

Technical Specification: IXLA XP Sharp



The IXLA XP Sharp is a new generation of Desktop Laser Engraving System capable for the office environment. The purpose is the automatic personalization of e-passports.

The IXLA XP Sharp is enhanced with MRZ verification, position recognition and correction, integrated contactless chip encoder, CLI function, personalization software for graphical and electronic personalization.

The IXLA XP Sharp is a very reliable and a cost efficient personalization system for the personalization of e-passports under internationally acknowledged ICAO Doc. 9303 for travel documents. This system is a complete solution for centralized or decentralized passport issuance. The engraving process is based on high a resolution laser engraving technology, guaranteeing high security due the used technology, which makes the photo substitution impossible. Equipped with a Chip - encoder the new generation of ICAO compliant e-passports can be processed by engraving and also ensuring electronic storage of biometric data is executed at the same time.

Laser Resonator with Scan Head

Resonator

The laser resonator consists basically of a couple of lens, able to collect the pump radiation at 808nm coming out from optic fiber and to focus inside the crystal (Nd:YAG), and of a couples of aligned mirrors functioning as oscillators for 1064nm laser radiation, of a crystal functioning as an active Q-Switch which allows the generation of laser pulse of high-power suitable for marking . Last phase functions as beam-expander increasing the laser beam diameter and improving the collimation in order to focalize the beam in a spot of small dimensions obtaining a high irradiance on marking plan.

DAC3 Digital analog converter

Mounted close to scanner head, it converts the digital signals sent to DSP3 to analog signals for galvo-motor

Scan marking head

Two inclinable mirrors are mounted inside the scan marking head. They are moved by galvo-motors and controlled by DSP3 board which interfaces a D/A digital analog converter, mounted close to the head.

Laser Diode

The Laser diode is installed in the Coupler Unit. It is supplied with 3.5 Vdc low voltage and current up to 30 Ampere, it works at a monitored and regulated temperature between 20° and 30°C and supplies electro magnetic energy, the so-called "optical pumping", needed to supply the resonator. The Peltier Cell is in direct contact with the base of the Coupler Unit, and is located exactly under the Laser diode. It is supplied with 24 Vdc low voltage and discharges all of the thermal energy generated by the Laser diode LD on the Dissipater

Diode Power Supply:	3.5V
Max Absorption:	30A
Wave length	808nm

Main Control Board

The electronics, that controls laser system and the relative signals, consists of a board with DSP processor which has to be connected to a standard PC through an USB2.0 cable. It manages all the operations concerning the marking process; the remote commands from DSP board to scan head are used for scanning of lines, segments (vectors and polygons) and raster images. Each element to be marked by scan head has to be divided in small lines and segments. Commands spooler is sent from PC to DSP board where a circular double buffer stores the data. After a signal of Start, the data are sent in digital form to scan head in real time.. Digital signals together with mirrors coordinates are converted in analog forms by the converter fixed at the entrance of signals of scan head.

Electrical

Power:	+5 VDC. (50mV ripple maximum)
Ground:	0 VDC (GND)
Chassis Ground:	Connected to GND and magnetic head case

Environmental

Operating Temperature:	-22° F to 158° F (-30° C to 70° C)
Storage Temperature:	-40° F to 185° F (-40° C to 85°C)
Humidity:	Maximum 95% non-condensing

XY Auto-positioning System

XY Auto-positioning is available using an industrial vision system integrated in the IXLA 100 plus. Laser Capture is a software tool integrated in the Cardist Suite. It is used to recognize pre-System defined pattern and measure the offset thanks to its pattern match algorithm. Laser capture use the IXLA 100 vision system with its relative twain driver. Laser capture, together with Cardist, grants high accuracy in the laser engraving positioning.

Camera Sensor

High-speed USB2 camera provides 65 fps at 640x480 pixels. Based on a high-quality 1/2" CMOS sensor with fast global shutter - ideal for capturing objects in motion. Unique sensor provides sub-sampling and region of interest sub-window for faster frame rates. I/O control for synchronization with strobe and peripheral devices.

Image Sensor:	1/2" format, color or mono sensor
Effective Pixels:	640 x 480, 9.90um square pixels
Frame Rate:	65 fps at 640x480, faster with ROI
Sensitivity:	2 V / lux-sec
Dynamic Range:	60dB
Exposure:	Auto / Manual
White Balance	Auto / Manual
Dimensions:	(W x H x D) 2.00 x 2.50 x 1.63 inches
Mass:	~150g
Power Requirement:	USB bus power, or external 6VDC, 800mA
Power Consumption:	~2.5 Watts
Operating Temperature:	0° C to + 50° C
Operating Humidity:	0%-95%, Non-condensing
Interface Connector:	Standard USB
Lens:	C-Mount Pentax
Focal Length:	8.5mm
Format: 2/3 Iris Range:	1.5 C
Horizontal angle of View:	56°48'

Software

Xlaser

The xLaser software is a brand new cross-platform C++ class set running under Microsoft Windows, Unix compatible systems like Linux and Macintosh platforms. This innovative software solution, will provide a complete new and open approach to industrial applications at the lowest cost on the market

Developers Toolkit

Is made of:

xLaser

Sample application program with relative source code and Documentation

On line support for 1 year

Main Technical Features

General characteristics

Display: Graphic with 5 multifunction buttons

Driver: Windows XP

Communication: USB

Marking: Monochrome laser marking
Resolution up to 1600 dpi

Dimension: 500 x 470 x 420 mm

Environmental conditions

Working temperature: min 15°C max 35°C

Working Humidity: min 10% max 80% without condensation

Storage temperature: min -5°C max 70°C

Storage Humidity: min 20% max 70% without condensation

Cooling: Air to air (integrated)

Laser:

Laser medium: Nd:YAG

Wavelength: 1064 nm

Nominal Power: 10 W

Polarization: Random

Modulation: up to 100kHz

Laser Pumping: Diode Laser

Average Diode Lifetime > 8000 hours

Heat Load: 80 W

Power Supply

Power Supply: 90Va.cto 240Va.c.

Frequency: 50-60 Hz

Power: 600 W

Throughput: 60 passports/hour