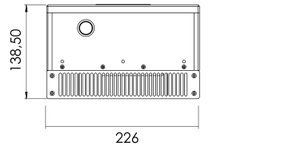
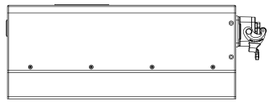
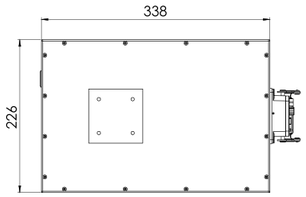
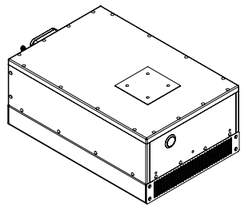
SPA2 iLumiFlex by MACSA

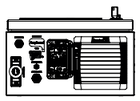
SMART. SUSTAINABLE. UNSTOPPABLE.

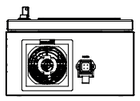


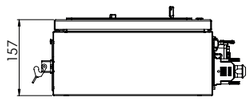


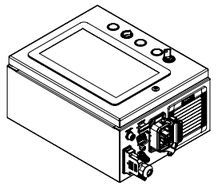


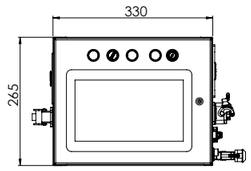












a code you can trust



MODEL	FEATURE	SPA2 ILUMIFLEX
LASER DATA	Output Power	Up to 5W (@ 50 kHz to 80 kHz)
	Technology	YVO4 UV Laser Source, Class 4
	WAVELENGTH	355 nm
	PULSELENGTH	< 18 ns
MAIN POWER SUPPLY	Input voltage rating 100 / 240 V AC Frequency 50 / 60 Hz Power (1 Phase + N) 700 VA	
COOLING	Forced Air (integrated). No external chiller required.	
MARKING SYSTEM	Maximum Scan Speed	≤12,000 mm/s.
	Maximum Production Line Speed	0-300 m/min.
	Marking Resolution	1.6 µm.
	Marking Area	100 x 100 mm (3.94" x 3.94")
	Repetition Rate	50 - 80 kHz (Most usual), up to 150 kHz.
MARKING HEAD (Compact)	The laser head is compact and designed to allow installation in restricted spaces.	Std.
	Working Distance	0 to 20 mm
MARKING HEAD ACCESSORIES		Working distance adjustment gauges
CONTROL	Integrated TouchScreen	10,1"
	Head cable 5 m (16.4')	10 m (32.8') (Opt.)
	Pc with Marca software	Opt.
SOFTWARE	Scanlinux	Std.
	MarcaTouch OS 2.0	Opt.
	Marca full graphics pc softw.	Opt.
	TCP/IP protocol	Std.
	Profinet protocol	Opt.
	OPC-UA protocol	Opt.
	Ethernet/IP protocol	Opt.
	Internal barcode generator	Opt.
SAFETY	Performance level d safety kit	Opt.
ACCESSORIES	Encoder Kit - Mounting Support - Photocell Kit	
ENVIRONMENTAL CONDITIONS	Operating Temperature	0 to 35° C (32 to 95 °F)
	Humidity	< 95 %, non-condensing
	Vibrations	No vibrations
	Protection Rate	DE IP54 (Dusty Environment)
DIMENSIONS	WxDxH	226 mm (W) x 338 mm (D) x 138 mm (H) 8.90" (W) x 13.31" (D) x 5.43" (H)
WEIGHT	Net Weight	10 kg + 8 kg (Head + Controller)
	Gross Weight	20 kg

* Customizable marking area also available

CONTROLLER	SPA2 ILUMIFLEX CONTROLLER
DIMENSIONS (WxDxH)	330x265x157mm (8.90" (W) x 13.31" (D) x 5.43" (H)
TOUCH SCREEN TYPE	Capacitive Touch Screen Display
SIZE	10,1"
	1064 x 600
COLOUR	16,2M
LUMINANCE	340 cd/mq
MEMORY	2 GB
VOLTAGE	12 VDC
CONNECTIVITY	X-Code Connector
SOFTWARE	MarcaTouch™ OS 2.0 or newer
LANGUAGES	26 languages (English, Arabic, Chinese, Czech, Deutsch, Danish, Finnish, French, Greek, Hebrew, Magyar, Indonesian, Italian, Japanese, Korean, Malaysian, Dutch, Polish, Portuguese, Russian, Serbian, Spanish, Swedish, Thai, Turkish, Vietnamese)
INTERFACE	WYSIWYG technology which displays what is going to be printed.
COVER CONDITIONS	Stainless steel
IP RATE	IP54
ENVIRONMENT	0 – 35°C, Non-condensing

NOVEMBER 2025



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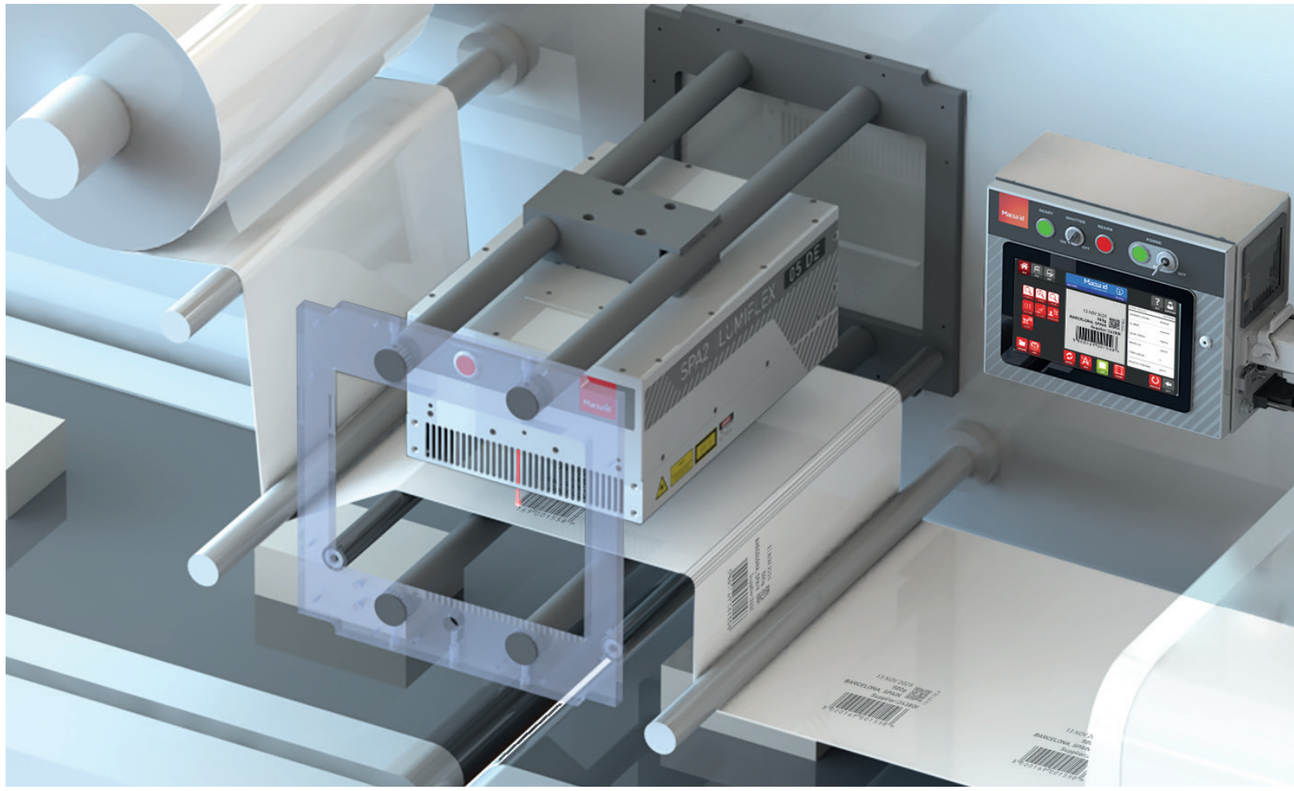
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SPA2 iLumiFlex

SMART | SUSTAINABLE | UNSTOPPABLE

Macsa id
a code you can trust



From Ribbon to UV Laser: Redefining coding for flexible packaging with unbeatable TCO.

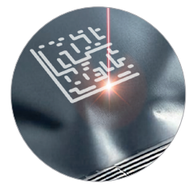
SPA2 iLumiFlex marks a turning point: eliminating the need for ribbons and printheads. With an impressive 5W of power, Macsa's UV laser offers continuous productivity in the compact size of a standard TTO.











PRODUCT BROCHURE

iLumiFlex

Flexible Packaging Laser Coder

The ultimate UV laser solution for every flexible packaging line with the lowest TCO.

iLumiFlex is Macsa ID's UV laser coder that replaces thermal transfer printers (TTO) in flexible packaging. It marks directly on film using light, delivering permanent, high-contrast codes while enabling continuous, sustainable, PPWR-compliant production, in a compact design with the same footprint as a conventional TTO printer.

Perfect marking at an incredible speed.



ESSENTIAL
Dynamic mode
1 TEXTLINE OF 3mm= 350 m/min
2 TEXTLINES OF 3mm= 200 m/min

Static mode
1 TEXTLINE OF 3mm= 15 ms
2 TEXTLINES OF 3mm= 30 ms



EXTENDED
Dynamic mode
1 TEXTLINE OF 3mm + QR 8X8= 60 m/min
2 TEXTLINES OF 3mm + QR 8X8= 50 m/min

Static mode
1 TEXTLINE OF 3mm + QR 8X8= 110 ms
2 TEXTLINES OF 3mm + QR 8X8= 120 ms



ADVANCED
Dynamic mode
5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 12 m/min

Static mode
5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 500 ms



PRO
Dynamic mode
18 TEXTLINES OF 3mm + EAN 13= 4 m/min

Static mode
18 TEXTLINES OF 3mm + EAN 13= 1500 ms

Stop stopping: Reduce downtime and waste for good.

Traditional TTO printers force production lines to stop for ribbon changes and printhead cleaning, creating film waste and production losses. The iLumiFlex is specifically designed to eliminate these challenges, providing a clean, continuous, and permanent marking method.

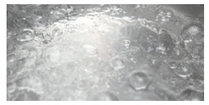
iLumiFlex key benefits.

TTO Limitation	iLumiFlex Solution	Key Benefits
High Running Costs	Zero Consumables. Eliminates ink ribbon, printhead replacement, and air-related costs.	Significant cost savings with unbeatable TCO.
Frequent Downtime	Continuous production. Eliminates line stoppages for ribbon changes, printhead cleaning, or specialized periodic maintenance.	Increased production capacity (additional units/ year).
Evironmental Impact	100% Sustainable. Eliminate waste ribbons and associated industrial waste.	Contributes to sustainability goals (elimination of tons of co2 emissions annually).
Marking Fading	Permanent, damage-free mark. iLumiFlex acts directly on the film's marking layer, permanently changing its color without burning or damaging the substrate.	Immunity to surface contaminants (oil, powder, water, alcohol, heat sterilization).


OIL


POWDER


ALCOHOL


HEAT STERILIZATION


ICE



Comparison of results after rubbing the marked area of the film

Performance you can measure. Results you can see.

Feature	Specification	TTO Replacement Advantage
Technology	YVO4 UV Laser Source, Class 4.	Utilizes cold marking technology.
Wavelength	355 nm.	Optimized for flexible packaging film marking layers.
Output Power	Up to 5W (Targeted output @ 50 kHz to 80 kHz).	Provides higher energy margin for faster, higher-contrast marking.
Maximum Scan Speed	≤12,000 mm/s.	Superior marking speed for complex codes and demanding cycle times.
Maximum Line Speed	0-350 m/min.	Supports high-speed production lines.
Repetition Rate	50 - 80 kHz (Most usual), up to 150 kHz.	Flexibility to achieve optimal dot separation at various line speeds.
Marking Resolution	1.6 µm.	Ensures high-quality, precise coding for small characters and complex codes.
Marking Area	100 x 100 mm.	Wide marking field capacity.







Your brand. Your code. Your fit.

iLumiFlex is designed for integration into common packaging machines where TTO is traditionally used, ensuring high-quality, permanent marks on sensitive film materials, monomaterials and even D4R films .

Fully compatible with standard TTO brackets, iLumiFlex can replace traditional printers in minutes, fitting directly into existing mounts without modification.

Pillow-type packaging machines (horizontal/vertical):

Ideal for high-turnover lines, preventing product and film waste caused by downtime.

Bag feeding machines (rotary):

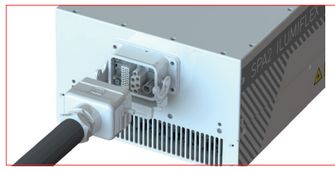
Provides non-contact, fade-resistant marking, even if oil, powder, or water is present on the pouch surface.

Stick packaging machines:

A Single device can mark multiple locations on multi-strand films, without generating dust or odors.

Flexible packaging:

Perfect for marking expiry dates, lot codes, and traceability codes on various films, including monomaterials for sustainable packaging.



EASY CONNECT

A compact head and quick-release connectors make TTO replacement fast and effortless, fitting existing mounts with no modification.

Sealed, waterproof connections ensure stable performance in dusty, harsh and washdown environments.

