# $CO_2$ laser markers: LP-400 series



Panasonic conceived the LP-400 series laser markers especially for industries with particularly high demands on speed and functionality. LP-400 series laser markers are $CO_2$ laser marker systems with an output power of 10W, 20W or 30W that, due to an ultra fast galvano-scanner, can mark moving objects on-the-fly at a line speed of up to 240m/min.! The incorporation of an encoder interface permits optimization of marking and flying speed.

Due to their small laser beam diameter of down to 95µm, certain models are especially well suited to mark very small characters on difficult materials. Due to their somewhat shorter wavelength of 9.3µm, some versions of the laser markers are ideal for marking clear plastics such as PET or PC.

**FDA**
Conforming to FDA regulations (some models only)

**CE**
Conforming to Low Voltage and EMC Directive (some models only)

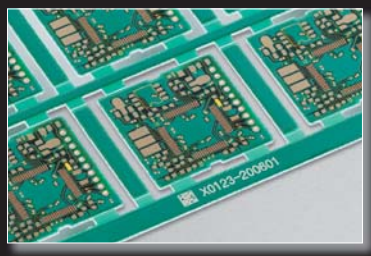
The high-grade LP-400 series $CO_2$ laser marker is designed for high-quality marking and processing applications on various materials.

Removing cable insulation

PET bottles


Pouch packaging


Ceramic capacitors



Printed circuit boards

CD/DVD


Ceramic circuit boards

Rubber gaskets (processing)


Glass

# Improved productivity

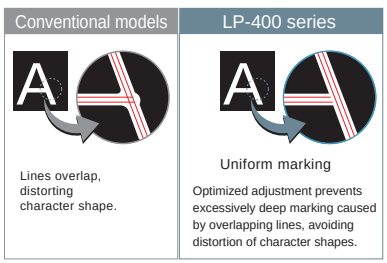
## High-speed marking

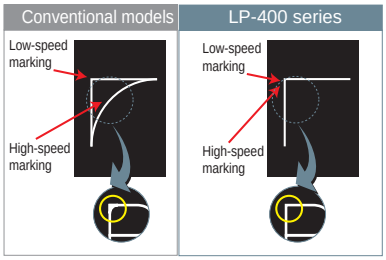
The LP-400 series features a high-performance galvano scanner whose acceleration, deceleration, and response speeds exceed those of conventional models by delivering dramatically shorter marking times. Capable of marking up to 700 characters per second and at line speeds of up to 240m/min, the LP-400 series can deliver an improved productivity. The LP-400 series automatically determine the most efficient marking order, further reducing marking time. Panasonic's proprietary galvano scanner control technology keeps marking accurate and aligned, even at high speeds.

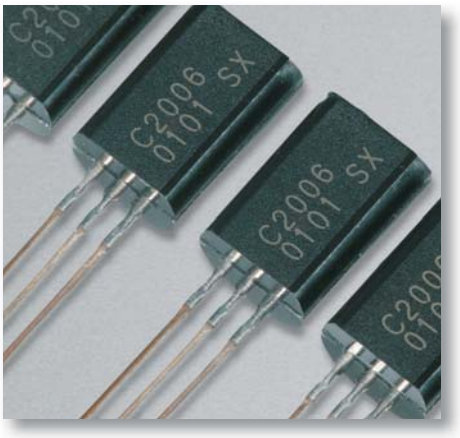
# High-quality marking

## Technologies behind high-quality marking

The LP-400 series takes advantage of a number of new technologies compared to conventional models to deliver high-definition marking. Advanced control functionality automatically adjusts marking strength at locations susceptible to deep marking such as the beginning and ends of lines and areas where straight and curved lines intersect. The result is a beautiful, high-quality mark with uniform line depth, even at high speeds.





The proprietary rotating head found on standard models and the additional freedom of installation provided by a selection of tower head models provide the performance to meet a variety of needs.

# High-stability laser

## Extensive lineup

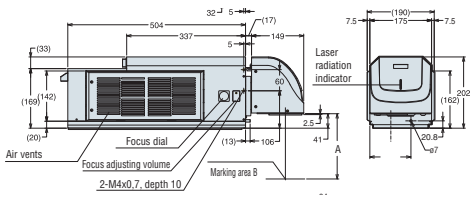
Laser output stability of within ±3% (typical) ensures consistent marking and high-quality processing over the full output range. The extensive lineup of laser output and wavelength options (three available laser output levels: 10W, 20W, 30W and two available laser wavelengths: 10.6µm and 9.3µm) accommodate more applications.

| Item | Type | Small spot | | | Standard | | | Wide area | |
|---|---|---|---|---|---|---|---|---|---|
| | Standard | LP-431U-C | LP-421S9U-C | LP-411U-C | LP-430U-C | LP-420S9U-C | LP-410U-C | LP-425S9U-C | LP-435U-C |
| | Tower | LP-431TU-C | LP-421S9TU-C | LP-411TU-C | LP-430TU-C | LP-420S9TU-C | LP-410TU-C | LP-425S9TU-C | LP-435TU-C |
| **Work distance (manually adjustable)** | | 111mm (± 2mm) | | | 185mm (± 3mm) | | | 262mm (± 4mm) | |
| **Marking field** | | 55mm x 55mm | | | 110mm x 110mm | | | 160mm x 160mm | |
| **Scanning speed max.** | | 6000mm/s | | | 12,000mm/s | | | 12,000mm/s | |
| **Line speed max.** | | 120m/min | | 85m/min | 240m/min | | 170m/min | 240m/min | |
| **Average output** | | 30W | 20W | 10W | 30W | 20W | 10W | 20W | 30W |
| **Ambient temperature** | | 0 to +40°C (no condensation or frost), storage: -10 to 60°C | | | | | | | |
| **Ambient humidity** | | 35 to 85%RH (no condensation or frost) | | | | | | | |
| **Marking method** | | Galvanometer scanning method | | | | | | | |
| **Marking laser** | | $CO_2$ laser λ = 10.6µm (9.3µm LP 42xS9U), laser class 4 | | | | | | | |
| **Guide laser** | | Semiconductor λ = 655nm, laser class 2, 1mW | | | | | | | |
| **Array of character** | | Straight line, proportional/typewriter, arced, tilted | | | | | | | |
| **Type of characters** | | Capital & small characters, numerals, katakana, hiragana, kanji (JIS level 1 & level 2) symbols, user-defined characters (up to 50 types) | | | | | | | |
| **Bar codes/2D codes** | | CODE39, CODE128, ITF2/5, NW-7, JAN/UPC/EAN, RSS 14, RSS limited, RSS expanded (GS1 Databar), GS1 Data Matrix, QR, Micro QR, Data Matrix (ECC200), etc. | | | | | | | |
| **Logos/Graphics** | | VEC, DXF, BMP, HPGL, JPEG, AI*, EPS* | | | | | | | |
| **Cooling method** | | Forced-air cooling | | | | | | | |
| **Supply voltage** | | 90 to 132VAC or 180 to 264VAC (auto-changing), 50/60Hz | | | | | | | |
| **Power consumption** | | 1200W (at 200VAC) | | 700W (at 200VAC) | 1200W (at 200VAC) | | 700W (at 200VAC) | 1200W (at 200VAC) | |
| **Inputs** | | Remote, trigger, encoder (A), encoder (B), shutter control, laser pumping, alarm reset, emergency stop, laser stop, etc | | | | | | | |
| **Outputs** | | Power supply (+12V), remote, marking ready, marking, marking finished, laser pumping, warning, alarm, confirmation end, counter finish | | | | | | | |
| **Communication ports** | | RS232, digital I/Os, Ethernet | | | | | | | |
| **Marking condition** | | Static and marking on the fly | | | | | | | |
| **Functions** | | • marking order optimizing<br>• correction of intersection<br>• counter marking<br>• current date/time marking<br>• expiry date marking<br>• lot marking<br>• logos/pictures marking<br>• bold marking<br>• logo data USB transfer | | • I/O monitor<br>• system offset<br>• common character setting<br>• font selection<br>• proportional marking<br>• marking image display<br>• operator adjustment<br>• error log display<br>• work image display | • guide laser<br>• power speed setting per line/logo file<br>• step & repeat<br>• time delay<br>• serial data processing & marking<br>• multilayered marking<br>• backup | | | • various processing functions<br>• dual pointer<br>• marking time measurement<br>• font/logo creation/editing<br>• power check/correction<br>• I/O simulation<br>• focus adjustment<br>• marking on moving objects | |
| **Weight of head** | | 20kg | | 16kg | 20kg | | 16kg | 20kg | |
| **Weight of controller** | | 12kg | | 11kg | 12kg | | 11kg | 12kg | |

* Adobe Illustrator® is necessary

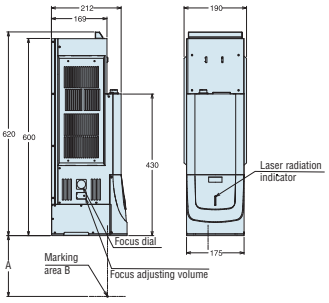
# Dimensions

## LP-400 head - horizontal model




| Type | Marking distance A (mm) | Marking area B (mm) |
|---|---|---|
| LP-4X1 | 111 | 55 x 55 |
| LP-4X0 | 185 | 110 x 110 |
| LP-4X5 | 262 | 160 x 160 |

## LP-400 head - tower model




* All measurements in mm

## LP-400 controller