

Fiber Laser Marker

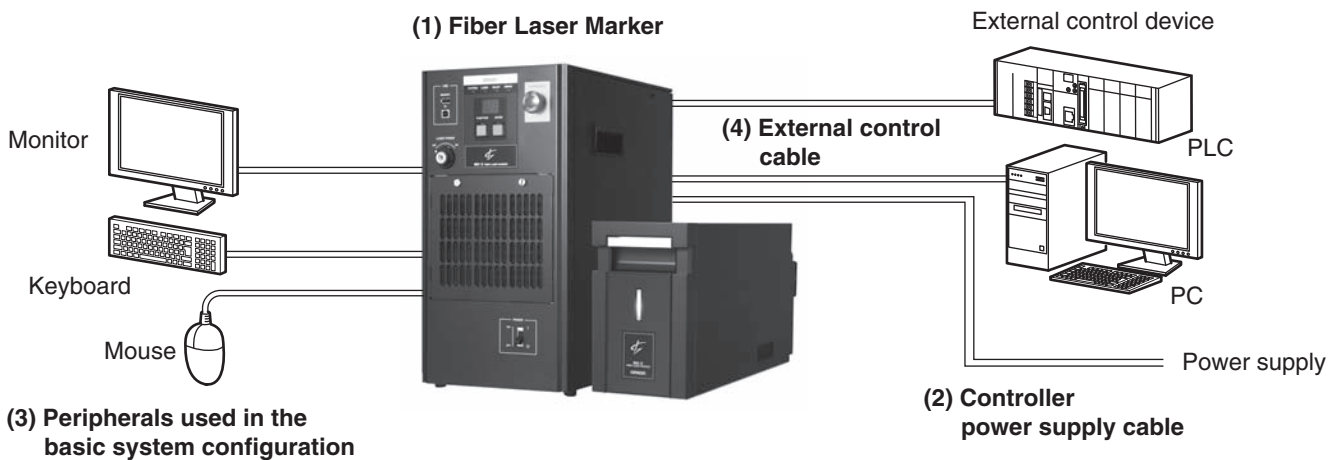
# MX-Z2000H-V1 series

Great for either deep or shallow engraving in metals, marking on plastics/resins or plastic films, and for fine processing. Mark anything from electronic parts to automotive parts.

- High Speed and High Quality for a Wide Variety of Applications  
<Marking Flexibility>
- Enhanced functionality Improves Productivity  
<Connectivity & Traceability>
- Withstands Severe Ambient Conditions and Meets International Standards  
<Durability/Safety>




## System Configuration



# MX-Z2000H-V1

## Ordering Information

### (1) Fiber Laser Marker

Appearance	Marking area	Working distance	Model
	90 × 90 mm	170 ±10 mm	<b>MX-Z2000H-V1</b>
	160 × 160 mm	220 ±10 mm	<b>MX-Z2050H-V1</b>
	160 × 160 mm	220 ±10 mm	<b>MX-Z2055H-V1 *</b>



\* Faster marking for resins and plastics films (It is a specification with a thicker marking line width)

### Optional Products (Sold Separately)

An activation key is required to use EE mode (Energy Enhanced Mode)

Description	Model
Energy Enhanced mode (License)	<b>MX-9230</b>

### (2) Controller power supply cable

Appearance	Item	Length	Model
	(PSE, UL) plug type B	2.9 m	<b>MX-9301</b>
	(VDE, AS) plug type F	2.9 m	<b>MX-9302</b>

**Note:** The MX-9301 can be used as a PSE (Japan) or UL (USA)/CSA (Canada) compliant cable.

The MX-9302 can be used as a VDE (Germany) or AS (Australia) compliant cable.

When using this product in a country or region that cannot use the MX-9301/MX-9302 prepare the appropriate cable suitable for use in your country or region according to country/regional regulations.

### (3) Peripherals used in the basic system configuration


The following peripherals are used in the basic system configuration. Prepare them as necessary.

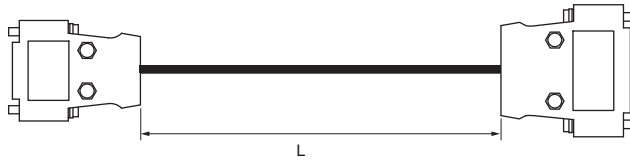
Item name	Specification
Monitor	<ul style="list-style-type: none"><li>• DVI-D input specification</li><li>• VGA input specification (15-pin, 3 rows)</li></ul> Number of pixels: 1,024 × 768 pixels or more (Recommended)
Keyboard	USB connector specification (standard-A connector in rear face of controller)
Mouse	USB connector specification (standard-A connector in rear face of controller)

### (4) External control cable

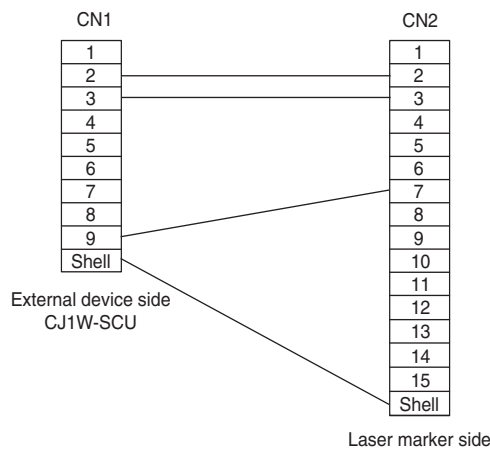
#### RS-232C cable (connected to CJ series)

A cable that connects to the controller RS-232C / RS-422A serial port (D-sub-15-pin connector).

Appearance	Length (L)	Model
	5 m	MX-9160-5M




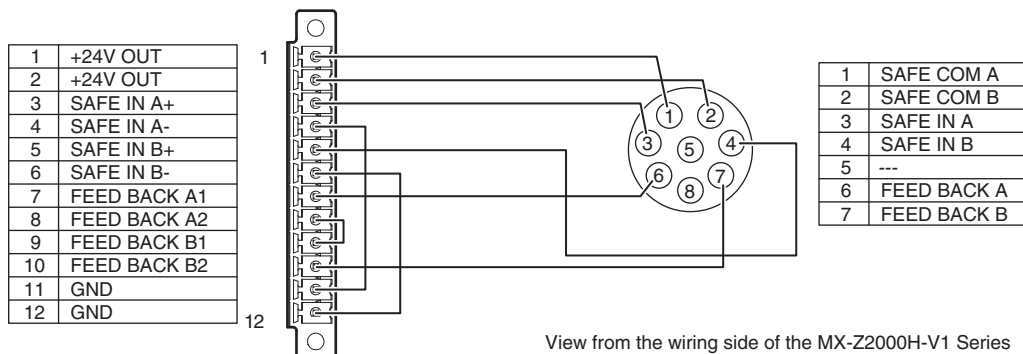
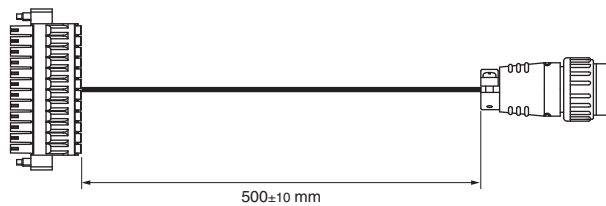
Wiring Diagram



#### Interlock conversion cable for MX-Z2000H series









By using MX-9161 for the MX-Z2000H series interlock connector, it is possible to make it compatible with the MX-Z2000H-V1 connector.

Appearance	Model
	MX-9161



View from the wiring side of the MX-Z2000H-V1 Series

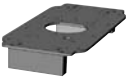

## Replacement and maintenance parts

Appearance	Item	Model
	Air filter for controller	<b>MX-9011</b>
	For MX-Z2000H series fan for marker head	<b>MX-9022</b>
	For MX-Z2000H series fan for marker controller	<b>MX-9023</b>
	For MX-Z2000H series cover glass bracket (W)	<b>MX-9034</b>
	Cover glass	<b>MX-9031</b>
	Bracket releaser	<b>MX-9032</b>
	Marker head power supply cable	<b>MX-9410</b>
	Marker head control cable	<b>MX-9411</b>

- Note:**
1. These are dedicated parts for the MX-Z2000H-V1 series and MX-Z2000H series.
  2. For parts replacement, refer to *Fiber Laser Marker MX-Z2000H Series Setup Manual* (Man. No. Z415).
  3. Be sure to use replacement parts meeting the above specifications. Use of a part not meeting the applicable specification may cause the system to fail. If you have any question, contact OMRON.

## Finder function option equipment

Please refer to *Finder Option catalogue* (Cat. No. Q255) to select image processing system.

Appearance	Item	Description	Model
	Camera attachment	For MX-Z2000	<b>MX-9150</b>
		For MX-Z2050/Z2055	<b>MX-9151</b>
	Camera mount	For FQ2 camera	<b>MX-915A-FQ2</b>
		For FZ/FH camera	<b>MX-915A-FZ</b>
		For FZ/FH camera (500 M pixels)	<b>MX-915A-S5M2</b>

## Masking set

This product is to be used according to the built-in form when incorporating laser marker MX-Z2000H series into equipment compatible with machine instructions (2006/42/EC) EN60204-1.

Description	Model
Button operation part (white) x 2, light-shielding tape, control stop button cover	<b>MX-9190</b>

## Protective Goggles

Use protective goggles with an optical density (OD value) of 6 or more for a wavelength of 1064 nm and which can be used to confirm laser radiation warnings.

# MX-Z2000H-V1

## Specifications

Item	Specification		
	MX-Z2000H-V1	MX-Z2050H-V1/ MX-Z2055H-V1 *1	
Processing laser	Type	Fiber laser Wavelength: 1,062 nm	
	Laser class	Class 4 (JIS C6802 2014)	
	Average output	20 W (Fiber laser transmitter output)	
	Laser output mode	Standard mode/EE mode *2	
	Repetition frequency	Standard mode 10 kHz to 1,000 kHz in 0.1-kHz steps EE mode *2, 10 kHz to 100 kHz in 0.1-kHz steps	
	Pulse-train width (pattern) setting	Standard mode 7.5 to 300 ns (15 patterns) EE mode *2, 150 to 450 ns (3 patterns)	
Guide laser and focus pointer	Type	Semiconductor laser Wavelength: 655 nm	
	Laser class	Class 2 (JIS C6802 2014)	
Optical specifications	Marking area	90 × 90 mm	160 × 160 mm
	Working distance	170 ± 10 mm	220 ± 10 mm
Scanning specifications	Scan speed	1 to 12,000 mm/s	
	Marking resolution	2 μm	4 μm
Details of marking	Text	Type: English alphabet (upper/lower case letters) / numbers / symbols / hiragana / katakana / kanji (JIS level 1, level 2) / other languages (UNICODE (Basic Multilingual Panel))  Printable fonts: • TrueType font • Stroke font (original / original2 / OCR-A / OCR-B / SEMI / LM font)	
	Bar code	CODE39/NW-7/ITF/CODE128/JAN GS1 Databar Omni-directional/GS1 Databar Truncated/ GS1 Databar Limited/GS1 Databar Expanded	
	2D code	QR code / Micro QR code / DataMatrix (ECC200) / GS1 DataMatrix (ECC200)	
	Shape	Fixed point / Straight line / Rectangle / Circle / Arc	
	3D shapes	Slope / Step / Cylinder / Truncated Cone / Sphere	
	Image and CAD	BMP / JPG / PNG / DXF	
Setting	Number of marking data registrations	10,000	
	Number of block registrations	2,048	
	Text setting (setting interval)	0.1 to 120 mm (0.001 mm)	
Cable	Fiber cable	4.5 m, Minimum bending radius: 100 mm	
	Marker head control cable	5 m, Minimum bending radius: 100 mm	
	Marker head power supply cable	5 m, Minimum bending radius: 100 mm	
External interface	Terminal block and I/O connector	Terminal block input: 20 pins (NPN/PNP) Terminal block output: 14 pins (NPN/PNP) I/O connector input/output: 37 pins (NPN/PNP) Interlock terminal: input/output 12 pins	
	Serial communications	RS-232C / RS-422A	
	Ethernet communication	No procedure (TCP), EtherNet IP™ 1000BASE-T, 100BASE-TX, 10BASE-T	
Power supply voltage	100 to 120 VAC Frequency 50/60 Hz 200 to 240 VAC Frequency 50/60 Hz		
Overvoltage category	II		
Power consumption	At 100 VAC: Maximum 390 VA At 200 VAC: Maximum 420 VA		
Environmental resistance	Operating temperature *3	0 to 40 °C	
	Operating humidity	35 to 85% RH (No condensation)	
	Storage temperature	-10 to 60 °C (No freezing)	
	Storage humidity	35 to 85% RH (No condensation)	
	Operating height above sea level	3000 m max.	
Pollution degree	2		
Protective structure (head)	IP65 *4 *5		
Cooling method	Forced air cooling		

Item	Specification	
	MX-Z2000H-V1	MX-Z2050H-V1/ MX-Z2055H-V1 *1
Weight	Marker head	Approx. 15 kg
	Controller	Approx. 25 kg
Size	Marker head	W140 × H230 × D415 mm (excluding projections)
	Controller	W225 × H430 × D390 mm (excluding projections)
Installation direction	Marker head	All directions of up, down, left and right (Intake vent on the left side face must not be blocked.)
	Controller	Must be installed vertically.
USB interface *6		<ul style="list-style-type: none"> <li>• For USB memory (standard-A connector in front face of controller)</li> <li>• For keyboard/mouse (standard-A connector in rear face of controller)</li> </ul>
Attached software *7		<ul style="list-style-type: none"> <li>• Offline editing software</li> <li>• Font logo editor *8</li> </ul>

\*1. Bold specifications

\*2. EE mode: Energy Enhanced mode (optional)

To use EE mode, you need the EE mode activation key MX-9230.

\*3. Continuously emitting a laser beam for a long time will cause the internal head temperature to rise. This could cause the protection function to stop marking. If the protection function operates, wait some time before using the laser again, or use air conditioning or the like to lower the ambient temperature prior to use.

\*4. The electronic and optical components of the head are placed within an IP65 enclosure.

\*5. The head of this product has a protective structure that withstands harsh environment under specified conditions such as the environment, length of time, and testing methods listed in IEC 60529 (JIS C 0920). Its operations under conditions other than specified are not guaranteed.

\*6. Do not use the USB interface for anything other than specified. Also, do not connect anything to the type B connector on the front of the controller.

\*7. The following environment is needed to operate the "offline editing software" and "font logo editor."

[Compatible functions] PC with USB port [Compatible OS] Microsoft Windows®7/8/8.1/10 [CPU and memory] Depends on OS specification  
[Free hard disk space] At least 1 GB [Display resolution] At least 1,024 × 768 pixels

\*8. Only the Shift-JIS character codes can be saved with the Font logo editor.

# MX-Z2000H-V1

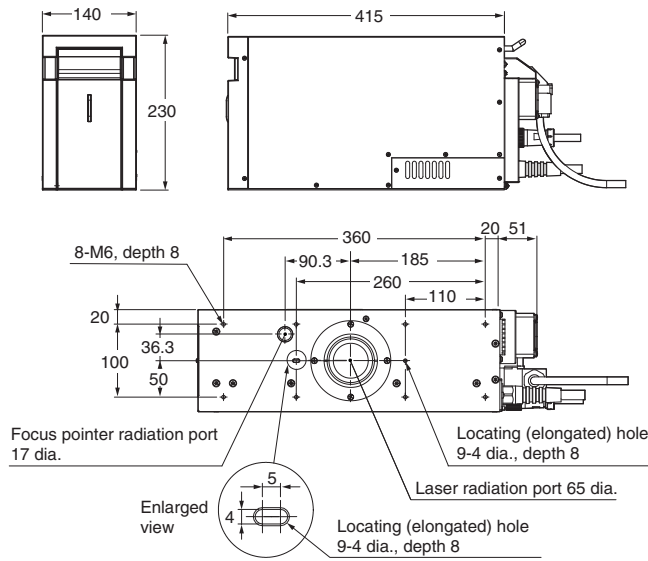
## Dimensions

(Unit: mm)

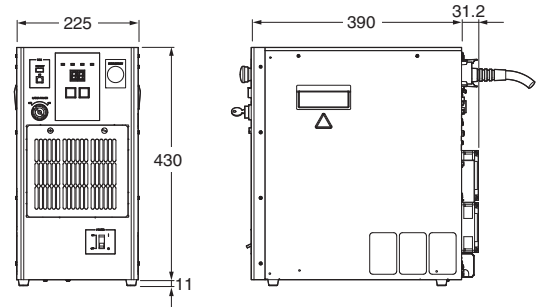
### Fiber Laser Marker

MX-Z2000H-V1

#### Marker head

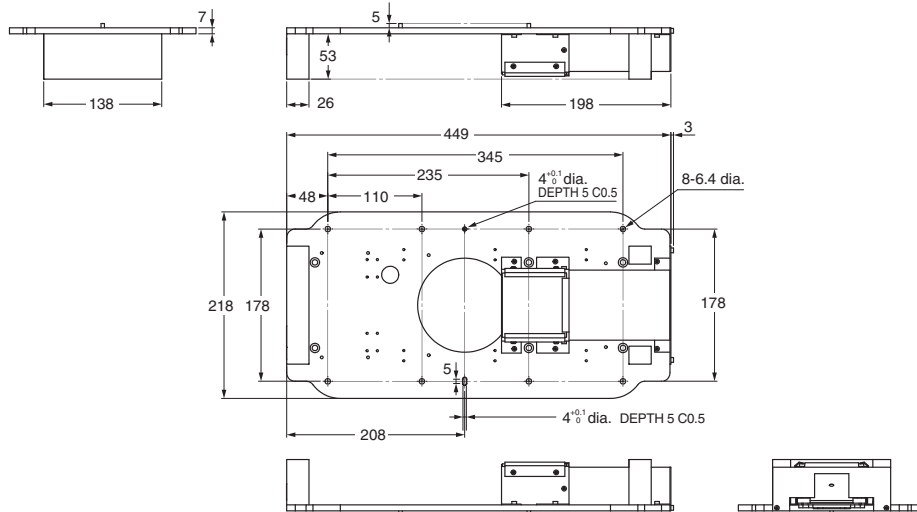


#### Controller



### Camera Attachment

MX-9150/9151



## Related Manuals/Catalogs

Man.No	Model number	Manual
Z415-E1	MX-Z2000H-V1	Fiber Laser Marker Setup manual
Z416-E1	MX-Z2000H-V1	Fiber Laser Marker User's manual
Z378-E1	MX-9150/9151	Camera Attachment Setup Manual
Q255-E1	MX-Z2000H	Finder Option for the MX-Z2000H Series Fiber Laser Markers

**⚠ DANGER**

**LASER RADIATION**

**AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION**

**CLASS 4 LASER PRODUCT (IEC60825-1:2014)**

**⚠ DANGER**

**LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION**



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