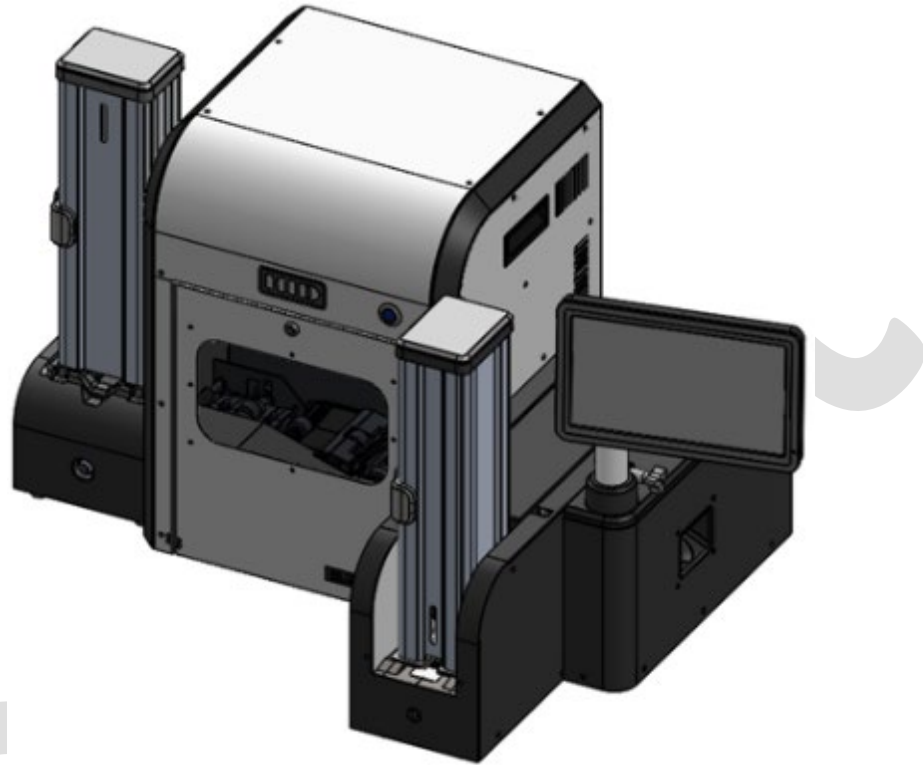




611 Center Ridge Drive  
Austin, TX 78753  
USA



# ELEMENT CARD MARKING SYSTEM

## USER GUIDE



1	INTRODUCTION.....	5
2	SPECIFICATIONS.....	6
2.1	Regulatory Compliance.....	6
2.2	Safety Messages – United States.....	7
2.3	Safety Messages – French Canada.....	7
3	SAFETY.....	9
3.1	Safe Environment.....	9
3.2	Safe Human Interface.....	9
3.3	2.3 Laser Radiation.....	9
3.4	Absorption of Laser Radiation.....	10
3.4.1	Human Eye.....	11
3.4.2	Human Skin.....	11
3.5	Hazard Classifications.....	11
3.5.1	CLASS 1.....	11
3.5.2	CLASS 1M.....	12
3.5.3	CLASS 2.....	12
3.5.4	CLASS 2M.....	12
3.5.5	CLASS 3R.....	12
3.5.6	CLASS 3B.....	12
3.5.7	CLASS 4.....	12
3.6	Classification and Danger Level.....	12
3.7	Radiation Viewing Conditions.....	13
3.7.1	Direct Viewing of the Beam.....	13
3.7.2	Direct Viewing of the Beam after Mirror Reflection.....	13
3.7.3	Direct Viewing of the Beam from an Optical Fiber.....	13
3.7.4	Direct Viewing of the Beam after Focusing.....	13
3.7.5	Viewing of the Scattered Beam after Focusing.....	14
3.8	Eye and Skin Risks.....	14
3.9	General Safety Regulations.....	14
3.10	Seals.....	15
3.11	General Laser, EMC, and Safety Standards.....	15
3.12	Warnings.....	15
3.13	System Failure.....	15
3.14	Labeling.....	15
3.15	Laser Warning Labels.....	16
3.16	Technical Specifications.....	17
3.17	Unit Layout and Functionality.....	20
3.18	Important Information.....	21
4	SETUP AND INSTALLATION.....	22
4.1	Selecting a good location.....	22
4.2	Moisture condensation.....	22
4.3	Unpacking and Inspection.....	22
4.4	Connecting Modules.....	23
4.5	Mechanical Connection.....	24
4.6	Module to Module Electrical Connections.....	25
4.6.1	Ribbon Cables.....	25
4.6.2	Ethernet Cable.....	26
4.6.3	Power Cable from Input Module to Laser Module.....	27
4.6.4	Output stacker DC power to printer DC power out.....	27
4.6.5	Unused AC Power Cable.....	27



4.6.6	Cable Channel Covers.....	28
4.7	Display Positioning .....	28
4.8	Moving the Machine.....	30
4.9	Installation of the Rear Interlock Plug .....	30
4.10	Installing Blank Cards into the Input Card Hopper .....	31
4.11	General card information.....	33
4.11.1	Loading the Input Card Hopper into the Input Module.....	33
4.12	Loading the Output Card Hopper into the Output Module.....	33
4.13	Driver Installation .....	34
4.14	Finding the Printer IP Address from the User Interface .....	34
4.15	Changing the external IP Address.....	35
4.16	Optional mirror configuration .....	36
4.17	Laser Engraving Module Power .....	36
5	SYSTEM USE .....	37
5.1	Home Screen .....	37
5.2	Utilities.....	37
5.2.1	Laser.....	37
5.2.2	Print Test Card.....	38
5.3	Vision System .....	38
5.3.1	Calibration.....	38
5.4	Laser Engraving using pre-generated jobs on HID Provided laptop.....	38
5.5	Laser Engraving using SAMLight from HID provided laptop.....	39
5.6	Encoding.....	40
5.7	Laser Module Door Open Interlock.....	40
5.8	Input Hopper Empty .....	40
5.9	Output Hopper Full.....	40
6	MAINTENANCE.....	41
6.1	Card Path Cleaning.....	41
6.2	Manually clearing a Card Jam.....	43
6.2.1	Camera Focus.....	43
6.3	Replacing the filter .....	44
7	TROUBLESHOOTING.....	46
7.1	Poor image quality.....	46
7.2	Laser not laser engraving, during job.....	46
7.3	Laser objects are not centered or aligned properly on the card.....	47
7.4	Clearing Card jams by restarting the system .....	48



INTRODUCTION	OPTIONAL MIRROR INSTALLATION
SPECIFICATIONS	
REGULATORY COMPLIANCE	USER INTERFACE
US	HOME SCREEN
EUROPE	
SAFETY MESSAGES – ENGLISH	START UP
TECHNICAL SPECIFICATIONS	CALIBRATE LASER HEAD
UNIT LAYOUT AND FUNCTIONALITY	TEST PRINTS
SAFETY AND LABELLING	DRIVER SELECTIONS
USER WARNINGS	N/A
SET UP AND INSTALLATION	SYSTEM USE
SELECTING A GOOD LOCATION	LASER ENGRAVING
MOISTURE CONDENSATION	MAGSTRIPE ENCODING
UNPACKING AND INSPECTION	CARD ORIENTATION IN INPUT HOPPER FOR
2 PERSON LIFT FOR LASER MODULE	ENCODING
CONNECTING MODULES	INTERLOCKS
REMOVING CABLE CHANNEL COVERS	INPUT MODULE COVER CLOSE EVENTS
INTERFACE PLATES	EXCEPTION FEED
CABLING	INPUT HOPPER EMPTY
DISPLAY POSITIONING	OUTPUT HOPPER FULL
MOVING THE MACHINE	
INSTALLING BLANK CARDS INTO THE INPUT CARD HOPPER	MAINTENANCE
ALLOWABLE CARD TYPES	CARD PATH CLEANING
MUST MEET ISO SPECS (DIMENSIONS AND WARP)	
AT ROOM TEMP	MACHINE SETTINGS (USER ACCESSIBLE EE SETTINGS)
LOADING THE INPUT CARD HOPPER INTO THE INPUT MODULE	TROUBLESHOOTING
LOADING THE OUTPUT CARD HOPPER INTO THE OUTPUT MODULE	ERROR MESSAGE TABLES
ETHERNET CONNECTION	RESOLVING ISSUES THAT MAY OCCUR
DRIVER INSTALLATION	IMAGE QUALITY IS POOR
FINDING THE PRINTER IP ADDRESS FROM THE USER INTERFACE	LASER NOT LASER ENGRAVING, DURING JOB
	LASER OBJECTS ARE NOT CENTERED OR ALIGNED PROPERLY ON THE CARD
	CARD JAMS



## 1 Introduction

The HID Element Card Marking System is designed to simplify the personalization of e-Plastic cards and contactless ID cards using laser engraving technology at the point of issuance.

**Note:** HID Global Corporation will not be held responsible for any non-conforming use of its equipment.

**Note:** HID Element Card Marking System is a CLASS 1 LASER PRODUCT. Inside the HID Element Card Marking System are both Class 4 and Class 2M lasers.

Draft



## 2 Specifications





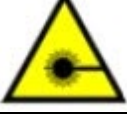
This section provides specific information on the Regulatory Compliances, Agency Listings, Technical Specifications, and Functional Specifications for the ITP 9000 card printer.

### 2.1 Regulatory Compliance


Agency	Regulatory Compliance
UL	The card printer is listed under UL 62368-1 Audio/video, information and communication technology equipment <b>File Number: E145118</b>
CSA	The printer manufacturer has been authorized by UL to represent the card printer as CSA Certified under CSA Standard C22.2 No. 62368-1 File Number: E145118
FCC	<p>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:</p> <p>(1) This device may not cause harmful interference, and</p> <p>(2) this device must accept any interference received, including interference that may cause undesired operation.</p> <p>CAUTION: Any changes or modifications to this device not explicitly approved by the manufacturer could void your authority to operate this equipment.</p> <p>NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.”</p>
ISED	<p>This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.</p> <p>Le présent appareil est conforme aux CNR d’Industrie Canada applicables aux appareils radio exempts de licence. L’exploitation est autorisée aux deux conditions suivantes: (1) l’appareil ne doit pas produire de brouillage, et (2) l’utilisateur de l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.</p>
CE	<p>The card printer has been tested and complies with EN 300-330, EN 301-489, IEC 62368-1, IEC 60825-1, EN 50581, and EN 62479.</p> <p>Note: Based on this testing, the printer manufacturer certifies that the card printer complies with the following of the European Community and has placed the CE mark on the card printer: RED 2014/53/EU, ROHS 2015/863/EU</p>





Emissions and Immunity Standards	FCC Part 15 Class A, RSS-GEN, RSS 210, CNS 13438, EN55032 Class A, EN55024, EN6100-3-2, EN6100-3-3, EN300-330, EN301-489, GB9254, GB17625
Safety Standards	UL 62368-1 Standard for Audio/video, information and communication technology equipment - Part 1: Safety requirements IEC 62368-1 IEC 60825-1

## 2.2 Safety Messages – United States

	<b>General Warning:</b> This symbol indicates the requirement to read the manual carefully or the necessity of an important maneuver or maintenance operation.
	<b>ESD:</b> This device is electro statically sensitive. Damage to the device may occur if it is exposed to static electricity discharges. To prevent damage, reference the following safety messages before performing an operation: <ul style="list-style-type: none"> <li>• Observe all established Electrostatic Discharge (ESD) procedures while handling cables in or</li> <li>• near the circuit board and printhead assemblies.</li> <li>• Always wear an appropriate personal grounding device.</li> <li>• Always remove the ribbon and cards from the printer before making any repairs, unless otherwise</li> <li>• specified.</li> </ul> Remove jewelry and thoroughly clean hands before working on the printer.
	<b>Electricity Warning:</b> This symbol indicates dangerous voltage associated with the laser, or powerful enough to constitute an electrical risk. This symbol may also appear on the machine at the risk area.
	<b>Caution:</b> For safety purposes, do not use Ethernet for a direct connection outside of the building.
	<b>Laser Warning:</b> This symbol indicates the danger of exposure to visible or invisible laser radiation. This symbol may also appear on the machine at the risk area.

## 2.3 Safety Messages – French Canada

	<b>Avertissement général:</b> Ce symbole indique qu'il est impératif de lire attentivement le manuel ou que d'importantes manoeuvres ou opérations de maintenance sont à réaliser.
-------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p><b>ESD:</b> Ce dispositif est sensible à l'électricité statique. Il peut souffrir des dommages s'il est exposé à des décharges électrostatiques. Pour éviter des dommages:</p> <ul style="list-style-type: none"> <li>• Rapportez-vous aux messages suivants avant de procéder à une opération.</li> <li>• Suivez toutes les procédures de Décharges Electrostatiques (ESD) en vigueur durant le maniement des câbles dans ou à proximité des Ensembles de Cartes de Circuit Imprimé et Tête d'Impression.</li> <li>• Portez toujours un dispositif de mise à la terre personnelle appropriée.</li> <li>• Retirez toujours le ruban et les Cartes de l'Imprimante avant d'effectuer toute réparation, sauf spécification contraire.</li> <li>• Retirez tous bijoux et lavez soigneusement vos mains avant de travailler à l'Imprimante.</li> </ul>
	<p><b>Danger électrique:</b> Ce symbole indique la présence de tensions dangereuses associées au laser ou d'une amplitude suffisamment élevée pour présenter un risque d'électrocution. Ce symbole peut aussi figurer sur la machine au niveau d'une zone dangereuse</p>
	<p><b>Attention:</b> Pour des motifs de sécurité, n'utilisez pas Ethernet pour une connexion directe hors du bâtiment.</p>
	<p><b>Mise en garde sur le laser:</b> Ce symbole indique un danger d'exposition à un rayonnement visible ou invisible. Ce symbole peut aussi figurer sur la machine au niveau d'une zone dangereuse.</p>





### 3 Safety

These basic safety checks promote the safe installation, operation, and maintenance of equipment. This checklist is not to be considered comprehensive on safety matters. The system operator must follow precautionary regulations aimed at preventing bodily injury and equipment damage.

#### 3.1 Safe Environment

- Connect equipment to a grounded power source. Do not bypass the ground lead.
- Place the equipment on a stable surface (such as a desk or table).
- Ensure the work area floors are dry and non-slip.
- Use adequate lighting near the equipment.
- Maintain the recommended range of temperature and humidity in equipment area.
- Do not use this product in an environment containing volatile or flammable compounds.

#### 3.2 Safe Human Interface

- Use proper lifting techniques when moving or installing the equipment.
- Use standard electrostatic discharge (ESD) precautions when working on or near electrical circuits.
- Do not disconnect safety interlocks on covers.

#### 3.3 2.3 Laser Radiation

Laser radiation is an electromagnetic emission with a wave length that ranges from the long infrared (CO<sub>2</sub> laser), close infrared (Nd laser: YV04), visible (He laser: Ne or Argon), and ultraviolet (excimer laser).

The Laser Engraver is the close infrared (Nd laser: YV04) type, producing non-ionizing radiation. Optical pumping by a diode laser stimulates the crystal's emission. Continuous reflection of photons between front and rear mirrors creates a positive reaction. The number of photons increases until a collimated beam projects from the semi-reflecting front mirror. The beam is then focalized with lenses at a point where the intensity becomes high enough to alter various materials by thermal effect.

Page 2-2 January 2017

Safety and Labeling PLT-01150, Version: 1.3

The laser radiation is invisible but near the threshold of visibility. The human eye receives it almost in its entirety without using the natural defense provided by pupil reflex. This effect is increased by the intensity of the beam.

As a result, the laser can be very harmful to the eye and cause vision damage, including blindness. To prevent permanent damage to vision, a few precautions must be taken.

- All individuals who may be exposed to dangerous levels of laser radiation must know that the laser is active and must wear protective goggles.



Due to its high power, the laser light emitted by the module may reflect off flat surfaces. Reflected light is potentially dangerous for the eyes and skin. The electromagnetic emission has a wavelength in the long infrared spectrum. The light is, therefore, invisible and reflected beams are not detectable.

In addition to possible injury to the eyes or skin, direct laser emission can ignite flammable materials, including fabric and clothing.

	<b>WARNING:</b> Directly viewing a laser beam can cause irreversible damage to vision.
	<b>AVERTISSEMENT:</b> Regarder directement un faisceau laser peut causer des dommages irréversibles aux yeux.

	<b>WARNING:</b> To prevent permanent injury to eyes or skin from reflected light, protective equipment and clothing are required for all personnel in proximity of the laser.
	<b>AVERTISSEMENT:</b> Pour éviter des blessures permanentes aux yeux ou à la peau par un faisceau lumineux réfléchi, des équipements et des vêtements de protection doivent être portés par tout le personnel au voisinage du laser

	<b>WARNING:</b> Inside the HID ELEMENT Card Marking System module is a Class 4 laser system. If the front door is open and the interlock is defeated, this laser can produce risks from scattered laser radiation as well as direct or reflected radiation. The laser source may be a significant risk of damage to skin and burning of flammable materials.
	<b>AVERTISSEMENT:</b> Le module interne du graveur laser HID ELEMENT Card Marking System est un système laser de classe 4. Si la façade du boîtier est ouverte et le verrouillage défectueux, ce laser peut présenter des risques de rayonnement laser diffusé voire direct ou réfléchi. La source laser peut présenter un risque important de brûlures à la peau et de combustion des matériaux inflammables

January 2017 Page 2-3PLT-01150, Version: 1.3 Safety and Labeling

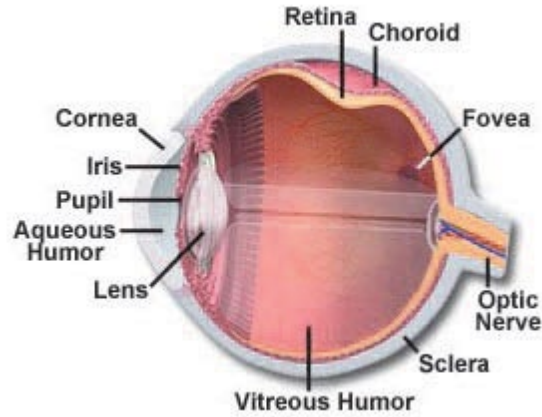
### 3.4 Absorption of Laser Radiation

Human skin absorbs electromagnetic radiation in different ways depending on the wavelength of the radiation. Eyes and skin absorb some wavelengths and are more unresponsive to others.

The eye, cornea, and crystalline lens pass all wavelengths from 400nm to 1400nm to the retina even with various attenuations. These attenuations include the range from visible light to IRA infrared.

### 3.4.1 Human Eye


Retinal effects are possible when the laser emission wavelength occurs in the visible and near-infrared spectral regions from 400nm to 1400nm. Light coming directly from the laser or from a reflective surface entering the eye at these wavelengths can be focused to an extremely small image on the retina due to the focusing effects of the cornea and lens.



### 3.4.2 Human Skin

With regard to skin, the biological window has different absorption percentages but is similar in terms of wavelength. The maximum exposure values for skin are much higher compared to those tolerated by the eye.

The degree of injury to eyes and skin depends on the amount of absorbed radiation and the instantaneous power of the radiation source.

	<p><b>WARNING:</b> The radiation emitted by the HID ELEMENT Card Marking System, which is Nd: YVO4 laser radiation (1064nm wavelength), is included in the 400nm to 1400nm range. Exposure can lead to direct retina exposure</p>
	<p><b>AVERTISSEMENT:</b> Le rayonnement émis par le module HID ELEMENT Card Marking System, qui est de type Nd : rayonnement laser YVO4 (longueur d'onde 1064 nm), est compris dans la gamme de longueur d'onde de 400 nm à 1400 nm. L'exposition à un tel rayonnement peut atteindre directement la rétine.</p>

## 3.5 Hazard Classifications

The ANSI standard has four hazard classifications. The classification is based upon the beam output power related to their regime (C.W., Q-Switched, and Pulsed) and their wavelength. The classification scheme describes the capability of the laser or laser system to produce injury to personnel. The higher classification number indicates the greater potential hazard.

### 3.5.1 CLASS 1

Class 1 lasers are very low risk and safe under reasonable use, including the use of optical instruments for intrabeam viewing.



### 3.5.2 CLASS 1M

CLASS 1M lasers have wavelengths between 302.5nm and 4000nm, and are safe except when used with optical aids (for example, binoculars).

### 3.5.3 CLASS 2

Class 2 lasers do not permit human access to exposure levels beyond the Class 2 AEL for wavelengths between 400nm and 700nm. Any emissions outside this wavelength region must be below the Class 1 AEL.

### 3.5.4 CLASS 2M

Class 2M lasers have wavelengths between 400nm and 700nm, and are potentially hazardous when viewed with an optical instrument. Any emissions outside this wavelength region must be below the Class 1M AEL.

### 3.5.5 CLASS 3R

Class 3R lasers range from 302.5nm and 106nm and are potentially hazardous, but the risk is lower than that of Class 3B lasers. The accessible emission limit is within 5 times the Class 2 AEL for wavelengths between 400nm and 700nm and within 5 times the Class 1 AEL for wavelengths outside this region.

### 3.5.6 CLASS 3B

Class 3B lasers are typically hazardous under direct beam viewing conditions but are typically safe when viewing diffuse reflections.

### 3.5.7 CLASS 4

Class 4 lasers are hazardous under both intrabeam and diffuse reflection viewing conditions. They may cause skin injuries and are potential fire hazards.

**Note:** Any completely enclosed laser is classified as a Class 1 laser if emission from the enclosure cannot exceed the Maximum Permissible Exposition (MPE) values under any conditions inherent in the laser design.

Since the HID ELEMENT Card Marking System is a CLASS 1 LASER PRODUCT that contains a Class 4 invisible laser system, during service procedures the appropriate control measures are required for the upper Class 4 system.

January 2017 Page 2-5

PLT-01150, Version: 1.3 Safety and Labeling

## 3.6 Classification and Danger Level

Regulations have established different classes of laser danger based on the potential degree of injury to people. These classes range from laser Class 1 (safe in normal operating conditions) to laser Class 4 (dangerous in various conditions, including diffuse reflection).

Visible lasers with the **WARNING** label belong to class 3R and do not injure the eye if looked at momentarily thanks to the self-defensive blinking reflex to intense visible radiation. However, class 3R lasers can cause injury if observed with a microscope or magnifying glass. Other lasers belonging to the same class but with the **DANGER** label can exceed the maximum allowed exposure level after 0.25 seconds of exposure.



Lasers that can produce risks for scattered radiation as well as direct or reflected radiation belong to Class 4. These laser sources can also result in significant risk for skin damage and fire risk for flammable material. The user must put into effect all measures aimed at containing radiation to ensure that the laser beam is terminated at the end of its useful path. The operator must also be informed about the risks from exposure to laser radiation and must wear specific Individual Protection Devices (IPDs), including protective goggles that are certified for this use.

### **3.7 Radiation Viewing Conditions**

The laser output from the resonator is a highly collimated and intense monochromatic light source. Its image can be focalized on the retina in a very small spot with a dangerously high-power density. If the beam becomes divergent and scatters to a non-reflecting screen (diffuser), an extended vision of the image occurs with a decisively less dangerous power density. Different types of laser radiation viewing can be identified based on the access to the radiation and consequently different degrees of danger.

#### **3.7.1 Direct Viewing of the Beam**

Direct viewing of the beam can occur at the outlet of the laser aperture. Direct viewing is the most dangerous condition and must be avoided by all means.

Protective goggles are insufficient to prevent damage, and do not represent a valid means to prevent directly viewing the beam.

#### **3.7.2 Direct Viewing of the Beam after Mirror Reflection**

Direct viewing of the beam after mirror reflection can occur by directing the beam to a reflecting surface. Viewing the beam reflected from a flat surface is as dangerous as direct viewing.

Protective goggles are insufficient to prevent damage, and do not represent a valid means to prevent directly viewing the reflected beam.

#### **3.7.3 Direct Viewing of the Beam from an Optical Fiber**

Direct viewing of the beam from an optical fiber can occur if the optical fiber is disconnected from the resonator. Viewing the beam is dangerous up to a significant distance.

Filters and goggles are insufficient to prevent damage, do not represent a valid means to prevent damage, and do not represent a valid means to prevent viewing the beam from an optical fiber.

#### **Safety and Labeling PLT-01150, Version: 1.3**

#### **3.7.4 Direct Viewing of the Beam after Focusing**

Direct viewing of the beam after focusing can occur if the laser beam is not extinguished with an opportune absorber at the end of its useful path. Looking at the beam is dangerous up to a considerable distance.

Filters and goggles can ensure safety for brief exposure as long as they are the correct size and certified for this use.



### 3.7.5 Viewing of the Scattered Beam after Focusing

Viewing of the scattered beam after focusing can occur if the beam is reflected off of diffuse reflective surfaces or material. It is the most frequent condition that causes damage. Suitable filters and certified goggles can ensure safety, even for prolonged exposure.

**Note:** Always use goggles with a conformity certificate. Remember that no goggles can provide prolonged protection from direct laser radiation.

## 3.8 Eye and Skin Risks

If exposed to intense laser radiation (even for a short duration, or a less intense but longer lasting duration), both the cornea and the retina can burn and be irreparably damaged. This consequence is completely realistic in the event of direct viewing of a Class 4 laser beam.

If subject to direct focalized laser radiation, skin can burn. Long exposure may cause skin cancer. Additionally, collateral ultraviolet radiation may accompany the central beam.

## 3.9 General Safety Regulations

The operator must comply with all regulations and work in the best possible safety conditions to maximize equipment safety. Standard Operating Procedures (SOPs) should be developed to define methods for turning the equipment on and off. These procedures should be prepared around the time of installation and written in the native language of the operator. Training is essential and must include:

- Familiarization with system operating procedures.
- Knowledge of the biological effects of laser radiation on the eyes and skin.
- Understanding of the necessity for Individual Protection Devices (IPDs).

**Note:** Do not change the intended use of the equipment.


An additional risk may include fire caused by processing materials other than those for which the equipment is designed.

The most serious collateral risk associated with laser equipment, which may be fatal, is electricity.

### January 2017 Page 2-7PLT-01150, Version: 1.3 Safety and Labeling

Electrical damage may occur when the manufacturer’s warning and procedures are not followed.

Unauthorized and untrained personnel must never do any work on the electrical part. Safety devices must never be removed and their operation must be periodically checked.

	<b>CAUTION:</b> Do not work on electrical systems if you are not trained to do so. Do not remove protection devices.
	<b>ATTENTION:</b> Ne pas intervenir sur des systèmes électriques si vous n'avez les compétences nécessaires. Ne pas supprimer les dispositifs de protection.



### 3.10 Seals

The engraving system has seals in some areas. The seals must not be broken or removed for any reason.

**Note:** If a customer breaks or removes the seals placed by the manufacturer on the laser system, the warranty on the entire laser system immediately becomes null and void.

	<b>CAUTION:</b> The manufacturer is not liable for any non-conforming use of equipment.
	<b>ATTENTION:</b> Le fabricant ne sera en aucun cas responsable d'une mauvaise utilisation de l'équipement.

**Note:** Access to the internal parts of the electrical equipment and/or the resonator is only permitted for authorized personnel, who have been trained and instructed on the electrical risks.

### 3.11 General Laser, EMC, and Safety Standards

Industry standards that regulate operational laser safety include:

- IEC 60825-1 Ed. 3 (2014)
  - EN 60825-1 (2014)
- Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

### 3.12 Warnings

These warnings minimize additional risks:

- Do not aim the laser at flammable material.
- Use appropriate suction devices to eliminate fumes.
- Filter fumes before releasing them into the air.
- Do not power on the system with the guards removed.
- Do not adjust the laser while it is operating.
- Allow system operation only by professionally trained and authorized personnel.

### 3.13 System Failure

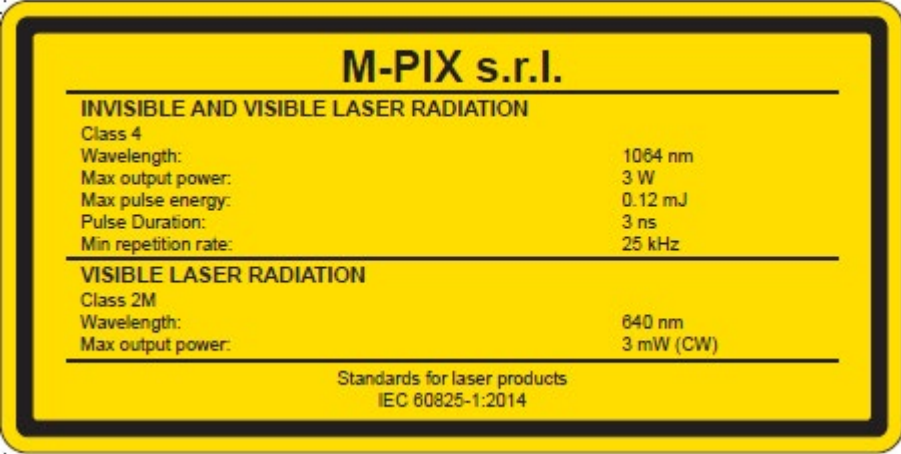
A possible failure mode that can result in laser radiation above AEL:

- In the unlikely event of an interlock switch failure where the switch fails in the closed position and the front door is opened and the laser is activated; will result in exposure to scattered radiation from a CLASS 4 laser source and CLASS 4 laser radiation directly under the laser lens.

### 3.14 Labeling

Labels and plates have been applied to the equipment in conformance with European safety regulations. The labels and plates must not be removed or damaged. To replace them, contact HID Global.

### 3.15 Laser Warning Labels

Label	Label Description and Size (mm) and location
 <p>LDP-00109</p>	<p>Laser Warning</p> <p>0.9" x 0.9"</p> <p><b>Inside LE Module Door</b></p>
 <p>LDP-00111 Rev B.</p>	<p>Radiation information for the incorporated laser system with safety interlocks.</p> <p>4.10" X 2.05"</p> <p><b>Inside LE Module Door</b></p>
 <p>LDP-01661</p>	<p>Laser Diode Info X002600-3 Visible/Invisible Laser Radiation</p> <p>4.10" x 2.05"</p> <p><b>Inside LE Module Door</b></p>





<b>M-PIX s.r.l.</b> <b>INVISIBLE AND VISIBLE LASER RADIATION</b> Class 4 Wavelength: 808 nm                      1064 nm Max output power: 20 W (CW)            10 W Max pulse energy: 0.5 mJ Pulse Duration: 12 ns Min repetition rate: 10 kHz <b>VISIBLE LASER RADIATION</b> Class 2M Wavelength: 640 nm Max output power: 5 mW (CW)  Standards for laser products IEC 60825-1:2014	Laser Diode Info X002600-8 Visible/Invisible Laser Radiation  4.10" x 2.05"  <b>Inside LE Module Door</b>
LDP-01662	

### 3.16 Technical Specifications

#### Card path cleaning

**Replaceable cleaning roller.** Recommended cleaning cycle after 2,000 cards (See service manual for details)

#### Card materials and types:

- 100% Polycarbonate
- Composite (PVC/PC with PC as an outer layer)

#### Single and dual side printing supported

**Card sizes supported:** These card printers accept standard CR-80 sized cards (3.370" L x 2.125" W / 85.6 mm L x 54 mm W) with a thickness of 30 mil.

**Dimensions (H x W x D) Printer:** 510 mm x 725 mm x 550 mm

**Display:** OLED graphical touch display

**Encoding options:** Magnetic stripe:

- ISO compliant, dual high/low coercivity, Tracks 1, 2 and 3
- JIS II mag
- Custom and raw

**Contact and contactless smart card:**

- Contact—OMNIKEY® 5122
- Contactless—OMNIKEY 5127 CK Mini
- Programmer—OMNIKEY 5127 CK SI



### Hopper capacity—input

- 400 cards, 30 mil—standard hopper

### Hopper capacity—output

- 400 card output hopper capacity, 30 mil (**card weight limit**)

### Interface

- Ethernet with internal print server
- USB Interface for E-card options

### Laser Classification

- CLASS 1 LASER PRODUCT

### Infrared Laser (X002600-3)

- Laser source: Nd: YAG / pulsed
- Wavelength (MP3): 1064 nm
- Beam divergence: 0.4 mrad
- Max pulse energy: 0.10 mJ
- Beam diameter: 5mm
- Typical pulse duration: 3ns
- Typical pulse repetition rate: 30 kHz

### Infrared Laser (X002600-8)

- Laser source: Nd: YAG / diode pumped solid state
- Wavelength (MP3): 1064 nm
- Beam divergence (with 160mm lens): 31 mrad
- Max pulse energy: 0.50 mJ
- Beam diameter: 5mm
- Typical pulse duration: 12ns
- Typical pulse repetition rate: 20-40 kHz

### Aiming Diode Redpointer Laser (X002600-3 and X002600-8)

- Typical Wavelength (MP3): 640 nm
- Beam divergence (with 160mm lens): 21 mrad
- Beam diameter: 3.5mm

### Memory 4 GB

### Microsoft Windows compatibility

- Windows 7 (32- and 64-bit)
- Windows 8 / 8.1 (32- and 64-bit)
- Windows 10 (32- and 64-bit)



- Windows Server 2008 R1 (32- and 64-bit)
- Windows Server 2008 R2 (64-bit only)
- Windows Server 2012
- Windows Server 2012 R2
- Windows Server 2016

**Operating conditions:** Operating temperature: 65 to 90° F (18 to 32° C)

**Humidity:** 20 to 80% non-condensing

**Options**

- Magnetic stripe encoder
- Contact encoder
- Contactless encoder
- Programmer encoder
- Printer cleaning kit

**Print area:** Within .020" of the edge of a CR-80 card

**Print colors:** Grayscale only

**Print resolution:** 600DPI

**Print speed:** Up to 300 cards per hour (Single-sided, single text field)

**Power source voltage, current & frequency**

- Supply voltage / Current: 100 to 240V AC, 3.5A maximum
- Supply frequency: 50 Hz and 60 Hz

**Ship weight Printer: Total weight:** 40 kg (Input module + Laser Module + Output Stacker)

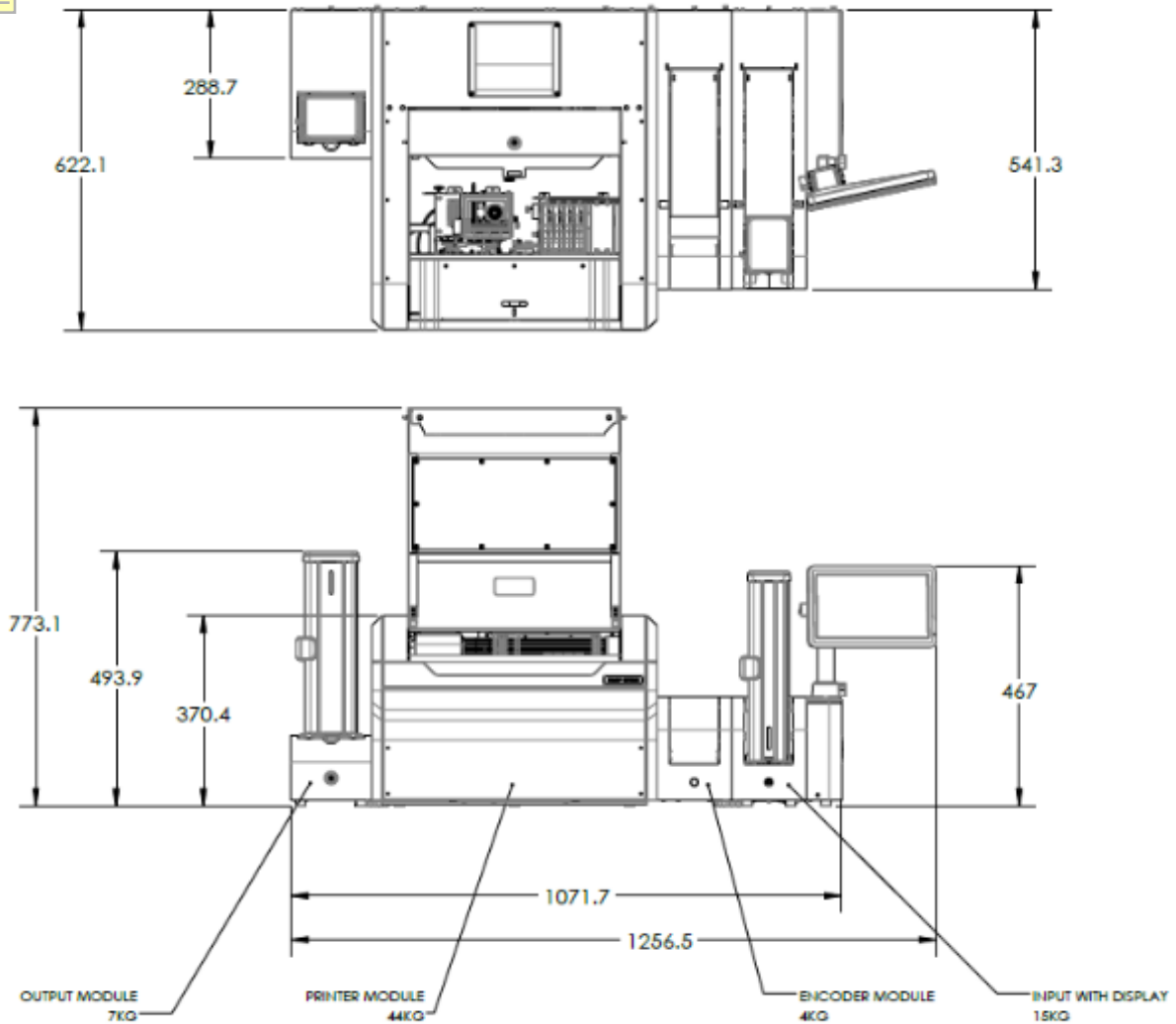
**System requirements:** Access <https://www.support.microsoft.com> and search for your Microsoft Windows OS system requirements.

**Warranty Printer:**

**Laser head:**



### 3.17 Unit Layout and Functionality





### 3.18 Important Information

	<b>WARNING:</b> Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous laser radiation exposure.
	<b>AVERTISSEMENT:</b> L'utilisation de commandes, réglages ou instructions autres que ceux spécifiés présente un risque d'exposition dangereuse aux radiations.

	<b>WARNING:</b> Inside the HID ELEMENT Card Marking System is a Class 4 laser system. If the front door is open and the interlock is defeated, this laser can produce risks from scattered laser radiation as well as direct or reflected radiation. The laser source may be a significant risk of damage to skin and burning of flammable materials.
	<b>AVERTISSEMENT:</b> Le module interne du graveur laser HID ELEMENT Card Marking System est un système laser de classe 4. Si la façade du boîtier est ouverte et le verrouillage défectueux, ce laser peut présenter des risques de rayonnement laser diffusé voire direct ou réfléchi. La source laser peut présenter un risque important de brûlures à la peau et de combustion des matériaux inflammables.



## 4 Setup and Installation

### 4.1 Selecting a good location

The following guidelines help to ensure optimal printing performance:

- Place the unit in a location with adequate air circulation to prevent internal heat buildup.
- Use the dimensions of the printer as a guideline for the minimum clearances to the unit.
- Provide a table or bench for the unit which is flat and stable to prevent vibration.
- Allow for adequate clearance above and behind the unit to accommodate the unit with its covers open. You will need access to the back of the unit to install module interface cables.
- Do not install the unit near heat sources such as radiators.

### 4.2 Moisture condensation

Leave the unit unplugged in a warm, dry room for several hours before using to allow any moisture to evaporate.

### 4.3 Unpacking and Inspection

While unpacking the printer, inspect the carton to ensure that damage did not occur during shipping.

The printer includes 3 modules (Prime Input Module, Laser Engraving Module, and Output Module), each of which are shipped in a separate box.



**Caution:** Lifting the print module must be done by 2 people.

Make sure that all supplied accessories are included with the unit:

#### Prime Input Module

- US/EU power cable
- Ethernet cable (external facing)
- Ethernet cable (internal facing)
- I2C Ribbon cable
- Module alignment guide
- Card input cartridge
- Cleaning Roller
- Key for lock in input cartridge

#### Laser Engraving Module

- Ethernet cable (internal facing)
- Key for door lock
- Rear interlock plug



- Filter

#### Output Module

- I2C Ribbon cable
- Card output hopper
- Module alignment guide
- Key for lock in output hopper

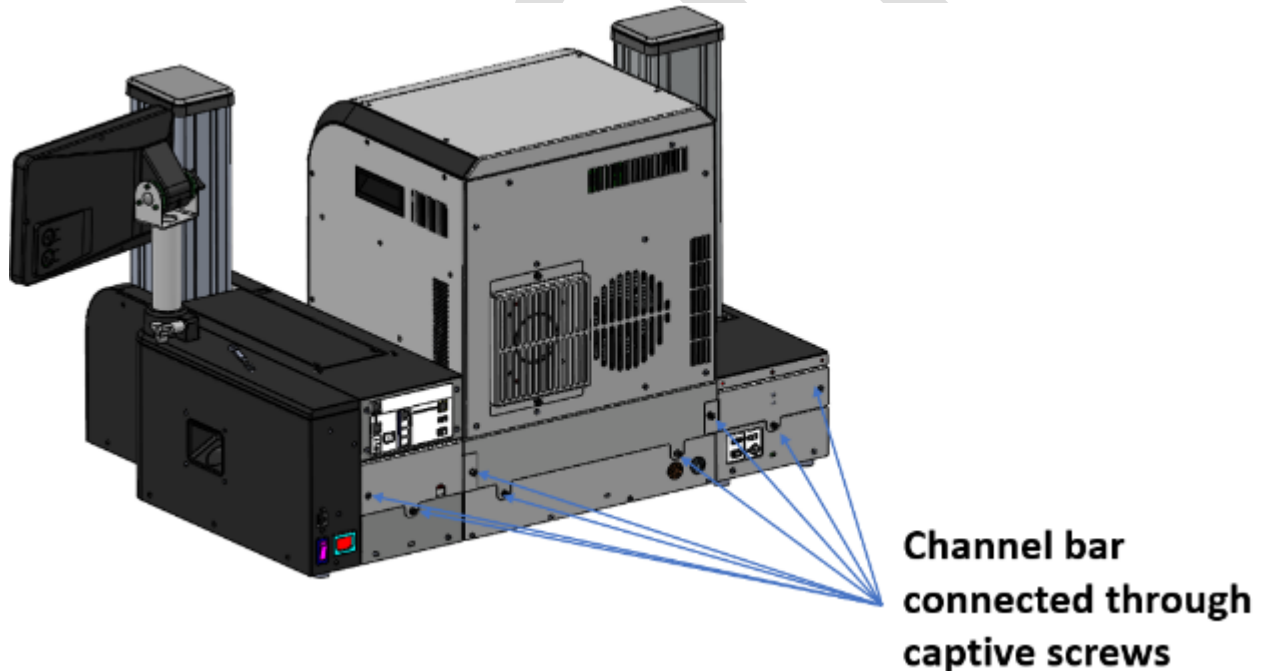
Make sure you have these accessories that are supplied separately:

- CR-80 Cards

## 4.4 Connecting Modules

### Removal of Electrical Channel Covers

On the back of the each module, there is a channel which is intended to hold cables that connect various modules together, and each channel has a cover. For each module (input, encoder, printer, and output), remove its cable channel cover by unscrewing the fasteners circled in purple in the image below.



**NOTE:** Smartware encoding module is not shown in this image. It will go between the input module and print module as shown in the unit layout above.



## 4.5 Mechanical Connection

Module alignment guides are used between the input module, Smartware encoding module, printer module, and output module to locate them relative to each other.



Module Alignment Guide

To connect the input, Smartware encoding, printer, and output modules:

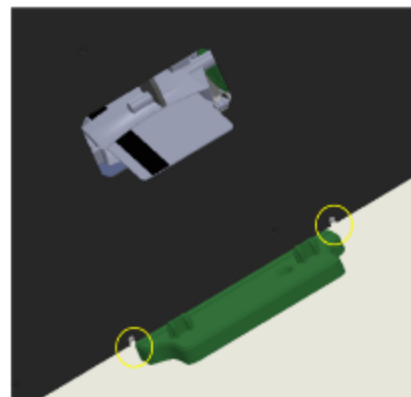
1. Place the laser engraving module on the bench or table where it will be used




**Caution:** Lifting the print module must be done by 2 people.

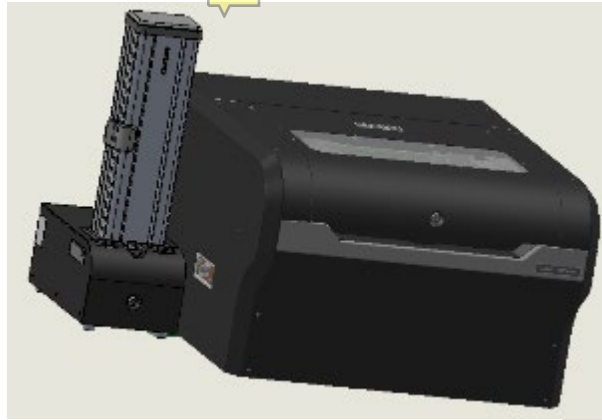
2. Place module alignment guides on the left and right side of the laser engraving module as shown in the images below. You will need to lift each edge of the module in order to place the module alignment guides.

**Note:** The alignment guide is placed between the 2 notches circled in yellow. The printer baseplate has slots which the alignment guide pins fit into.

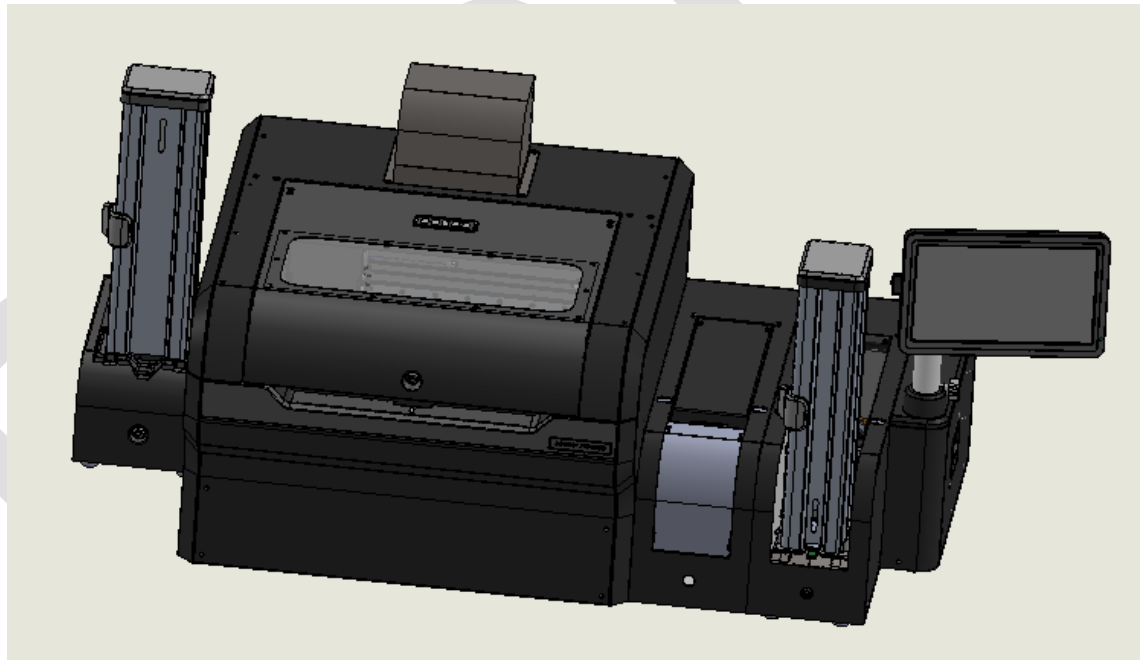




- Place the output module to the left of the laser engraving module, lining up the card path slots. Holes in the baseplate of the output module should line up with the posts on the module alignment guide. 



- Place the input module to the right of the laser engraving encoding module, lining it up with the module alignment guide as done previously.



## 4.6 Module to Module Electrical Connections

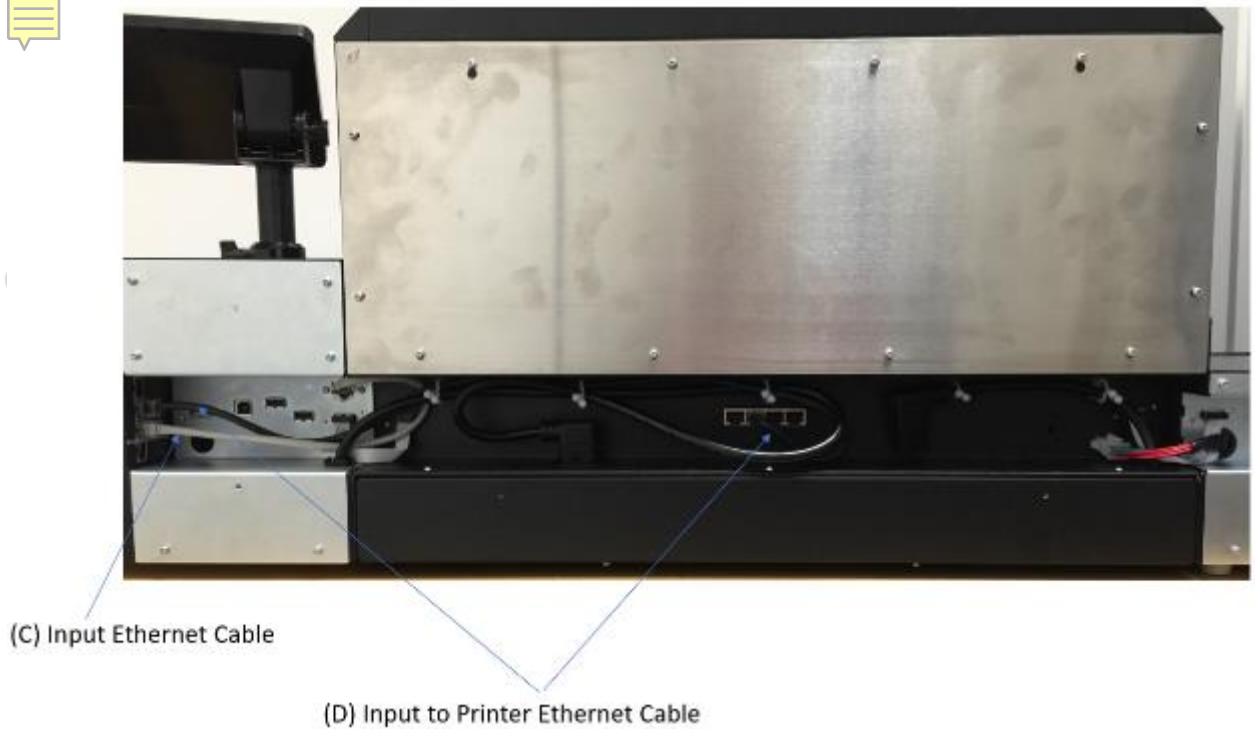
### 4.6.1 Ribbon Cables

Ribbon Cable (A) should be installed from the input module to the printer module as shown in the photo below. Ribbon Cable (B) should be installed from the laser engraving module to the output module.



#### 4.6.2 Ethernet Cable

Ethernet Cable (C) should already be installed in the input module. Install Ethernet Cable (D) from one of the 4 ethernet ports aligned in a row to one of the ethernet ports in the laser engraving module. In both the input and laser module, any of the 4 ethernet ports will work.



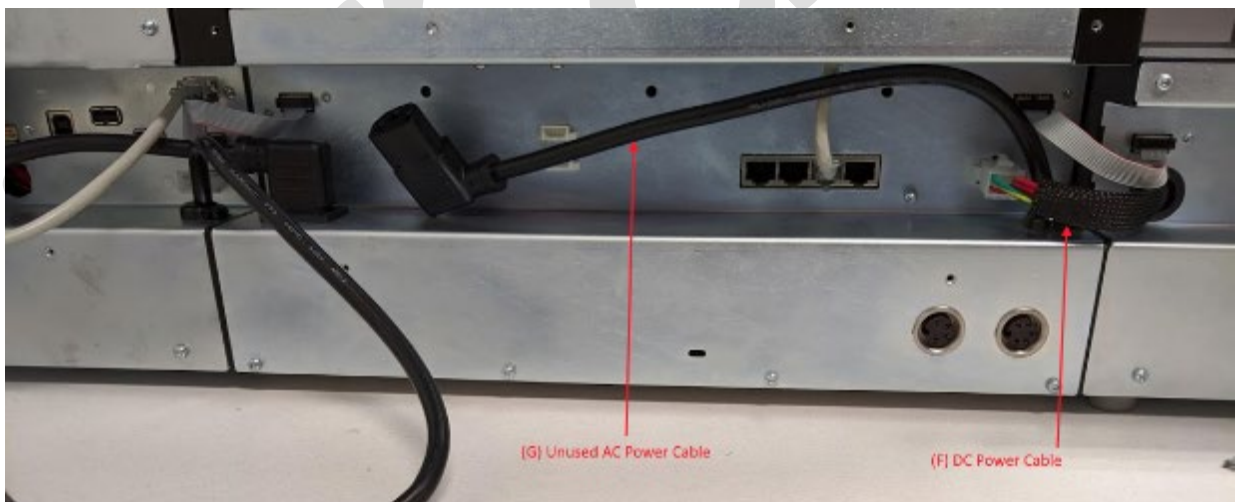
#### 4.6.3 Power Cable from Input Module to Laser Module

The input module is shipped with an unplugged AC power cable E in the cable channel. Plug the end of this power cable into the power socket in the laser module. There may be more cable length than needed. Use the cable clips to organize the extra length.



#### 4.6.4 Output stacker DC power to printer DC power out

The Output Module is shipped with a DC Power Cable (F) hanging loose. Plug this cable end into the matching socket of the Printer Module.

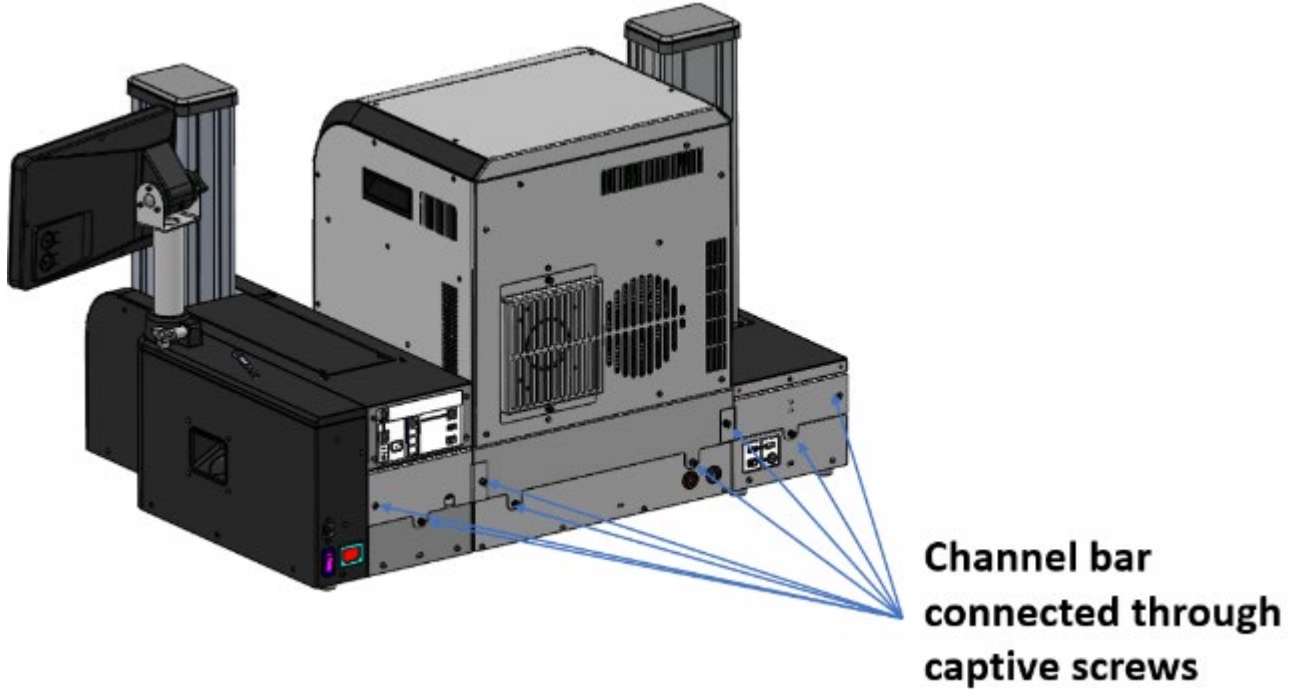


#### 4.6.5 Unused AC Power Cable

The laser module has an AC power cable (G) which is intended for possible future extensions. This cable should not be plugged into anything. It should be held in place by the cable clips.

#### 4.6.6 Cable Channel Covers

After all cables have been installed, the cable channel covers should be replaced, using the opposite process of how they were removed in the description above. Be sure to install the screws which attach the covers of each module to each other.



#### 4.7 Display Positioning

The display position is adjustable, and when shipped, it is oriented to facilitate packing of the unit.





Adjustments can be made to the height and viewing angle of the unit by loosening display adjustment knob 1, as shown in the image below, moving the display to the desired position, and then tightening adjustment knob 1.



Adjustments to the tilt of the display can be made by loosening display adjustment knob 2, as shown in the image below, moving the display to the desired position, and then tightening adjustment knob 2.

Display Adjustment Knob 2



## 4.8 Moving the Machine

To move the machine from one location to another:

1. Remove the Cable Channel Covers as described above.
2. Remove cables described in the “Module to Module Electrical Connections” section above.
3. Lift modules from their Module Alignment Guides.
4. Move modules individually. For the laser module, remember

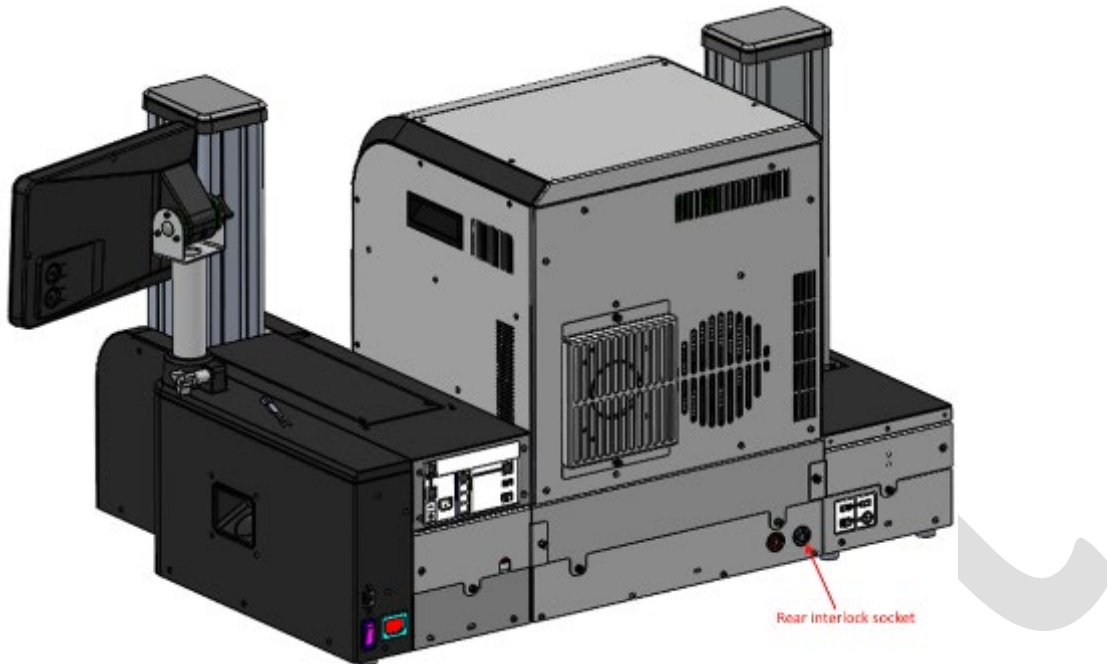


**Caution:** Lifting the print module must be done by 2 people.

5. Reassemble the machine as described in the “Setup and Installation” section above.

## 4.9 Installation of the Rear Interlock Plug

The interlock plug must be physically present to activate either the Class 2M laser red-pointer, or the Class 4 Infrared laser. Locate the interlock socket at the bottom right on the back of the laser module. Insert the plug and screw it securely into place.



**Note:** If the system is powered on, when the plug is inserted, the laser will activate the Class 2M red-pointer laser. To activate the Infrared Class 4 laser, clear the “Red-pointer active” warning from the **Notif**ifications Screen.

#### 4.10 Installing Blank Cards into the Input Card Hopper

The input card hopper has a door on its front that can be opened by pulling on the black plastic handle as shown below.



Cards can be loaded into the input card hopper by placing them in the bottom of hopper. Load the cards with the print side down, and if applicable, with the mag strip facing up to the left. Then close the door until the black plastic latch snaps into place. Cards can be added to the input hopper when it is out of the system, or when it is installed in the printer.







**Note:** Cards eject into the output hopper or to the reject bin. Depending on hopper option, hoppers will hold either 200 or 400 cards.

## 4.11 General card information

**Important:** For safety reasons, Polycarbonate cards are required. PVC cards are not safe to use in this system!

- The printer prints onto any card with a clean and level polycarbonate surface.
- Suitable cards must be free of fingerprints, dust, or any other types of embedded or surface contaminants.

Cards should be at room temperature when loaded.

### 4.11.1 Loading the Input Card Hopper into the Input Module

The input card hopper can be loaded into the input module by placing the hopper in the opening in the input module as shown below, and pressing downward until the input card hopper clicks into place. The mechanical key lock can be used if desired to secure the cartridge in the input module.



To remove the input card hopper from the input module, be sure the mechanical lock is unlocked, and lift the card hopper out of the input module

## 4.12 Loading the Output Card Hopper into the Output Module

Place closed hopper onto Output Stacker module.

Close the door and lock into place



**NOTE:** locking the stacker in place is required to prevent static interference between modules!

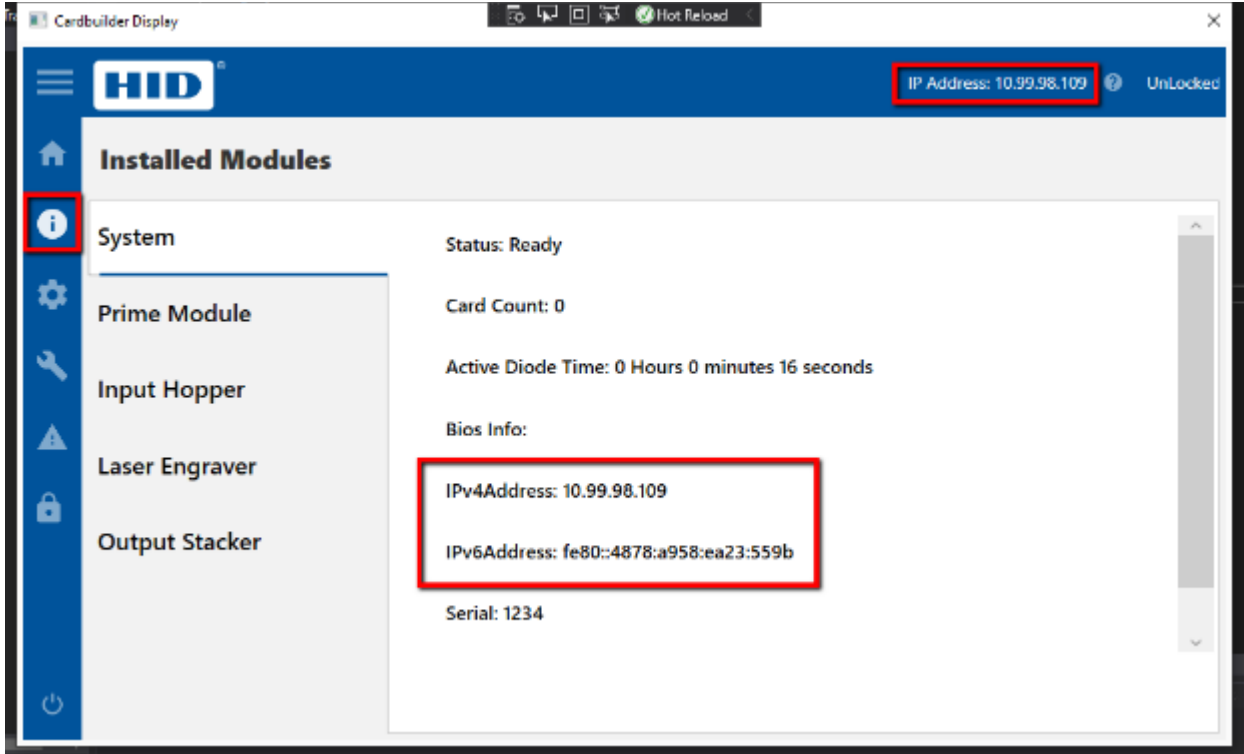


#### **4.13 Driver Installation**

Currently, there is no driver available. The driver for the ELEMENT Inkjet printer can be used to send pre-generated PRN's (available upon request)

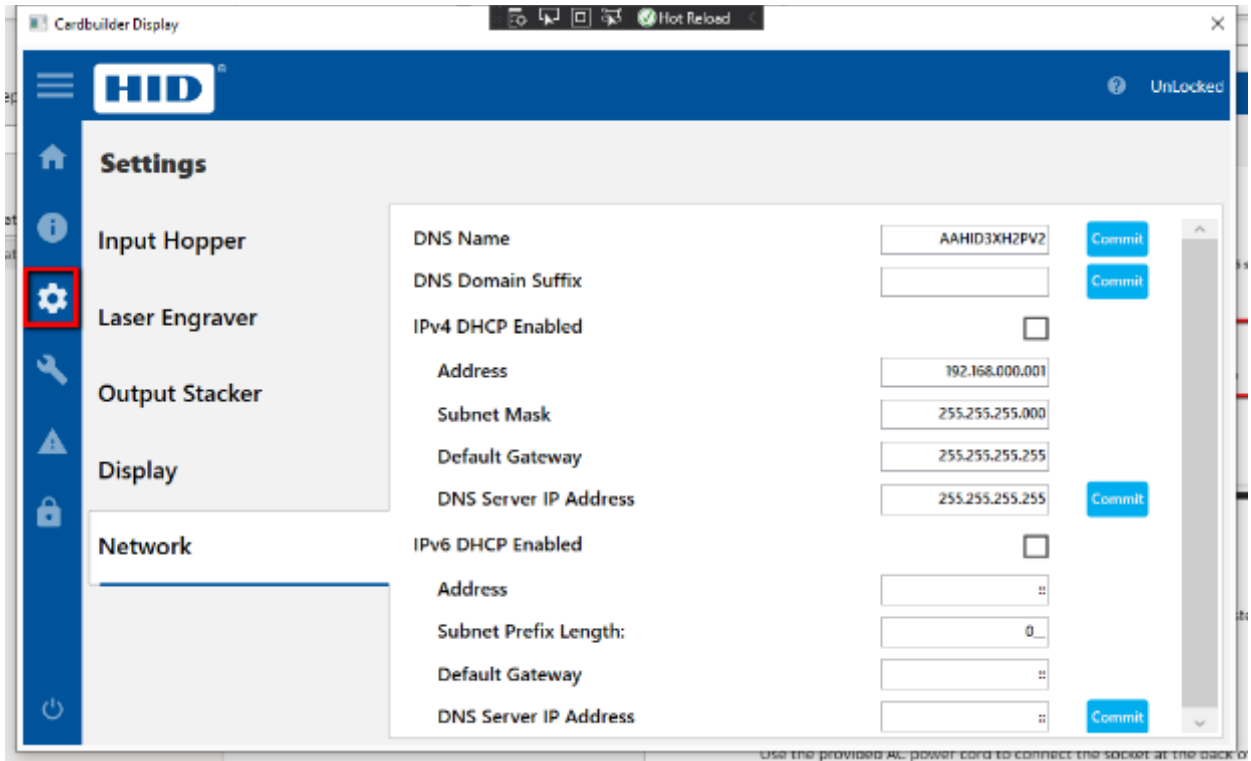
#### **4.14 Finding the Printer IP Address from the User Interface**

The IPv4 Address is always available on the upper-right hand corner of the Display UI. More network information is available on the Info->System screen.



#### 4.15 Changing the external IP Address

Go to the Settings->Network Screen to modify DNS settings, enable/disable DHCP, and change IP Address for the system (only available when DHCP is disabled)



#### 4.16 Optional mirror configuration

The optional mirrors are factory calibrated and **should not** be adjusted, except by a trained HID technician. Mirrors to be installed a minimum of 50mm from the card surface to prevent damaging the mirrors.

#### 4.17 Laser Engraving Module Power

Use the provided AC power cord to connect the socket at the back of the laser module with a standard wall outlet with the following specifications

Supply voltage / Current: 100 to 240V AC, 3.5A minimum

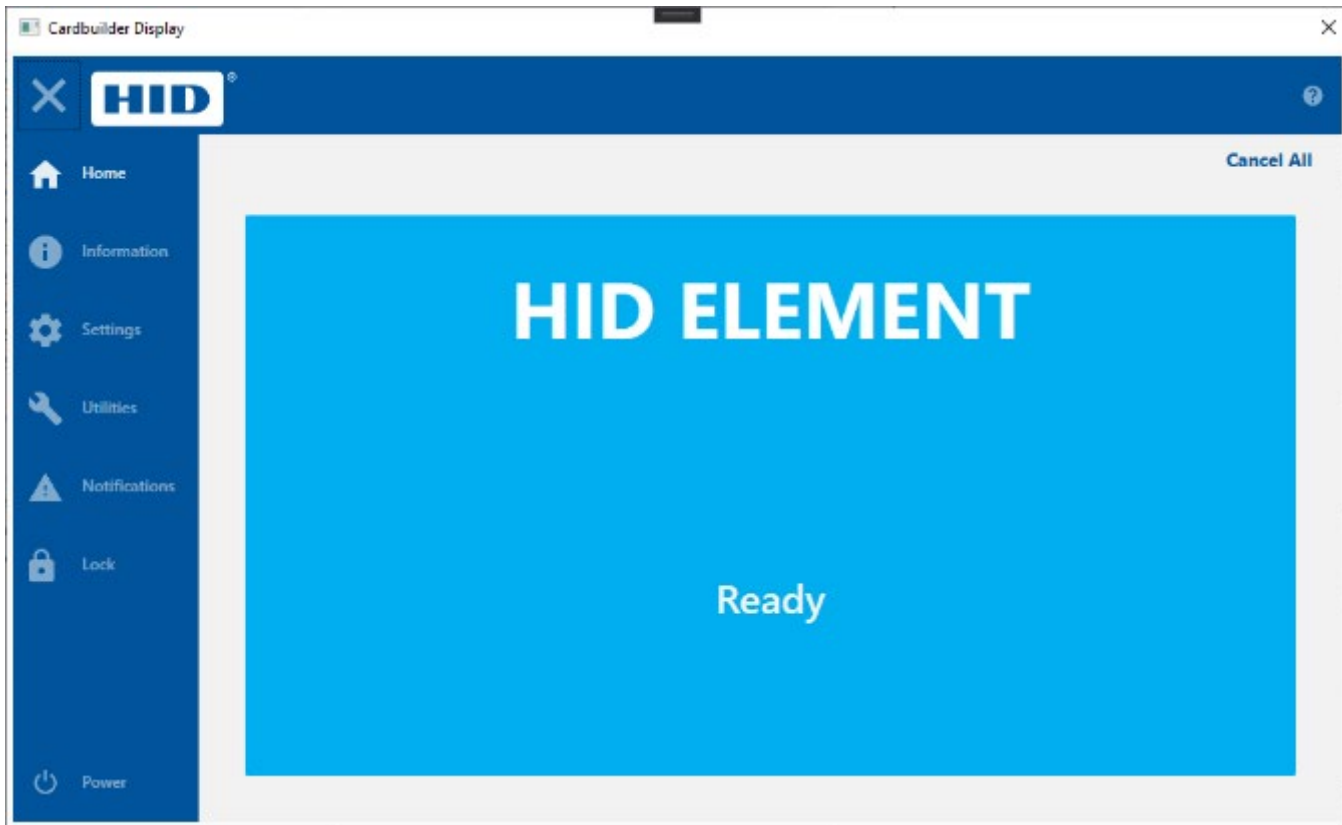
Supply frequency: 50 Hz or 60 Hz

Turn the power switch at the back of the input prime module to the “On” position to provide power for the system.



## 5 System Use

### 5.1 Home Screen



### 5.2 Utilities

#### 5.2.1 Laser

##### 5.2.1.1 Card Transport Test

From the Utilities->Laser Engraver Screen, execute a "Card Transport Test". A card should be fed into the system and feed all the way through to the Output Stacker without stopping.

##### 5.2.1.2 Laser Alignment Card

Uses the Redpointer laser to trace the laser head optical target area for use in calibrating the laser head offsets and rotation angle

##### 5.2.1.3 Laser Hold Card

Parks a card under the laser head. Useful, when working with SAMLight from an externally connected PC.

##### 5.2.1.4 Enable Redpointer

Disables the Infrared laser and enables the Redpointer laser

##### 5.2.1.5 Ventilation System On

Manually turn on the optional ventilation system (if equipped)

### 5.2.1.6 Ventilation System Off

Manually turn off the optional ventilation system (if equipped)

## 5.2.2 Print Test Card

Sample jobs can be accessed from the display application's Utilities->Test Print Cards screen. The following jobs will be provided:

### 5.2.2.1 Fargo card (single-sided)



### 5.2.2.2 Utopia Sample Card (dual-sided)



### 5.2.2.3 Laser Speed Test (single-sided)

This card is used to test maximum system throughput

### 5.2.2.4 Laser Head Alignment Bars

Used to assist in calibrating the laser head offsets and optical rotation

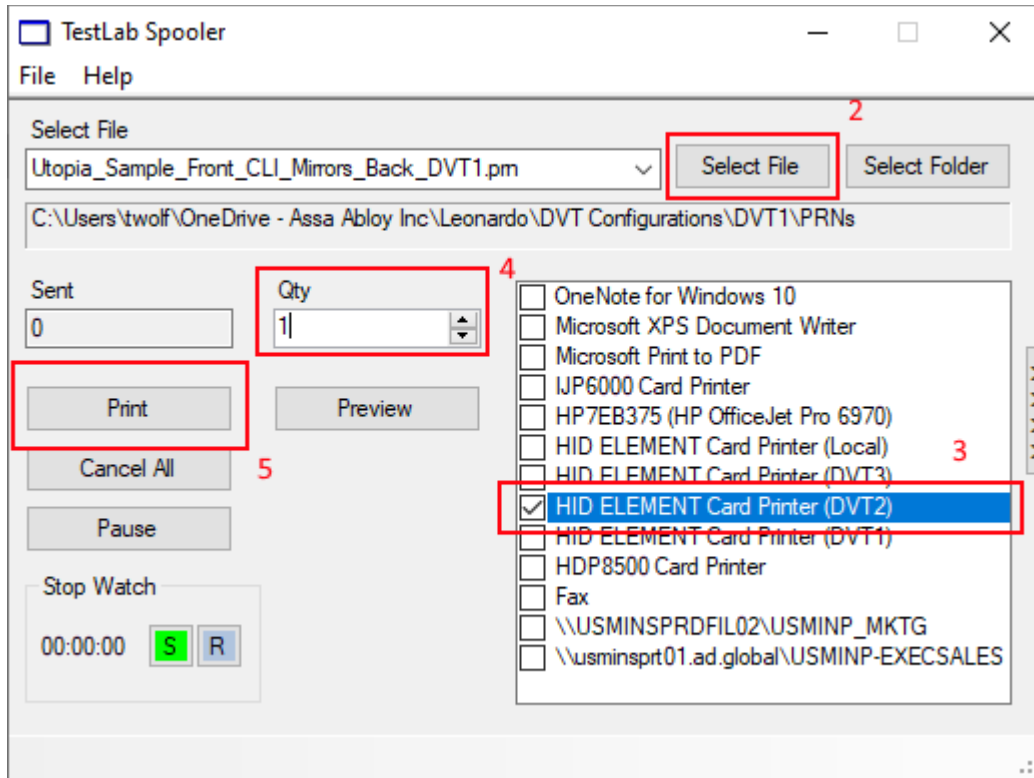
## 5.3 Vision System

### 5.3.1 Calibration

Calibrate the system for accurate object alignment during printing

## 5.4 Laser Engraving using pre-generated jobs on HID Provided laptop

1. From the Windows desktop, open the Test Lab Spooler application
2. Select the PRN you would like to print from the C:\Users\HIDuser\Desktop\Leonardo\DVTX\PRNs folder.
3. Select the HID Element Laser Engraver to which you would like to send the print job.
4. Select the number of jobs you would like to send by adjusting the Qty text box
5. Click the Print button



## 5.5 Laser Engraving using SAMLight from HID provided laptop

It is possible to laser using the SCAPS SAMLight software from an external Windows PC, but special steps must be taken to do this.

1. Install SAMLight license files from HID (available upon request)
  - a. For MP3 laser (DVT2), copy files from C:\Users\HIDuser\Desktop\Leonardo\DVT2\SAMLight Configuration Files\system to C:\scaps\sam2d\system
  - b. For MP10 laser (DVT1), copy files from C:\Users\HIDuser\Desktop\Leonardo\DVT1\SAMLight Configuration Files\system to C:\scaps\sam2d\system
2. If SAMLight is already running, close the application.
3. Start SAMLight
4. Verify the Card OK with green checkmark is displayed at the bottom-right corner of the SAMLight application
5. Power on the ELEMENT system
6. When the system is fully booted ("Ready" status) and the LED indicator light on the front of the LE module is **BLUE**, unplug the Ethernet cable from the laser source (cable will be clearly marked)
7. Plug in the USB cable directly from the LE module (connection at top of channel bar) into your PM



8. Start SAMLight
9. Verify the Card OK with green checkmark is displayed at the bottom-right corner of the SAMLight application
10. From the Utilities->Laser Engraver Screen, execute a "Laser Hold Card". This will dock a card under the laser head and Pause the system.
11. Once the card is properly docked and the system is paused, use the SAMLight UI to laser your desired objects onto the card.
12. When complete, press Resume to eject the card to the Output Stacker, or Cancel to Reject the card.

## 5.6 Encoding

Card orientation in input hopper for encoding – card must be oriented for mag and contact encoding as shown on the image on the top of the hopper.

## 5.7 Laser Module Door Open Interlock

Anytime the Class 2M red-pointer or Class 4 Infrared laser is active, opening the door on the laser module will OPEN the safety interlock and cut power to the laser head.

## 5.8 Input Hopper Empty


When a card fails to feed into the Input Module, an "Unable to feed card into the Input Hopper" error will be present on the Notification Screen. Add more cards to the Input Hopper and press the Resume button to restart the job.


## 5.9 Output Hopper Full

When the Input Hopper becomes full a warning will appear on the Notifications Screen. The jobs will not stop processing and cards will be passed through to the Reject Hopper until the Output Stacker is emptied.



## 6 Maintenance

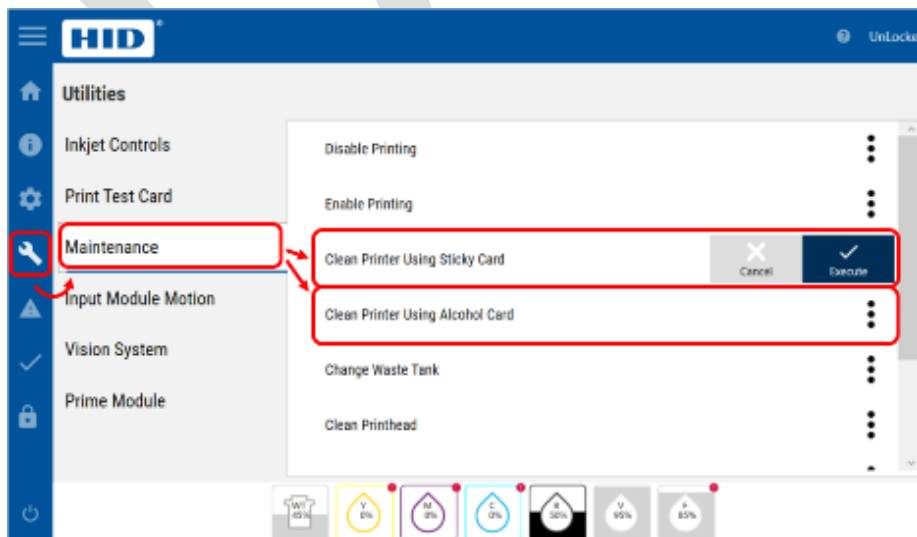
	<p><b>WARNING:</b> Use of controls or adjustment or performance of procedures other than those specified herein may result in hazardous laser radiation exposure.</p>
	<p><b>AVERTISSEMENT:</b> L'utilisation de commandes, réglages ou instructions autres que ceux spécifiés présente un risque d'exposition dangereuse aux radiations.</p>

	<p><b>WARNING:</b> Inside the HID ELEMENT Card Marking System is a Class 4 laser system. If the front door is open and the interlock is defeated, this laser can produce risks from scattered laser radiation as well as direct or reflected radiation. The laser source may be a significant risk of damage to skin and burning of flammable materials.</p>
	<p><b>AVERTISSEMENT:</b> Le module interne du graveur laser HID ELEMENT Card Marking System est un système laser de classe 4. Si la façade du boîtier est ouverte et le verrouillage défectueux, ce laser peut présenter des risques de rayonnement laser diffusé voire direct ou réfléchi. La source laser peut présenter un risque important de brûlures à la peau et de combustion des matériaux inflammables.</p>

### 6.1 Card Path Cleaning

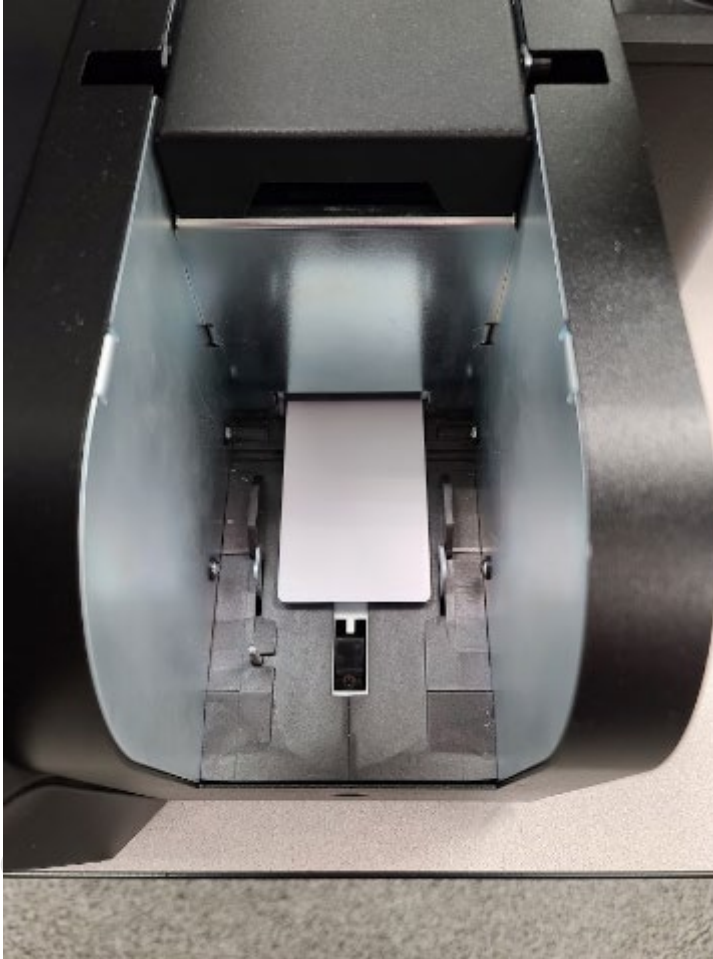
The rollers that transport the card through the printer can become dirty over time. This can cause smudges to appear on the printed cards. Cleaning the rollers involves running a specialized cleaning card through the printer. HID has two options of cleaning cards: an adhesive card and an alcohol card. Use these steps to clean the card path rollers.

1. On the display, select the option “Clean Printer Using Sticky Card” or “Clean Printer Using Alcohol Card” depending on which type of cleaning card you have.



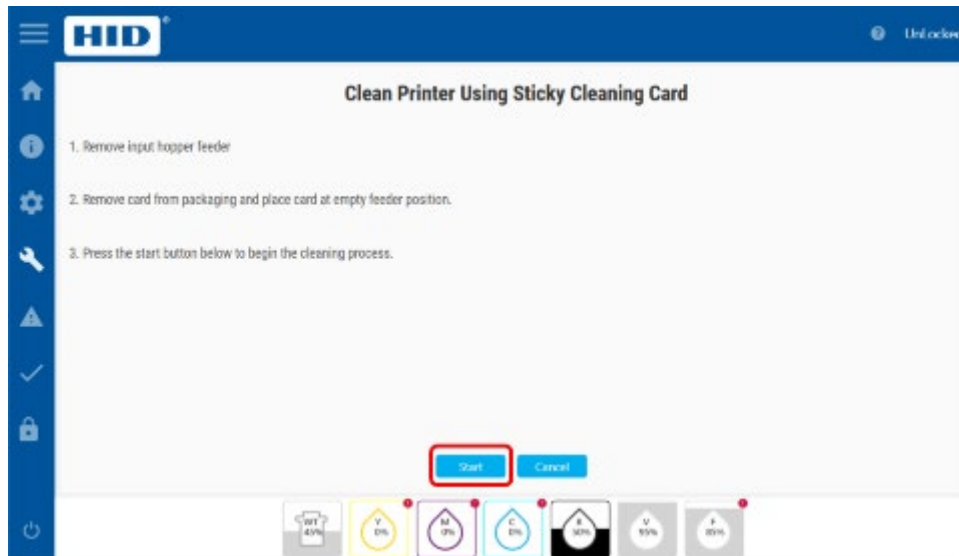


2. Following the on-screen instructions, remove the input hopper from the input module.
3. Place the cleaning card just at the entrance to the feed rollers as shown below.





4. Press the start button on the display to run the cleaning card through the printer. It will be ejected after the process is complete.



## 6.2 Manually clearing a Card Jam

If the steps in section 3.4 to clear the card jam by restarting the system fail, perform the following to manually clear the jam.

1. In the Windows system tray at the bottom right corner of the screen, locate the printer spooler for the target device.
2. From the Printer menu, select the Pause Printing item
3. If cancelling is desired, select the Cancel All Documents item
4. POWER DOWN THE ELEMENT SYSTEM
5. Open the cover to the module in which the card is jammed.
6. Carefully remove the card from the jam location. If the card is not in an easily accessible location, contact technical support for assistance.
7. Power the system back ON.
8. Now it is OK to send jobs to the system using the Test Lab Spooler application.

### 6.2.1 Camera Focus

If the images captured using the optional camera are blurry, or out of focus perform the following to focus the camera.

1. POWER DOWN THE ELEMENT SYSTEM
2. Remove the back-channel cover plate



3. Unplug the USB Type A to Type A cable connecting the camera from the Prime Module
4. Plug the USB cable into an external PC with The Imaging Source's IC Image Capture software installed.
5. Run the IC Image Capture software and select the camera instance to get a live stream view of the image captured by the camera
6. Open the front cover and manually adjust the lens focus and/or aperture.
7. When the image shown in the IC Image Capture software appears focused the procedure is complete.
8. Unplug the USB cable from the PC and plug it back into the Prime Module.
9. Put the back-channel cover plate back in place.

### **6.3 Replacing the filter**

1. POWER DOWN THE ELEMENT SYSTEM
2. Loosen the thumb screws and remove the filter bracket from the rear of the system.





3. Remove the old filter and replace with new filter



4. Reattach filter bracket to the rear of the enclosure and tighten thumb screws



## 7 Troubleshooting

Because the system is still in development, there may be issues which occur in the software integration unit.

### 7.1 Poor image quality

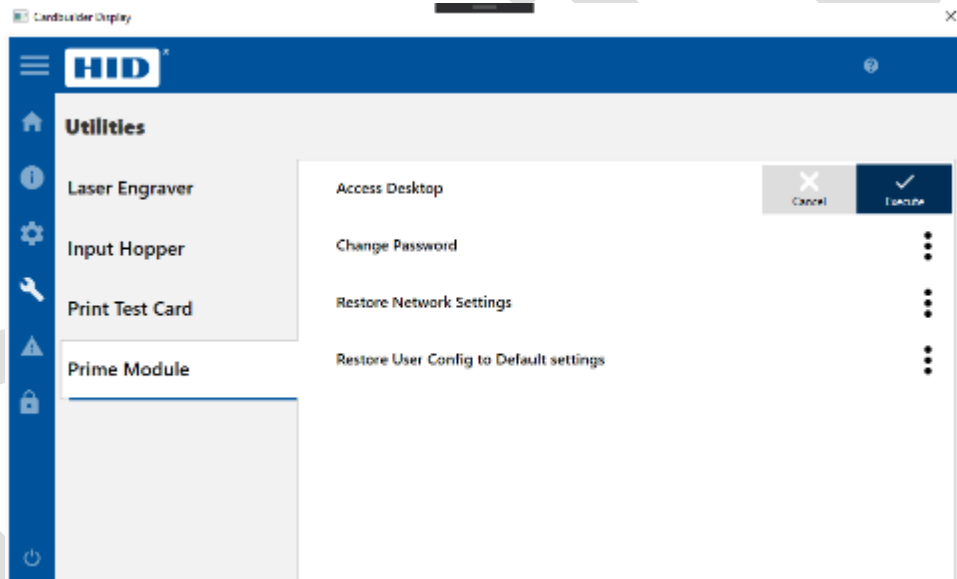
If the overall image is too light or too dark, it is possible the Prime Module is not configured properly for the specific wattage of the laser source.

1. If the laser source is 3W, verify the Settings->Laser Engraver->Laser Type property is set to 3.
2. If the laser source is 8W, verify the Settings->Laser Engraver->Laser Type property is set to 8.

### 7.2 Laser not laser engraving, during job

1. Check internal ethernet connection between laser head and Prime module is connected
2. Log into the embedded PC and SAMLight can connect to the laser source

- a. From the Utilities->Prime Module menu activate the "Access Desktop" menu item



- b. Login to Windows as the "admin" user (password: admin)
- c. Verify the following line is present in the C:\scaps\sam2d\system\sc\_usc.cfg file:  
Connect0=10.98.98.80
- d. Open the Task Manager and kill the following processes in order:
  - i. SAMLight.exe process
  - ii. sc\_usc\_server.exe process
- e. Start the C:\scaps\sam2d\system\sc\_usc\_server.exe application (Run as administrator).  
**NOTE:** It may take 2 attempts, before the UI is opened
- f. Verify the Ethernet connection is established to 10.99.98.80

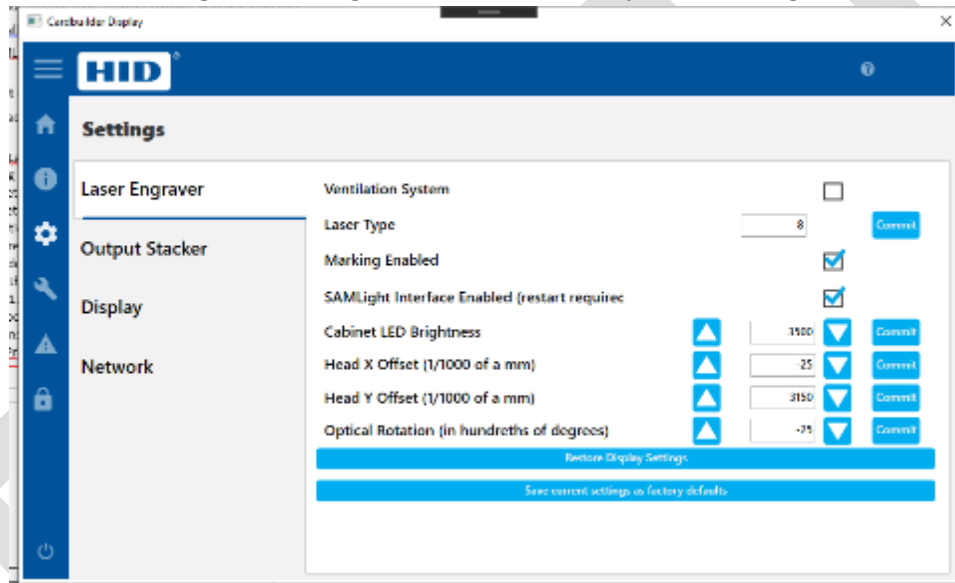


- g. Start SAMLight
- h. If prompted for password, request license files from HID
  - i. Install license files to C:\scaps\sam2d\system
- i. If prompted for an optical file, request configuration files from HID
  - i. Install .lcf and .ucf files to C:\scaps\sam2d\usc1
- j. Restart SAMLight.

### 7.3 Laser objects are not centered or aligned properly on the card

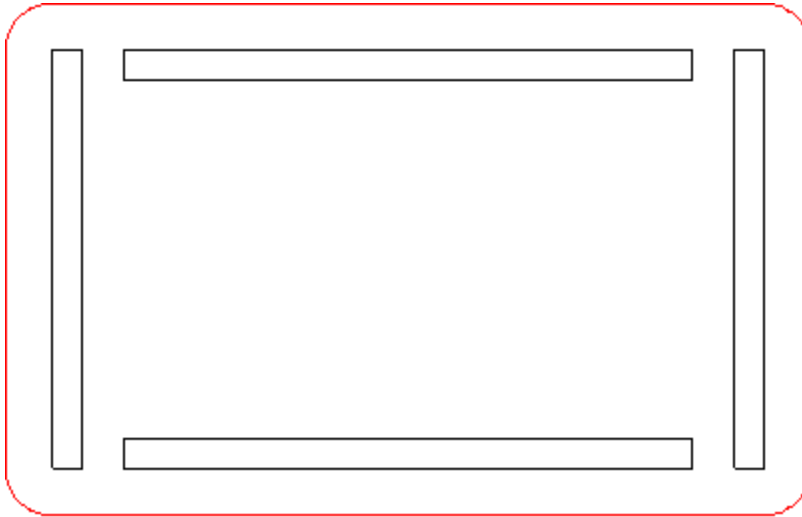
It is possible for the laser head to require recalibration after shipment. Perform the following steps to recalibrate the laser head:

1. Go to the Settings→Laser Engraver Screen and verify the following:



- a. Card Docking Offset (steps) is set to 235.
  - b. Head X Offset (1/1000 of a mm) is set to -100
  - c. Head Y Offset (1/1000 of a mm) is set to 3150
  - d. Optical Rotation (1/100 of a degree) is set to -25
2. From the Utilities Screen, select the Laser Alignment Card
  3. A blank card will be docked into the LE module and the Red-pointer will show the outline of the target placement of the card
  4. Adjust settings 1.a - 1.d above to roughly calibrate the head and re-run Laser Alignment Cards until the Red-pointer outline matches the card.
  5. From the Notifications Screen, Cancel the Red-pointer warning to activate the Infrared laser.

6. From the Utilities→Print Test Cards Screen, run the Laser Head Alignment Bars calibration card



7. Measure each bar and verify the ends of each bar are exactly 5mm from the edge of the card on all sides.
8. If any bar is not aligned, go back to the Settings→Laser Engraver Screen and adjust the Optical Rotation.
9. Repeat steps 6-8 until the Optical Rotation is properly calibrated.

#### **7.4 Clearing Card jams by restarting the system**

If there are any residual print jobs in the Windows spooler on the HID provided laptop, these need to be cancelled

1. In the Windows system tray at the bottom right corner of the screen, locate the printer spooler for the target device.
2. From the Printer menu, select the Pause Printing item
3. If cancelling is desired, select the Cancel All Documents item
4. Restart the printer. Wait until the printer is fully initialized (Screen should say “Ready” and LED indicator light on the front of the LE module should be BLUE).
5. Now it is OK to send jobs to the system using the Test Lab Spooler application.





HID ELEMENT Card Printer (DVT1)

Printer Document View

Document Name	Status	Owner	Pages	Size	Submitted
---------------	--------	-------	-------	------	-----------

