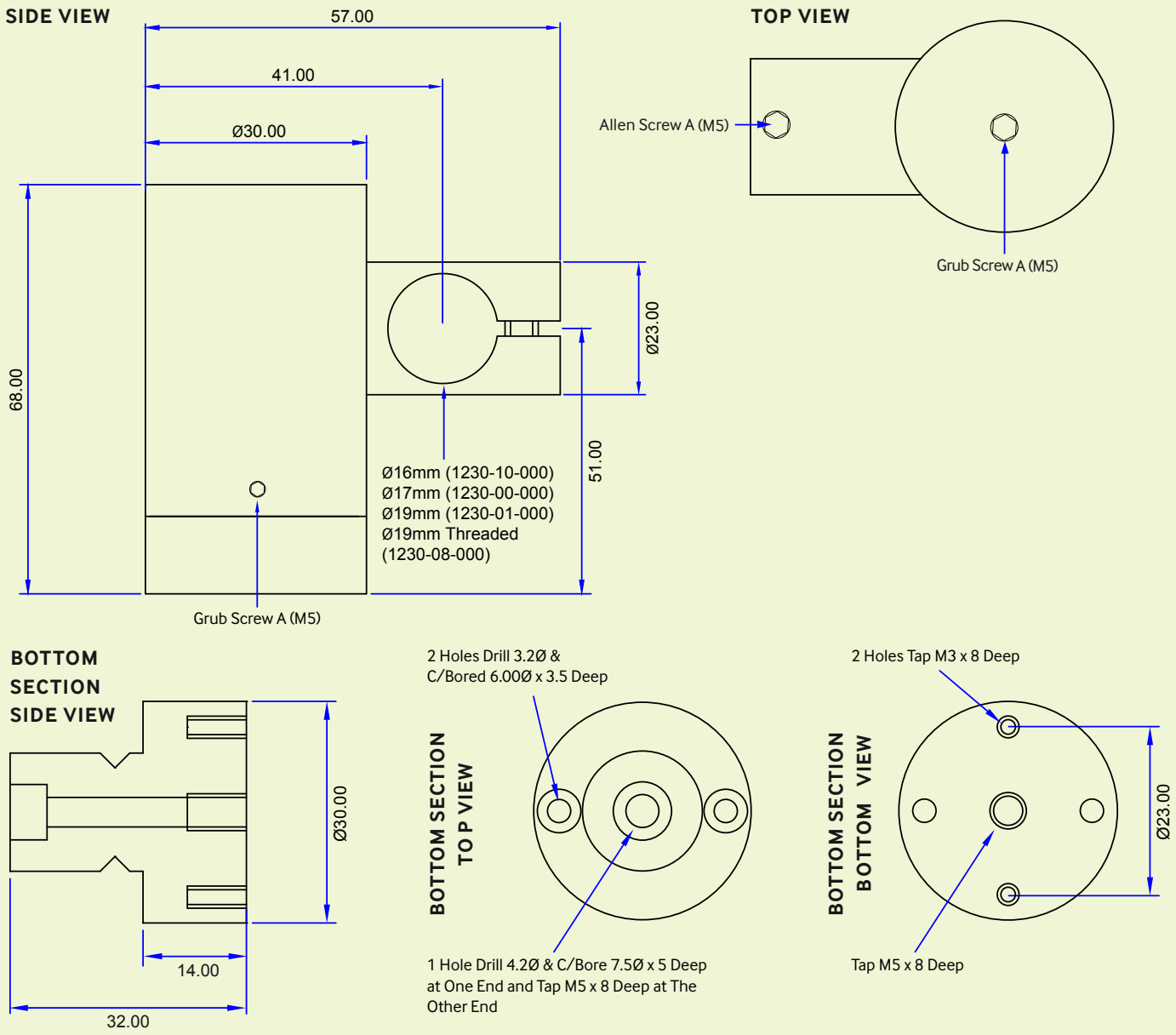
B) Laser Focus Adjustment



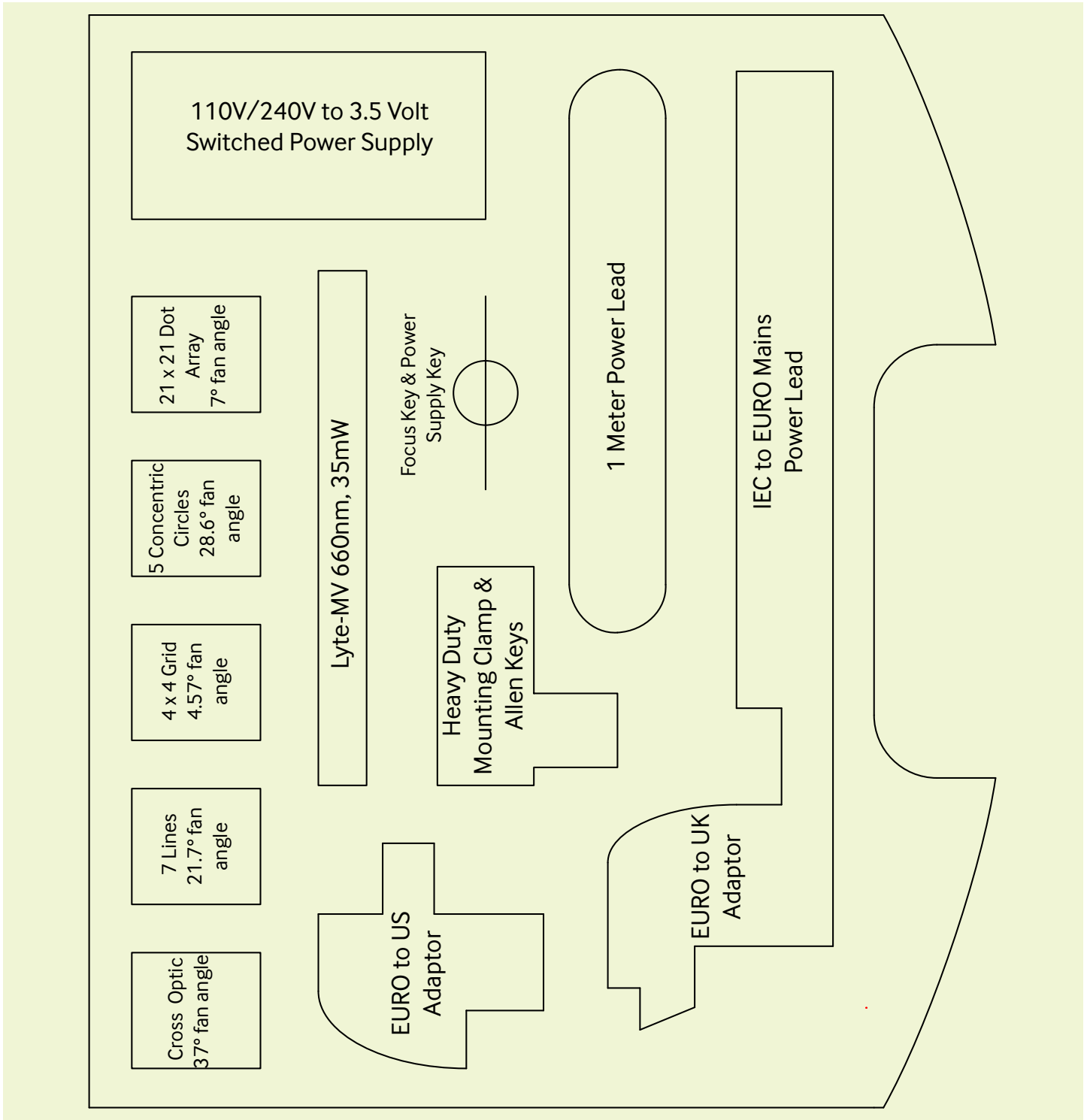
C) Projection Optics Adjustment



D) Large Heavy Mounting Clamp



E) Case Contents



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

Drawings are not to scale.

Global Laser

SYSTEM CERTIFICATION ISO 9001:2000 SGS

Manufacturing Operations Certified to ISO9001

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