



2017 marks the 30 year anniversary of Lasermet

Who are Lasermet and how did it all start?

Lasermet – the laser safety company was incorporated in 1987 by Prof Bryan Tozer and Dr Bill Fagan to focus on sales of laser metrology systems. Bryan, currently in his 80's and still serving as the Honorary Chairman of Lasermet, began his career working as a research Physicist for the CEGB (Central Electricity Generating Board) in the late 1950's shortly before the first LASERS were developed. He began working with lasers in the early 1960's and alongside his research work, assumed the responsibility of Laser Safety Officer (LSO) for the CEGB in 1970, holding the post until leaving the CEGB in 1987. He also held the posts of Chairman of the British Standards Institute Laser Safety Committee (TC76) from 1985 to 2008, and Chairman of the CENELEC Laser Safety Committee from 1992 to 2008, setting the laser safety standards in Europe.



The formation of IEC 60825

During this time he was an instrumental member of the International Electrotechnical Commissions committees (TC76 & WG5) developing the laser safety standards IEC 60825-1 and -2. Through this work he has gained an international reputation as an expert in the field of laser safety. Bryan has a BSc, PhD and is a Fellow of the Institute of Physics (IoP) as well as being a Fellow of the Institute of Engineering and Technology.

During Bryan's research work using lasers for holographic purposes and state of the art remote measurement techniques in the 1960s and 70s, it became apparent that there was a significant risk of injury (especially to the eyes) for personnel working with lasers. Later on, in his work with BSI, CENELEC and IEC, he was able to draw upon his extensive experience of working with lasers to aid in the development of the laser safety standards that we know today as the IEC 60825 series of standards, of which IEC 60825-1 is the most important and is now referenced worldwide.

Eureka 643 and EU192 projects – big deals

In 1991 Lasermet won the laser safety contract as part of the EUREKA EU643 project "Safety in the Industrial Application of Lasers", which was one of the biggest European collaborative projects in the field of lasers. Around a hundred companies across Europe were involved. The UK program, which ran until 1996, was the largest of the national programs which included safety standards, risk assessments, training, radiation measurement and calculation, safety enclosures, fume extraction and more.

In 1992 David Wells – highly experienced in medical laser safety – joined as a Director to

carry out laser safety tasks under the EU192 project.

The BBC and laser safety calculation software

In 1993 Bryan Tozer and Jim Webb were awarded a contract by the BBC to develop a laser safety calculation program for internal use. Jim retained the software rights and continued the development of the program called LaserSafe PC under his company GL Services, whilst Lasermet retained the sales rights. The program is now used worldwide and over 800 licences have been sold to date.



Laser Safety Training at the NPL

The National Physical Laboratory (NPL) contracted Lasermet to provide laser safety training in this year and these courses have been run ever since continuing to the present day. The following year – 1994 – Paul Tozer joined Lasermet as the Sales and Marketing Manager and refocused the company onto the provision of laser safety services and products. As part of this development the company started manufacturing laser warning signs and laser blocking curtains.



The ICS series of laser interlock controllers is born

In 1996 Lasermet won a contract to supply eleven laser interlock control systems to Electrox. These were designed by David Wells and called the ICS-1 and became the first dedicated laser interlock controller to conform to the European Machinery Directive under EN 954-1 (recently superseded by ISO 13849-1). The first production run was 16 units. The total number of ICS interlock control systems now sold is over 2000 worldwide. The business continued to grow and the number of quotations and orders increased although sometimes the length of time between quotations and ordering also

grew. Many quotes went out including one to Imperial College London, Physics (Blackett) Labs.

In 1999 Lasermet won a major contract to supply the National Physical Laboratories with interlock controllers and, in 2000, amongst other orders, won a contract to supply interlock control systems to the prestigious Clarendon Labs at Oxford University Physics Department.

The growth of the Laser Protection Adviser (LPA)

The business continued to grow and by 2005 Lasermet started its Laser Protection Adviser (LPA) service designed to help Beauty Therapists, Cosmetic Doctors and Dentists use lasers safely and conform to the new legislation. This included registration with the Healthcare Commission (now the Care Quality Commission (CQC)) and by 2008 the company had over 300 clients.

UKAS Accreditation

In the same year Lasermet achieved UKAS Accreditation for its laser testing laboratory for testing to the laser safety standards IEC 60825-1, -2, -12 and IEC 60601-2-22.



The laser power meter

The requirement to measure laser power led, in 2006, to the development of a compact, handheld laser power meter (the ADM1000) with associated sensor heads. This enabled the company to keep one foot in the laser measurement camp, while simultaneously market its products in the laser safety arena.

It's a sign – of a leap forward

Following a very large contract award from the Photon Science Institute in Manchester for laser interlock systems and laser screens, the company broke through the £1m turnover barrier. The development of the more advanced laser interlock controller, the ICS-

10, was achieved by Stuart Ward who joined the company in 2007 as an electronic design engineer. This was followed in 2008 by the launch of the ICS-5 (an upgraded replacement for the ICS-1), and the launch of a range of mini-LED signs - all developed by Stuart. This rapid growth led to a need for more space and later that year commercial premises of 5000 sq ft were acquired.

Following the development of the LED signs in 2009, Lasermet was awarded a contract to supply larger LED warning signs (now known as Ultra LED signs).

The contract was provided by AWE Aldermaston and was specifically for the Orion



Laser Project – a program dedicated to conducting research into high energy density physics phenomena, which occur at the heart of a nuclear explosion or the interior of a star.

In 2010 the company won a large order from Imperial College London – Mechanical Engineering Department – to supply certified laser blocking curtains and enclosures. This was the start of a number of high value orders from ICL.

New personnel and products spur growth

In 2011 Phil Jones joined Lasermet as the Marketing Manager, dedicated to promoting the company, its products and services internationally. A few months later Steve Geldard joined Lasermet as Project Manager to run the big contract to supply three active laser guarding cells at Manchester University. The cells contained a 16kW fibre laser which is powerful enough to quickly burn through most enclosure materials. Hence, there was a need for an active guarding system (now patented by Lasermet and subsequently named “Laser Jailer”). In essence if the laser beam hits any wall inside the enclosure, Lasermet’s interlock system switches the laser off virtually immediately. 2011 was the year that another milestone was achieved – the

breakthrough of the £2million turnover barrier.

2012 saw the launch of the Slim Jim LED sign (a hit for contractors for easy install of high performance and prestigious LED signs).

The Laser Castle is launched



However, the biggest product launch in 2012 came with the arrival of the Laser Castle – the rapid-build, modular laser safety cabin. This was followed by the large contract to provide the largest laser safety cabin built so far at the Manufacturing Technology Centre (MTC) in Coventry. This large active laser safety enclosure was constructed in association with automation and laser systems specialists TEC Systems and the active laser enclosure was designed to house aerospace development projects.

The MTC opened in 2011 following a £40 million cash injection from the West and East Midlands development agencies and is a partnership between major global manufacturers and three universities: Birmingham, Nottingham and Loughborough as well as TWI Ltd, the operating division of The Welding Institute. Founder members of the MTC are Rolls-Royce, Aero Engine Controls and Airbus UK. Lasermet’s laser safety cabin and integrated active guarding system was chosen to house and contain a 20kW fibre laser capable of reaching all areas within the enclosure.

The development of active laser guarding – Laser Jailer

An increasing number of contracts were now being won by Lasermet for the provision of

certified laser safety cabins – as either passive Laser Castle cabins capable of absorbing laser radiation up to 5kW - (depending on power density) or as active cabins which incorporate the Laser Jailer active laser guarding system.

laser jailer active laser guarding system

Lasermet was now working with numerous laser welding robot integrators around the world providing Laser Castles as an integrated part of their product offering. This now included Glaser Jailer – the active filter window – a derivative of the Laser Jailer active guarding system.

In 2013 Paul Tozer finally won the substantial contract from Imperial College London Physics (Blackett) Labs that he quoted a mere sixteen years earlier!

In 2014, as part of a major restructuring, Steve Geldard was made General Manager and Adrian Tyerman Operations Manager. A new management structure was implemented with a view to driving the company towards £10m turnover. The company managed to break through another barrier – this time the £3 million pound turnover.



The ICS-6 Dual Channel Interlock Controller conforms to ISO 13849-1 PL e

New horizons – new factory

2015 saw the appointment of Steve Geldard as Director. The company invested £500,000 in capital equipment to set up a new 6000 sqft manufacturing facility in Haydock, near St Helens on Merseyside with the purpose of bringing in-house all manufacturing of laser curtains, laser blinds and the Laser Castle laser safety cabin.



Lasermet facility in Haydock near St Helens

A 5000 sqft Research and Development Centre was also set up next door, to focus on door systems for the Laser Castle – making Lasermet a highly sought-after solution provider for the automation industry integrating the latest laser safety technology into OEM manufacturing.

Global growth

Having established a large distribution network worldwide for Lasermet products and having set up an office in Schaumburg, Chicago, Illinois in the USA, growth has continued throughout 2016 and 2017, with increasing numbers of large contract awards in this niche, global and growing industry.

The appropriate training of staff working with lasers became a requirement as well as laser safety officers being required under health and safety laws. This was all in accordance with the 60825 laser safety standards now being adopted worldwide, to increase precautions and to reduce the number of laser related incidents occurring. With the proliferation of lasers throughout the world in countless applications, the need for increased laser hazard awareness has become ever more important.

From his base in Bournemouth, Bryan formed a team specialising in all aspects of laser safety; notably the design and development of the ICS range of laser safety interlock controllers and systems essential for the prevention of accidental laser radiation exposure occurring when personnel entered a restricted laser area.

Where are we now?

The team has now increased to around 45 staff with Paul Tozer as the MD. Graduating in Physics from Bristol, Paul has a focus on the medical and R&D applications of laser safety especially in the field of complex interlock systems. Also, working throughout the UK with dentists and clinics, Paul has developed a team of qualified Laser Protection Advisors (LPAs).

Also on the Board of Directors is Steve Geldard who looks after the company expansion programme, which includes the recently established manufacturing facility and R&D Centre at Haydock, Merseyside.

Lasermet has grown from one man's vision of preventing laser injuries from the 1960s and 1970s to today's global laser safety coverage which includes offices in the USA and a worldwide distribution network.