greenVIS^{II} - Laser Marking System

5-10W

System Overview

All Automator green lasers are manufactured with the highest quality sources available. greenVIS^{II} is a laser unit extremely light and solid, which perfectly adapts to integrations of lines. Thanks to the source Vanadate YvO_4, the laser is able to mark, permanently, various materials such as steel, anodized aluminium and painted surfaces, iron, cast iron and plastic. All the components are integrated in the practical carter: from the source to the electrical cards; up to the scanning head with a flat lens. The greenVIS^{II} model was created and produced, under the respects of the "Blue Philosophy" and under the common regulations for the well being of nature and energy consumption reduction. Automator has adopted these initiatives, not only in the choice of the components but even in the settings of the internal production mechanism; for this, Vis is a environment-friendly laser device.

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Basic Configuration

PC (Not included)

Stand Alone Configuration

Automation

Production line

PC (Not included)

PLC

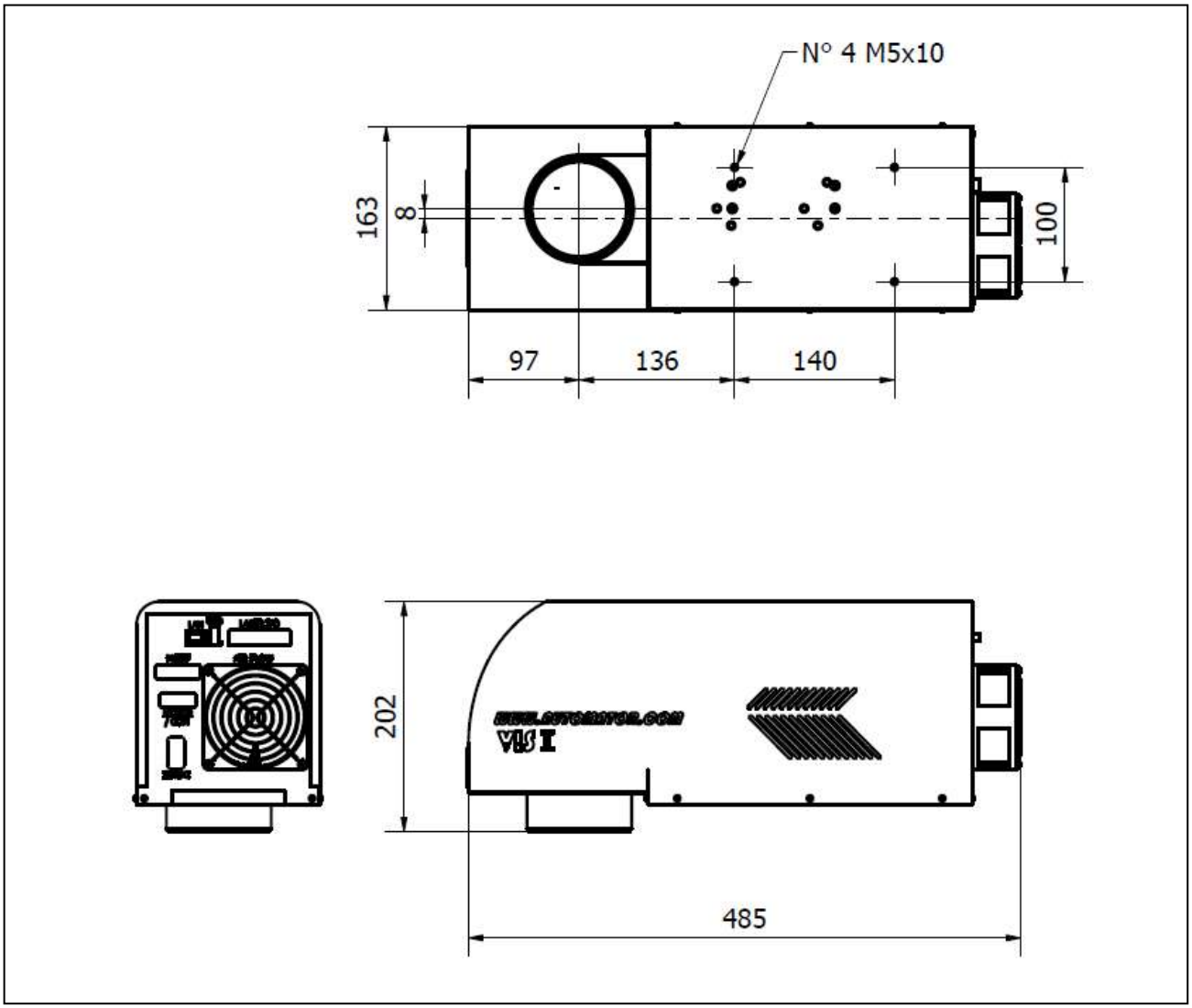
System Configurations

greenVIS^{II} is available in two software/hardware configurations: BASIC or STAND ALONE, with two power sources models: 5W and 10W.

Options

Adjustable X-Y-Z axis, Rotating Theta axis, Safety Class 1 enclosures

greenVIS^{II} - Technical drawings



greenVIS^{II} - Galvanometric Head

The galvanometric head, integrated in the carter greenVIS^{II}, is a device which acts to deflect the laser beam in two dimensions to project on the piece to be marked images, figures and other general marking necessities. Two mirrors mounted on the galvanometers at high power form the head. Above and beneath the mirrors are the fixed focalising optics; in addition even the flat field lens define the marking area and the focal length from the object to be marked. The laser source is assembled and sealed in a white room, without contaminating agents, in order to prevent any type of pollution, which could reduce the life of the crystal or of the resonator. The unity is equipped with an electro-mechanics shutter that has the role of reassuring security when the laser is active; the open shutter permits the passage of the ray through the galvanometric head's lenses up to the piece to be marked. With a closed shutter (through the signal of I/O or machine stop), the ray does not pass.

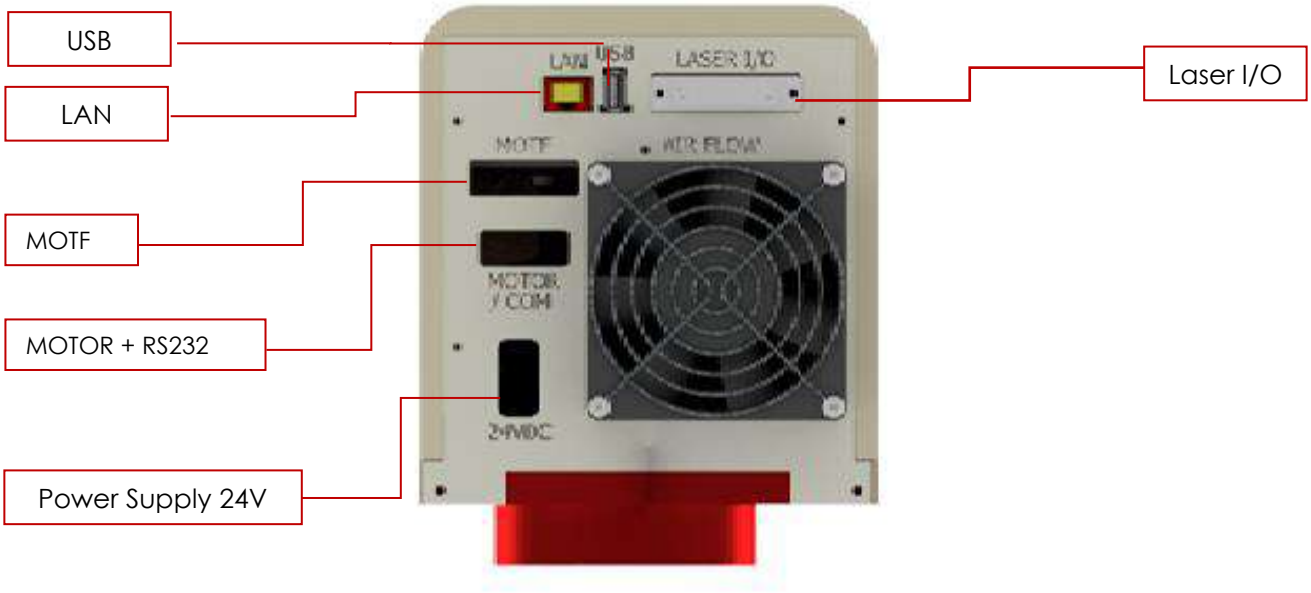
greenVIS^{II} - Technical data

Overall Dimensions: LxWxH (mm • in):	402x199x173 • 15,8x7,8x6,8
Weight (kg - lb):	12 • 26,4
Laser type:	Green
Power range (W):	3 - 5 - 10
Wavelenght (nm):	532
Polarization:	Linear 100:1
Standard lens (mm - marking area):	F160 - marking area 110x110
Optical Isolator:	NO
External power supply:	100/240V 50/60Hz (converter 24V provided)
Power consumption (20°C) (W):	220
Laser working voltage (VDC):	24 ± 1
Laser beam diameter, before lenses (mm):	5.7
Beam quality (M^2):	<2 @ 10kHz
Pulse duration (ns) @20kHz:	10 to 50
Pulse energy (µJ):	Up to 400
Output power tunability (%):	0-100
Operating temperature (°C • °F):	0 - +39 • 32 - 100,4
Store temperature (°C • °F):	-10 - +60 • 14 - 140
Humidity (%):	30 - 85
Cooling system:	Forced air cooled - Water (optional)
Connectivity:	Power, ethernet port, I/O port
Directive 2011/65/EC - Restriction of Hazardous Substances (RoHS):	Respectful
Safety Class:	4
MTBF (Working Hours):	120.000
IP Certification of the Cover: (CEI70-1)	30
Mark on fly:	YES
Available axis (depending by the softwares):	Z-X-Y and Rotating Theta

Red Pointer Diode

The laser produces a red, visible light, known as pointer, which allows visualizing the working area directly on the surface of the object, without altering it's nature or starting the marking. For its wavelength, the operator does not need to wear the DPI protection, while he proceeds for the setting, the programmation or the marking trials of the laser.

greenVIS[II] - Layout and connectivity



greenVIS[II] - Lenses range

Lens F160	Flat field focus – marking area 110x110 mm	• 4,33"x4,33"
Lens F100	Flat field focus – marking area 60x60 mm	• 2,36"x2.36"
Lens F254	Flat field focus – marking area 155x155 mm	• 7"x7"
Lente F330	Flat field focus – marking area 200x200 mm	• 8,66x8,66"
Lens F420	Flat field focus – marking area 300x300 mm	• 12,59"x12,59"

greenVIS[II] - Lenses focus length (these data are can vary lens by lens with a tolerance of 5%)

Lens F160 (mm • in)	198 • 7,8
Lens F100 (mm • in)	120 • 4,7
Lens F254 (mm • in)	302 • 11,9
Lens F420 (mm • in)	520 • 20,5

greenVIS^{II} - Shutter

greenVIS^{II} marking head integrates a shutter housing: this electro-mechanical actuator provides a millisecond shutter operation. During marking, the shutter stays in an open position and then closes when the operation is completed providing a safe condition of lockout. The shutter movement can be controlled by the laser hardware/software or by the I/O signals. An integrated certified safety sensor detects the shutter blade position in the housing, providing a critical information that confirms the state of the shutter position.

greenVIS^{II} – Software EuGenius

EuGenius Software has been projected and developed by Automator highly specialized team, consolidating the marked requests in the long term marking knowhow of more than 80 years in marking.

Versatile in the applications and friendly to use, even by operators without highly technical specific training, such as CAD knowledge.

- Multilanguage menu
- Management barcode "Datamatrix", 2D code, QR code, PDF Queues
- Easy import of vector drawings, DXF
- Easy import of raster graphics, BMP, JPEG, .JPG, GIF
- Communication protocols management: Profinet, Profibus, CClink, Ethernet IP, GS1
- Complete set of laser parameters such as speed or power laser
- Texts, Text arcs, text on curved lines,
- Lines, rectangles, polygons, circles and arcs
- TTF Font ® (windows property)
- Graphic preview
- Texts with date, serial numbers, shift codes and year/month/day
- Multi fillings or single profile markings
- Templates (object to be marked as background)
- Proportion scale, move, rotate, group creation of each object on the screen
- Quick Test for an easy identification of the best laser parameters
- Automation & object tiling
- External axis commanded by software
- Shutter control
- Easy diagnosis of troubleshootings

greenVIS^{II} – Pin out – I/O scheme

Pin:	YAG-GREEN-ON/OFF
1	Com. IN
2	Enable Laser
3	Start Marking
4	JOB loading
5	USER 1
6	USER 2
7	USER 3
8	USER 4 (SHUTTER)
9	USER 5 (SHUTTER)
10	Nc
11	Nc
12	Nc
13	X1 , X2 (Com. Securty)
14	Com. OUT
15	System ON
16	System READY
17	Laser ON (armed)
18	Laser OK (System OK)
19	Ongoing marking
20	USER OUT 1
21	USER OUT 2
22	USER OUT 3
23	nc
24	Y1 (Security Channel 1)
25	Y2 (Security Channel 2)

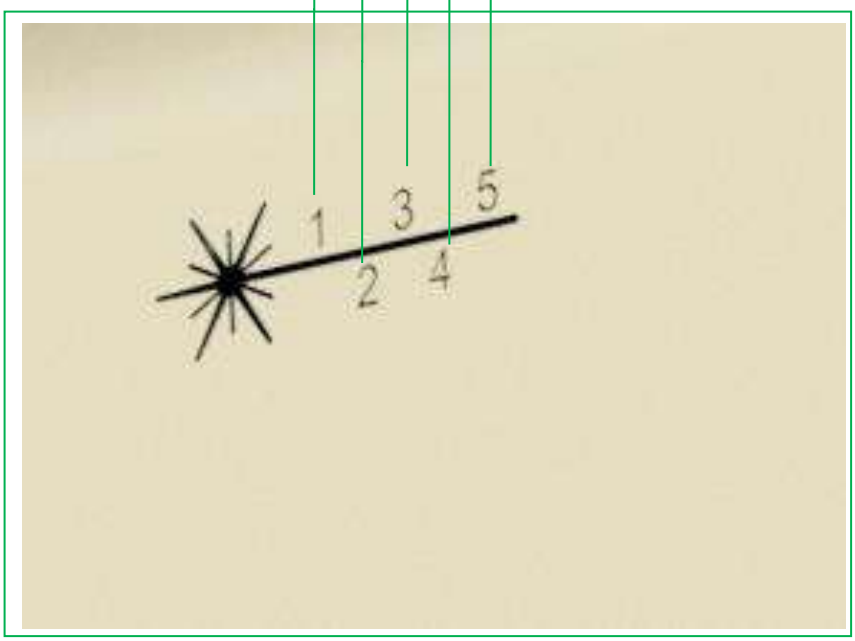
Pin:	I/O 9 Female Poles (communications/motors)
1	(reserved)
2	RX2
3	TX2
4	(reserved)
5	0 Vdc
6	(reserved)
7	A
8	B
9	+24 Vdc

Pin:	I/O 15 Female Poles (encoder)		
1	+24 Vdc	8	nc
2	0 Vdc	9	+5Vdc
3	A	10	/A
4	B	11	/B
5	Z	12	/Z
6	nc	13	nc
7	nc	14/15	nc

greenVIS^{II} - Diagnosis

Human eye visibile the diagnostic on the laser supply, with easy indicators

1. +15 laser head power supply
2. 15 laser head power supply
3. 24V CPU board power supply
4. 12V auxiliary power supply
5. 24V input power supply



greenVIS^{II} - Optionals

- **LEDs rings** - The marked area can be illuminated by a ring of LEDs, set around the lens.
- **Focus detection devices** - Automator FYBRA^{II} is available, like any other Automator marking laser, even with two different focus detection devices:
  - FocusFinder, a focal distance detection system, which always detects the correct distance between the lens and the piece to be marked displaying the current distance between the lens and the surface to be marked;
  - Double Focus Pointer: two laser pointers that converging detect automatically the correct focus distance.