DATALOGIC™

DATALOGIC AUTOMATION

LASER MARKING

Laser Marking

PRODUCT GUIDE

Laser Sources for Marking and Microprocessing

LASE PLATFORM

V-LASE

The V-Lase is a DPSS air-cooled laser source @ 1064nm, available in 10, 20 and 27W, that operates on the *Lase* platform.

APPLICATIONS
The excellent beam quality, necessary for marking a broad range of materials, is one of the winning characteristics of the V-Lase laser sources.
Best results are obtained on steel, titanium, aluminum (bare, anodized or coated) as well as on plastics such as ABS, PP, PES, PET, PVC and many others.

GREEN-LASE

The Green-Lase 4W and 10W laser sources operate on the *Lase* platform and use Second Harmonic Generation (SHG) in an intracavity architecture, which maximizes LBO non-linear crystal conversion efficiency.

APPLICATIONS
The Green-Lase wavelength results in a lower “heat affected zone” compared with an infrared laser. This effective laser source thus offers significant advantages in marking applications with materials such as plastics that do not interact with the original infrared wavelength, as well as with semiconductors such as silicon (e.g. wafer marking). Superior absorption coefficient in semiconductor material used in solar cells makes this source ideal for photovoltaic applications (e.g.: thin film scribing).

UV-LASE

The UV laser source exploits the extensive experience and success of the DPSS family and is based on the mechanic optical architecture of Third Harmonic Generation (THG).

The extracavity technology allows high efficiency conversion of the LBO non-linear crystal and compactness of the laser source.

APPLICATIONS
The UV-Lase wavelength produces less mechanical distortion and less heat affected zones (HAZ) in comparison with longer laser radiations.
The high performances of this laser source make it ideal for the very-demanding marking and material process applications, such as glass and non-doped plastics and others.

MARKING PLATFORM

MARKING KIT

The marking kit allows system integrators to easily interact with the laser marking system.
The kit consists of two components: a PCI electronic board (iMarkPCI) that provides control signals to the laser and a powerful software (Lighter) that provides a graphical user interface to create marking layouts and automate the laser marking process through integration with legacy systems.
The Lighter graphical editor creates and edits text strings, shapes, barcodes (e.g. 128, EAN/UPC, 2/5, 3/9, GS1-128, RSS) and matrix codes (Datamatrix, QR codes, micro QR codes). It can also import logos in vectorial and raster formats.

Lighter marking kit guarantees key advanced marking software functions and applications such as marking on fly, array marking, grey tones marking, mechanical axis control, rotating axis control and others.
Lighter is scriptable: this means that it can be easily integrated with legacy systems through a wide range of combinations of transmission media, protocols and architectures (master/slave, client/server, ...).
Lighter is extensible: its scripting features can be extended through custom-developed plug-ins to deal with specific integration-related issues (custom components or protocols, patent protected algorithms, etc.).

SCANNER HEADS & LENSES

To match and support laser sources performance Datalogic Automation offers a complete range of scanner heads (Miniscanner) and lenses with different focal lengths for different marking requirements and applications.

IR 1064	GREEN 532	UV 355
Miniscanner 8 IR Miniscanner 10 IR	Miniscanner 8 GREEN	Miniscanner 8 UV
F-theta F100, F160, F254 *		F-theta F100, F160 *
Marking area (mm^2): 60x60, 120x120, 180x180		Marking area (mm^2): 60x60, 120x120

* Other focal lengths are available upon request

LASE PLATFORM

DESCRIPTION

The *Lase* platform derives from the long experience in the production of high performance and high quality DPSS laser sources.
The V-Lase source @1064nm, the Green-Lase @532nm and the UV-Lase @355nm all use the state-of-the-art End Pumped Coupling Technology, which represents the leading-edge solution in the field of laser sources.

The platform is characterized by a standard compact case (able to fit in a 19" rack), continuous and precise power control and low power consumption. Moreover, special attention has been dedicated to the safety aspects.
The proprietary end-pumped architecture using a TE cooled diode laser pump with unmatched MTBF, assures the reliability and availability of the system.

The *Lase* platform offers lasers with excellent beam quality, high peak power and short pulse width. The operator is able to precisely tune the power and pulse repetition rate. Very high brilliance in the laser spot, at longer focal lengths, makes the *Lase* platform ideal for marking a broad range of materials, even with large marking fields.

Designed for 24/7 very demanding processes, the *Lase* platform offers unparalleled performance and represents the ideal solution for both direct part marking and label marking in every market segment including automotive, solar & electronics, packaging, as well as in medical surgical tools marking and other applications.

The *Lase* platform extends drastically the possibility of connection between the laser source and the operating system. The communication with the system is enabled by RS232, RS485, and Ethernet. In addition, the *Lase* platform also has an I/O for the connection of the TTL and analogue signals.

The *Lase* platform is available in the OEM and OEM marker version.

TECHNICAL DATA

LASER MODEL	V-LASE 10W	V-LASE 20W	V-LASE 27W	GREEN-LASE 4W	GREEN-LASE 10W	UV-LASE 3W*
Wavelength	1064nm	1064nm	1064nm	532nm	532nm	355nm
Nominal power	10W	20W	27W	4W	10W	3W
Beam quality	M^2<2	M^2<2	M^2<3	M^2<1.2	M^2<1.2	M^2<1.3
Peak power	35kW	80kW	75kW	15kW	28kW	30kW
Repetition rate range	10-100kHz	20-100kHz	20-100kHz	20 -100kHz	20 -100kHz	20-100kHz
Aiming beam	Class 2M Red Diode Laser; λ=635nm ± 5nm; 3mW					
Power supply	DC 24V ÷ 28V ± 5%					
Cooling system	Air cooled					
Operating temperature	+10 to +35° C (46 to 95° F)					
Conformance to EEC Rules	2004/108/EEC: "Electromagnetic Compatibility" - 2006/95/EEC: "Low Voltage"					
Conformance to EU Standards	EN 61000-6-4, EN 61000-6-2, EN60204-1, EN60825-1					

Options:
- Mechanical shutter
- Mechanical shutter with power meter
- Power supply

* Currently on Violino™ platform, available on *Lase* platform from 2010.

SAGITTA - High Power Laser Sources

DESCRIPTION

The Sagitta™ 60 and 80W laser sources are the most powerful evolution of the state-of-the-art DPSS laser family.
The simple end-pumped architecture assures high reliability and availability required by the standards of many industrial applications.

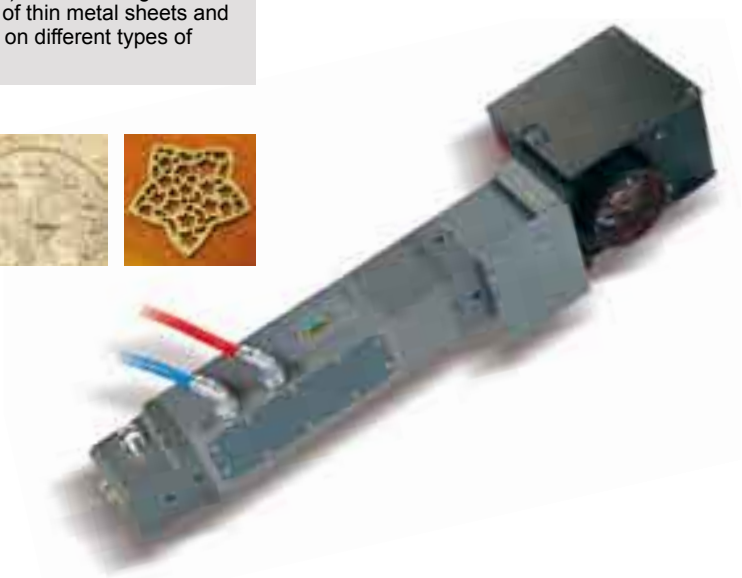
The high electro-optic efficiency of the Sagitta™ allows low electrical power consumption with a reduction in the footprint for the cooling element. This high efficiency also allows to reduce aging of the diode.

Sagitta™ lasers integration into production lines or complete systems is extremely simple. The power supply rack comes complete with hardware features required to be easily interfaced with external components to build a turn-key system.

Replacing the laser diode module is extremely simple: all you need is an allen wrench.

APPLICATIONS

Sagitta™ is often required for precision marking applications on components such as surgical instruments, tools, ball bearings, etc.
The high power density laser beam, combined with the high speed of the scanning head, allows fast and deep engraving on metals.
The beam quality resulting from the design concept also makes the Sagitta™ High Power (80W) an interesting tool for precision cutting of thin metal sheets and precise trimming on different types of material.



TECHNICAL DATA

LASER MODEL	SAGITTA 60	SAGITTA HP
Wavelength	1064nm	1064nm
Nominal power	60W	80W
Beam quality	M^2<3	M^2<8
Peak power	140kW	180kW
Repetition rate range	5-100kHz	5-100kHz
Aiming beam	Class 2M Red Diode Laser; λ=635nm ± 5nm; 3mW	
Power supply	AC 90-240V/ 50-60Hz/1500W	AC 90-240V/ 50-60Hz/2000W
Cooling system	Closed loop external chiller	
Operating temperature	+10 to +35° C (46 to 95° F)	
Conformance to EEC Rules	2004/108/EEC: "Electromagnetic Compatibility" - 2006/95/EEC: "Low Voltage"	
Conformance to EU Standards	EN 61000-6-4, EN 61000-6-2, EN60204-1, EN60825-1	

F-THETA LENSES *	F100	F160	F254
Marking area (mm^2)	60 x 60	120 x 120	180 x 180

* Other focal lengths are available upon request

ULYXE FAMILY

DESCRIPTION

Ulyxe lasers, 6W@1064nm, belong to the category of DPSS Active Q-Switched lasers. This family is extremely compact (only 42cm, 16.5") but offers all the most advanced technological concepts.
Ulyxe family provides the best price/ performance ratio in the laser marking world. Thanks to its cost-effectiveness and competitive positioning together with its immediate use, the Ulyxe family becomes the first choice in marking solutions even when compared with traditional marking techniques.
Thanks to its extreme compactness, this laser family represents the ideal laser marking solution both in stand-alone configurations as well as in industrial production lines.

THE ALL-IN-ONE LASERS
The air cooled laser sources offer an ultra-compact design and include the scanning head, digital control and monitoring functions. The whole units are equipped with a specifically designed high-tech case, available in different materials (polyurethane and metal) depending on different application requirements.
The operator can easily interact and monitor the most important laser status and functions with an user friendly LCD/ touch screen control display.
This compact laser family is available in 2 different configurations - Ulyxe and Zeux.
Ulyxe perfectly combines compact dimensions with USB connection ease, and the user-friendly Ulyxe Editor software, specifically developed to offer all key marking functions.
Zeux offers great compactness and full compatibility with the new marking platform (iMARKPCI board and Lighter software).

TECHNICAL DATA

LASER MODEL	ULYXE	ZEUX
Wavelength	1064nm	
Nominal power	6W	
Beam quality	M^2<3	
Peak power	15kW	
Repetition rate range	10-200kHz	
Aiming beam	Class 2M Red Diode Laser; λ=635nm ± 5nm; 3mW	
Power supply	24Vdc - 300W	
Cooling system	Air cooled	
Operating temperature	+10 to +35° C (46 to 95° F)	
Conformance to EEC Rules	2004/108/EEC: "Electromagnetic Compatibility" - 2006/95/EEC: "Low Voltage"	
Conformance to EU Standards	EN 61000-6-4, EN 61000-6-2, EN60204-1, EN60825-1	

Options:
- Remote LCD with touch screen
- Second beam focus pointer
- Power supply
- Basic or Evo control box

F-THETA LENSES *	F100	F160	F254
Marking area (mm^2)	60 x 60	120 x 120	180 x 180

* Other focal lengths are available upon request

KUBO - Welding Sources

DESCRIPTION

Kubo family for spot laser welders is based on the use of innovative solutions for precision welding applications. Characterized by a compact and ergonomic design, the Kubo source offers power levels from 40 to 100W.
This power range and the simple advanced user interface make this family suitable for manual workstations and for the integration into automatic welding systems (OEM version).

APPLICATIONS

Kubo is perfect for a wide range of applications such as the production of prototypes for electronic and precision technology industries, repair of moulds and fine welding of small mechanical components, fine welding of titanium for medical and orthodontic devices and for manufacturing and repairing eyeglasses.

ACCESSORIES

FME
The special FME focusing device, available for the Kubo laser sources, includes in its sealed and robust frame:
- Variable adjustment of the laser spot size
- Visible red laser pointing device
- Liquid crystal 'anti-flash' shutter
- Internal laser viewing protection filter

WWB
The WWB Class 1 bench top work station transforms the Kubo source into a manual welding workstation. The heart of the WWB is the microprocessor-based control system with a rotating encoder and an adjustable graphic display for positioning directly in the line of vision, allowing immediate control of the functions and status of the system. The standard features of the WWB is completed with the FME focusing device.

BRAS
For feeding multiple welding stations with a single laser welding source, a unique proprietary solution where the FME and the laser beam delivery are integrated onto an articulated rotating arm (Bras). This patent pending system allows to share the Kubo source among several operators (up to 4).



TECHNICAL DATA

LASER MODEL	KUBO 40	KUBO 60	KUBO 100
Laser medium	Nd: YAG		
Wavelength	1064nm		
Excitation	Xe FLASH LAMP		
Average power (Max)	50W @1ms, 20Hz	80W @1ms, 20Hz	100W @1ms, 20Hz
Energy/shot (Max)	40J - F.O. 600µm	60 J - F.O. 800µm	80 J - F.O. 800µm
Peak power (Max)	4.5kW@1 ms, 5Hz	6.5kW@1 ms, 5Hz	6.5kW@1 ms, 5Hz
Repetition rate range	1-20Hz		
Pulse width	0.3 - 10ms	0.3 - 20ms	0.3 - 20ms
Optical fiber *	400-600µm	600-800µm	600 -800µm
Cooling	Integrated water/air		
Power supply	230/110Vac 50/60Hz		230Vac 50/60Hz
Operative temperature	+10 to +35° C (46 to 95° F)		

* Other optical fibers available on request

Options:
- Focusing heads (straight, 90° and FME)
- External micro-processor control
- WWB
- Bras

FDL - Fibered Diode Laser

DESCRIPTION

FDL is a continuous wave fiber coupled diode laser which provides a unique laser beam reshaping module, which focuses the beam into a single-core coupled optic cable. The result is an extremely bright spot at the end of the fiber.

Laser emission can be controlled by a command box (for stand alone units) or by other control systems such as PLC or PC.

APPLICATIONS

WELDING OF PLASTICS

- Weld thermoplastic materials
- Transmission- light- weld if one of the two materials is transparent
- Perform overlap welds with the sheets
- Butt weld if both materials absorb the diode wavelength

SOLDERING

Processes which benefit from laser soldering include:

- Processing for heat sensitive components such as LCDs and micro sensors
- Processes where components are added on 'already equipped boards'
- Boards with different type of components (each one with different reflow characteristics)
- Plastic welding in automotive and consumer electronics devices

In PCB processing, laser soldering represents an effective technique which can match specific material (heat absorption) or process requirements (double side mounted components, single point soldering, step by step mounting of heat sensitive components).

TECHNICAL DATA

LASER MODEL	FDL 25	FDL 50
CW output power	25W	50W
Wavelength	808nm/940nm/980nm/ 1064nm	
Aiming beam	5mW 635nm	
Cooling system	Air cooled	
Optical fiber coupling *	standard 400/600µm	

Options:

- Control box

FOCUSING HEADS *	F50	F75	F100	F150
F distance	42 ± 2mm	67 ± 2mm	93 ± 3mm	143 ± 3mm
Magnification	1.25	1.875	2.5	3.75
Spot diameter (FO 400/600µm)	500/750µm	750/1125µm	1000/1500µm	1500/2250µm

* Other optical fibers and focusing heads available upon request

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All laser sources described in this product guide are Class 4 laser sources.
Laser interaction with organic or inorganic material can cause TOXIC FUMES/PARTICLES
The OEM laser components described in this product guide is for sale solely to qualified manufacturers, who shall provide interlocks, indicators and other appropriate safety features in full compliance with applicable national and local regulations.

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