

# ***FYBRA - Fiber Laser Marking System***

***22 - 33W Versions***

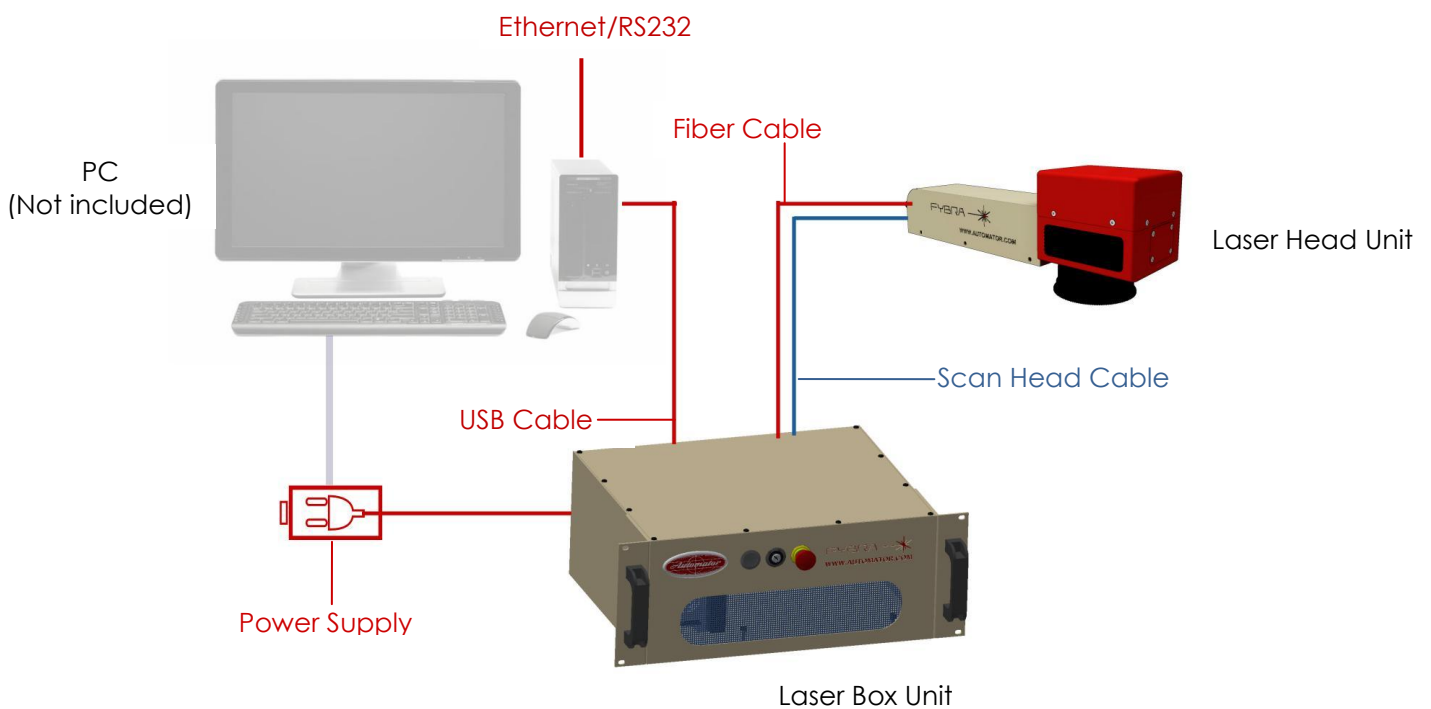
## **System Overview**

All AUTOMATOR fiber lasers are manufactured with the highest quality sources available today and are ideal for difficult to mark materials and heavy duty markings. FYBRA offers an exception combination of high peak power and exceptional beam quality produce a tight beam profile perfect for a wide variety of applications, from deep engraving and micro etching.



FYBRA comes with three main components: the BOX contains the source and the electrical components, The HEAD with a galvanometer for fast x/y movement and focal lens and the FIBER optic cable that connects the two. The AUTOMATOR FYBRA couples the stability of a fiber laser with our proprietary A-wave software to create market leading "power-to-the-part" performance.

- ***Deep and precise markings***
- ***Double-block optimized laser device***
- ***Designed for bad environments***
- ***Two marking softwares***
- ***Powerful and easy to use***



## Automator FYBRA - Fiber laser

### System Configurations

FYBRA is available in two different configurations (with Genius or Nano Software packages) and three power models: 22W, 33W and 54W (described in a specific other sheet).

### Options

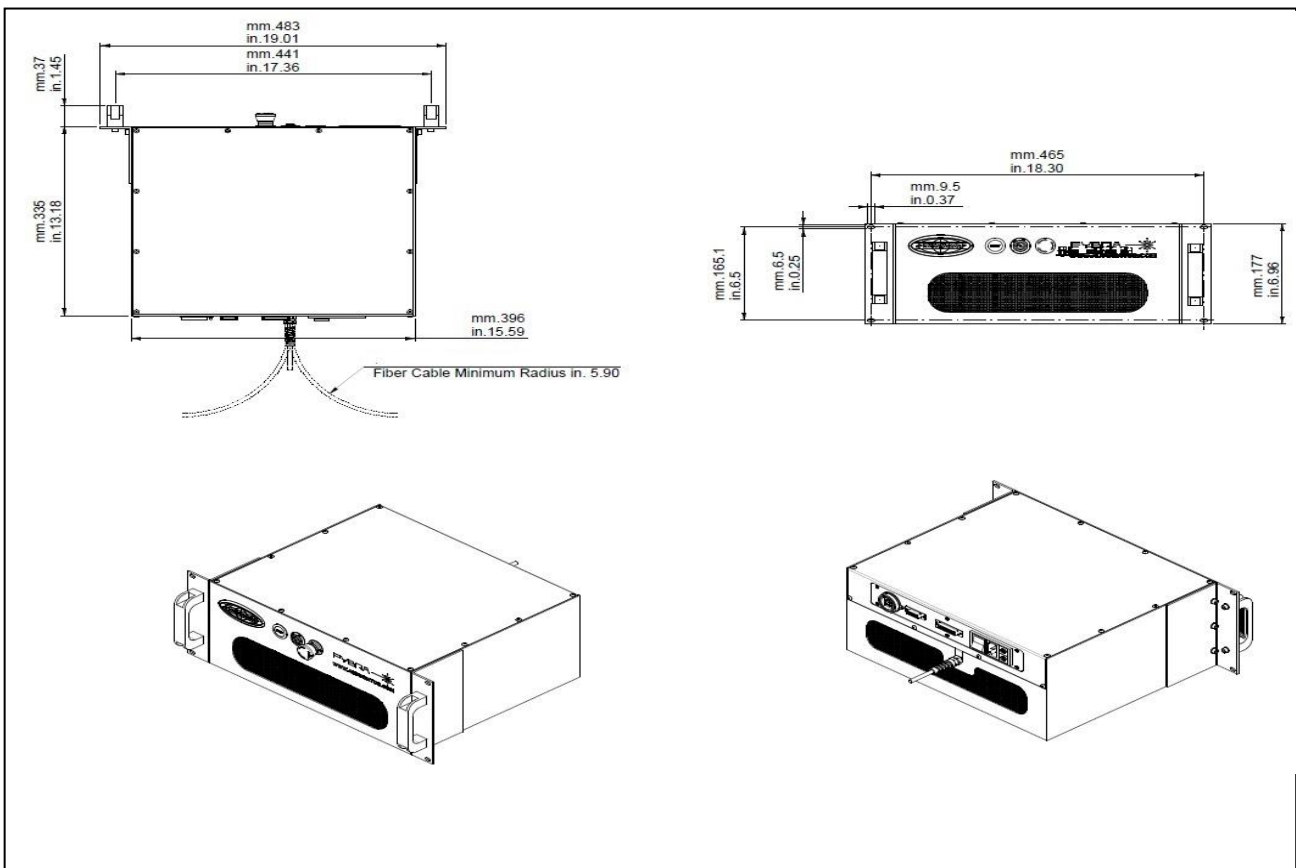
Adjustable X-Y-Z axis, Rotating Theta axis, Safety Class 1 enclosures

### Box unit



The box unit sets the electronic parts and the laser source in two separated cases. With this configuration, the laser source is protected by the dust and all the interferences coming from the external environment trough the fan chilling system.

### Box unit - Technical drawings



## Automator FYBRA - Fiber laser

### Box unit - Technical data

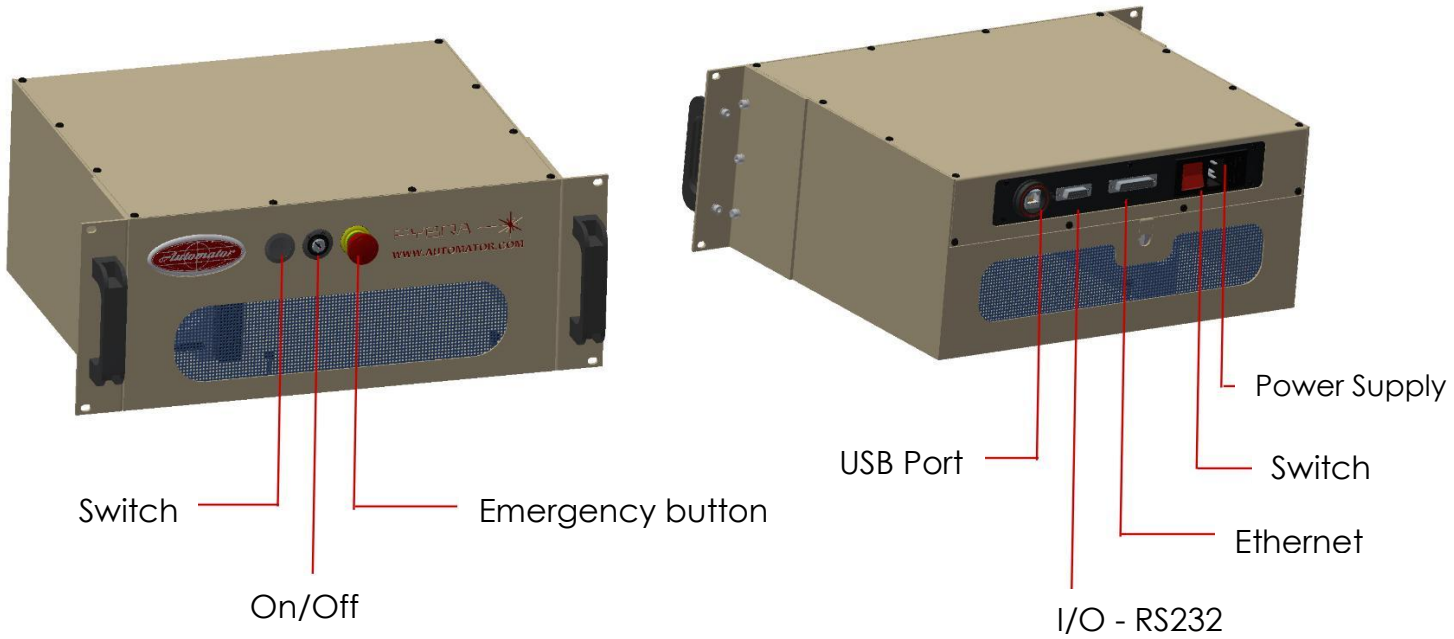
Overall Dimensions: LxWxH (mm • in):	400x335x175 • 15,7x13,2x6,9
Weight (kg - lb):	19,5 • 42
Laser type:	Active Fiber Laser
Power range (W):	22 - 33
Wavelength (nm):	1050 - 1090
Polarization:	Random
Standard lens (mm - marking area):	F160 - marking area 110x110
Optical Isolator:	Yes
External power supply:	100/240V 50/60Hz
Power consumption (20°C) (W):	300
Laser working voltage (VDC):	24 ± 1
Laser beam diameter, before lenses (mm):	6
Beam quality (M <sup>2</sup> ):	1.8
Pulse duration (ns) @20kHz:	<130
Output power tunability (%):	10-100
Standard fiber cable length (mm - in):	2.000 • 78,74
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
Connectivity:	Power, ethernet port, fiber cable, I/O port
Directive 2011/65/EC - Restriction of Hazardous Substances (RoHS):	Respectful
Safety Class:	4
SIL:	3
MTBF (Working Hours):	125.000
IP Certification of the Cover: (CEI70-1)	30
Mark on fly:	Yes
Available axis (depending by the softwares):	Z-X-Y and Rotating Theta

### Box unit - Board

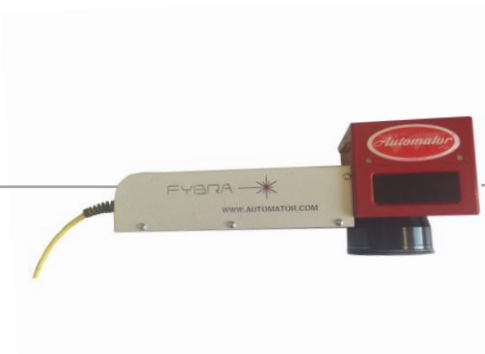
Board of PC interface with electronic control that handles the head and galvanometers for the two axes. The output-closing door signal management for the access to the marking area and Emergency safety Operator, according to the legislation in force, is responsibility of the integrator.

## Automator FYBRA - Fiber laser

### Box unit - Layout and connectivity



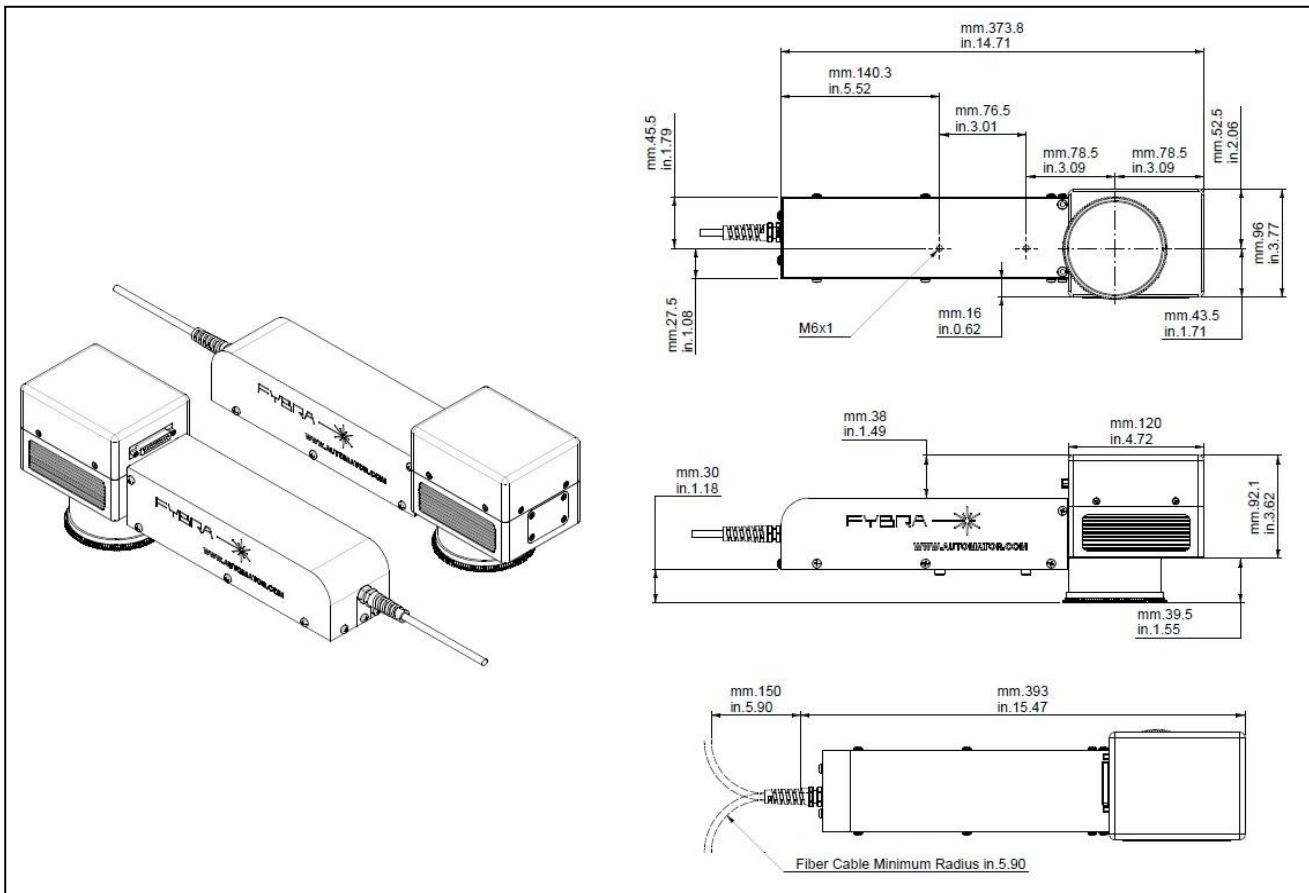
### Head unit



The head unit sets the galvanometric system and the lenses to focus the laser beam generated by the active fiber source in the Box unit.

### Head unit - Scanning head

Scanning head with flat field standard lens 110x110 mm. For other areas of marking see **Lenses range**.

**Head unit - Technical drawings**

**Head unit - Technical Data**

<b>Overall Dimensions LxWxH (mm • in):</b>	450x100x130 • 17,7x3,9x5,9
<b>Weight (kg - lb):</b>	4,5 • 9
<b>Fiber cable lenght (mm • in):</b>	2.000 • 78,74
<b>Marking Head installation directions:</b>	All directions
<b>IP Certification of the Cover (CEI70-1)</b>	60

**Head unit - Lenses range**

<b>Lens F160</b>	Flat field focus – marking area 110x110 mm • 4,33"x4,33"
<b>Lens F100</b>	Flat field focus – marking area 60x60 mm • 2,36"x2.36"
<b>Lens F254</b>	Flat field focus – marking area 180x180 mm • 7"x7"
<b>Lens F430</b>	Flat field focus – marking area 320x320 mm • 12,59"x12,59"

**Head unit - Lenses focus lenght** (these data are can vary lens by lens with a tolerance of 5%)

<b>Lens F160 (mm • in)</b>	177 • 6,96
<b>Lens F100 (mm • in)</b>	107 • 4,21
<b>Lens F254 (mm • in)</b>	281 • 11,63
<b>Lens F430 (mm • in)</b>	454 • 17,87

### **Head unit - Red diode**

Red diode pointing to 2 mw save (class 3A projecting the preview on the workpiece, so that the operator can easily check the positioning). The marked area is illuminated by a ring of LEDs, placed around the lens.

### **Available Softwares**

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FYBRA can mark everything by two different Software offerings: the Nano Standard Software and the Genius Plus:

#### **Nano Standard Software**

Software versatile in the applications and easy to use, even by operators without CAD knowledge.

- Multilanguage menu
- Management barcode "Datamatrix", 2D code, QR code, PDF Queues
- Easy import of vector drawings
- Easy import of raster graphics
- Complete set of laser parameters such as speed or power laser
- Texts, Text arcs, text on curved lines, rectangles, polygons, circles and arcs
- File DXF, WMF, AI, SVG, MF, DST, NC, .G, PLT, EMF, BMP, JPG, EPX, PCX, GIF, PNG, TIFF
- TTF Font ® (windows property)
- Graphical preview
- Texts with date, serial numbers, shift codes and year/month/day
- Markings filled or only profile
- Templates (object to be marked as background)
- Proportion scale, move, rotate, group creation of each object on the screen

No Communication protocols needed

## **Genius Plus Software**

Software versatile in the applications and easy to use, even by operators without CAD knowledge. Three different configurations: BASIC version, STANDARD version and ADVANCED version.

- Complete management of the texts and arc texts with TrueType Font full compatibility
- Direct management of the basic drawing elements (rectangles, circles, polygons, arcs, etc), management of barcodes (Code 39, codebar, code 93, code 128 EAN / UCC128, interleaved 2 or 5 ITF, postnet, tuple, tuples, EAN 8, EAN 13, booklan), DATAMATRIX (ECC 200) and QR codes.
- Graphics and photos importable in Raster format (JPG, BMP, PCX, GIF).
- Drawings and logos importable in vector format (DXF, DWG, AI, CDR, WMF, PLT, EMF).
- View and order management for marking objects, as well as ability to control external automations such as X and Y axes, Z axis Theta axis (rotary), delays and signal exchanges with the external environment.

## **Communication protocols**

Available Communication Protocols: by TCP/IP and RS232. The protocol depends by the motherboard installed on the laser:

- In the BASIC version (connected to the PC that runs the software) communicates with the Remote Interface Protocol. This Protocol can upload programs, update fields inside the program and control the system's status
- From the STANDARD version can communicate with a PC by the Interface Protocol, but can also communicate directly with the laser without a PC, by the API protocol, still supporting the same editor and control features of the BASIC version
- The advanced version allow to manage all the features of the BASIC and STANDARD versions and can mark "on the fly".