

## CO<sub>2</sub> 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<sub>2</sub> 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.

<b>FDA</b> Conforming to FDA regulations (some models only)	<b>CE</b> Conforming to Low Voltage and EMC Directive (some models only)
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The high-grade LP-400 series CO<sub>2</sub> laser marker is designed for high-quality marking and processing applications on various materials.



Removing cable insulation



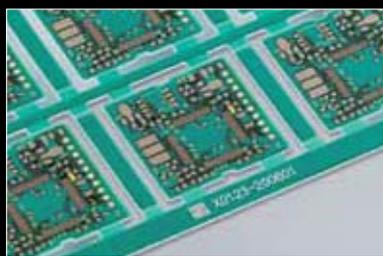
PET bottles



Pouch packaging



Ceramic capacitors



Printed circuit boards



CD/DVD



Ceramic circuit boards



Rubber gaskets (processing)



Glass



## Improved productivity

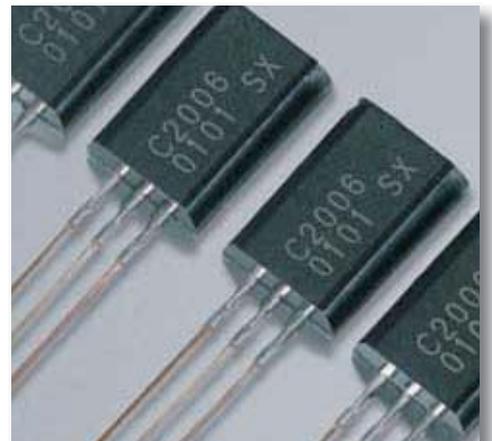
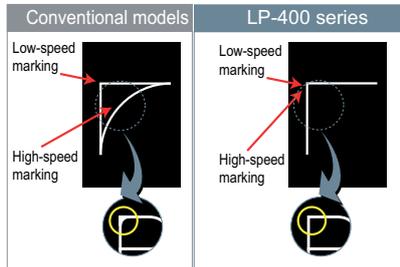
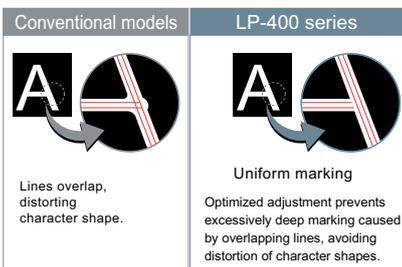
### High-speed marking

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

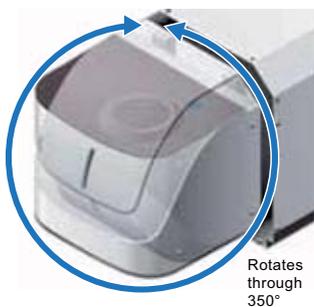
The LP-400 series takes advantage of a number of new technologies compared to conventional models to deliver high-definition marking. Advanced control functionality automatically adjusts marking strength at locations susceptible to deep marking such as the beginning and ends of lines and areas where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



## High-stability laser

### Extensive lineup

Laser output stability of within  $\pm 3\%$  (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: 10.6 $\mu$ m and 9.3 $\mu$ m) accommodate more applications.



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.

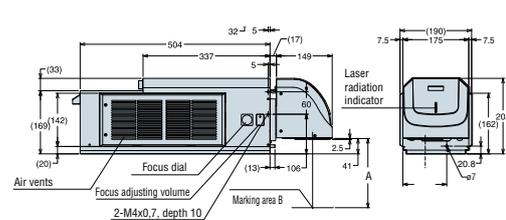


Item	Type	Small spot			Standard			Wide area	
	Standard	LP-431U-C	LP-421S9U-C	LP-411U-C	LP-430U-C	LP-420S9U-C	LP-410U-C	LP-425S9U-C	LP-435U-C
Tower		LP-431TU-C	LP-421S9TU-C	LP-411TU-C	LP-430TU-C	LP-420S9TU-C	LP-410TU-C	LP-425S9TU-C	LP-435TU-C
<b>Work distance (manually adjustable)</b>		111mm (± 2mm)			185mm (± 3mm)			262mm (± 4mm)	
<b>Marking field</b>		55mm x 55mm			110mm x 110mm			160mm x 160mm	
<b>Scanning speed max.</b>		6000mm/s			12,000mm/s			12,000mm/s	
<b>Line speed max.</b>		120m/min		85m/min	240m/min		170m/min	240m/min	
<b>Average output</b>		30W	20W	10W	30W	20W	10W	20W	30W
<b>Ambient temperature</b>		0 to +40°C (no condensation or frost), storage: -10 to 60°C							
<b>Ambient humidity</b>		35 to 85%RH (no condensation or frost)							
<b>Marking method</b>		Galvanometer scanning method							
<b>Marking laser</b>		CO <sub>2</sub> laser λ = 10.6μm (9.3μm LP 42xS9U), laser class 4							
<b>Guide laser</b>		Semiconductor λ = 655nm, laser class 2, 1mW							
<b>Array of character</b>		Straight line, proportional/typewriter, arced, tilted							
<b>Type of characters</b>		Capital & small characters, numerals, katakana, hiragana, kanji (JIS level 1 & level 2) symbols, user-defined characters (up to 50 types)							
<b>Bar codes/2D codes</b>		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.							
<b>Logos/Graphics</b>		VEC, DXF, BMP, HPGL, JPEG, AI*, EPS*							
<b>Cooling method</b>		Forced-air cooling							
<b>Supply voltage</b>		90 to 132VAC or 180 to 264VAC (auto-changing), 50/60Hz							
<b>Power consumption</b>		1200W (at 200VAC)		700W (at 200VAC)	1200W (at 200VAC)		700W (at 200VAC)	1200W (at 200VAC)	
<b>Inputs</b>		Remote, trigger, encoder (A), encoder (B), shutter control, laser pumping, alarm reset, emergency stop, laser stop, etc							
<b>Outputs</b>		Power supply (+12V), remote, marking ready, marking, marking finished, laser pumping, warning, alarm, confirmation end, counter finish							
<b>Communication ports</b>		RS232, digital I/Os, Ethernet							
<b>Marking condition</b>		Static and marking on the fly							
<b>Functions</b>		<ul style="list-style-type: none"> <li>marking order optimizing</li> <li>correction of intersection</li> <li>counter marking</li> <li>current date/time marking</li> <li>expiry date marking</li> <li>lot marking</li> <li>logos/pictures marking</li> <li>bold marking</li> <li>logo data USB transfer</li> </ul>		<ul style="list-style-type: none"> <li>I/O monitor</li> <li>system offset</li> <li>common character setting</li> <li>font selection</li> <li>proportional marking</li> <li>marking image display</li> <li>operator adjustment</li> <li>error log display</li> <li>work image display</li> </ul>	<ul style="list-style-type: none"> <li>guide laser</li> <li>power speed setting per line/logo file</li> <li>step &amp; repeat</li> <li>time delay</li> <li>serial data processing &amp; marking</li> <li>multilayered marking</li> <li>backup</li> </ul>	<ul style="list-style-type: none"> <li>various processing functions</li> <li>dual pointer</li> <li>marking time measurement</li> <li>font/logo creation/editing</li> <li>power check/correction</li> <li>I/O simulation</li> <li>focus adjustment</li> <li>marking on moving objects</li> </ul>			
<b>Weight of head</b>		20kg		16kg	20kg		16kg	20kg	
<b>Weight of controller</b>		12kg		11kg	12kg		11kg	12kg	

\* Adobe Illustrator® is necessary

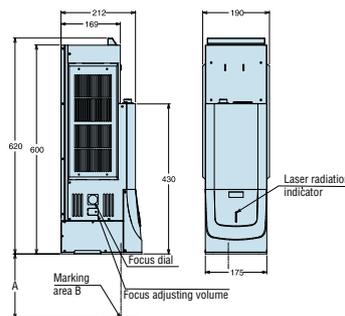
## Dimensions

LP-400 head - horizontal model



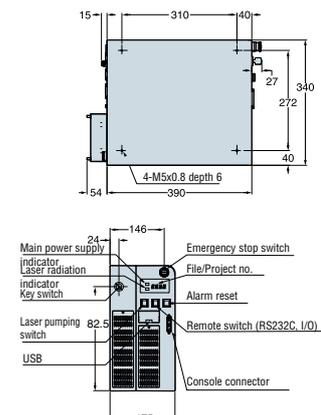
Type	Marking distance A (mm)	Marking area B (mm)
LP-4X1	111	55 x 55
LP-4X0	185	110 x 110
LP-4X5	262	160 x 160

LP-400 head - tower model



\* All measurements in mm

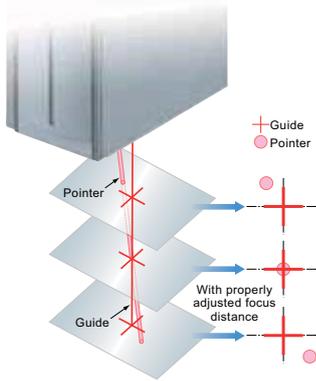
LP-400 controller



# Standard features for LP-V/-Z/-S and -400 series

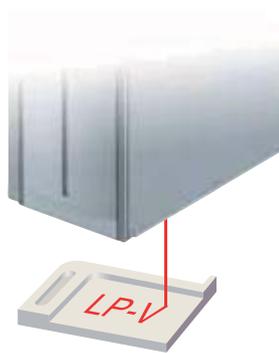
## Focus guide laser

Panasonic laser markers incorporate focal pointers created by a red guide light to make it easier to check and adjust the center position and focus distance.



## Marking guide laser

Panasonic laser markers use an easily visible red guide laser to trace out the set marking data and marking position, allowing you to visually check the marking position before actual marking begins.



## USB connectors

The ability to store system settings on USB memory sticks lets you back up marking settings or copy settings to multiple laser markers.



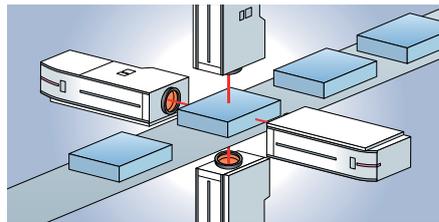
## Focus adjustment

In simplifying calibration at the time of installation, a newly developed focus adjustment feature makes it easy to fine adjust the laser marker's focus without moving the head or fixture.



## Installation at almost any orientation

Because of their robust design, Panasonic FAYb and CO<sub>2</sub> laser markers can be installed at almost any orientation, enabling easy integration in existing machines, even with limited access or space.



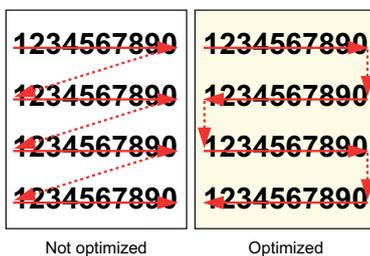
## "On the fly" marking

Panasonic laser markers are equipped with an encoder interface, allowing objects to be marked "on the fly" with line speeds of up to 240m/min.



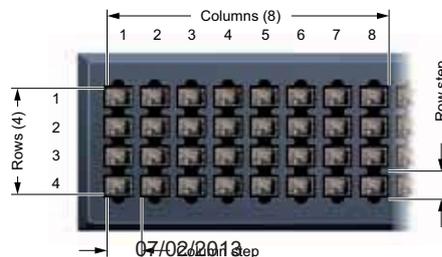
## Marking order optimization

Panasonic laser markers automatically determine the most efficient marking order, optimizing high-speed marking.



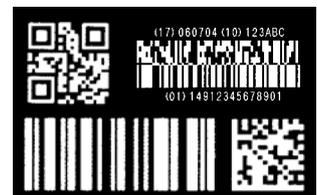
## Step and repeat

Step and repeat provides high-speed batch marking for printed circuit boards and plastic packaging such as trays and lead frames, helping increase speeds on semiconductor and electronic component production lines.



## 1D and 2D code generation

1D and 2D codes enable product information such as serial and lot numbers to be output in a space-efficient manner. These codes are machine readable and are common for track and trace applications.



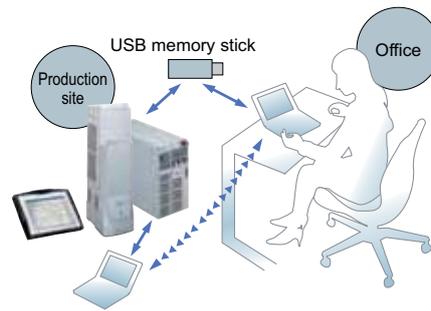
## Laser Marker NAVI PC software

Laser Marker NAVI's simple, intuitive mouse-driven interface makes it easy to configure marking conditions and positions in setting files, allowing you to easily create marking layouts according to plan. The application also allows your computer to monitor system operation, and you can check error logs and the I/O monitor at the same time.



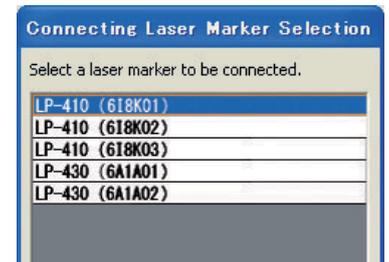
## Offline configuration

Now you can create and save data at a remote location such as an office and later transfer it to the laser marker on-site for marking. Alternatively, you can avoid the need for an on-site computer entirely by using a USB memory stick and console to save data to the laser marker for marking.



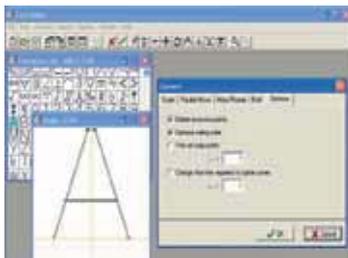
## Batch laser marker management

Now you can connect multiple laser markers to a single computer for centralized management of all connected markers and associated configuration data. Easy, straightforward monitoring of settings and operational status rounds off the application's management capabilities.



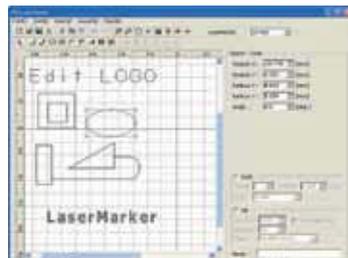
## FONT maker software

This useful software allows you to modify or create your own fonts to be marked with the laser marker. It is very useful if registered "®" fonts for company and product names need to be used.



## Logo data editing software

Logo data editing software provides a simple and intuitive configuration interface allowing you to create and edit your logo files without using commercial CAD software.



## LOGO CONVERTER

Logo data conversion software output logos and other graphical marks from DXF, HPGL, BMP, or JPEG into the VEC format. Data created by Adobe Illustrator® such as AI and EPS can be converted by "Export Vec", which is included.



## Power check

This convenient feature allows one-touch confirmation of the current attenuation factor relative to the laser's output when the unit shipped. Total laser radiation time is also displayed on the screen to simplify system maintenance and management.

## Password

A password feature dramatically improves safety and security by restricting users' ability to input certain information and protecting system settings, enabling safe and convenient use of the system for design, technical support, facilities, and production workers.

## Help

Panasonic laser markers include a help feature so that even first-time users are able to operate the system smoothly. Detailed messages inform users of potential configuration mistakes, reflecting our company's belief that a responsive and intuitive interface is an important aspect of system performance.