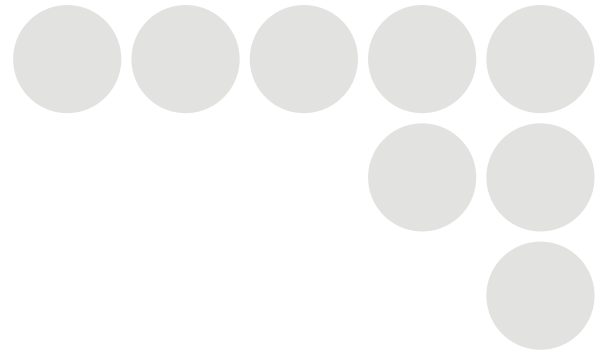


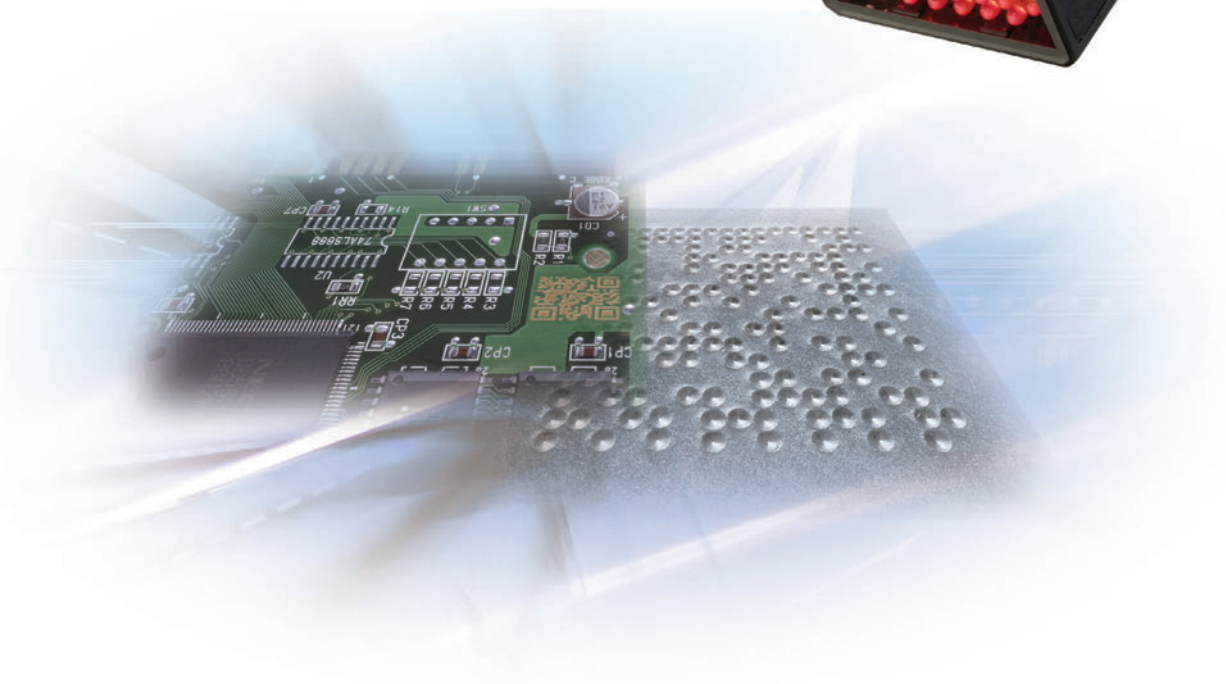


# OMRON

## 2D Code Reader V400-F



Created to meet real-world  
production site needs.



realizing

# For Easier, More Accurate Quality Contr

We're thinking about using a 2D Code Reader, but...



**OMRON created  
the 2D Code Reader  
to meet needs like these.**



**Actual  
Size**



# V400-F

In the V400-F, we have listened carefully to user demands and worked hard to achieve high levels of simplicity and reliability in a code reader that virtually anybody can install, operate, and adjust.

We also pursued highly accurate reading of directly marked 2D codes, in addition to printed codes.

The V400-F is a new 2D Code Reader that makes production sites considerably "smarter" in a wide range of environments.

# Simplicity and High Performance in Response to User Needs

Simplified Setup...

## For Faster Startups

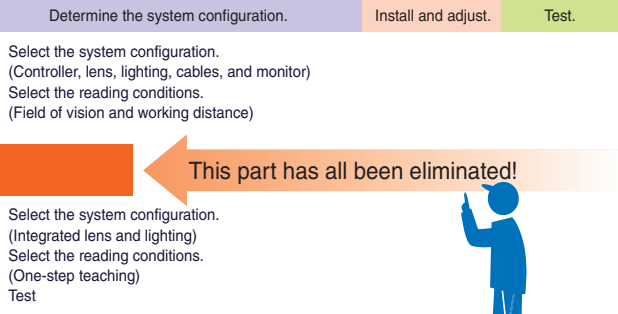


### Simpler Selection with a One-piece Design

The selection process is greatly simplified by the integrated lens and lighting design. No more worrying about having to match each workpiece to a vast number of lens and lighting combinations.



Conventional



V400-F



### Easier Initial Adjustments

#### Teaching functions that anybody can use.

Easy, one-step teaching lets you set the reading parameters instantly. Naturally, adjustments are also possible using commands from external devices.

\*Support Software is also available for setting the parameters from a personal computer. (Ask your OMRON representative or dealer for details.)



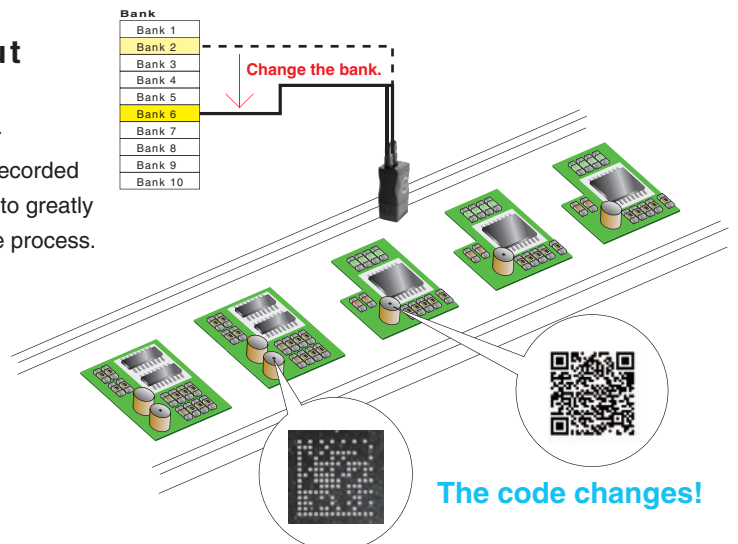
Banks...

## Dramatically Reduce Process Changeover Steps



### Change the Process without Stopping the Line

The Auto Bank Change function lets the operator automatically change preset reading conditions recorded in banks. Up to five banks can be set in advance to greatly reduce bothersome steps when changing the line process.



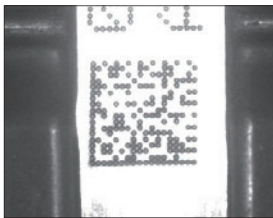
High Performance...

# For Stable Reading



## Stable, Accurate Reading for Any Workpiece

We have achieved high accuracy for directly marked codes by combining the industry's most advanced reading algorithm with lighting control that is optimized for data reading. Even directly marked 2D codes printed onto materials with varying reflectivity, such as metals, printed wiring boards, and glass, can be read with excellent accuracy.



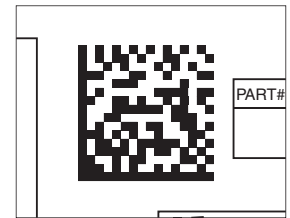
Metal (treated surface)



Glass



Printed wiring boards





Label



## Three Types to Choose from for Each Application

There are three 2D Code Readers to choose from to match your application. This enables flexible response to different workpieces and production site conditions. Use the C-mount model when specific settings are necessary for the lighting or lens.

Appearance			
Type	Narrow field of vision	Wide field of vision	C-mount
Model	V400-F250	V400-F350	V400-F050
Field of vision	14 × 18 mm	31 × 42 mm	Can be varied using a C-mount lens. External 2-channel lighting. *2
Working distance	100 mm	200 mm	
Cell size *1	0.2 to 0.3 mm	0.4 to 0.7 mm	
Code size *1	2 to 9 mm	4 to 21 mm	

\*1 These are intended to be reference values for use in model selection.  
\*2 For use only with Moritex MG-Wave Series lighting.



## Sensitive Response to Workpiece Changes

The Retry and Preprocess Filtering functions allow stable reading even under harsh conditions. They eliminate the effects of printing conditions and workpiece changes, such as oil, ambient light, and varying substrate types.

### Retry Function

Multiple readings can be taken while changing the exposure time and adjusting the brightness of the light.



Before retry



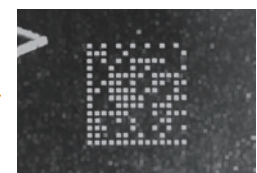
After retry

### Preprocess Filtering Function

Three of the following four types of filtering can be used for images that have been taken: Smoothing, Dilation, Erosion, and Median.

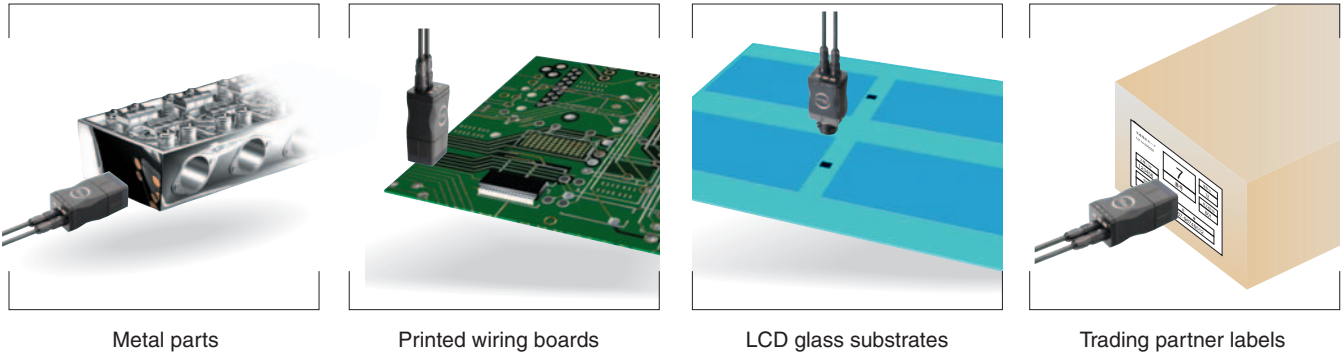


Before Dilation

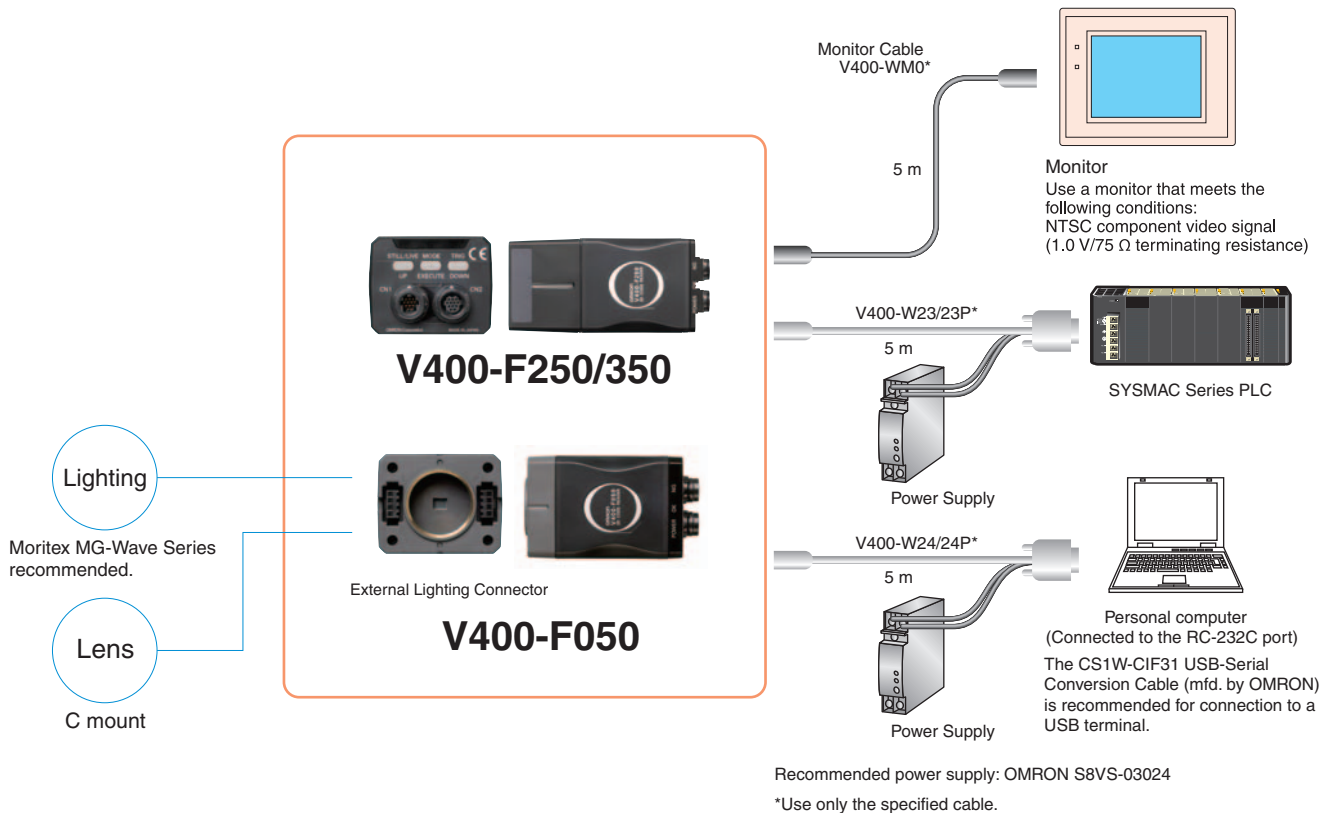


After Dilation

## Applications



## System Configuration



## Ordering Information

### 2D Code Readers

Name	Model	Field of vision
Special Lighting Lens	V400-F250	14 ´ 18 mm
	V400-F350	31 ´ 42 mm
C-Mount	V400-F050	Changes according to the lens.

### Accessories (Order Separately) and Cables

Name	Model	Cable length	Remarks
Communications Cable	V400-W23 5M (NPN)	5 m	For connection to SYSMAC Series PLC (includes power line)
	V400-W23P 5M (PNP)		
	V400-W24 5M (NPN)		For connection to an IBM PC/AT or compatible (includes power line)
	V400-W24P 5M (PNP)		
Monitor Cable	V400-WM0 5M	5 m	

## Specifications

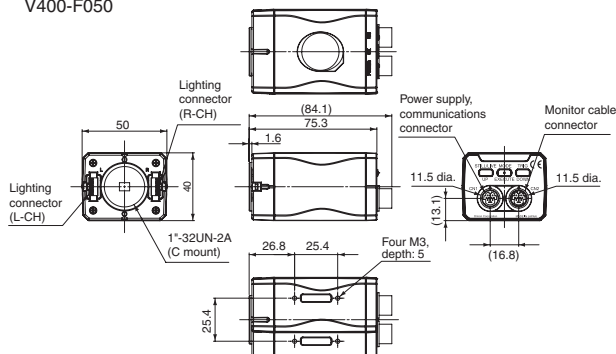
Model	V400-F050	V400-F250	V400-F350
Dimensions	40 ´ 50 ´ 75.3 mm	40 ´ 50 ´ 97.1 mm	
Working distance (WD)	Depends on the lens.	Approx. 100 mm	Approx. 200 mm
Field of vision	Depends on the lens.	Approx. 14 ´ 18 mm	Approx. 31 ´ 42 mm
Lighting	Up to two can be directly powered. Red LED		
Applicable codes	Data Matrix, ECC200, 10 ´ 10 to 64 ´ 64, 8 ´ 18 to 16 ´ 48, QR Code (Models 1, 2), 21 ´ 21 to 57 ´ 57 (Versions 1 to 10)		
Image sensor	1/3" CCD		
Effective pixels	640 ´ 480 pixels		
Power supply voltage	24 VDC ±10%		
Power consumption	0.5 A max. (power consumption for monitor, not included)		
Insulation resistance	20 MΩ min.		
Withstand voltage	1,000 VAC for 1 min		
Leakage current	0.25 mA max.		
Noise resistance	Power line: 2 kVp-p, Pulse width: 50 ns, Rise time: 5 ns, Consecutive burst time: 15 ms, Cycle: 300 ms		
Vibration resistance	10 to 150 Hz, 0.35-mm half-amplitude (maximum acceleration: 50 m/s <sup>2</sup> ) 10 times for 8 minutes each in 3 directions		
Shock resistance	150 m/s <sup>2</sup> 3 times each in 6 directions		
Ambient humidity	Operating: 0 to 45°C, Storage: -25 to 65°C		
Ambient temperature	Operating/storage: 25% to 85% (with no icing or condensation)		
Ambient environment	No corrosive gasses		
Degree of protection	None	IEC 60529 IP67	
Weight	Approx. 130 g	Approx. 150 g	

## Dimensions

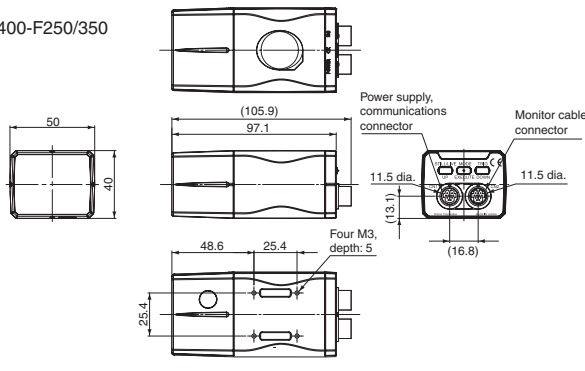
(Unit: mm)

### ■ 2D Code Readers

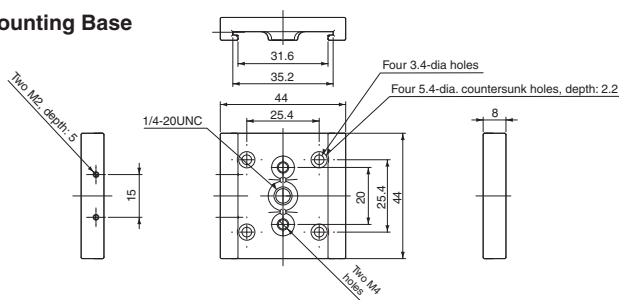
V400-F050



V400-F250/350

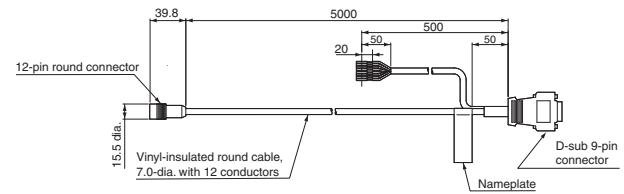


### ■ Mounting Base

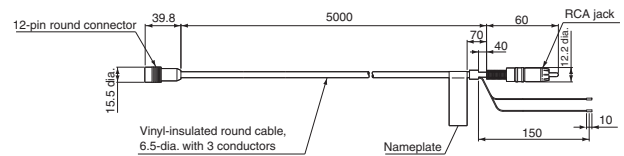


### ■ Communications Cable and Monitor Cable

V400-W23/23P/24/24P



V400-WM0



# A Handy, LCD-equipped 2D Code Reader Capable of Reading Directly Marked Codes V400-H111/211

**Excellent**

**reading**

**performance**

The V400-H achieves a high level of accuracy by combining the industry's most advanced reading algorithm with an optical system that is optimized for reading directly marked codes.

**Read while**

**viewing**

**the LCD**

Use the LCD monitor to check the codes as you read them. The information that is read is displayed on the screen, facilitating confirming operation.



- Model with Narrow Field of Vision (V400-H111):  
5- to 10-mm field of vision
  - Model with Wide Field of Vision (V400-H211):  
15- to 30-mm field of vision
- Applications: Reading codes on metal parts,  
LCD wafers, printed wiring board substrates

Refer to the catalog for details (Cat. No. Q146).

This document provides information mainly for selecting suitable models. Please read the Z242 carefully for information that the user must understand and accept before purchase, including information on warranty, limitations of liability, and precautions.

**Note: Do not use this document to operate the Unit.**

**OMRON Corporation**  
Industrial Automation Company  
Sensing Devices Division H.Q.  
Application Sensors Division  
Shiokoji Horikawa, Shimogyo-ku,  
Kyoto, 600-8530 Japan  
Tel: (81) 75-344-7068/Fax: (81) 75-344-7107

**Regional Headquarters**  
**OMRON EUROPE B.V.**  
Sensor Business Unit  
Carl-Benz-Str. 4, D-71154 Nufringen,  
Germany  
Tel: (49) 7032-811-0/Fax: (49) 7032-811-199

**OMRON ELECTRONICS LLC**  
One Commerce Drive Schaumburg,  
IL 60173-5302 U.S.A.  
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

**OMRON ASIA PACIFIC PTE. LTD.**  
No. 438A Alexandra Road # 05-05/08 (Lobby 2),  
Alexandra Technopark, Singapore 119967  
Tel: (65) 6835-3011/Fax: (65) 6835-2711

**OMRON (CHINA) CO., LTD.**  
Room 2211, Bank of China Tower,  
200 Yin Cheng Zhong Road,  
PuDong New Area, Shanghai, 200120, China  
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

**Authorized Distributor:**

In the interest of product improvement,  
specifications are subject to change without notice.

CSM\_1\_5  
Cat. No. Q148-E1