

## LASER 450F MODULE

The laser 450F module is designed to optimize financial card personalization. It utilizes a simplified setup interface allowing faster creation and updates to ever changing, card layouts.

Capable of engraving alphanumeric text, bar codes, and static bitmap images with exceptional quality

- Single controller supports multiple modules in a MX series system
- Simplified drag-and-drop user interface for quick card setups
- Engraves both the front and back of the card in a single module
- Vision registration camera allows precise alignment between engraving and preprinted captions on the card
- Air-cooled fiber laser provides powerful technology within a compact module, does not require an external power or cooling unit
- Scalable laser solution integrates multiple modules to meet higher throughput demands

### Laser 450F Module Specifications

<b>Module Functionality</b>	Engraves alphanumeric text, bar codes, and static bitmap images (e.g. logos)
<b>Engraving Technology</b>	Air-cooled fiber laser; Class 1 Laser Product
<b>Engraving Capabilities</b>	<ul style="list-style-type: none"> <li>• Pixel engraving: text, bar codes, and other digitized images</li> <li>• Vector engraving: text</li> <li>• Micro-engraving</li> </ul>
<b>Resolution</b>	Greater than 400 dpi
<b>Laser Engravable Elements</b>	Alphanumeric text, vector text, bar codes, signature, micro-engraving
<b>Text Formats</b>	Scalable fonts, including TrueType and OpenType fonts for Microsoft® Windows® operating systems
<b>Bar Code Formats</b>	<ul style="list-style-type: none"> <li>• One-dimensional (1D): Code 39, Extended Code 39, HIBC, Codabar, NW7, EAN8, EAN13, JAN8, JAN13, UPCA, UPCE, Bookland, Interleaved 2 of 5, Code 128, EAN/UCC 128, Code 93, MSI Plessey</li> <li>• Two-dimensional (2D): QR Code, PDF417, Data Matrix</li> </ul>
<b>Image Formats</b>	JPEG (.jpg), TIFF (.tif), Bitmap (.bmp), PNG (.png), GFF (.gif)
<b>Laser Engraving Placement</b>	<ul style="list-style-type: none"> <li>• Front and back of the card</li> <li>• 0.10 in. (2.54 mm) from the top or bottom edge of the card</li> <li>• 0.02 in. (0.50 mm) from the left or right edge of the card</li> <li>• Laser engraving rotation between 0° and 359°</li> </ul>
<b>Laser Engraving Accuracy</b>	±0.004 in. (±0.1 mm) in both X and Y axis
<b>Micro-Engraving Feature</b>	0.4 - 0.8mm in height
<b>Vision Registration Feature</b>	Optional feature Tolerance: 0.006 in. (0.015 cm) with respect to the vision mark
<b>Card Types Supported</b>	ISO/IEC 7810 ID-1 Size: 30 mil (±10%) Alternative card thicknesses can be made available upon request
<b>Card Materials Supported</b>	Laser engraving recommended for metal core polycarbonate, composite, or PVC with special layer. Limitations may exist for each personalization technology.

### Optional Fume Extraction System

<b>Recommended</b>	When engraving PVC cards
<b>Usage</b>	One extraction system for every 2 laser modules
<b>Dimensions</b>	46.49 in. H x 20.78 in. W x 18.30 in. D (118.1 cm x 52.8 cm x 46.5 cm)
<b>Weight</b>	156.0 lbs (70.0 kg)
<b>Voltage</b>	230V max, 208V nominal +/- 10%
<b>Max Flowrate</b>	460m <sup>3</sup> /h
<b>Wattage</b>	1.3 kW
<b>Frequency</b>	50/60 Hz



Laser 450F Module Supported Systems				
Available Systems	MX9100™ System	MX8100™ System	MX6100™ System	MX2100™ System
<b>Rated Speed</b>	Up to 4,000 CPH (Actual throughput dependent on the card layout, material, and number of modules)	Up to 3,000 CPH (Actual throughput dependent on the card layout, material, and number of modules)	Up to 1,800 CPH (Actual throughput dependent on the card layout, material, and number of modules)	Not Available See the Laser 425F Module data sheet
<b>Allowed Quantity</b>	Up to 6 modules per system		Up to 4 modules per system	
<b>Module Configurations</b>	Not applicable			
<b>System Considerations</b>	Not applicable	<ul style="list-style-type: none"> <li>• Cards must be laser engraved before any type of laminate or topcoat is applied</li> <li>• Requires Controller Software v10.5 or higher</li> </ul>		
<b>Module Dimensions</b>	50.1 in. H x 10.0 in. W x 27.0 in. D (127.3 cm x 25.4 cm x 68.6 cm)			
<b>Weight</b>	155.0 lbs (71.0 kg)			
<b>Current Draw</b>	0.81 Amps at 230V			
<b>Heat Output</b>	Average of 634 BTUs per hour			

Learn more about the unmatched selection of innovative card personalization capabilities of the MX Series at [enrust.com](http://enrust.com).  
**Contact us today at [info@enrust.com](mailto:info@enrust.com)**

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