

SPA2 iLumiFlex by MACSA

SMART. SUSTAINABLE. UNSTOPPABLE.

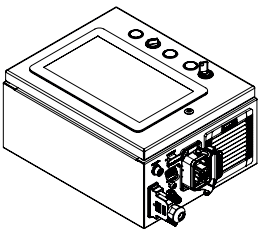
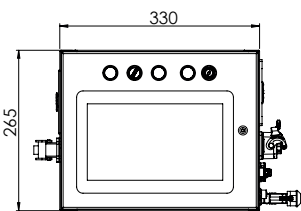
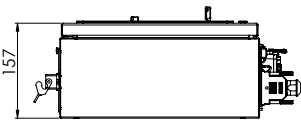
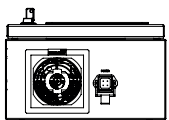
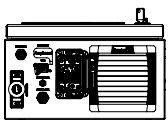
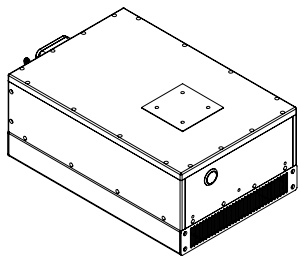
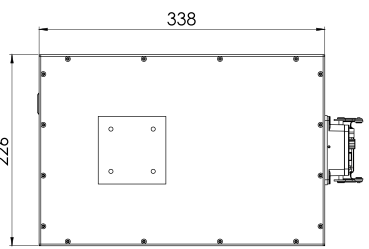
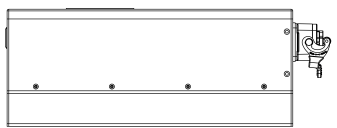
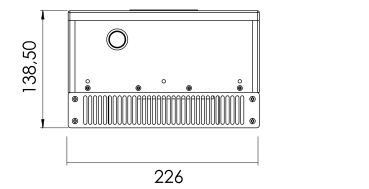


SPA2 iLumiFlex

SMART | SUSTAINABLE | UNSTOPPABLE

Macsa id

a code you can trust



a code you can trust

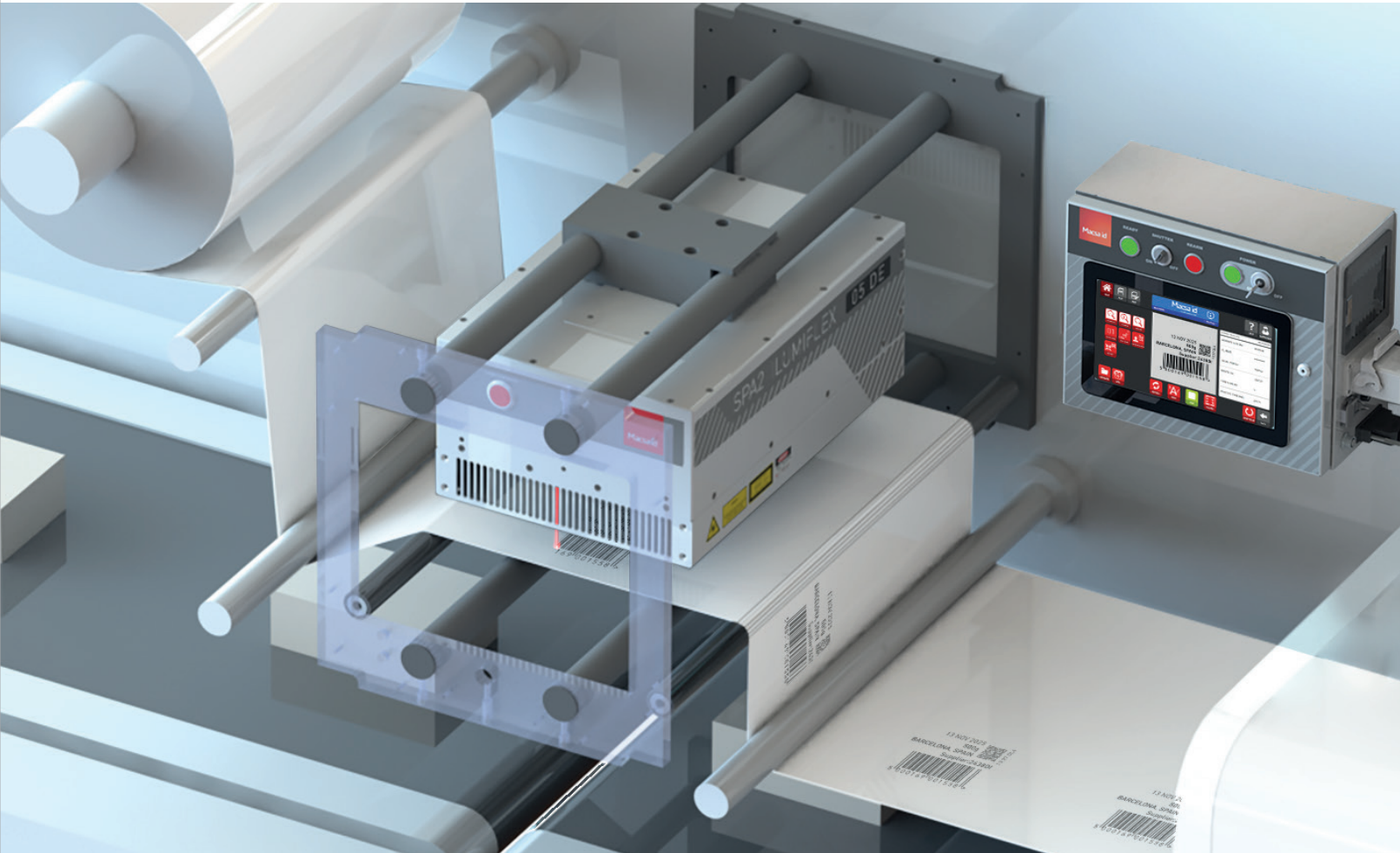
| MODEL                    | FEATURE                                                                            | SPA2 ILUMIFLEX                           |
|--------------------------|------------------------------------------------------------------------------------|------------------------------------------|
| 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                               |
| COOLING                  | Power                                                                              | (1 Phase + N) 700 VA                     |
|                          | 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")             |
| MARKING HEAD (Compact)   | Repetition Rate                                                                    | 50 - 80 kHz (Most usual), up to 150 kHz. |
|                          | The laser head is compact and designed to allow installation in restricted spaces. | Std.                                     |
| MARKING HEAD ACCESSORIES | Working Distance                                                                   | 0 to 20 mm                               |
|                          | Working distance adjustment gauges                                                 |                                          |
| CONTROL                  | Integrated TouchScreen                                                             | 10,1"                                    |
|                          | Head cable                                                                         | 5 m (16.4')                              |
|                          | Pc with Marca software                                                             | 10 m (32.8') (Opt.)                      |
|                          | Scanlinux                                                                          | Opt.                                     |
| SOFTWARE                 | MarcaTouch OS 2.0                                                                  | Std.                                     |
|                          | Marca full graphics pc softw.                                                      | Opt.                                     |
|                          | TCP/IP protocol                                                                    | Opt.                                     |
|                          | Profinet protocol                                                                  | Std.                                     |
|                          | OPC-UA protocol                                                                    | Opt.                                     |
|                          | Ethernet/IP protocol                                                               | Opt.                                     |
|                          | Internal barcode generator                                                         | Opt.                                     |
|                          | Performance level d safety kit                                                     | Opt.                                     |
| SAFETY                   | Encoder Kit - Mounting Support - Photocell Kit                                     |                                          |
|                          |                                                                                    |                                          |
| ACCESSORIES              | Operating Temperature                                                              | 0 to 40° C (32 to 104° F)                |
|                          | Humidity                                                                           | < 95 %, non-condensing                   |
|                          | Vibrations                                                                         | No vibrations                            |
|                          | Protection Rate                                                                    | DE IP54 (Dusty Environment)              |
| ENVIRONMENTAL CONDITIONS |                                                                                    |                                          |
|                          |                                                                                    |                                          |
| 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"                                                                                                                                                                                                                                               |
| COLOUR             | 1064 x 600                                                                                                                                                                                                                                          |
| LUMINANCE          | 16,2M                                                                                                                                                                                                                                               |
| MEMORY             | 340 cd/mq                                                                                                                                                                                                                                           |
| VOLTAGE            | 2 GB                                                                                                                                                                                                                                                |
| CONNECTIVITY       | 12 VDC                                                                                                                                                                                                                                              |
| SOFTWARE           | TYCO 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 – 40°C, Non-condensing                                                                                                                                                                                                                            |

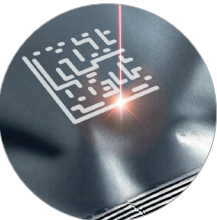


NOVEMBER 2025



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. Macsa's UV laser offers non-stop productivity in the compact size of a standard TTO.



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# The ultimate non-stop 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 - no ink, no ribbon, no waste - 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.

|                                                                                                   |                                                                                                                  |                                                                                    |                                                                                     |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                  |                                 |  |  |
| <b>ESSENTIAL</b><br>Dynamic mode<br>1 TEXTLINE OF 3mm= 350 m/min<br>2 TEXTLINES OF 3mm= 200 m/min | <b>EXTENDED</b><br>Dynamic mode<br>1 TEXTLINE OF 3mm + QR 8X8= 60 m/min<br>2 TEXTLINES OF 3mm + QR 8X8= 50 m/min | <b>ADVANCED</b><br>Dynamic mode<br>5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 12 m/min  | <b>PRO</b><br>Dynamic mode<br>18 TEXTLINES OF 3mm + EAN 13= 4 m/min                 |
| <b>Static mode</b><br>1 TEXTLINE OF 3mm= 15 ms<br>2 TEXTLINES OF 3mm= 30 ms                       | <b>Static mode</b><br>1 TEXTLINE OF 3mm + QR 8X8= 110 ms<br>2 TEXTLINES OF 3mm + QR 8X8= 120 ms                  | <b>Static mode</b><br>5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 500 ms                 | <b>Static mode</b><br>18 TEXTLINES OF 3mm + EAN 13= 1500 ms                         |

## Stop stopping: End downtime and waste for good.

Traditional TTO printers force production lines to stop for ribbon changes and head 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, thermal head replacement, and air-related costs.                                                                   | Significant cost savings with unbeatable TCO.                                        |
| Frequent Downtime    | Continuous production. Eliminates line stoppages for ribbon changes, head cleaning, or specialized periodic maintenance.                                    | Increased production capacity (additional units/year).                               |
| Environmental 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



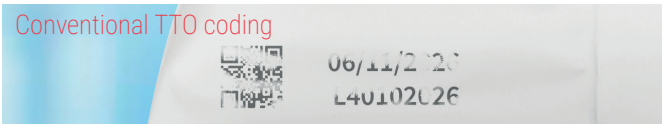
ALCOHOL



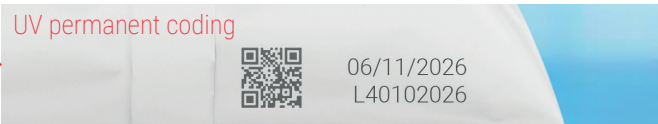
HEAT STERILIZATION



ICE



Conventional TTO coding



UV permanent coding

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 mono-materials for sustainable packaging.

|                                                                                       |                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>EASY CONNECT</b><br><br>A compact head and quick-release connectors make TTO replacement fast and effortless, fitting existing mounts with no modification.<br><br>Sealed, waterproof connections ensure stable performance in dusty, harsh and washdown environments. |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

