Panasonic

FAYb Laser Marker

LP- V SERIES
LP- W SERIES

LP-V series
FAYb LASER MARKER

Innovative fiber laser (FAYb)
markers dramatically improve
productivity and offer broad
advantages over conventional
laser marking technologies.

LP-V, LP-W SERIES

Extensive line of advanced FAYb lasers
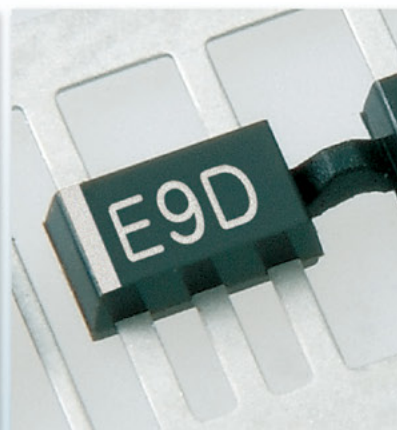
Evolving toward next-generation applications

| Metals | Resin coloring | Semiconductors |

High-performance galvanoscanner

Improved productivity

Response speeds of at least twice of previous models
mean dramatically reduced tact time and support
for high-speed production lines.

12 W short-pulse laser*

Beautiful super-small marking

Exceptional-quality lasers
with high energy density deliver sharp,
beautiful marking.

✳ LP-V series

Innovative FAYb laser

Space- and energy-efficient

Thanks to their uniquely simple design,
FAYb lasers deliver completely air-cooled performance in a space-saving package,
allowing smaller head and controller footprints.

Choose the model that is right for your application

Convenient operation

In keeping with Panasonic Industrial Devices SUNX's unyielding commitment to unrivaled ease
of use and operability, the LP-V and LP-W series can be controlled from a computer with
the Laser Marker NAVI application or by using a simple touch panel console.

FAYb (Fiber Amplified Ytterbium), a proprietary technology of using optical fiber to excite
and amplify a laser beam, is setting a new standard for laser markers.
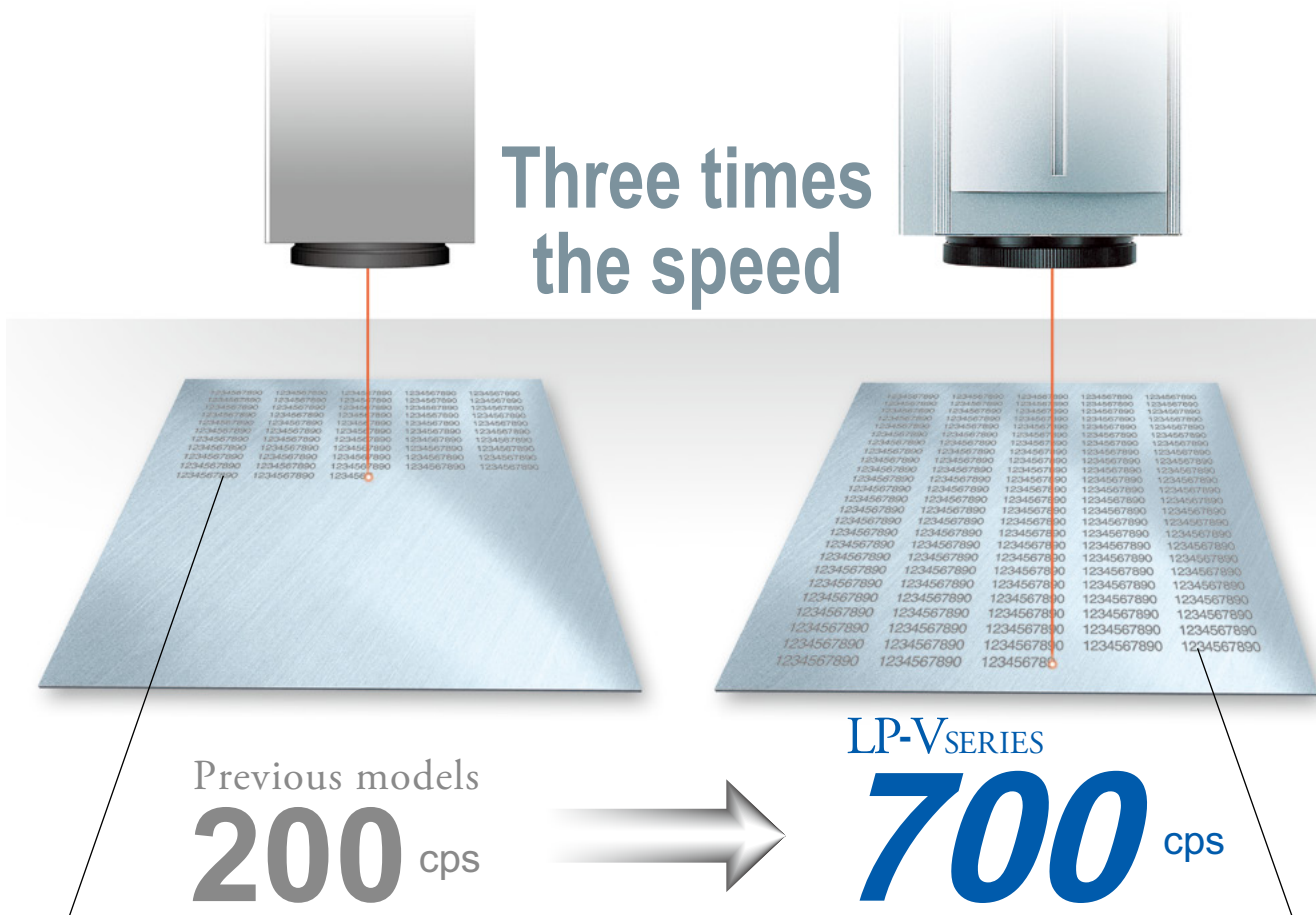FAYb laser markers have built on energy efficiency, high reliability, and other FAYb advantages from the LP-F series, evolving further to offer significantly improved marking quality
and speed.
Panasonic Industrial Devices SUNX invites you to experience the unrivaled advantages of
the LP-V and LP-W series.

High-speed marking at 700 cps*

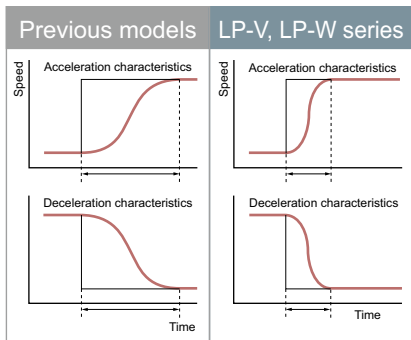## Three times the productivity means less time and equipment.

Capable of marking at speeds of up to 700 cps, the LP-V series can deliver more than three times the productivity of previous models thanks to its shorter tact time. Enjoy dramatically reduced equipment costs since a single laser marker can now handle applications that previously required multiple units.
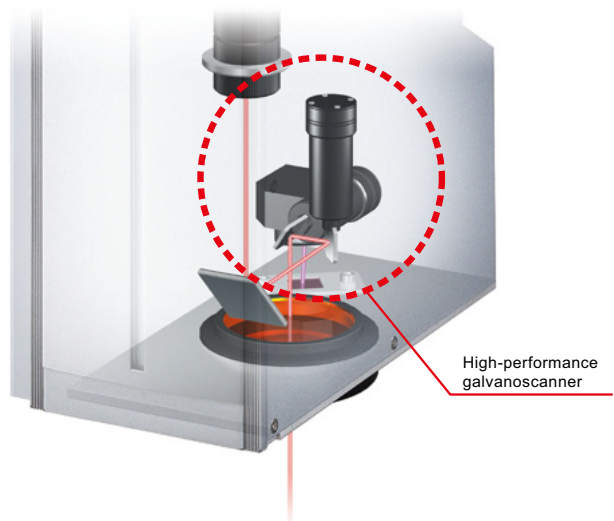
Three times the speed

Previous models
200 cps

LP-V SERIES
700 cps

*LP-V series

Reduced marking tact time

The LP-V and LP-W series feature a high-performance galvanoscanner whose acceleration, deceleration, and response speeds exceed those of previous models by at least 200 %, delivering dramatically shorter marking tact times.

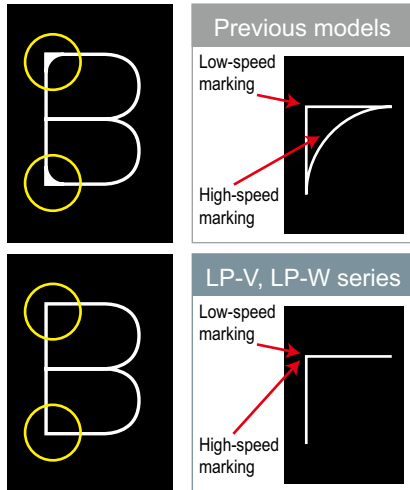| Previous models	LP-V, LP-W series
Acceleration characteristics	Acceleration characteristics
Deceleration characteristics	Deceleration characteristics

Simulated Characteristics of
High-performance Galvanoscanner

High-performance
galvanoscanner

Accurate marking at high speed

Panasonic Industrial Devices SUNX's proprietary galvanoscanner control technology keeps marking accurate and aligned, even at high speed.

Previous models

Low-speed marking

High-speed marking

LP-V, LP-W series

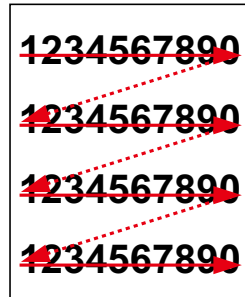Low-speed marking

High-speed marking

Improved marking resolution

Panasonic Industrial Devices SUNX's proprietary servo technology delivers marking resolutions of 1 μm 0.039 mil*, enabling more accurate marking -a key capability when generating super-small characters.
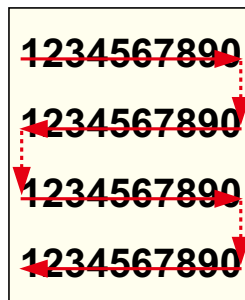
∗LP-W052

Marking order optimization feature

The LP-V and LP-W series automatically determine the most efficient marking order, further reducing tact time.

1234567890
1234567890
1234567890
1234567890

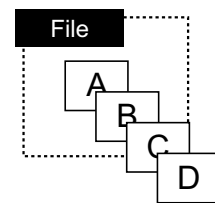Not optimized

1234567890
1234567890
1234567890
1234567890

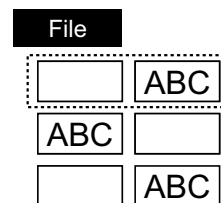Optimized

Rank and Offset features

Rank and Offset features let you change marking data as well as the marking position without changing file numbers. Depending on how it is employed, this capability can provide dramatic improvements in work efficiency, for example by replacing part of a character string quickly for each target object or changing marking locations for each target object.

Rank feature

File

A
B
C
D

The rank feature is ideal for applications requiring that **part of the character** string be replaced quickly for each target object.

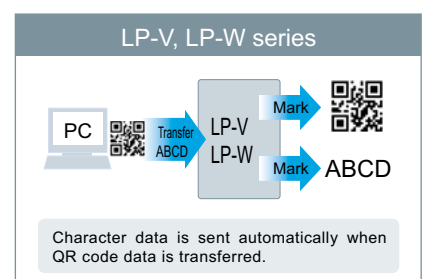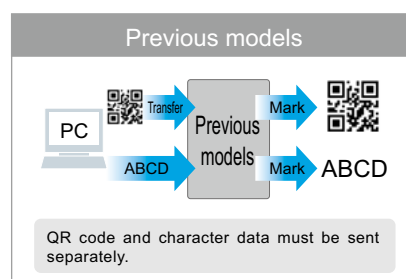**Offset feature**

File

	ABC
ABC	
	ABC

The offset feature is ideal for applications requiring that **the marking location** be changed quickly for each target object.

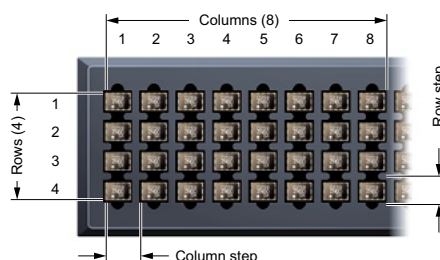## Serial data marking feature

With previous models, data such as characters and 2D codes had to be sent from the control computer separately. Thanks to revamped software, the LP-V and LP-W series support batch transfers of data to the laser marker, simplifying complex code transfer procedures and preventing marking mistakes caused by data mix-ups.

Previous models

PC → Transfer → Previous models → Mark
PC → ABCD → Previous models → Mark ABCD

QR code and character data must be sent separately.

LP-V, LP-W series

PC → Transfer ABCD → LP-V LP-W → Mark
LP-V LP-W → Mark ABCD

Character data is sent automatically when QR code data is transferred.

Step and Repeat feature

Step and Repeat provides high-speed batch marking for printed circuit boards and plastic packaging such as trays and lead frames. Used in combination with the counter feature, Step and Repeat can also be used to generate serial numbers. This capability helps increase speeds on semiconductor and electronic component production lines where short tact times of 0.1 seconds are imperative.

● Step and Repeat example

Columns (8)
1 2 3 4 5 6 7 8
Rows (4)
1
2
3
4
Row step
Column step

● Example counter settings

ABC No.1	ABC No.2	ABC No.3
ABC No.4	ABC No.5	ABC No.6
ABC No.7	ABC No.8	ABC No.9

The counter start position and direction can both be set.

The uncompromising pursuit of high-quality marking that is fast, beautiful, and finely detailed.

A complement of technologies drives high marking quality.

The LP-V and LP-W series take advantage of a number of new technologies to deliver even higher definition marking. Every aspect of the product development process-from the superior beam produced by the FAYb system to control technologies designed to create more beautiful output-reflects a single-minded dedication to improving marking quality.
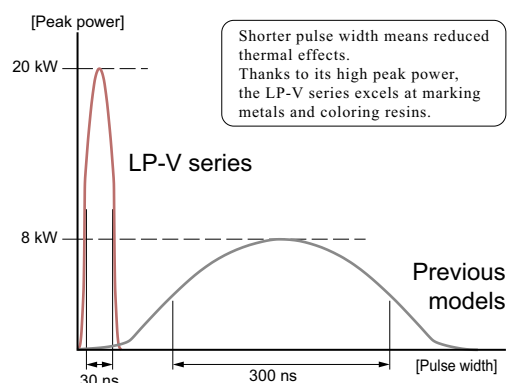
The LP-V series is ideal for marking metals and coloring resins.

The FAYb laser used in the LP-V series features a pulse that is significantly shorter than the pulse width used in conventional models. This configuration offers reduced thermal effects and is ideal for use in marking applications.

Impressive capabilities for marking metals

The FAYb laser used in the LP-V series features a high peak power of 20 kW, enabling it to generate sharp, deep marking and crisp, black output on metals that require high levels of power.

[Peak power]

20 kW

8 kW

Shorter pulse width means reduced thermal effects.
Thanks to its high peak power, the LP-V series excels at marking metals and coloring resins.

LP-V series

Previous models

30 ns   300 ns   [Pulse width]

Beautiful resin coloring

The LP-V series has it all, delivering high peak power in a short-pulse laser with low thermal effects to enable beautiful, print-like color marking on resins.

Advantages for large target objects and multi-unit layouts

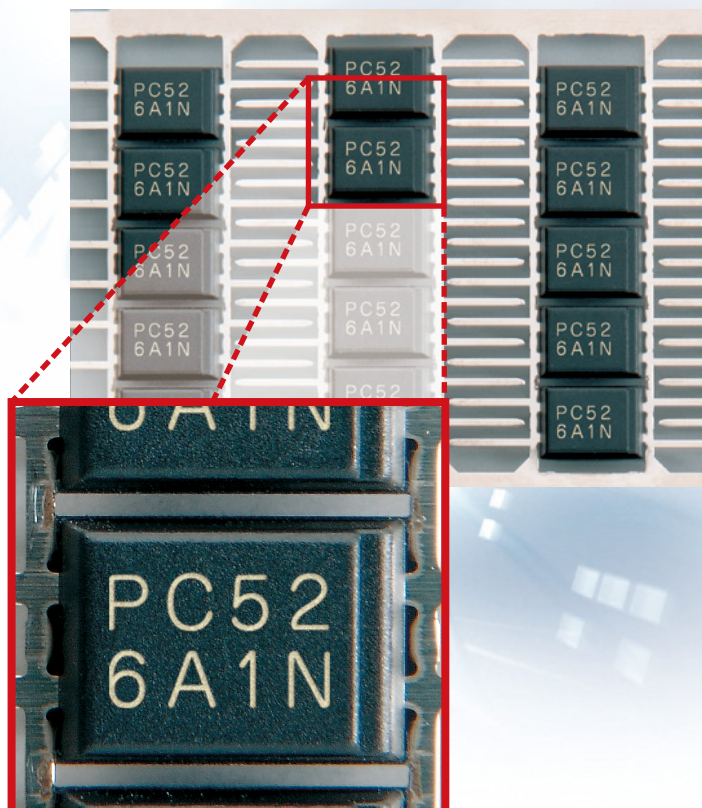Available 160 mm × 160 mm 6.3 in × 6.3 in wide-area models let the LP-V series accommodate wide marking areas.

• Support for batch marking of multi-unit layouts
• No set changes
• Fewer units required
• Support for marking of large target objects

The LP-W052 generates super-small marking that is vivid and uniform, making it ideal for low-profile packages.

It is critical that marking on low-profile electronic components such as chip-size packages has little effect on the target object. Laser output control and a high-speed galvanoscanner make it possible to keep the marking depth to just 10μm 0.39 mil or less.
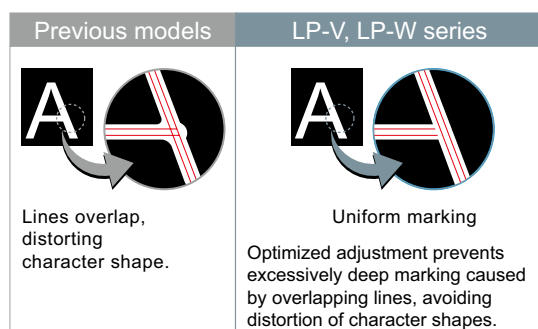

Technologies behind high-quality marking

The LP-V and LP-W series take advantage of a number of new technologies to deliver high-definition marking.
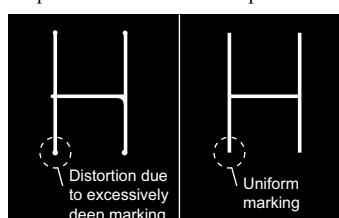
Intersection correction

Advanced control functionality prevents excessively deep marking where lines in characters intersect, eliminating the tendency of overlapping lines to distort the shape of output characters in previous models.

Previous models	LP-V, LP-W series

Lines overlap, distorting character shape.

Uniform marking

Optimized adjustment prevents excessively deep marking caused by overlapping lines, avoiding distortion of character shapes.
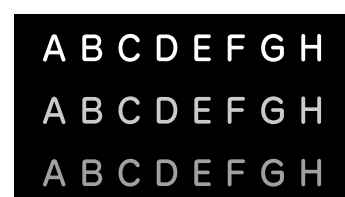
Depth control

The LP-V and LP-W series automatically adjust 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 beautiful output with uniform line depth.

Distortion due to excessively deep marking

Uniform marking

Coloring adjustment

The LP-V and LP-W series control coloring by adjusting the laser power, scanning speed, and marking pulse cycle for each set line, giving products a broad range of expression.

ABCDEFGH
ABCDEFGH
ABCDEFGH

Advantages of the innovative FAYb fiber system

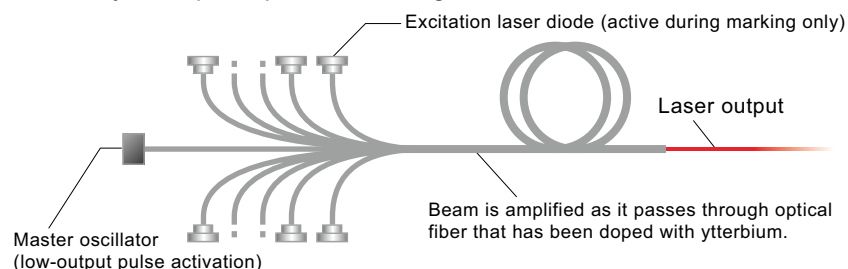## The FAYb system resolves the problems of conventional laser markers.

The FAYb system provides long life and high efficiency in a compact package that is completely air-cooled. Equipment footprint, constraints on installation orientation, lamp replacement, adjustment of mirrors and other optical components, running costs, and other issues associated with conventional laser markers have all been addressed.
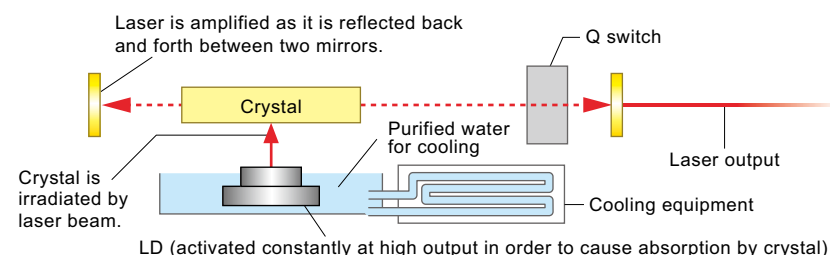
∗ LD: Laser diode

Innovative fiber system (FAYb)

Doping with the rare-earth element ytterbium, which has a beneficial effect on beam width, inside optical fiber allows the laser beam to be excited and amplified in an extremely efficient manner, yielding stable output. In addition, the use of a design where the excitation laser diodes are only activated during marking results in dramatically extended laser diode life.

• FAYb system principles and design

Excitation laser diode (active during marking only)

Laser output

Master oscillator (low-output pulse activation)

Beam is amplified as it passes through optical fiber that has been doped with ytterbium.

• Conventional principles and design

Laser is amplified as it is reflected back and forth between two mirrors.

Q switch

Crystal

Purified water for cooling

Laser output

Crystal is irradiated by laser beam.

Cooling equipment

LD (activated constantly at high output in order to cause absorption by crystal)

Continuing evolution of the FAYb system

The LP-V and LP-W series build on the strengths of previous models (the LP-F series) by delivering improved performance.

■ Advantages of short-pulse lasers in coloring applications

The LP-V series features a newly developed short-pulse laser for reduced thermal effects and more vivid color.

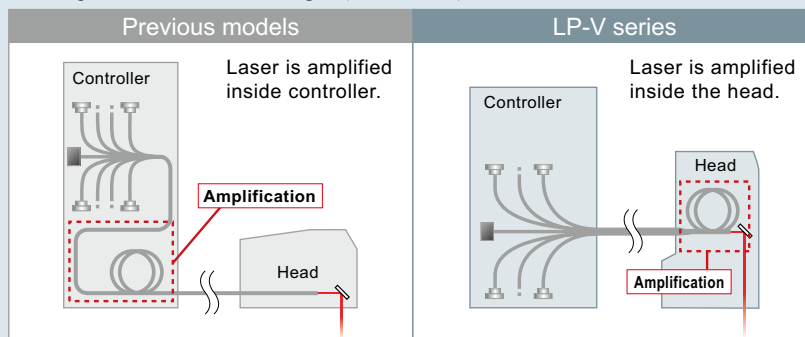| Previous models	LP-V series
L	L

■ Energy efficiency

Despite 20 % higher laser output than previous models, the LP-V series delivers a 10 % reduction in power consumption.
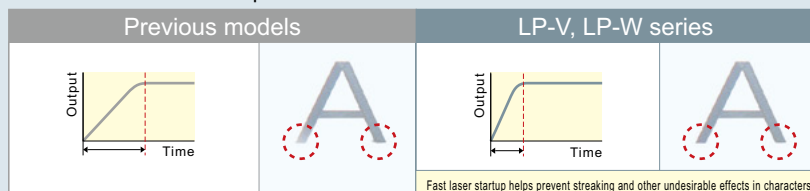
■ Improved startup and shutdown

Laser output now reaches the set level instantaneously, helping to keep marking crisp and sharp at the beginning and end of characters.

■ Improved laser output efficiency

The laser beam is amplified in the unit's head. This design eliminates the power attenuation ordinarily experienced as the light travels over the transmission fiber, enabling more efficient laser output (LP-V series).

Previous models	LP-V series
Controller — Laser is amplified inside controller. Amplification — Head	Laser is amplified inside the head. Controller — Head — Amplification

● Simulated laser startup characteristics

Previous models	LP-V, LP-W series
Output / Time — A	Output / Time — A

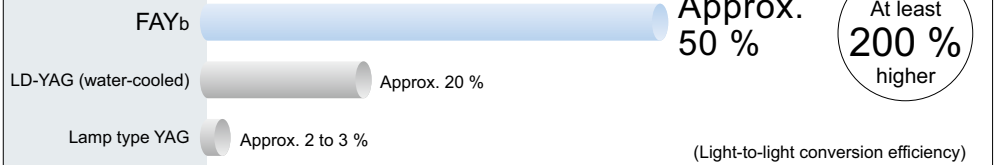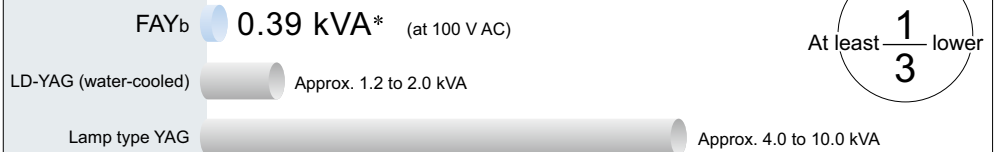Fast laser startup helps prevent streaking and other undesirable effects in characters.

High efficiency with less energy

Because it amplifies the laser inside ytterbium-doped fiber, the FAYb system delivers 50 % conversion efficiency, more than twice the level that is possible with conventional laser markers. An energy-efficient design keeps power consumption to approximately 1/3 the level of conventional laser markers.

● Comparison of conversion efficiency

FAYb — Approx. 50 %

LD-YAG (water-cooled) — Approx. 20 %

Lamp type YAG — Approx. 2 to 3 %

Conversion efficiency At least **200 %** higher

(Light-to-light conversion efficiency)

● Comparison of power consumption

FAYb — 0.39 kVA∗ (at 100 V AC)

LD-YAG (water-cooled) — Approx. 1.2 to 2.0 kVA

Lamp type YAG — Approx. 4.0 to 10.0 kVA

Power consumption At least 1/3 lower

∗ LP-V series

Completely air-cooled

By utilizing a heat-suppressing design with exceptional dissipation characteristics, Our company was able to develop a completely air-cooled oscillator.

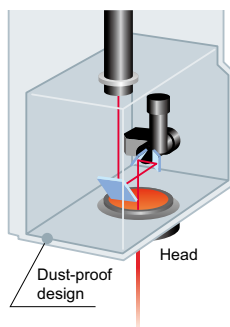No consumables   No additional facilities   No liquid coolant

Long life

The FAYb system uses a well conceived design that pairs a low-output master oscillator with a laser diode that is only activated during marking, reducing the load on the diode and dramatically improving the conversion cycle compared to conventional designs that use high-output diodes that are always active. Our company uses laser diodes with the same high levels of reliability and durability as units used for optical communication applications.

Dust-proof design

To compensate for its extreme susceptibility to even small pieces of dirt and dust, the galvanoscanner is protected by an effective dust-proof design. This feature guarantees marking consistency over the long term.
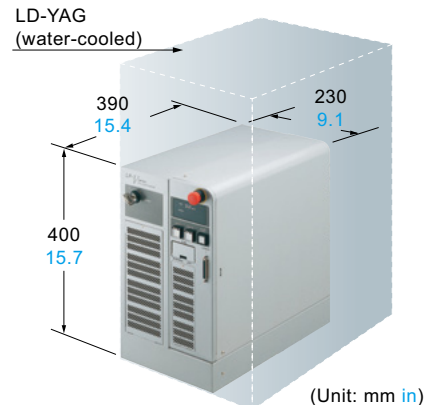
Dust-proof design   Head

Space-saving design

The system's head has a footprint smaller than a B5 sheet of paper, and the ability to be installed in any orientation ensures that no space will be wasted. Both LP-V and LP-W series systems are surprisingly compact since they do not require coolant pipes or additional cooling equipment. The result is reduced equipment and deployment costs.

Compared to LD-YAG laser markers (water-cooled system)

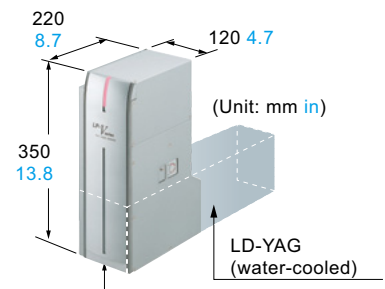Approx. **1/3** the installation space by volume

Controller

LD-YAG (water-cooled)
390 15.4   230 9.1   400 15.7
(Unit: mm in)

Compared to LD-YAG laser markers (water-cooled system)

Approx. **2/3** the space by volume   Approx. **1/2** the installation footprint by area

Head

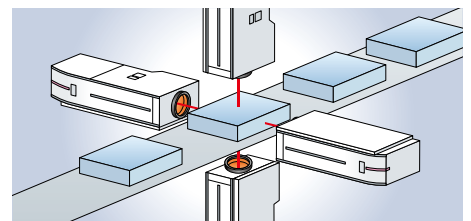220 8.7   120 4.7   350 13.8   (Unit: mm in)   LD-YAG (water-cooled)

∗ When installing an air-cooled system, be sure to leave sufficient ventilation space for cooling.

No-alignment installation in any orientation

Because their oscillation method does not require the use of optical mirrors, FAYb laser markers are not susceptible to optical axis misalignment caused by vibrations or other mechanical disturbances. When moved, the system does not need to be realigned by a specialist engineer. In addition, its completely air-cooled, space-saving design can be installed in any orientation as dictated by available space, target object characteristics, transport line type, and other factors.
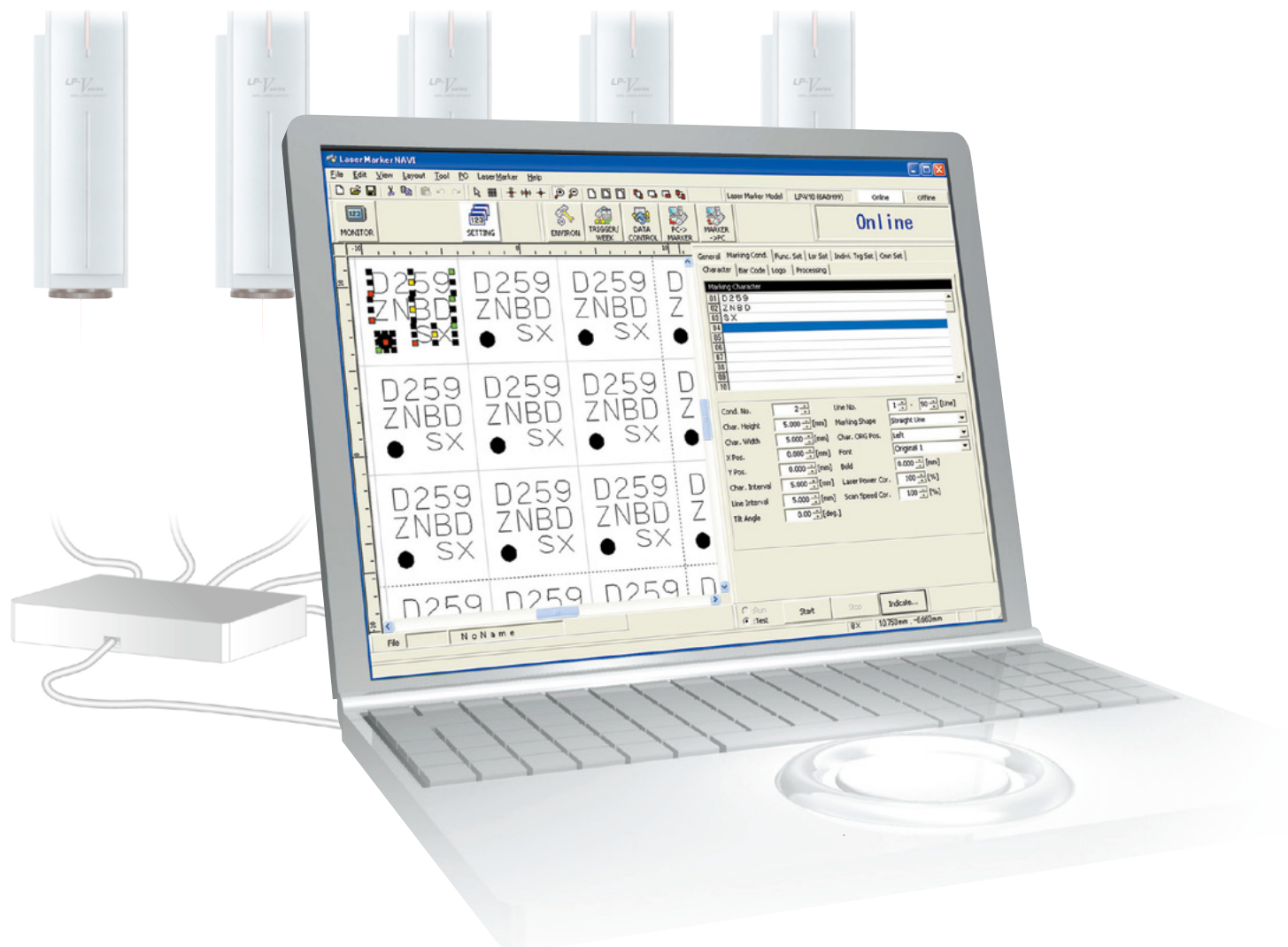
∗ When installing laser markers facing one another, take care to prevent the light from each laser from entering the irradiation port of the unit facing it.

Convenience means selecting the mode of operation that is right for your application.

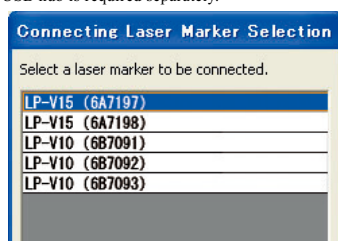## Control multiple laser markers with the new Laser Marker NAVI application.

The LP-V and LP-W series come standard with application software for easily configuring marking data.
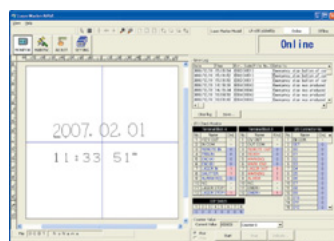

Batch laser marker management

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 out the application's management capabilities, ensuring that advanced technology will pave the way for dramatically improved work efficiency.

∗ A USB hub is required separately.

Intuitive interface

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.

System operation monitor screen
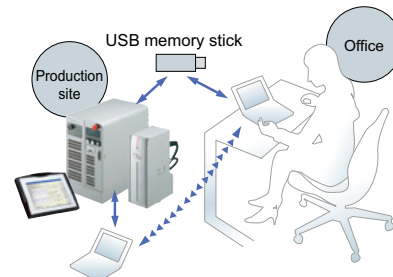
Offline configuration

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∗.

∗ You can also operate the laser marker using a monitor and mouse.

10

LP-V, LP-W SERIES

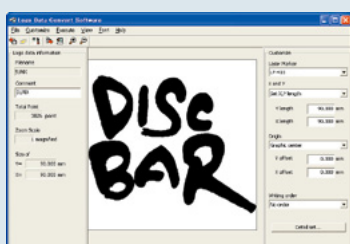## The touch panel console is ready for immediate use at production sites.

LCD touch panel console (optional) provides unmatched ease of use.

* Simulated screen image.

Laser Marker NAVI included softwares
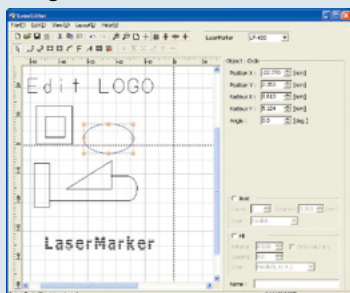
Logo data conversion software

Output logos and other graphical marks from DXF, BMP, or JPEG data and read marks using a scanner with Laser Marker NAVI.

* DXF is a data format developed by Autodesk, Inc. to facilitate the exchange of data between CAD applications.
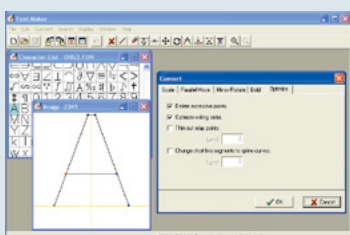

Logo data editing software

Create and edit logo files without using commercial CAD software.

Font maker software

Create original fonts.

Intuitive operation

The console uses an intuitive, easy-to-understand hierarchical interface. The ability to generate a test mark or check data being output from all screens facilitates quick operational response. Combine features such as changing the display magnification, displaying target object images, and configuring device offsets for even greater convenience.

Quick review

A color touch panel designed for maximum ease of use and viewing provides stress-free operation by displaying marking data and settings immediately. An ergonomic design makes it equally easy to use in both handheld and equipment-mounted configurations.

Control with off-the-shelf monitor and mouse

* Customers are encouraged to verify proper operation of system components in advance when using off-the-shelf hardware.

LP-V and LP-W series laser markers can also be used with a standard computer monitor and mouse.

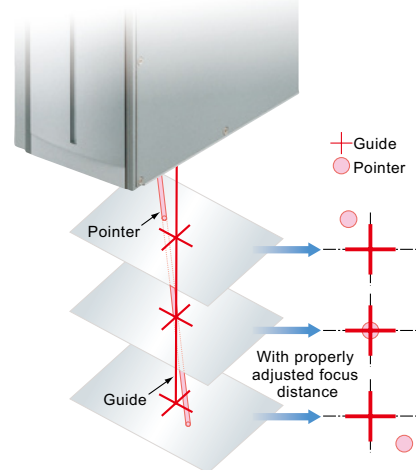# Convenient features meet a variety of needs.

USB connectors

The ability to store system settings on standard USB memory sticks lets you backup marking settings or copy the same set of settings to multiple laser markers, delivering improved ease of use compared to the floppy disk drive used by previous models. (The system also supports USB-connected floppy disk drives.)

∗ Customers are encouraged to verify proper operation of system components in advance when using off-the-shelf hardware.

Dual pointers

LP-V and LP-W series laser markers incorporate dual pointers created by a red guide light to make it easier to check and adjust the marking position and focus distance. This feature also enables you to easily fine-tune the focus distance.

Guide
Pointer

Pointer

Guide

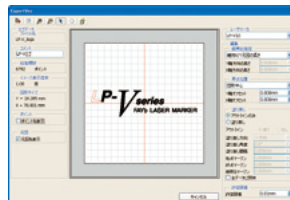With properly adjusted focus distance

Easy marking of Adobe® Illustrator® data

Data created by Adobe® Illustrator® can be converted into marking data by "ExportVec", which is a standard-included software. Logos or marks can be easily marked while staying true to the original Adobe® Illustrator® graphic images.

Convert from file menu with one click
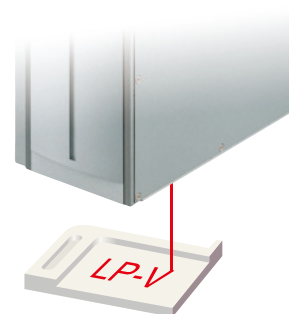
Graphic drawn by Adobe®Illustrator®

Hatching editing of marking data (VEC format) is also possible

∗ Adobe® Illustrator® is a registered trademark of Adobe Systems Incorporated in the United States and other countries.
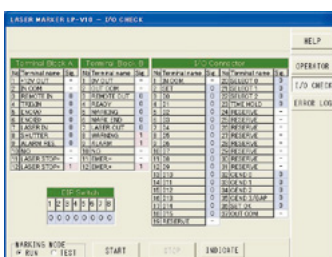
Guide laser feature for checking marking position

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

Terminal block monitor and error log display features

An I/O confirmation monitor provides on-screen confirmation of terminal block status, allowing you to easily simulate equipment tests. An error log display feature saves information about system errors for later viewing.

● I/O confirmation monitor feature

Power check feature

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

Password feature

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.

Focus adjustment feature

A newly developed focus adjustment feature simplifies system configuration at the time of installation by allowing the unit's focus to be adjusted without moving the head or fixture when changing the height of the target object or when system output becomes blurry or unfocused.

Help feature

LP-V and LP-W series 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.

Marking Samples

Character size (typical)

0123456789
ABCDEFGHIJKLMNOPQRSTUV
abcdefghijklmnopqrstuvwxyz

0123456789
ABCDEFGHIJKLMNOPQRSTUV
abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMN
abcdefghijklmn
1234567890-。:?

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890-。:?!℃¥$%#&*@○□△

Arced and angled marking

0123456789ABCDEFG
0123456789ABCDEFG
0123456789

Japanese kanji characters

製造日	賞味期限	型式名	品番
警告	注意	危険	管理外	単位
日本製	入力	出力	電源	E種

2D code

QR

Micro QR code

Data Matrix

Logos

PET

Barcode

CODE128

Composite code

(17) 060704 (10) 123ABC

(01) 14912345678901
RSS (GS1 DataBar)
Limited CC-A

Marking and Processing Examples

● Semiconductor wafers

● ICs (DIP)

● Automotive parts

● Molded resin parts

● Laser diodes

● Relay cases (resin coloring)

● Bearings

● Keypad tops (for mobile phones)

● Trimmer potentiometers (super-small marking)

● Product nameplates

● Drill bits

● Automotive illuminated buttons

● Specifications

Type / Item — Model No.	General-purpose type — **LP-V10U**	Wide-area type — **LP-V15U**	For semiconductor packages (small-spot type) — **LP-W052U**
Work distance (Note 1)	190 mm 7.5 in	350 mm 13.8 in	127 mm 5.0 in
Marking laser	Class 4 Yb fiber laser; wavelength: 1.06 μm 0.042 mil		
Average output (Note 2)	12 W (pulse oscillation)		5 W (CW oscillation)
Guide laser / pointer	Class 2 semiconductor laser; wavelength: 655 nm 0.026 mil		
Marking field	90 × 90 mm 3.5 × 3.5 in	160 × 160 mm 6.3 × 6.3 in	55 × 55 mm 2.2 × 2.2 in
Scan speed	Max. 12,000 mm/sec.		Max. 6,000 mm/sec.
Line speed (Note 3)	240 m/min or less		120 m/min or less
Installation orientation	All		
Character height / width	0.2 to 90 mm 0.008 to 3.5 in (variable in 0.001 mm 0.00004 in steps)	0.2 to 160 mm 0.008 to 6.3 in (variable in 0.001 mm 0.00004 in steps)	0.2 to 55 mm 0.008 to 2.2 in (variable in 0.001 mm 0.00004 in steps)
Marking spacing	0 to 90 mm 0 to 3.5 in (variable in 0.001 mm 0.00004 in steps)	0 to 160 mm 0 to 6.3 in (variable in 0.001 mm 0.00004 in steps)	0 to 55 mm 0 to 2.2 in (variable in 0.001 mm 0.00004 in steps)
(character spacing, line pitch)	Arced output: -180° to +180° (variable in 0.01° steps)	Arced output: -180° to +180° (variable in 0.01° steps)	Arced output: -180° to +180° (variable in 0.01° steps)
Marking shape	Straight Line, Arc, Proportional, Justify		
Character types	English uppercase letters, English lowercase letters, numerals, katakana, hiragana, kanji (JIS No. 1 and No. 2 standards), symbols, user-registered characters (up to 50)		
Barcodes	Code 39, Code 128, ITF, NW-7, JAN(EAN) / UPC, RSS-14 (GS1 DataBar), RSS (GS1 DataBar) Limited, RSS (GS1 DataBar) Expanded		
2D codes	QR Code, Micro QR Code, Data Matrix, GS1 Data Matrix		
Composite codes	RSS-14 (GS1 DataBar) CC-A, RSS-14 (GS1 DataBar) Stacked CC-A, RSS (GS1 DataBar) Limited CC-A, etc.		
I/O	Input terminal, Output terminal, I/O connector		
Interface	RS-232C, Ethernet		
Logos / Shapes	VEC (Note 4), BMP, DXF, HPGL, JPEG, AI (Note 5), EPS (Note 5)		
Cooling method	Forced air cooling		
Power supply	90 to 132 V AC, or 180 to 264 V AC (Auto-switching), 50/60 Hz		
Power consumption	390 VA or less (100 V AC); 420 VA or less (200 V AC)		310 VA or less (100 V AC); 360 VA or less (200 V AC)
Inputs	Remote, trigger, encoder (A), encoder (B), shutter control, laser excitation, alarm reset, emergency stop, laser stop, etc.		
Outputs	Power supply (+12 V), remote, marking ready, marking, marking complete, laser excitation, warning, alarm, configuration complete, counter complete		
Marking condition	Static, On the fly		
Functions	● Marking order optimization ● Intersection correction ● Counter marking ● Current date marking ● Deadline date marking ● Lot marking ● Logo data marking ● Font creation and editing ● Monospaced alignment ● Updating of operating screen display ● System offset ● Shared character settings ● Guide laser ● Dual pointers ● Overlapping marking ● Backup ● Marking on long moving objects ● Font selection ● Focus adjustment ● Proportional marking ● Marking image display ● Marking time measurement ● Target object image display ● Bold marking ● Rank marking ● Offset marking ● Time hold ● Step and repeat ● Operator adjustment ● I/O simulation ● Error log display ● Serial data marking ● Power check and correction ● I/O confirmation monitor ● Power and speed configuration by row or logo file		
Emergency stop switch	Located on controller		
Ambient temperature	0 to +40 °C +32 to +104 °F (Storage: -10 to +60 °C +14 to 140 °F) (No dew condensation or icing allowed)		
Ambient humidity	35 to 85 % RH (No dew condensation or icing allowed)		
Weight — Head	9 kg	10 kg	9 kg
Weight — Controller	22 kg	22 kg	22 kg
Laser Marker Driver & Utility OS (Note 6)	Microsoft Windows® 7 Professional (32 bit / 64 bit) / Vista Business (32 bit) / XP Professional (32 bit)		

Notes: 1) Work distance varies by approx. ±2 mm ±0.079 in from model to model.
    2) Independent output of oscillator.
    3) Varies by target object.
    4) VEC is a usable format of logo file for laser marker.
    5) The PC installed Adobe® Illustrator® 9.x to CS5(Windows) is necessary.
    6) Windows® 7 Professional, Vista Business,and XP Professional are trademarks or registered trademarks of Microsoft Corporation in the United State and other countries.

Available FDA and CE marking compliant variations.

Model No. List

Type	Japanese model	FDA regulations conforming type	CE marking conforming type
General-purpose type	**LP-V10U**	**LP-V10U-A**	**LP-V10U-C**
Wide-area type	**LP-V15U**	**LP-V15U-A**	**LP-V15U-C**
For semiconductor packages	**LP-W052U**	**LP-W052U-A**	—

Precautions for Proper Use

Laser safety

• This product is classified as a Class 4 Laser Product in IEC / JIS standards and in FDA regulations 21 CFR 1040.10 and 1040.11. Never look at or touch the direct laser beam and its reflection.
• The laser used by this product generates infrared light that is invisible to the human eye. Use particular caution when the laser is operating.
• The following labels are attached to this product. Handle the product according to the instruction given on the warning labels. (Warning labels are not shown in the product photographs in this catalog.)

Recommended use of a dust collector

• Depending on the object being marked, harmful gasses or smoke that have a detrimental effect on the human body or the laser marker may be generating during marking. If your application falls under this description, use a dust collector.
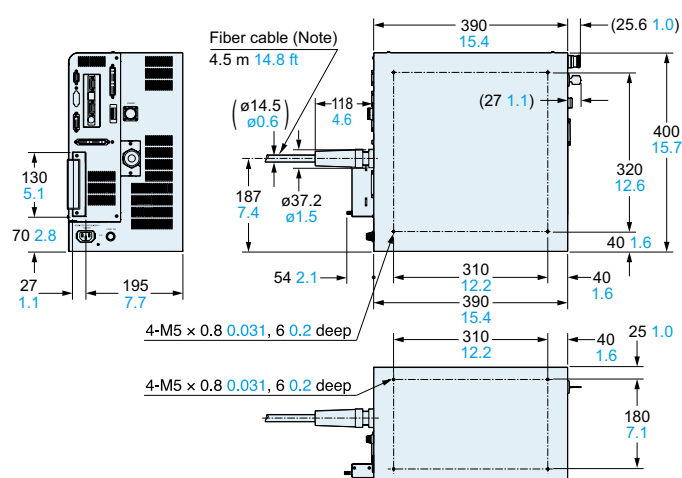
∗ For more information, contact your sales representative.

Dimensions (Unit: mm in)

Controller

Fiber cable (Note) 4.5 m 14.8 ft

(390 15.4) (25.6 1.0) (27 1.1)
400 15.7
320 12.6
40 1.6
130 5.1
70 2.8
27 1.1 195 7.7
(ø14.5 ø0.6) 118 4.6
187 7.4 ø37.2 ø1.5
54 2.1 310 12.2 40 1.6
390 15.4
4-M5 × 0.8 0.031, 6 0.2 deep
4-M5 × 0.8 0.031, 6 0.2 deep
310 12.2 40 1.6 25 1.0
180 7.1

Main indicator
Laser radiation indicator
Key switch
Laser excitation switch
USB connectors
40 1.6
Emergency stop switch
File No. / Error code indicator
Alarm reset switch
Remote switch
Console connector
345 13.6
230 9.1

Note: The fiber cable is not removable.

Head (LP-V10U)

Laser radiation indicator

220 8.7 (25 1.0)
118 4.6 ø37.2 ø1.5 (ø14.5 ø0.6)
350 13.8
248 9.8
Fiber cable 4.5 m 14.8 ft
Min. bend radius R60 R2.4
Focus dial
Focus adjuster
Center of marking
Marking field 90 × 90 3.5 × 3.5
ø87 ø3.4
120 4.7
190 7.5 18.1 0.7

10-M6 thread, 7 0.3 deep
40 1.6 40 1.6 11 0.4
60 2.4 120 4.7 31 1.2
20 0.8
80 3.1
80 3.1
27 1.1 91 3.6 90 3.5
44 1.7
ø4 +0.1/0 ø0.2 +0.004/0, 8 0.3 deep
5-slot, ø4 +0.1/0 ø0.2 +0.004/0, 8 0.3 deep
Horizontally oriented
Laser pointer emission port, ø27 ø1.1

Head (LP-V15U)

Laser radiation indicator

220 8.7 (25 1.0)
118 4.6 ø37.2 ø1.5 (ø14.5 ø0.6)
350 13.8
248 9.8
Fiber cable 4.5 m 14.8 ft
Min. bend radius R60 R2.4
Focus dial
Focus adjuster
Center of marking
Marking field 160 × 160 6.3 × 6.3
ø106 ø4.2
120 4.7
350 13.8 39.5 1.6

6-M6 thread, 7 0.3 deep
160 6.3 11 0.4
60 2.4 120 4.7 31 1.2
20 0.8
80 3.1
80 3.1
27 1.1 91 3.6 90 3.5
44 1.7
ø4 +0.1/0 ø0.2 +0.004/0, 8 0.3 deep
5-slot, ø4 +0.1/0 ø0.2 +0.004/0, 8 0.3 deep
Horizontally oriented
Laser pointer emission port, ø27 ø1.1

Dimensions (Unit: mm in)

Head (LP-W052U)

Laser radiation indicator

LP W

ø87 ø3.4
120 4.7

220 8.7
(25 1.0)
118 4.6
ø37.2 ø1.5
(ø14.5 ø0.6)
Fiber cable 4.5 m 14.8 ft
Min. bend radius R60 R2.4
Focus dial
350 13.8
248 9.8
127 5.0
19 0.7
Focus adjuster
Center of marking
Marking field 55 × 55 2.2 × 2.2

10-M6 thread, 7 0.3 deep
60 2.4
20 0.8
80 3.1
40 1.6
80 3.1
40 1.6
120 4.7
11 0.4
31 1.2
44 1.7
ø4$_0^{+0.1}$ ø0.2$_0^{+0.004}$, 8 0.3 deep
90 3.5
27 1.1
91 3.6
5-slot, ø4$_0^{+0.1}$ ø0.2$_0^{+0.004}$, 8 0.3 deep
Horizontally oriented
Laser pointer emission port, ø27 ø1.1

Console LP-ADP40 (Sold separately)

(41.5) (1.6)
(253) (10.0)
(171) (6.7)
(128) (5.0)
(197) (7.8)
(15) (0.6)

80 ± 0.8
3.2 ± 0.03
4-M4 mounting nut, depth 6 0.2 (insert nut)
143 ± 1.2
5.6 ± 0.05
2,900 ± 70
114.2 ± 2.8
(19.5) (0.8)
Pen holder mounting nut M4, depth 6 0.2 (for left and right sides)
Controller connection cable
(60) (2.4)
55 (2.2)
(6) (0.2)

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