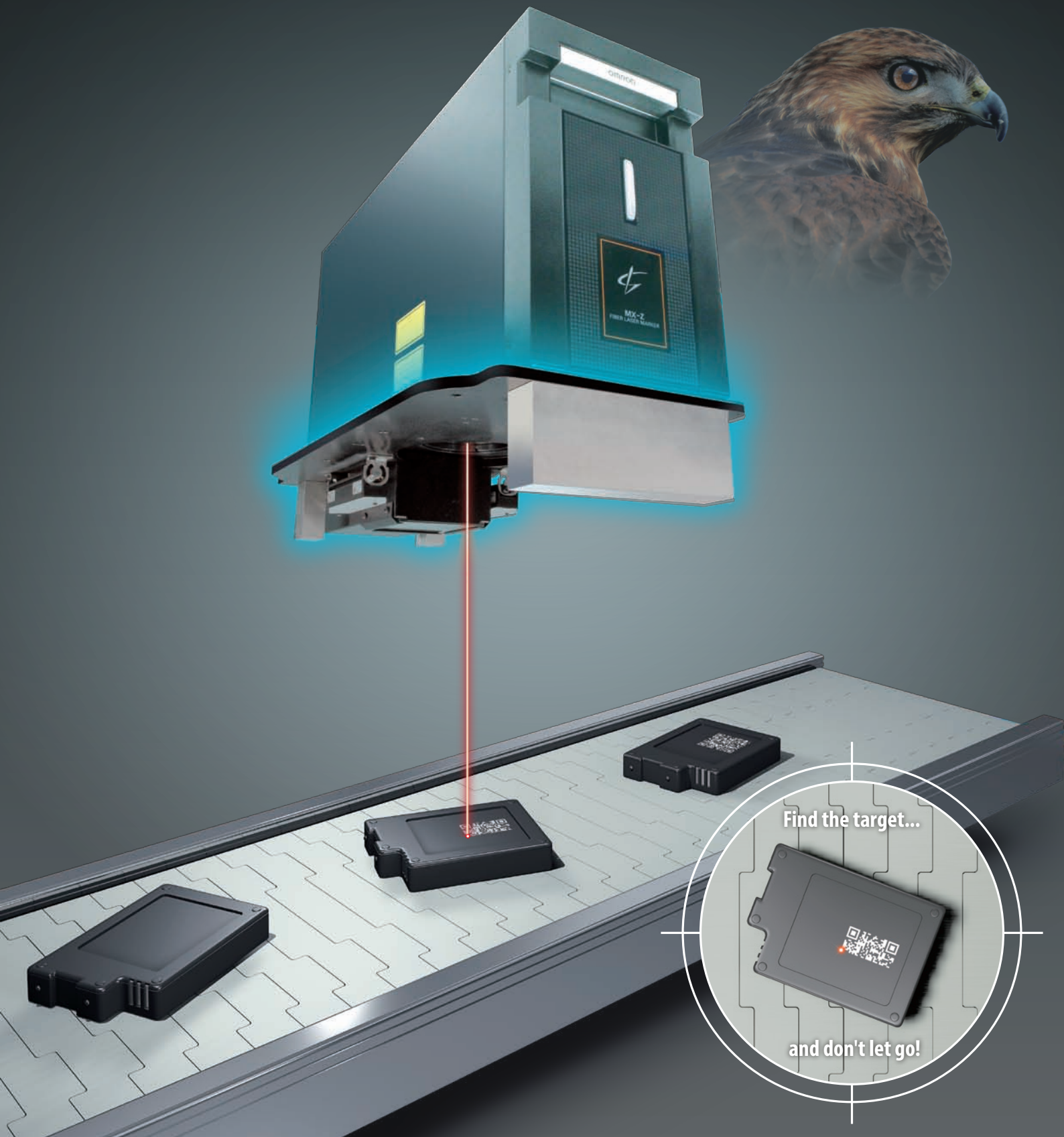


Finder Option
for the MX-Z2000H Series
Fiber Laser Markers

OMRON

Give your Laser Marker the **Eyes** to Confirm Marking Quality

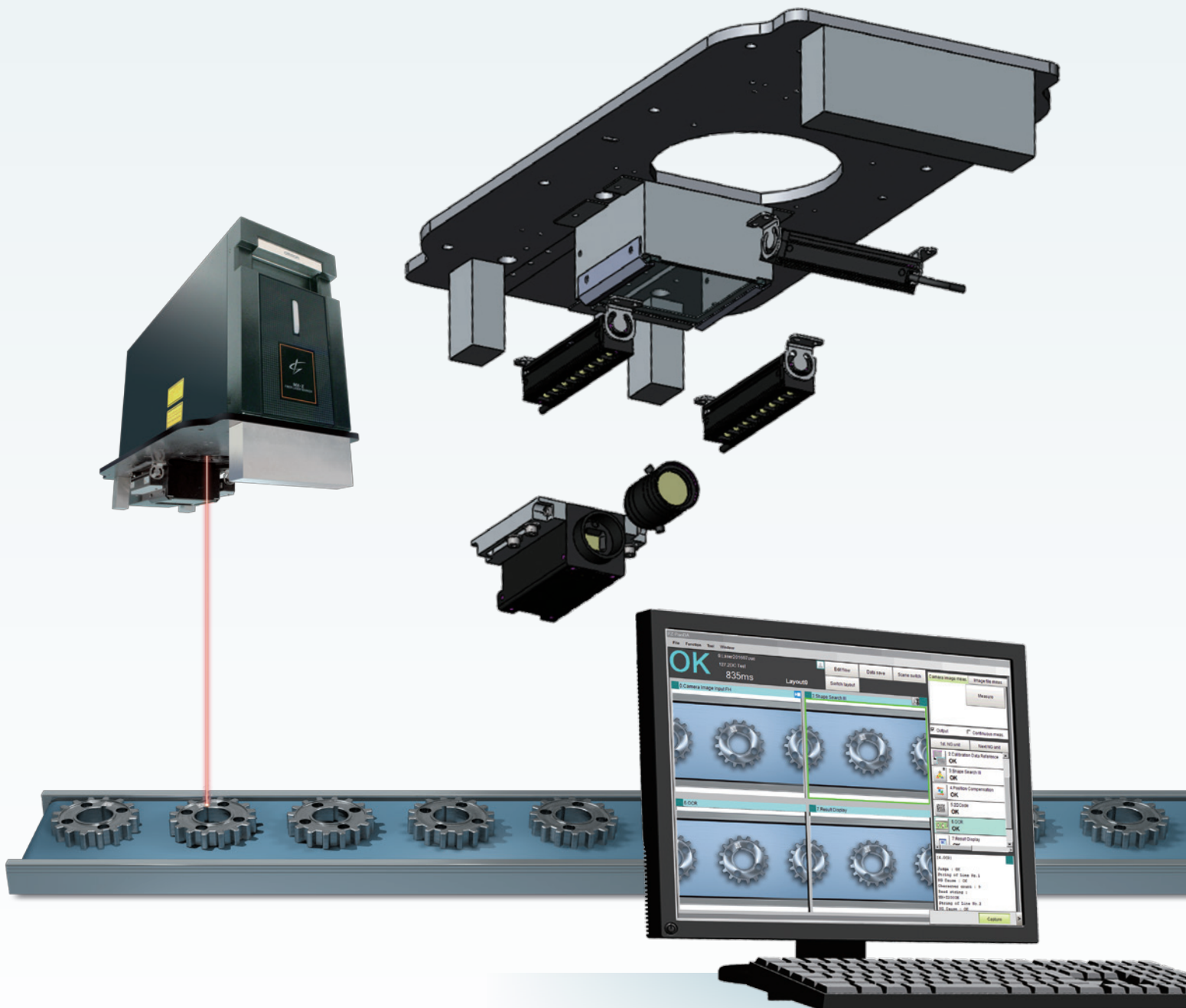
The same product enables position-compensated marking and data marked, including 2D codes inspection.



The Finder Option makes the MX-Z2000H series laser markers even easier to use!



Find the part, Mark it and Inspect it in the same position.
Position-compensated Marking, Inspection & Reading 2-D Codes, Display & Monitoring

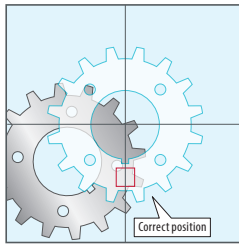




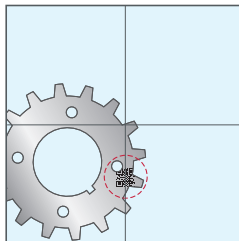
Position-compensated Marking

No mechanical position-compensation is needed.

Before There were many defects, producing low yields.

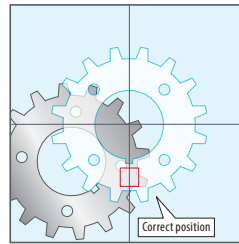


When parts were out of position...

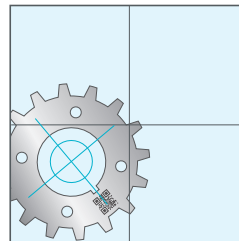


They were marked incorrectly, and defects were produced.

Now Position-compensation increases yields.



When parts are out of position...



the camera obtains the actual position, and...

they are marked correctly.

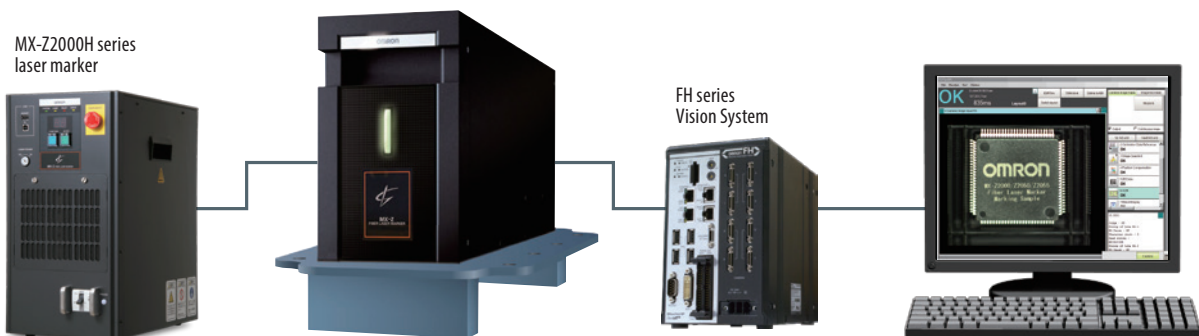
Not only X and Y but also θ correction is possible.

Great Benefits

The camera confirming and compensating for the workpiece position makes position-compensation mechanisms unnecessary.

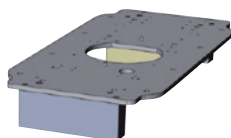
Jigs are not required even for multiple product types. The finder option contributes to both cost reductions and system simplification.

System Configuration for Position-compensation and inspection



Finder Option

The finder option is the name of the finder system compatible with the MX-Z2000H series. It consists of the following products.



Camera attachment



Camera mount



Finder camera



Lens



Lighting



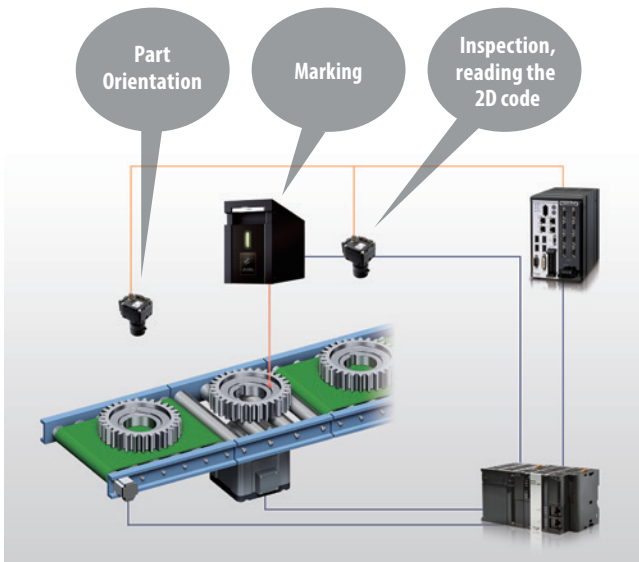
Note: Refer to pages 6 and 7 for device configuration details.

2

Inspection/Reading 2D Codes

Consolidate to a single process.

Before Various devices and processes were required.

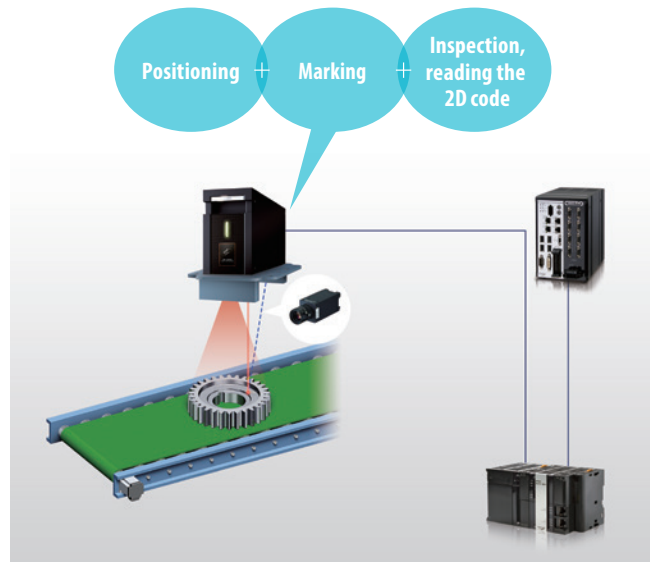


Cost and labor for the design, implementation and execution were high.

Before

Camera(s)	2
Rotary positioning mechanism	1
Product indexing	3 positions
Hardware design	Normal
Software design	Normal
Rotation time	Yes

Now All processes are consolidated in one single step.



Design, implementation, and execution are greatly simplified.

Now

Camera(s)	1
Rotary positioning mechanism	None
Product indexing	1 position
Hardware design	Simple
Software design	Simple
Rotation time	None

Cameras decreased

Rotary positioning gone

Stop positions decreased

Design effort reduced

Tact time reduced

The Benefits

Simplifies device configuration, reduces processes, reduces the cycle time and reduces costs.

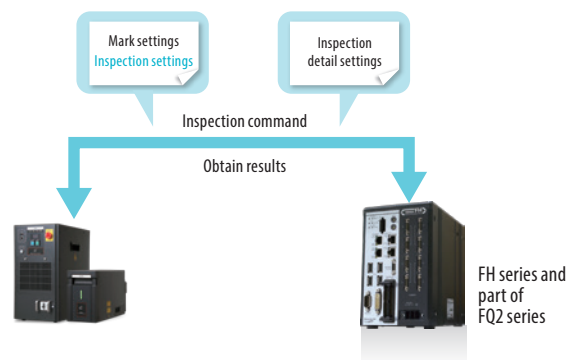
Compatible with the FH series vision system and FQ2 series smart camera, it's a must for multiple products inspections.

Furthermore, the MX-Z2000H series, ...

Direct Finder Link Eliminates the need of a PLC

Using the MX-Z2000H series direct finder link, the laser marker and the vision system can be connected directly, without going through a PLC. This reduces the design effort even more.

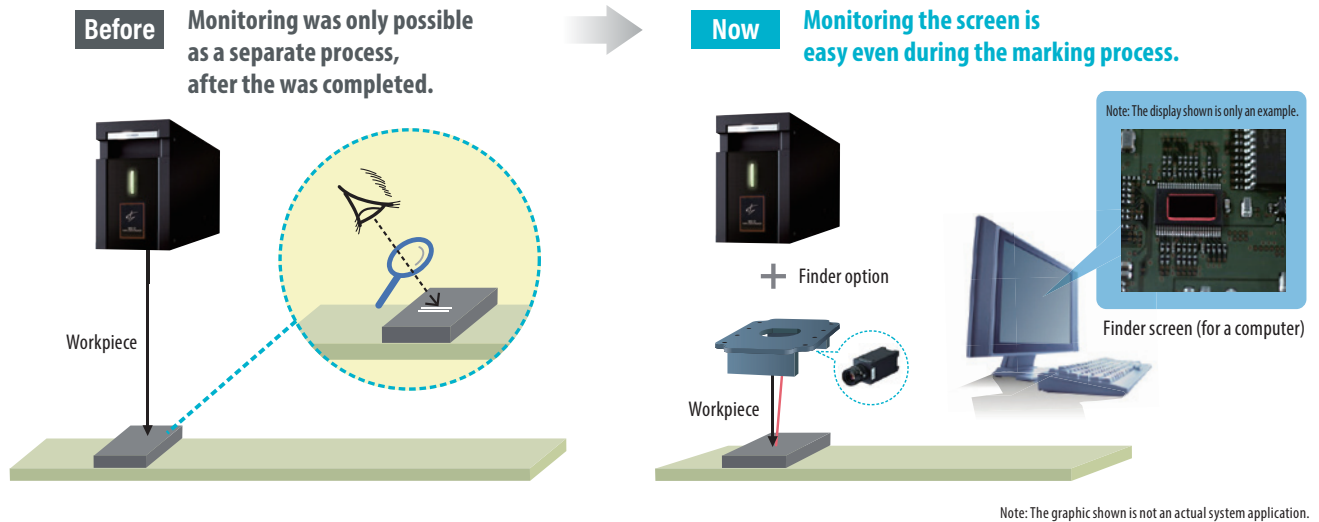
There is no longer any need for the PLC control programming for each device.



3

Display & Monitoring

A large screen simplifies marking monitoring and provides visibility of a larger area.



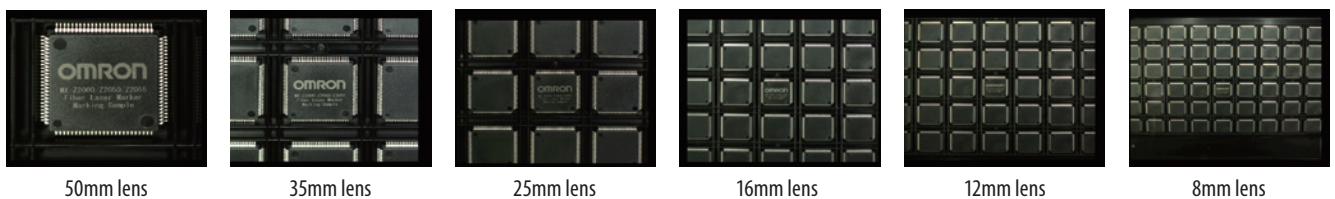
The Advantages

- Confirm the mark position easily on the monitor.
- Choose the lens and lighting that best fits for your application.

Choose the Right Lens for the Required Field of View

When Example using the FZ-S2M camera and FH vision controller

Using the MX-9151 camera attachment and different camera lenses, they will give the following perspective when viewing 15mm integrated chips:



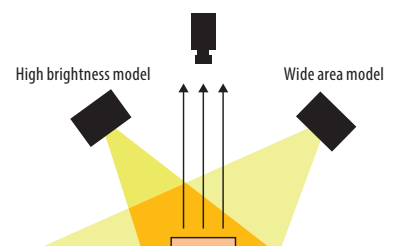
Choose the Most Suitable Lighting for Your Application



Choose the mounting position.

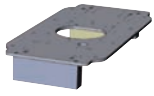


Adjust the angle with the mounting brackets.



Using a high brightness bar light and a wide area model.
(Diffusion plates are also available.)

Finder Option Device Configuration



1. Position Compensation/Reading 2D Codes/All Inspections

MX-Z2000H

MX-9150
camera attachment

MX-Z2050H,
MX-Z2055H

MX-9151
camera attachment

FH-L551
FH-2051/2052
FH-5051/5052
FH-5551/5552
vision system

FZ-SC/FZ-S
CCD camera - 300K pixels,
color/black & white

FH-SCX/FH-SMX
CMOS camera - 400K pixels,
color/black & white

FZ-SC2M/FZ-S2M
CCD camera - 2M pixels,
color/black & white

FH-SC05R/FH-SM05R
CMOS camera - 5M pixels,
color/black & white

FZ-SC5M3/FZ-S5M3
CMOS camera-5M pixels,
color/black & white

FH-SCX05/FH-SMX05
CMOS camera-5M pixels,
color/black & white

FH-SCX12/FH-SMX
CMOS camera-12M pixels,
color/black & white

FH-SC21R/FH-SM21R
CMOS camera-20.4M pixels,
color/black & white

MX-915A-FZ
camera mount

3Z4S-LE SV-0813V
lens: $f=8\text{mm}$

3Z4S-LE SV-1214V
lens: f=12mm

3Z4S-LE SV-1214H
lens: $f=12\text{mm}$,
high resolution

3Z4S-LE SV-1614V
lens: $f=16\text{mm}$

3Z4S-LE SV-1614H
lens: $f=16\text{mm}$,
high resolution

3Z4S-LE VS-1214H1
lens: $f=12\text{mm}$,
high resolution

3Z4S-LE VS-1614H1N
lens: $f=16\text{mm}$,
high resolution

3Z4S-LE SV-2514V
lens: $f=25\text{mm}$

3Z4S-LE SV-2514H
lens: $f=25\text{mm}$,
high resolution

3Z4S-LE VS-2514H1
lens: $f=25\text{mm}$,
high resolution

3Z4S-LE SV-3518V
lens: $f=35\text{mm}$

3Z4S-LE VS-3514H1
lens: $f=35\text{mm}$,
high resolution

3Z4S-LE SV-5018V
lens: $f=50\text{mm}$

3Z4S-LE SV-EXR
extension tubes: 7-tubes set

2. Reading 2D Codes/Simple Inspections

Smart camera

FQ2-S3□-13■
inspection only model,
color/black & white

FQ2-S4□-13■
Code Reading and inspection model,
color/black & white

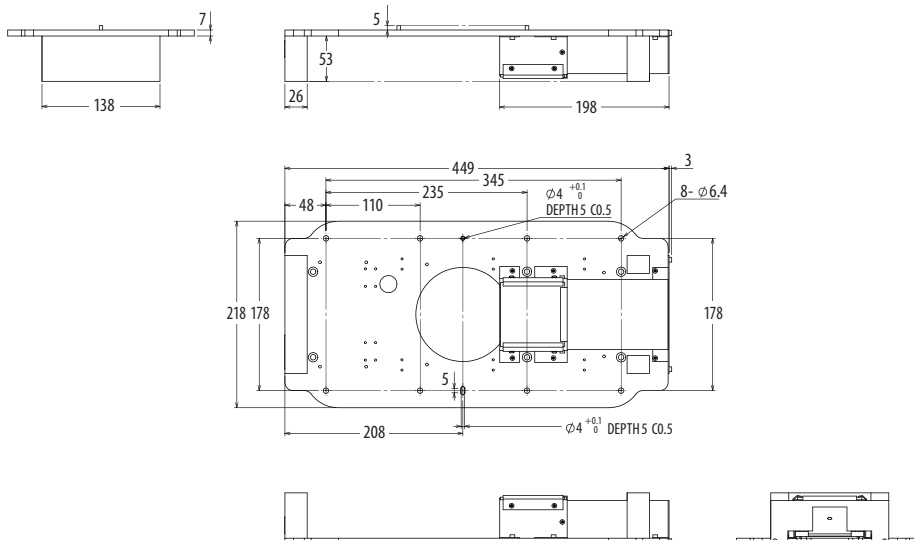


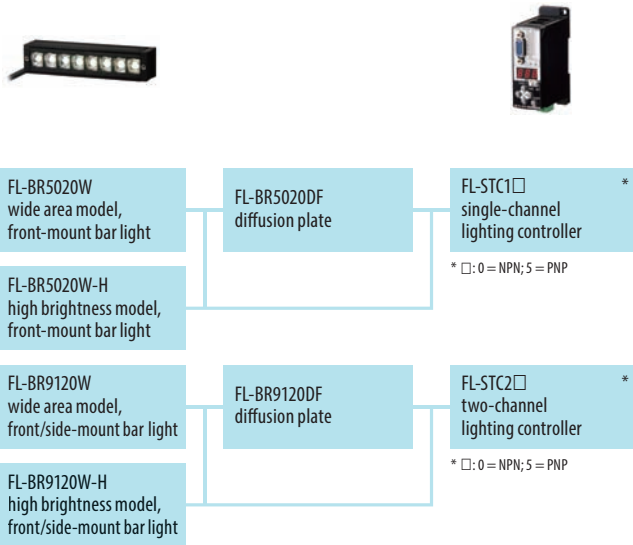
MX-915A-FQ2
camera mount

* □: 0 = NPN; 5 = PNP
 ■: Blank = color; M = black & white

Camera Attachment Dimensions

MX-9150, MX-9151





■ Lens Selection

When selecting a lens, follow the Lens Selection Criterion table below and the camera optical charts. Select the best camera and lens for your application, based on the optical table and your vision area needs. The extension tubes may also be needed. The optical charts, are included in the catalog for the camera being used.

■ Lighting

The FL-XBK1 mounting bracket is required to mount the lighting bar to the camera attachment. You may also need the FL-XC□: □ lighting extension cable (1m-25m), depending on the distance between the lighting bar and the lighting controller.

■ Power Supply, Misc.

A 24VDC power supply is required for the lighting bar and the vision system or smart camera. Select the appropriate power supply based on the power consumption of the devices. Your device configuration may also require a touch finder, LCD monitor, etc. Be sure to consider all needed devices when selecting the power supply, camera cables, Ethernet cables, and so on.

Refer to the appropriate product catalogs for details.

Lens Selection Criterion

(Distance between the Camera and the Workpiece)

Model	Camera Installation Distance*
MX-9150	Abt. 220mm
MX-9151	Abt. 270mm

*Remember to consider both the camera installation position and the length of the lens when calculating the distance between the camera and the workpiece.

Camera Attachment Specifications

Camera attachment	MX-9150			MX-9151		
Compatible laser markers	MX-Z2000H series			MX-Z2050H/MX-Z2055H series		
Compatible camera mounts	MX-915A-FQ2	MX-915A-FZ	MX-915A-S5M2	MX-915A-FQ2	MX-915A-FZ	MX-915A-S5M2
Compatible cameras (C-mount)*1	FQ2-S30-13	FZ-SC	FZ-S5M3	FQ2-S30-13	FZ-SC	FZ-S5M3
	FQ2-S35-13	FZ-S	FZ-SC5M3	FQ2-S35-13	FZ-S	FZ-SC5M3
	FQ2-S30-13M	FZ-SC2M	FH-SCX05	FQ2-S30-13M	FZ-SC2M	FH-SCX05
	FQ2-S35-13M	FZ-S2M	FH-SMX05	FQ2-S35-13M	FZ-S2M	FH-SMX05
	FQ2-S40-13	FH-SC05R	FH-SCX12	FQ2-S40-13	FH-SC05R	FH-SCX12
	FQ2-S45-13	FH-SM05R	FH-SMX12	FQ2-S45-13	FH-SM05R	FH-SMX12
	FQ2-S40-13M	FH-SCX	FH-SC21R	FQ2-S40-13M	FH-SCX	FH-SC21R
	FQ2-S45-13M	FH-SMX	FH-SM21R	FQ2-S45-13M	FH-SMX	FH-SM21R
Compatbile lighting*2	FL-BR5020W			FL-XBK1 mounting bracket		
	FL-BR5020W-H			FL-XC□ extension cable		
Ambient operating temperature	FL-BR9120W			FL-BR5020DF diffusion plate		
	FL-BR9120W-H			FL-BR-9120DF diffusion plate		
Ambient operating temperature	0-40°C					
Ambient operating humidity	35-85%RH (no condensation)					
Ambient storage temperature	-10-60°C (no freezing)					
Ambient storage humidity	35-85%RH (no condensation)					
Dimensions	W218mm x H60mm x D449 mm (except protrusions)					
Weight	Abt. 2.5kg (camera attachment only)					

*1 The image output from the camera is a mirror image. Mirror image processing must be performed by the camera controller. The FQ2 cannot correct the mirror image, meaning that the mirror image will remain as is. The FH can correct the mirror image with the trapezoidal distortion correction and the reverse conversion heading. The image captured by the camera will show some distortions, such as being diagonally off or off the optical axis. The marked image you see on the screen may therefore look distorted or off-center.

*2 Provide a separate 24VDC power supply for the lighting. The camera image varies depending on the work piece. Check before you use the camera.

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