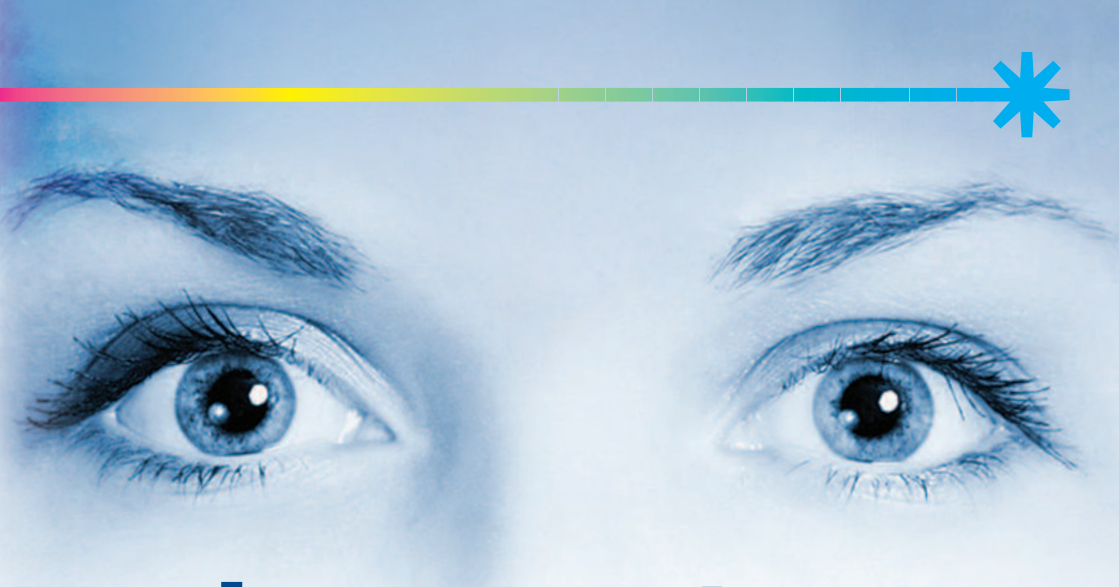


Lasermet

Laser Safety

The one stop shop for all your laser safety needs

- Laser Safety Equipment
- Laser Safety Services
- Laser Safety Control Systems
- Resources and Key Information

www.lasermet.com

lasermet
laser safety solutions

Lasermet

Leaders in Laser Safety

Lasermet's experience and expertise in laser safety is unparalleled in the UK and beyond, and our services for advice, training, laser system classification, risk assessment and FDA registration, are sought after by an increasing number of companies spanning the entire spectrum of laser applications. Lasermet was founded in 1987 by Bryan Tozer, chairman of the BSI and European laser safety standards committees, and for 20 years head of laser safety in the UK electricity industry

This brochure is designed to provide you with an overview of Lasermet's products and services.The product ranges are divided into broad categories:

Laser Power and Energy Measurement
Laser Warning Signs
Laser Safety Software
Laser Protection and Laser Guarding
Laser Safety Control Systems
Laser Safety Services

Detailed specifications of all products and services are available on separate brochures.

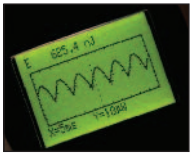
What's New at Lasermet

- The ICS-15XM Advanced Interlock Controller
- Optoblok - Optical Table Guarding
- Slim Jim - the 11mm deep LED sign
- Laser Jailer - Active Laser Guarding for any power of laser
- Flatfoot laser blocking screens
- Latest version of LaserSafe PC laser safety software

Measurement

ADM 1000 Laser Power and Energy Meter

Measures laser power and energy and displays pulsed waveforms up to 400 kHz. It measures significantly smaller and faster signals than conventionally-used meters.



- Average and peak power measurement
- Energy per pulse measurement
- Digital and bar readout
- Graphical oscilloscope mode - displays pulse waveforms up to 400kHz with calculation cursors to display energy, power, time, frequency

Its applications include:

- Production calibration
- Instantaneous measurements
- Automatic laser stability testing
- Laboratory or field use
- Direct peak power measurement for pulses of 4 µs or longer
- Medical laser output power / energy check
- Pulse energy measurement
- Measurements in confined areas
- Pulsed laser characterisation
- Laser tuning
- Oscilloscope function

ADM 1000 Power Meter

Warning Signs

Ultra Range:

High performance, highly professional LED signs
Large area "Ultra" range of High Quality Backlit LED Signs are also available as single or dual message signs (470mm or 790mm wide).
They are powered by 24V DC and are ideally positioned above a door or where they can be seen from a distance.

Slim Jim - The Thin Profile Backlit LED Sign

At just 11mm in depth, this extremely thin LED sign runs directly from 230V or 110V AC mains power with no additional power supply or transformer.

The sign is designed to fit to the same fittings as on a conventional mains backbox or distribution box so it is ideal for use by electrical contractors.

Overall dimensions	355 x 105 x 11mm
Sign dimensions	275 x 58mm

Labelling

Our range of Laser Warning labels are available to buy on-line at **www.lasermet.com**

Compact "Mini" Signs

Compact low voltage 24VDC signs are available as single or dual message in the same position using just 3.6W. The signs are secret until illuminated and two different messages can be located in the same area but in different colours. i.e. red and green. A range of messages and symbols is available but virtually any message and symbol can be specified for any of the Mini or Ultra signs. The compact mini sign is ideally positioned to the side of a door.

Maintenance Free

With a lifetime in excess of 50,000 operational hours these signs are effectively maintenance free hence eliminating maintenance costs and risks.

Specifications

- Dimensions: 160 mm wide x 108 mm high x 38.5 mm deep
- Weight: 160g
- Voltage: 24 VDC
- Power Consumption: 150mA at 24VDC (3.6W)

Power Supply with Switch

For signs that are to be hand switched (rather than automatically switched) a power supply with 2 or 3 way switch is available. This wall or desk mountable unit has clear visual indication of the sign state, including an LED in the end of the switch toggle which lights up the colour of the sign.

Power Supply

Laser Safety Software

LaserSafe PC

Produced by GL Services in association with Lasermet Ltd, this is an ideal package for Laser Safety Officers or anyone else who regularly performs risk assessments on lasers. According with all the relevant standards, it will save you hours of work and give consistent and correct answers to your calculations of MPEs, AELs, accessible emission, optical density requirements, classification etc. Because it performs in seconds, calculations which used to take hours, you can easily explore the safety of different scenarios for your laser or laser system. LaserSafe PC is by far the most comprehensive and widely used laser safety software available, with extensive use by major companies, government institutions and Universities.

Protection and Guarding

Eyewear for Personal Protection

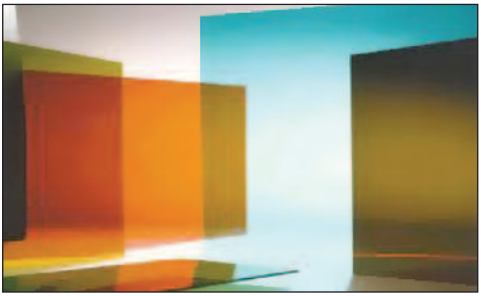
We provide an extensive range of eyewear from a range of suppliers to suit all laser safety applications. This includes laser protective eyewear, laser alignment eyewear, IPL eyewear and patient eyewear.

Calculations of the appropriate eyewear and filter windows specifications are completed using Lasersafe PC software.

For full details of eyewear visit www.lasermet.com

Filter Windows

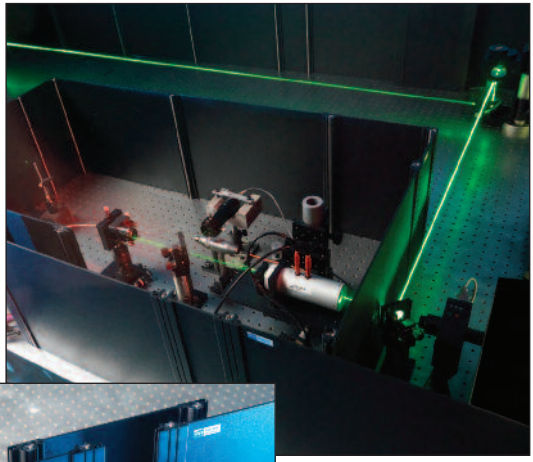
Laser filter windows enable laser working areas to be viewed whilst blocking laser radiation from transmitting through the medium (either mineral glass or plastic). These viewing windows are designed for particular laser wavelengths and laser powers, the plastic ones being suitable for protection against low power lasers and diffuse reflections from high power lasers.



Optical Table Guarding - Optoblok

Lasermet and NPL have produced this joint venture product designed specifically to reduce the risk of stray laser beams being inadvertently directed at personnel in the laser optics laboratory. The modular system fits neatly on to optical tables to provide a 300mm high wall and comprises of certified laser blocking walled panels, posts (to screw into the table) and channel posts which are either straight or right angled to connect the wall panels together.

The system is compatible with both metric and imperial optical tables using metric or imperial screw threads and spacing, and cable entries are easily accommodated for all cable sizes around the optical table.



Optoblok

Protection and Guarding

Small enclosures

Lasermet supplies and installs small Class 1 laser enclosures for high power lasers made to customer specifications and to suit the laser being installed.

The enclosures are tested and certified to EN 60825-4 (Safety of Laser Products Part 4 - Laser Guards). The enclosures can be supplied complete with an interlock system and illuminated signs pre-fitted.

Large enclosures

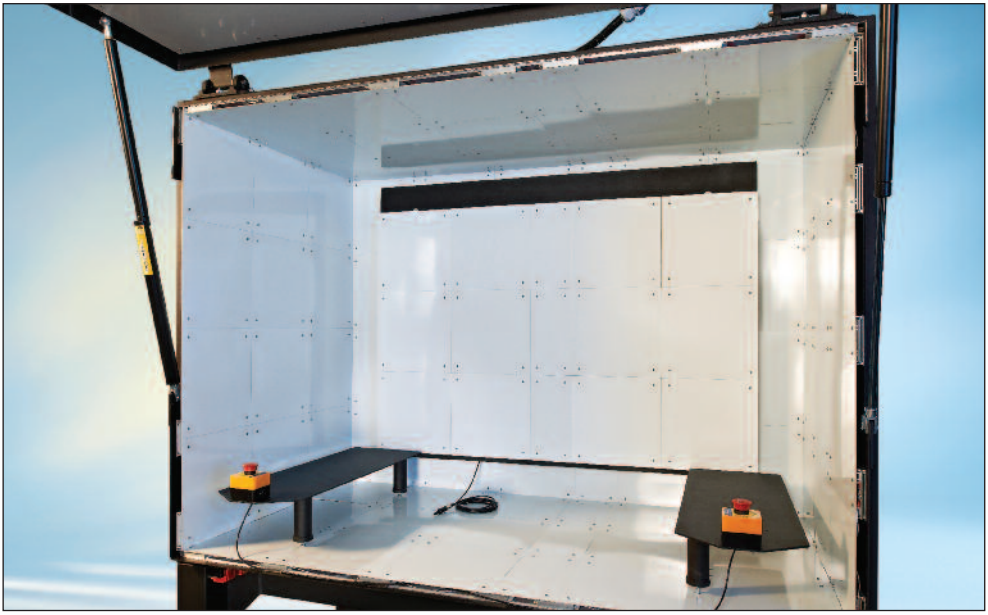
Lasermet supplies and installs Class 1 room size laser enclosures for high power lasers. All enclosures are tested and certified to EN 60825-4 (Safety of Laser Products Part 4 - Laser Guards). These can be supplied complete with an interlock system and illuminated laser warning signs.

Active Laser Guarding - Laser Jailer -
with Inherent Fail Safe Technology

The Laser Jailer Active Laser Guarding System combines an inherently fail-safe detection technique and Lasermet's proven interlock system technology to create an active laser guarding system which is fail safe to Machinery Directive Standard EN13849-1. The system is designed to contain high power laser beams in an enclosure which is smaller and lighter than would otherwise be necessary. The system acts as both a passive laser guard for low powers and as an active laser guarding system for high powered lasers.

US Patent Applied for: 13/293,013
European Patent applied for: EP11188501.8

Active Laser Guarding Enclosure (Laser Jailer)



Roller Blinds

Protect Your Employees and Third Parties from Stray Laser Radiation

Most Class 4 and many Class 3B lasers present an eye hazard over very long distances and so it is imperative to have comprehensive laser safety protection in place to prevent laser radiation from escaping.

All Lasermet laser-blocking curtains, screens and roller blinds are made from Lasermet's specially developed range of laser blocking materials and are CE marked and certified to EN 60825-4 (Safety of Laser Products Part 4: Laser Guards).

Laser Blocking Roller Blinds

Made-to-measure to fit virtually any size of window, Lasermet laser blocking roller blinds are available in standard or encapsulated variants and can be supplied for either surface or recessed mounting. The maximum size is 3.5m drop x 3.5m width.

Encapsulated Roller Blinds

Lasermet's encapsulated roller blinds are built into a white finish aluminium frame, which encapsulates the top, both edges and bottom of the blind. This eliminates any possibility of laser beams passing round the sides of the blind, blocks out all light and provides a neat finish. They are operated by either, a chain, crank handle or electric motor.

Standard Roller Blinds

These blinds are used in manufacturing facilities, operating theatres and laboratories wherever lasers are in use, to prevent laser radiation from escaping. When using them for non-recessed windows it is advisable to allow an extra 50 mm on the height and width, giving an extra 100 mm all round, thereby ensuring that there is no possibility of laser beams passing through the window.

Encapsulated Laser Blocking Roller Blind with crank handle

Standard Laser Blocking Roller Blind – chain operated

Encapsulated Laser Blocking Roller Blind – chain operated

Curtains

Laser Blocking Curtains are made from Lasermet's specially developed laser blocking curtain material and can be supplied ready made as ceiling or wall mounted curtains – one side being black and one side white.

Screens

Designed for use as passive guards to enclose an area where Class 3B or Class 4 lasers are in use the laser blocking screens are CE marked and certified to EN 60825-4.

Safety Control Systems

Access Control Keypad with LED Messaging

The ICS-KP12 is an access control keypad designed for use with Lasermet's interlock controller, or as a stand alone unit for control of maglocks or door strikes.

ICS-KP12 Keypad

Laser Beam Shutters for Safety & Beam Control Applications

The LS- range of laser beam shutters are combined shutters and beam dumps designed to be driven by the interlock controller to shut down the laser beam automatically during unauthorised access, or manually when the beam is not required.

LS-100-12 Shutter

LS-10-12 Shutter

High Integrity Laser Safety Beam Shutter

The Lasermet LS-20 Laser Safety Shutter is intended to provide a means of preventing accidental exposure to a potentially harmful laser beam. It has been designed to form part of a high-integrity safety system and features a gravity-close blade and force-disconnect proving contacts. When closed, the shutter deflects the incoming laser beam onto an internal beam dump where the energy is converted to heat which is dissipated in the aluminium casing of the shutter. When the shutter is open, the laser beam passes through the shutter without interruption.

SIL Rated Version

A 'SIL3' version is available which, when connected to Lasermet's Interlock Controller, can provide a safety interlock which meets Safety Integrity Level 3 to EN 61508.

LS20 SIL3 rated Range High Integrity Laser Beam Shutter

The LS-20 has 16 mm diameter entry and exit apertures which are threaded so that beam tubes

LS-20 SIL rated shutter

LS-20 shutter

can be fitted to enclose the laser beam. The maximum average power for use with the internal beam dump is 20 W. Beam tubes can be fitted and the beam can be directed to a remote beam dump allowing the shutter to be used for much higher powers, even for multi-kilowatt lasers.

The shutter blade is made of stainless steel which is sufficient for most applications. Standard front silvered or dielectric mirrors can be factory fitted to the blade for average powers in excess of 20W when the remote beam dump option is being used.

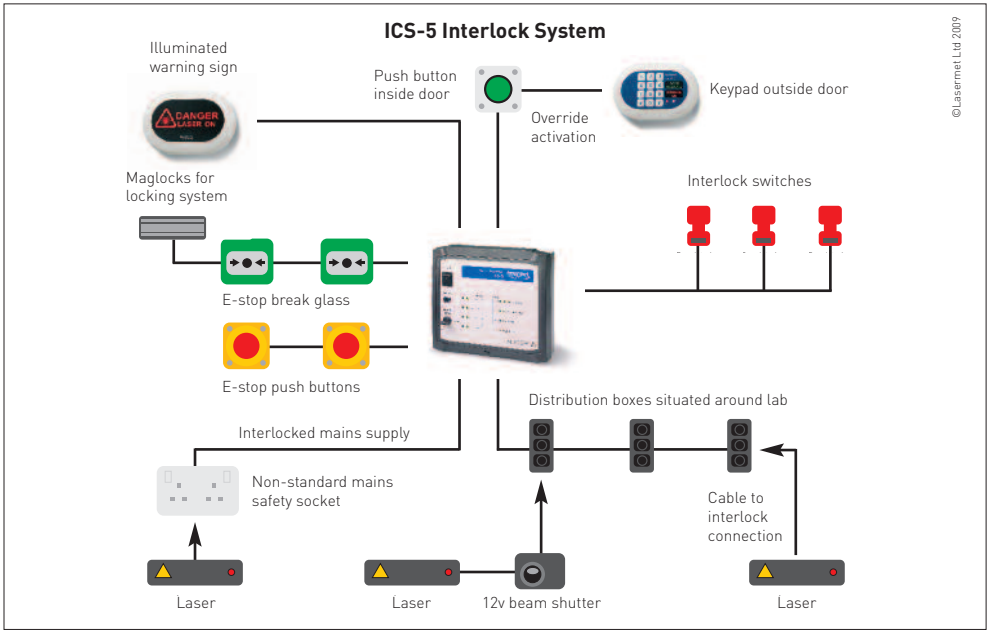
Interlock Controllers

ICS-5 Laser Safety Interlock Controller

Lasermet Interlock Control Systems enable organisations to comply with best practice when providing laser users with a safe environment in which to operate hazardous lasers. They are configured to provide automatic shut-off of the laser beam if safety doors, covers or blinds are opened. All Lasermet Interlock Systems meet the relevant European Standards - in particular EN 13849-1 (Category 3), EN61508 (SIL4); EN61010 and EN 60947-1. They also conform to the Machinery Directive; Low Voltage Directive and EMC Directive The ICS-5 also complies with EN954-1 & EN13849-1.

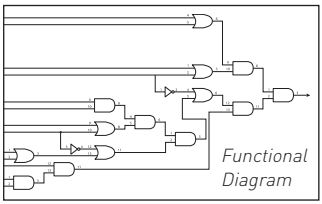
ICS-5

The ICS-5 is the most popular Lasermet interlock control system for use in laboratories and clinics supplied with a simple, easy-to-use control panel which can be wired directly to 4 interlocks or groups of interlocks.



Safety Logic Plus

Lasermet's Safety Logic Plus is a simple but cost effective and safe concept whereby the logic configuration required for a safety interlock system is hard wired in a single enclosure.


Functional Diagram

ICS-15XM Advanced Network-Capable Laser Safety Interlock Controller

The ICS-15XM will control an interlock system to provide laser safety protection. It can monitor many switches and doors and disable the laser if any of these switches are open.

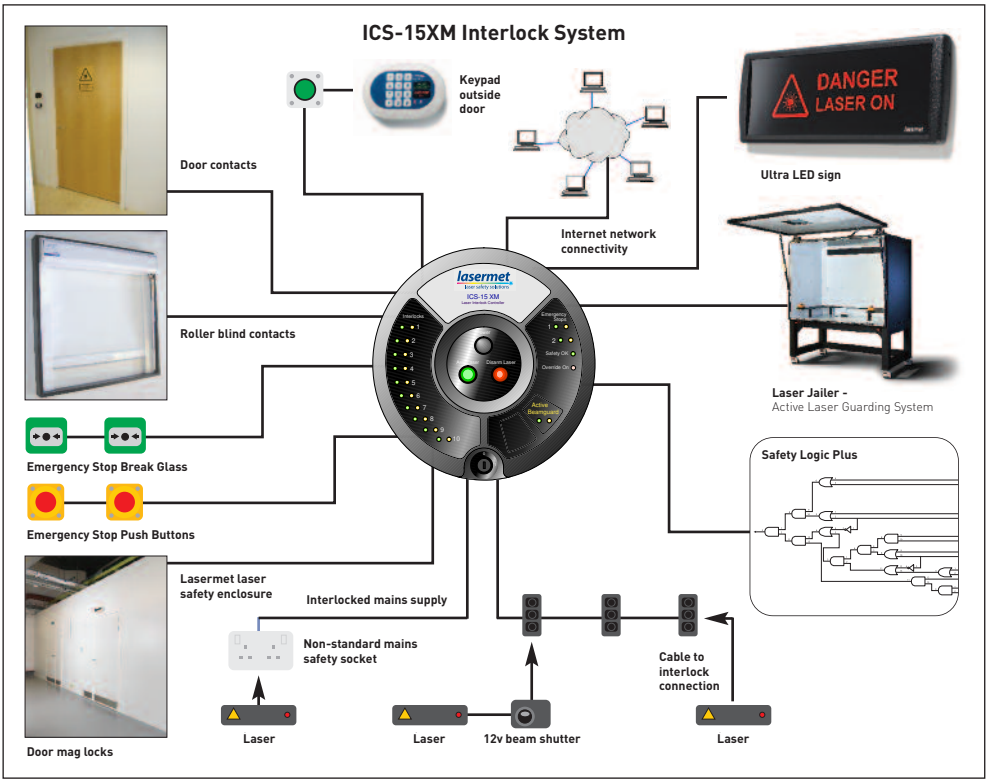
Its extended capability includes full dual channel architecture including dual safety and emergency stop circuits with separate dual channel control for each circuit. It can display up to 10 interlocks plus two emergency stop circuits. It has 9 output contacts for operating interlocks, beam shutters and door locks and can be remotely monitored over a network and the internet with the optional plug-in expansion module.

It is ideal for larger complex interlocks and is adaptable and flexible in its ability to integrate with safety related equipment such as Lasermet's Active Laser Guarding System and Safety Logic Plus.

The optional Communications Module enables the ICS-15XM to be networked so that it can be monitored remotely.

ICS-15XM

The system has been designed to comply with Machinery Directive standards for safety control systems and to EN 61508. It is suitable for use as a control system to SIL3 or as a component in a SIL4 system.



Services

Laser Safety Audits, Laser Consultancy and Laser Hazard Analysis

Our laser safety audits are designed to ensure that your organisation operates in accordance with best practice with regard to the safety of lasers, LEDs and other optical hazards in order to minimise the risk of personal injury to staff or third parties.

Your company needs to ensure that it is following the correct procedures and taking the necessary precautions as laid down by the various standards. If you do not have this level of expertise in house, or if external verification is required, then we can provide the knowledge. As leading experts in the field of laser safety, we are able to carry out comprehensive risk assessments and make appropriate recommendations.

FDA / CDRH Registration

All laser products entering the USA must be registered with the FDA to legally enter the country. Lasermet provide a service which compiles and submits a laser product report to the FDA.

Laser Protection Advisor (LPA) and Expert Medical Practitioner (EMP) Support

In the UK, it is a requirement of Care Quality Commission registration that an LPA is contracted to the clinic and provides a safe system of work and ongoing safety advice. An EMP is similarly required to provide medical protocols and ongoing medical advice and support. Our LPA /EMP service satisfies the requirements of the CQC.

Laser Safety Training

All persons using Class 1M, Class 2M, Class 3R, Class 3B and Class 4 lasers should receive laser safety training. For Class 1M, 2M and 3R lasers this training may be quite concise. In addition all organisations using Class 3B, Class 4 or Invisible Class 3R lasers must have a Laser Safety Officer who should have received appropriate training. Lasermet provide this training.

Core of Knowledge Training

This course is intended for operators and other staff in Clinics using Lasers & Intense Pulsed Light systems for hair removal, skin toning, dentistry, tattoo removal and other similar procedures. It is designed both to provide a grounding in the basics of the safe use of lasers & IPL systems, and to satisfy the training requirements MHRA Device Bulletin DB2008(03) "Guidance on the safe use of lasers, intense light source systems and LEDs in medical, surgical, dental and aesthetic practice".

Power Meter Calibration Services

Our UKAS accredited laser testing laboratory is able to undertake NPL traceable calibration of laser power meters at a range of wavelengths.

UKAS Accredited Testing & Certification to Laser & LED Standards

Lasermet is the UK's leading UKAS Accredited test house for testing to a number of standards (see website for details). We test and certify to the appropriate standards and carry out Prototype & Finished Product Testing, and CE marking.

ISO 9001 REGISTERED FIRM

Cert No GB3164

2682

ISO/IEC 17025:2005

Only for optical testing to:
IEC/EN 60825-1
IEC/EN 60825-12
IEC/EN 60601-2-22

Lasermet Limited Lasermet House
137 Hankinson Road Bournemouth, BH9 1HR.
Tel: +44 (0)1202 770740 Fax: +44 (0)1202 770730
sales@lasermet.com www.lasermet.com

Please note that products and services provided by Lasermet may be subject to change without notice. E & OE.

Laser safety brochure 12/11 (2)

lasermet laser safety solutions