# OMRON

# Model FH-SC/SM

Image Sensor for FH - 0.3 Megapixel Digital Camera

# **INSTRUCTION SHEET**

Thank you for selecting OMRON product. This sheet primarily describes precautions required in installing and operating the product.

Before operating the product, read the sheet thoroughly to

acquire sufficient knowledge of the product. For your con-

venience, keep the sheet at your disposal. TRACEABILITY INFORMATION:

Representative in EU Omron Europe B.V. Wegalaan 67-69 2132 JD Hoofddorp, The Netherlands Manufacturer Omron Corporation Shiokoji Horikawa, Shimogyo-ku, Kyoto 600-8530 JAPAN Ayabe Factory 3-2 Narutani, Nakayama-cho, Ayabe-shi, Kyoto 623-0105 JAPAN

NOTICE This product meets CISPR11 class A. The intended use of this product is in an industrial environment only.

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### **PRECAUTIONS ON SAFETY**

#### Meaning of Alert Symbols

Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.

#### Alert statements

This product is not designed or rated for ensuring safety of persons. Do not use it for such purposes.

### **PRECAUTIONS FOR SAFE USE**

Be sure to respect following items for safety.

·Tighten all screws securely during installation.

·Do not connect the Sensor to the products other than the dedicated camera cable (FZ-VS), controller (FH), electronic flash controller (FL-TCC1 and FLV-TCC), extension unit (FZ-VSJ). If the Sensor is connected to non-dedicated products and turned the power on, the devices may be damaged and be heated to a high temperature.

·If you suspect an error or malfunction, stop using the Controller immediately, turn OFF the power supply, and consult your OMRON representative.

·Do not try to disassemble, repair, or modify the product. ·Dispose of FZ-SC components as industrial waste.

## PRECAUTIONS FOR CORRECT USE

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect. 1. Installation and storage of the product

- Do not install in the following locations.
  - ·Locations where the ambient temperature exceeds the rated temperature range.
  - ·Locations subject to sudden temperature changes (where condensation will form).
- ·Locations where there are corrosive or flammable gases.
- ·Locations where there is dust, salt, or iron powder.
- ·Locations where the device will be subject to direct vibration or shock.
- ·Locations where there is strong scattered light.
- ·Locations exposed to direct sunlight
- ·Locations where there is splashing of water, oil, or chemicals. ·Locations where there is a strong electrical or magnetic field. ·Locations close to high-voltage devices and/or power devices
- 2 Cables ·When connecting or disconnecting the camera cable or flash controller cable, be sure to turn off the controller unit.
- ·Do not use the camera cable exceeding the specified length. ·Up to three camera cables can be connected using the extension unit

FZ-VSJ. Be sure to use the recommended camera cable with F7-VSI

·When connecting the camera cable, tighten the cable with the fixing screw with the recommended torque (0.15 N·m). Applying excessive force to the camera connector may cause failure of the product. ·Use the ferrite core equivalent to ZCAT2035-0930A (manufactured

by TDK) at the controller side of the camera cable. •The camera cable FZ-VS has polarity. Be sure to connect the

side with the name plate on it to the controller. Be sure to connect the side with the name plate on it to the controller. 3 Mounting

The camera case is connected to the 0 V line of the internal circuit. Observe the following precautions to prevent noise from entering the camera

- •Do not ground the camera unit
- ·Be sure to use a base for installation. When mounting a base, engage it with the specified screw (M4x8) with the recommended torque (1.2 N·m)
- ·When securing the camera using the mounting hole on the lens face (front), be sure to perform insulation.
- 4 Beam
- •The beam center may vary for each camera. Be sure to confirm the center position of the image using the monitor before mounting. In the nature of the materials used, the beam center of this product may change for the number of pixels due to changes in ambient temperature.

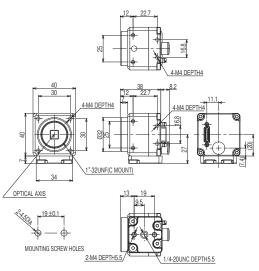
#### 5 Maintenance

- ·Avoid using thinner, alcohol, benzene, acetone or kerosene to clean the product.
- ·If there is large dirt or dust attached to the imaging element, blow them off with blower brush (for camera lens). Do not use your breath to blow the dust off
- ·When the lens is not mounted, be sure to attach the C-mount cap on the lens mount. If dirt or dust is attached to the image elements, false detection or failure may occur.
- ·Be sure to attach a connector cap on unused connectors at the back of the camera. Removing the connector cap may cause a foreign
- material entering in the camera, causing false operation or failure. ·Do not connect devices to the extension connector other than the dedicated ones (FL-TCC1 or FLV-TCC]).
- 6. Imaging element
- ·In the nature of imaging element, lines may appear in images due to measurement conditions or sensitivities. This does not indicated a malfunction. Although there may be multiple faulty pixels, this does not indicate a malfunction. If these conditions affect measurement or inspection, use the CCD camera.

## Ratings / Performance

•General specifications			
Model Item	FH-SC FH-SM		
Power consumption	1.7 W max. (13 VDC)		
Vibration resistance	10 to 150Hz: half-amplitude: 0.35mm:(maximum acceleration: 50m/s <sup>2</sup> ), 10 times for 8 minutes each in 3 directions		
Shock resistance	Shock resistance 150m/s <sup>2</sup> ; 3 times each in 6 directions		
Ambient Temperature	Operating: 0 to 40 °C(with no icing nor condensation) Storage: -25 to 65 °C (with no icing nor condensation)		
Ambient humidity	Operating and storage: 35% to 85% (with no condensation)		
Ambient environment	No corrosive gases		
Degree of protection	IEC60529 IP40 (in-panel)		
Center positional accuracy of optical axis	$\begin{array}{l} X, Y: \pm 0.31 \text{mm} \\ \partial x, \partial y: \pm 1.7^{\circ} \end{array}$		
Materials	Case: Aluminum Camera base: PC/GF Mount screw: brass		
Weight	Approx. 105 g (including base)		
Accessories	Instruction Sheet (this sheet)		
Cable length	Using FZ-VS2: 15 m max. Using a dedicated product other than FZ-VS2: 10 m max.		

### **Dimensions** (Unit:mm)



\* The base at the bottom of the camera can be mounted to the bottom, top, and both sides. Remove the base mounting screw (M4x8) and correct the mounting position. (Recommended mounting screw torque: 1.2 N·m)

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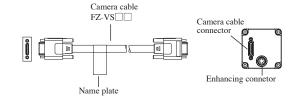
Performance specifications

Item	FH-SC	FH-SM	
Picture element	1/3-inch color CMOS	1/3-inch monochrome CMOS	
Effective pixels	$640(H) \times 480(V)$		
Pixel size	$7.4(\mu\mathrm{m}) \times 7.4(\mu\mathrm{m})$		
Scanning method	Progressive		
Frame rate	308fps		
Synchronization method	Internal		
Video output	Digital (8 bits)		
Gain	1 to 5 times		
Exposure time	$20 \mu s \sim 100,000 \mu s$		
Lens mounting*	C mount(Recommended: 3Z4S-LE SV-V series)		

\*For optical diagrams, refer to FH manual or catalog

#### Connecting

Using the Camera cable FZ-VS (sold separately), connect the connector on the back of the camera and the camera connector on Controller FH series.



\* The camera cable FZ-VS a has polarity. Be sure to connect the side with the name plate on it to the controller.

#### Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buver's application or use of the Product. At Buver's request. Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM. See also Product catalog for Warranty and Limitation of Liability.



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