Laser Diode Modules and Creative Laser Solutions
Our highly trained employees have in excess of 50 years electro-optics experience in low power laser diode module design.
About Us

Global Laser are a specialist designer and manufacturer of laser diode modules covering a wide range of applications. The factory is located in an attractive area of South Wales close to the Brecon Beacons National Park and covers 6500 sq/ft of engineering laboratories, machine shops and a substantial production floor space.

Specialising in a wide range of OEM, high performance, high reliability laser products for use within many niche applications including Machine Vision, Alignment, Medical, Measurement, Positioning, Scientific and Military. Our highly trained employees have in excess of 50 years electro-optics experience in low power laser diode module design.

A wide range of standard products are available including Red, Green, Blue, and Infrared wavelengths with powers up to 200mW. Optical outputs include elliptical and circular spots, lines, crosses and diffractive optics. Our in-built control electronics provide excellent power stability over time and temperature as well as a range of modulation features that are unmatched on the marketplace.

However, if your application demands it, we offer a customised service in which we have to date produced more than 25,000 product variations to meet your specific requirements. In-house facilities include a machine workshop for customised housing prototyping, a fully equipped laboratory with a wide range of test equipment for laser beam profiling, wavelength measurement and power setting. This service allows us to respond rapidly to customer requests, with a technically efficient and cost effective solution which shortens the time to market for our customers.

A range of accessories which compliment our extensive portfolio of laser diode modules are available. We offer a full line of mounts, brackets, rails, cables, power supplies, laser drive electronics and laser safety glasses.

We are pleased to be an ISO9001:2000 quality endorsed company. The quality, consistency and reliability of the products you receive is fundamental to our continued success as a leading manufacturer of laser diode modules and custom laser solutions.
New Technology

Customer requests for more flexibility and improved availability has led to our in-house Design Team to work even harder to procure, design and manufacture a whole host of new and innovative products.

**Fibre Coupled Laser Diode Modules**
Customers from around the world requesting Fibre based laser modules are increasing year on year. As a result Global Laser has released a new range of Fibre Coupled Laser Diode Modules. The range has a wide variety of powers, wavelengths, fibre types and connectors. The combinations are steadily growing.

**Laser Diodes**
When relying on a particular diode then the long-term availability has to be ensured to avoid any costly re-designs. Working closely with key manufacturers we are able to guarantee the long term supply. Where current diodes are being discontinued in the market place we are able to provide many off the shelf like for like replacements.

**Thinner Uniform Lines**
This technology benefits a wide range of applications such as 3D mapping, inspection, triangulation and other general machine vision applications.

**Diffractive Optical Elements (DOE)**
We offer a range of diffractive optical elements (DOE) to provide various patterns such as crosses, circles and dot arrays for applications such as 3D mapping, surface texture analysis, alignment and general machine vision applications. They are available as standard options for many of our laser diode modules.
Digital Control Via USB

As part of Global Laser’s ongoing development process we are pleased to introduce USB controllable laser modules in red, infrared, green and blue wavelengths.

The USB Digital Control Technology extends Global Laser’s modulatable range by negating the need for bulky space taking equipment such as power supplies and function generators.

The new on board programmable electronics enable all of the modulation and control functions that have come to be expected from Global’s range by simply connecting to the USB port of a PC.

Complimenting Software provides a user friendly graphical interface to allow full adjustment of input signal, amplitude and frequency for Analogue, TTL and PWM modulation as well as linear power adjustment.

Further to real time modulation programming the USB laser is able to retain the last programmed settings in it’s memory allowing the module to be disconnected and placed in your system. It can then be powered by a simple power supply and will replicate the last chosen settings which can aid synchronization with a wide range of devices including cameras and detectors to fulfill your application.
# Product Matrix

The quickest and easiest way to compare our standard product range is by using the below matrix table.

<table>
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<tr>
<th></th>
<th>RED</th>
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* Analogue Only
## Product Overview

### Key to product symbols – The following symbols found alongside each range outline the key features of the laser modules.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>RED</strong></td>
<td>Red Output - Available in red wavelengths 635nm - 685nm.</td>
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<tr>
<td><strong>IR</strong></td>
<td>Infrared Output - Available in Infrared wavelengths 710nm-980nm.</td>
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<td><strong>GREEN</strong></td>
<td>Green Output - Available in green wavelength 532nm.</td>
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<tr>
<td><strong>BLUE</strong></td>
<td>Blue Output - Available in blue wavelength 405nm.</td>
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<td><strong>CW</strong></td>
<td>Continuous Wave - The laser is continuously at its full power, rather than in short pulses.</td>
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<td><strong>LC</strong></td>
<td>Linear Control/Analogue Modulation - The intensity can be linearly altered by a varied control voltage or can be driven by a varying voltage source.</td>
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<td><strong>TTL</strong></td>
<td>TTL modulation - Can be driven with a standard Transistor, Transistor Logic, TTL signal 0.8 Volts (Low) 2.0 Volts (High) to turn the laser on and off repeatedly.</td>
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<tr>
<td><strong>PWM</strong></td>
<td>Pulse Width Modulation - Can be driven with a square wave of various pulse widths to turn the laser on and off for varied lengths of time and varied rates.</td>
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<tr>
<td><strong>LINE</strong></td>
<td>Line - Available as a line of various fan angles.</td>
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<td><strong>UNIFORM</strong></td>
<td>Uniform Line - Even Intensity across the line length.</td>
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<tr>
<td><strong>DOE</strong></td>
<td>Diffractive Optical Element - This laser is able to be fitted with a DOE.</td>
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<tr>
<td><strong>CW</strong></td>
<td>Energy Efficient - Able to use our low power consumption technology.</td>
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<tr>
<td><strong>2</strong></td>
<td>Warranty - 2 year warranty.</td>
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</table>

### The Premier & Acculase Modulatable 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 secret of their superiority is a control circuit design that not only gives excellent output power stability over time and temperature, but also offers fast, closed-loop modulation, capabilities that have come to be expected from Global Laser.

- Powers available - Red up to 80mW, IR up to 150mW
- Superior control circuit design
- Excellent output power stability over time and temperature
- Offers fast, closed-loop modulation with an extinction ratio as high as 10,000:1
- The Acculase is precision set during manufacture to ensure that the output beam is accurately aligned to the outer sleeve
- A wide range lens options are available
- Available in PWM Mode or LC Mode
- Two year warranty

### The Machine Vision Lyte-MV 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, triangulation, measurement and control systems. The range of modules are qualified to European specifications and are one of the most controllable lasers in the machine vision market.

- Uniform Non-Gaussian Line (Fan Angles 5° to 90°)
- Powers available - Red up to 100mW, IR up to 200mW
- Green up to 50mW
- Available in LC or TTL Modes
- Excellent focus & Line quality
- Rugged Design
- Excel laser allows user adjustable focus without removing line optics whilst maintaining laser classification
- Two year warranty
The Industry Standard CW Operation Imatronic Range

The Imatronic range of laser diode modules are self contained OEM laser diode modules that emit dots, lines crosses and many of our diffractive optics. They are designed for industrial applications and offer superior ruggedness within a range of industry standard package sizes. Package sizes range from the ultra small 7 mm diameter LDM150 product to the 25 mm (1 inch) diameter LDL175 laser.

- Wide range of industry standard package sizes
- Off the shelf for immediate delivery
- TTL Modulation
- Wide range of output powers and wavelengths
- Dots, lines, cross and DOE output projections available
- Low voltage DC operation
- Rugged construction
- User adjustable focusing lens
- Reverse polarity protection
- Compliant with European and U.S. legislation

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The LaserLyte Alignment System

The LaserLyte alignment system is a unique, user adjustable, plug and play laser system suitable for a wide range of applications including alignment and positioning of materials including garments, cloth, paper, wood and metal. The system has a wide range of projections including variable intensity dot, adjustable line and variable intersecting cross.

- Plug and play system
- Available in red or green outputs
- Wide range of projections including:
  - Dot, Line, Cross, Line + Dot
- Variable intensity Dot and Cross models
- User adjustable focus control
- 110/240 Vac and 12/24 Vdc powered (with adaptor)
- Wide range of mounting options and accessories
- No technical laser experience required

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- 110/240 Vac and 12/24 Vdc powered (with adaptor)
- Wide range of mounting options and accessories
- No technical laser experience required

The Cameo is a unique, versatile, high quality industrial laser diode module widely used in alignment applications. This concept in laser design allows a laser diode, adjustable collimating lens and a drive circuit to be incorporated within a body which is just 23mm in length. Two version are available either a CW or Gated version. The Gated Cameo provides a switchable control input to turn the laser beam ON/OFF at high speed. A lower speed enable input is also provided.

1250 - Standard Series
- Simple thread mounted industrial laser module
- Compact length for restricted areas
- User focussable
- Reliable connector construction
- Isolated metal case
- Designed for continuous cool running
- High output power stability with transient and polarity protection
- Wide range of focus distances

1260 - Gated Series
- Offers the following additional features:
  - Third wire input facilities rapid switching/gating
  - Switching speeds up to 100kHz
  - Operates directly from binary logic signals
  - Effective in wide variety of light conditions
  - Controlled chopping minimises power consumption and extends life
  - Low speed enable

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The MicroBlock Range

Conventional lasers have a small angular difference between the laser beam and the mechanical axis (boresight error). The MicroBlock allows this error to be manually adjusted to zero by turning two small grub screws located on the side of the housing. It can also compensate for small mounting errors in the user equipment.

- A compact user adjustable aiming laser
- Ideal for restricted spaces
- Easy to mount
- Zero directional pointing error
- User adjustable focus
- Ideal for portable systems
- Rugged vibration resistant construction over a wide temperature range
- High brightness, low power

The VM (Versatile Module)

The VM provides a high quality and cost effective OEM solution to a wide range of applications including machine vision, inspection, alignment and positioning. The module is a compact 11mm diameter and features laser diode powers up to 5mW in both 635 & 650nm. An A/R coated user adjustable collimating lens produces an elliptical output beam which can be focused to produce fine spots.

- Compact 11mm diameter housing
- User adjustable focus
- Wide range of projection optics including homogeneous lines and diffractive optics
- High quality cost effective solution
- Powers up to 5mW in 635nm and 650nm
- TTL input
- Ideal for restricted spaces

The FireFly Green Range

The FireFly green range sets a new standard for industrial grade, green laser diode modules. A radically new design provides TE stabilised performance without TE cost and power consumption. It is a self-contained laser that offers the user greater stability over a wider operating temperature and with a much faster warm up time. For space constricted applications the FireFly Mini is available, whilst only 15mm in diameter it still offers the high performance linear and TTL/PWM Modulation.

FireFly
- Stable power without thermoelectric (TE) cooling
- Wide operating temperature range
- Powers up to 50mW
- Linear modulation control or pulsed TTL control from DC to 50 kHz
- Fast warm up time
- Power stability better than 5% over full operating temperature range
- Power stability better than 1% at constant temperature
- Low noise version with better than 1% RMS noise
- Low beam divergence

FireFly Mini
- Compact 15mm diameter housing
- Powers up to 3mW
The LaserLyte-Flex Range

The Laserlyte-Flex alignment system is a unique, interchangeable, low cost plug and play laser system that was designed specifically for aligning and positioning garments, cloth, paper, wood and metal. The system has a range of interchangeable projections which convert the base dot laser in to a line, cross or line+dot. A range of intensities are available in order to maximise the visual appearance even against the darkest material.

- Plug and play system
- Available in red outputs
- Wide range of interchangeable projections including: Dot/ Short Line/ Long Line/ Small Cross/ Large Cross/ Long Line + Dot
- User adjustable focus control
- 240 Vac and 12/24 Vdc powered (with adaptor)
- Wide range of mounting options and accessories
- No technical laser experience required
- High quality cost effective solution

The BlueLyte LC

The 15mm modulatable blue laser from Global Laser is a 405nm laser with powers from 5mW up to 75mW. The laser provides reliable and stable operation over a wide operating temperature range. Competitive entries on the BlueLyte LC is ideal for a wide range of applications including Raman Spectroscopy and Biotechnology.

- Blue 405nm
- Available in powers up to 75mW
- Linear intensity control
- Analogue modulation
- Circular or elliptical spots
- Wide operating temperature range
- Modulation speeds in excess of 500KHz
- Two year warranty

Survelase Long Distance Targeting Laser Range

The Survelase Range is designed specifically for applications were small spots are required over a large working distance. Two versions are available either the 15mm diameter housed Survelase or the Survelase Maxi which combines all the features of Global Laser’s Survelase with the additional benefits of analogue and TTL modulation, higher output powers and a high level of bore sighting accuracy.

Survelase
- Small well defined spots at longer working distances
- User adjustable focus
- Wide range of output powers and wavelengths
- Low voltage DC operation
- High level of boresighting accuracy
- CW operation
- Rugged construction

Survelase Maxi
- Offers the following additional features:
- Available in powers up to 30mW
- Linear intensity control
- Analogue modulation
- Pulse-Width Modulation (PWM Model)
- Digital TTL on/off switching
The Thread Mountable Varilite Range
The Varilite range represent the highest level of optical and electrical performance at an economical price, a combination that is unmatched in the marketplace. The addition of a threaded barrel to simplify mounting and ensure a good thermal contact between the module and the mount thus assisting with a good heat dissipation. A wide range of wavelength, powers and lens options are available.

- Powers available in Red up to 80mW and IR up to 150mW
- Excellent output power stability over time and temperature
- Available in PWM Mode or LC Mode
- Simple thread mounted industrial laser module
- Offers fast, closed-loop modulation with an extinction ratio as high as 10,000:1
- Superior control circuit design

The Guideline Laser
The Guideline laser system is a simple user adjustable, red or green laser alignment system. The uniform line provides the user with an increased visible line which is beneficial in alignment systems especially on visually demanding surfaces. The unique focus mechanism allows the focus to be adjusted without removing the line optics. This allows the laser classification to be maintained during focus adjustment.

- Red or Green long visible lines
- Equal brightness across length of the line
- Uniform line (no fading at ends of the line)
- Simple, fast user adjustable focus
- Compact, rugged plug and play system
- 5 Vdc, 12/24 Vdc or 110/240 Vac operation (with an adaptor)
- No technical laser experience required
- Two year warranty
**The Hawkeye Detector Series**

**Hawkeye Detector**
- Compatible with the Global Premier, Acculase and Gated Cameo and our entire range of modulatable lasers
- High level of immunity to ambient light
- High acceptance angle 160°
- Good signal to noise > 70dB
- Good signal to noise ratio >70dB – Wide bandwidth
- Excellent signal integrity
- Calibrated d.c. output (average power meter)
- Low power 5 Vdc operation

**Hawkeye Synchronous Detector**
- Compatible with our range of TTL/PWM modulatable lasers
- Detection of only a specific frequency of modulated light
- Very high level of immunity to ambient light
- Self generation of modulation signal for system synchronisation
- TTL high/low signal level output

**Diode Collimator Assembly (DCA)**

- Wide range of output powers and wavelengths
- Elliptical collimated beam
- 8mm diameter housing
- Low cost sub assembly including laser diode and lens
- User adjustable focus
- High reliability

**Fibre Coupled Lasers**

- Available in Red & Blue wavelengths with powers up to 30mW
- Circular body or thread mount
- CW with analogue or TTL modulation
- Single or Multi-mode fibre
- Choice of terminations including various connectors, bare fibre or collimating lens
- Wide range of custom optics available

**Diode Collimator Assembly**

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- 8mm diameter housing
- Low cost sub assembly including laser diode and lens
- User adjustable focus
- High reliability

**The DCA provides a low cost high quality OEM solution to manufacturers looking for a compact assembly. Consisting of an 8mm diameter aluminium housing, laser diode and A/R coated collimating lens, with direct connection to the laser diode pins. Available with a large choice of laser diodes covering a range of wavelengths and output powers. The collimating lens is user adjustable for further flexibility and can be set to produce collimated beams or fine focused spots.**

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Laser Development Kits

The Global Laser Range of Development Kits have been designed specifically to meet the needs of system integrators and developers who have to solve often changing challenges in a wide and diverse range of markets. The 3 kits available are a 660nm, 35mW Machine Vision Kit, a highly visually intense Green Development Kit as well as a low cost LaserLyte-Flex Development Kit.

- A wide range of interchangeable optics
- Mains power supply with US, UK and Euro Plug supplied
- User adjustable focus
- Heavy duty clamp allows the laser to be adjusted and securely fixed at any required direction or angle
- Two year warranty
- 3 Versions available:
  - Machine Vision Development Kit
  - LaserLyte-Flex Development Kit
  - GreenLyte Development Kit

Laser Safety Glasses

Introduced to protect laser users against harmful laser output. Our new range of glasses cover our full selection of laser diode modules and are available in a wide variety of styles and filter types, including neutral density and block outs. The safety glasses are covered by a lifetime warranty, proving that the quality and structure of the components used are of the highest level of quality.

- Protection against 405nm to 1600nm wavelengths
- Lifetime warranty
- Various styles available including:
  - Wrap Around
  - Side Protection
  - Over Glasses
  - Clip In’s
- Adjustable frame size
- Off the shelf for immediate delivery
- IEC60825 & CE approved

IP68 Rated Waterproof Housing

For applications where a laser will be subject to submersion in water, high pressure wash downs or high levels of dust, Global Lasers 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 Range. Further flexibility is offered by the ability for the user to be able to remove the laser from the housing if required.

- IP68 Rated (dust tight and continuous submersion)
- Stainless steel housing
- Compatible with all 3 lasers from the Machine Vision Range
- 25mm outside diameter
- Heavy duty cable
- Precision made
24Volt Adaptor

Global Laser’s 24 Volt in-line adaptor provides a compact reliable solution to allow a wide range of laser diode modules to be powered from an industry standard 24 Vdc supply. The solid state technology design transforms unregulated dc voltage in the range of 11 to 30 Vdc generally found in industry machines to a regulated 5 Vdc supply suitable for the reliable operation of laser diode modules.

- Enhances the visibility in the 630nm - 670nm wavelengths
- Improves visibility in sunlight or bright lighting conditions
- Lifetime warranty
- Various styles available including: Universal Fit, Over Glasses
- Adjustable frame size
- Meets ANSI Z87 impact standards
- Competitive pricing

Red Laser Enhancement Glasses

To compliment our wide range of alignment laser modules we have introduced a new range of Laser Enhancement Glasses which enhance projections in the red wavelength range (630nm to 670nm) by blocking light in other wavelengths, thus improving the visibility in outdoors or bright lighting conditions. The glasses also meet ANSI Z87 impact standard. A wide range of styles are available and all models are covered by a lifetime warranty.

Mounting Clamps and Rails

The Heavy Duty Clamp has parallel and vertical adjustment which allows the user to aim the laser in any required direction or angle, the robust aluminium construction also assists in conducting heat away from the laser body as well as prevents movement due to shock and vibration. The Heavy Duty Clamp is available to fit 11, 14, 15, 17 & 19mm diameter laser modules.

Heavy Duty Mounting Clamps
- Parallel and vertical adjustment
- Clamps available to fit 11, 14, 15, 17 & 19mm diameter laser modules
- Rugged design
- Acts a suitable heatsink to high powered laser modules
- Protects the laser from vibration

Rails
- Manual or belted rails available
- Dimensionally interchangeable with re-circulating ball bearing systems
- Long service life
- Support high static loads
- Compatible with all mounts
- Corrosion-resistant
Customised Lasers

In the event that none of our standard products meet your exact requirements, our customised design service provides single prototypes and small production runs in just a few days. Our engineering and Design Team have over 50 man years experience in low power laser diode module design.

In-house facilities include a machine workshop for customised housing prototyping, a fully equipped laboratory with a wide range of test equipment for laser beam profiling, wavelength measurement and power setting. This service allows Global Laser to respond rapidly to customer requests, with a technically efficient and cost effective solution which shortens the time to market for our customers.

Some of the fast track prototyping services include:

- Electronics design including:
  - PCB design
  - Electronics assembly
  - Intensity control
  - Gating and modulation functionality

- Optics Design including:
  - Elliptical or circular beams
  - Line generation of specific lengths and widths
  - Diffractive Optical Elements

- Detector and system solutions

- Customised housings machined to your exact requirements

- Specific test and measurement including:
  - Beam profiling
  - Wavelength measurement
  - Power setting
  - Laser burn-in testing

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Working with The Environment

We all need to consider how our actions can have an impact on the environment. At Global Laser we are looking at innovative ways to reduce our impacts and improve our environmental performance.

Reducing our carbon footprint without reducing quality or performance.

When developing new products our experienced Design Team embraces ecodesign principles. By considering environmental impacts across the full life-cycle of our products we aim to improve all aspects of our business; from acquiring raw materials to end of life disposal.

As a minimum we ensure that all our products meet the requirements of the WEEE directive and do not exceed the permissible limits for hazardous substances as set by the RoHS directive.

**Our New Energy Efficient Technology**

We have developed a new laser product which requires up to 50% less energy during use than other products in our range and provides up to 51% reduction* in the product’s carbon footprint when compared to our standard lasers.

We see this as our first ‘green flagship product’ and we are intent on developing lasers with a reduced carbon footprint whilst still striving for the utmost performance in customised laser solutions.

* according to tests carried out by PIRA International
Applications

Our lasers are designed and manufactured for a wide range of applications. An example of just a few uses are listed below, although we welcome any new application not already considered.

– Alignment
  Automotive Interior
  Chassis Alignment
  Garment & Apparel
  MRI Alignment
  Oncology
  Patient Alignment
  Saw Blade Alignment
  Tyre Alignment
– Agricultural
– Bar Code Reading
– Biomedical
– Blood Analysis
– Break Beam Systems
– Data Transmission
– Display & Entertainment
– Free Space Communication
– Fluid Measurement
– Illumination
– Infrared Surveillance
– Inspection
– Laboratory Use
– Laser Measurement
– Laser Scanner
– Laser Sight
– Lumber Scanning
– Machine Vision
– Manufacturing Control
– Materials Processing
– Metrology
– Non-Contact Measuring Devices
– Optical Disc Mastering
– Particle Counting
– PCB Inspection
– Radiography
– Range Finding
– Retinal Scanning
– Screen Printing
– Triangulation
– Weapons Simulation
– 3D Scanning
– Your Application

Custom solutions for custom applications
How To Buy

We offer competitive prices and fast worldwide delivery, we hold stock of our best-selling laser diode modules, so that we can ship immediately when your requirement is urgent, wherever you are.

1. You can contact us directly via telephone, fax and e-mail.

A wide choice of our standard products are available to buy-off-the shelf from our website. All major credit cards are accepted.

2. We distribute our products worldwide and are proud to work with representatives and partners in six continents. Please visit our website for more details.

A wide variety of our products are available to buy online through major electronic catalogues including RS Components.

3. 4.

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We showcase our entire product portfolio at trade shows throughout the world whether it be directly or through our vast network of distributors and agents.
For further information about any of our products please contact your local distributor or you can contact Global Laser in the UK.

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Information and specifications contained herein are deemed to be reliable and accurate. Global Laser Ltd reserves the right to change these specifications at any time without notice.