

OMRON

Model FZ-SZC100

AUTOMATIC FOCUS CAMERA FOR MODEL FZ VISUAL INSPECTION SYSTEM

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 convenience, keep the sheet at your disposal.



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- Handing the Camera
 - Tighten all screws securely during installation.
- Other Precautions
 - Do not use unspecified camera cable other than those that specified in this manual with the FZ controller. Connection with unspecified camera cable and/or strobe controller may malfunction at the worst case.
 - When the connector on the back of the camera is not in use, be sure to cover the connector with the attached cap.
 - Do not attempt to disassemble, repair, or modify the Camera.
 - If you notice any abnormality in the Camera, stop using it immediately, turn OFF the power supply, and contact your OMRON sales representative.
 - When disposing of the Camera, dispose of it as industrial waste.

PRECAUTIONS FOR CORRECT USE

Observe the following precautions to prevent the product from malfunctioning, becoming inoperable, or the performance and/or the device from being adversely affected:

- Cable
 - Use a Camera Cable designed specifically for the Controller.
 - Be sure to turn off the power before connecting or disconnecting the cables.
- Optical axis
 - The center of the optical axis may disperse by camera. When mounting a camera, always check the central position of video images with a monitor.
 - The center of CCD and the optical axis of the lens are aligned to the direction of the camera at time of shipment. When the camera direction is changed, the gap of center of optical axis may become large.
- Maintenance
 - Do not use thinners, benzene, acetone, kerosene to clean the Camera.
 - Wipe off stubborn stains carefully with a piece of soft cloth that has been wetted with a trace quantity of alcohol. Scratches on the front Panel may cause errors.
 - If large dust particles adhere to the front Panel of the Sensor Head, use a blowerbrush (used to clean camera lenses) to blow them off. Do not blow the dust particles with your mouth.
- Magnification
 - To avoid collisions of inside lens, maximum value for magnification setting varies in relation to the focusing value. If magnification is not sufficient, adjust the working distance.

Accessories

Main unit, instruction sheet (this manual) and hexagonal wrench

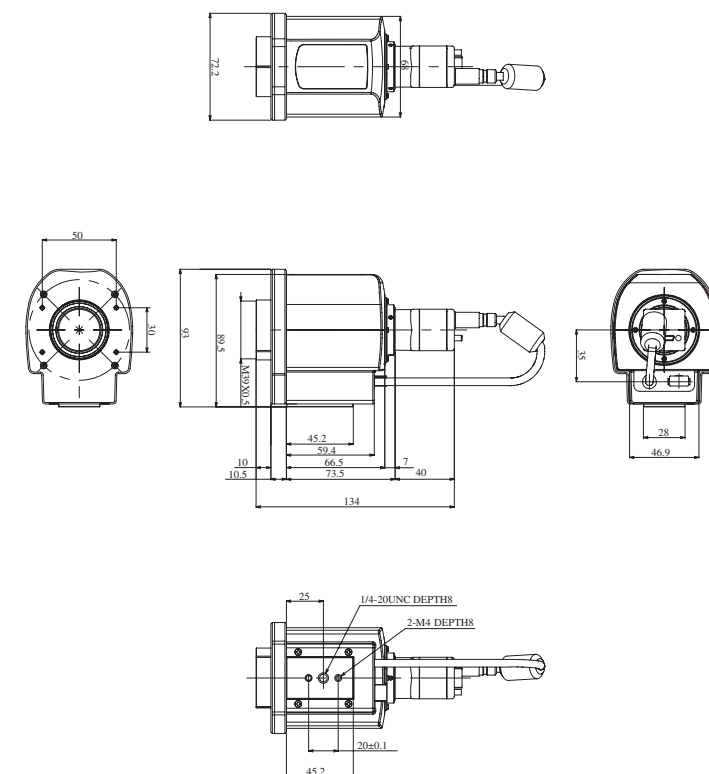
General specifications

| | |
|----------------------|---|
| Item | FZ-SZC100 |
| Power consumption | 14.4 W maximum. (12 VDC, 1.2 A maximum) |
| Vibration resistance | 10 to 150 Hz, half-amplitude : 0.35 mm (maximum acceleration 50 m/s ²) 10 times each in X,Y and Z directions for 8 min |
| Shock resistance | 150 m/s ² , 3 times each in 6 directions (up/down, left/right, forward/backward) |
| Ambient Temperature | Operating : 0 to 50 °C (with no icing or condensation) Storage : -25 to 65 °C (with no icing or condensation) |
| Ambient humidity | Operating and storage : 35 to 85 % (with no condensation) |
| Ambient environment | No corrosive gases |
| Degree of protection | IEC60529 IP20 |
| Material | Cover for camera : Galvanized steel sheet metal Case for camera : Aluminum alloy Case for lens : ABS Cover for lens: Aluminum alloy Mount base : Aluminum alloy |
| Cable length | Maximum 5 m(FZ-VS□) |
| Weight | Approx. 500 g (including base). |

Performance specifications

| | | |
|-----------------------|--|--|
| Item | FZ-SZC100 | |
| Camera specifications | Picture element | 1/3-inch interline color CCD (reading all pixels) |
| | Effective pixels | 659 (H) x 494 (V) |
| | Pixel size | 7.4 (μm) x 7.4 (μm) |
| | Scanning method | Non-interlace mode |
| | Vertical frequency | 80.600Hz |
| | Horizontal frequency | 39.336KHz |
| | Pixel frequency | 30.682MHz |
| | Number of lines to be read | 12 lines to 480 lines |
| | Synchronization | Internal synchronization |
| | Video output | Digital, 10 bit |
| Gain | 0dB to +13dB | |
| Shutter speed | 1/10 to 1/50000s | |
| Lens | Operating system | Electrically driven magnification, focusing and iris |
| | Zoom | Vari-focal |
| | Range of view | 13 to 100 mm, with tolerance +/- 5% maximum |
| | Working distance | 77.5 mm to 197.5 mm |
| | Resolution | 480 TV minimum |
| | F value | Minimum: F2.8 (W-end) to F4.7 (T-end) Range of W-end : 2.8 to 8.0 |
| | Motor durability (One(1) time is equivalent to one (1) reciprocating motion) | Magnification and focusing: 10,000 times minimum Iris: 20,000 times minimum |
| Illumination | Connected illumination | "MG-Wave" series by Moritex Co. product. |
| | Amperage rating | 0.7A or less |
| | Cable length | Maximum 5 m(Model M-RCB40□L by Moritex Co.product.) |

Dimensions



(Unit: mm)

PRECAUTIONS ON SAFETY

Meanings of Signal Words



WARNING 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.



CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Alert statements



WARNING
To ensure safety, do not use this product for direct or indirect detection of data from human body.
Do not use this product as a sensing device for the protection of the human body.



PRECAUTIONS FOR SAFE USE

Observe the following precautions to ensure safe use of the Camera.

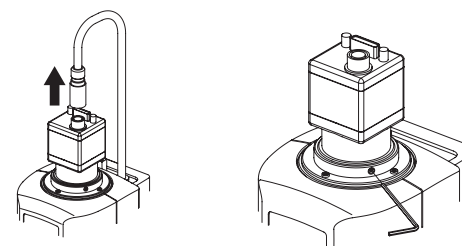
1. Installation Site
Do not install the product in locations subjected to the following conditions:

- Ambient temperature outside the rating
- Rapid temperature fluctuations (causing condensation)
- Relative humidity outside the range of 35 to 85%
- Presence of corrosive or flammable gases
- Presence of dust, salt, or metallic particles
- Direct vibration or shock
- Reflection of intense light (such as other laser beams or electric arc-welding machines)
- Direct sunlight or near heaters
- Water, oil, or chemical fumes or spray
- Strong magnetic or electric field
- Near high-voltage equipment or power equipment

When changing camera direction

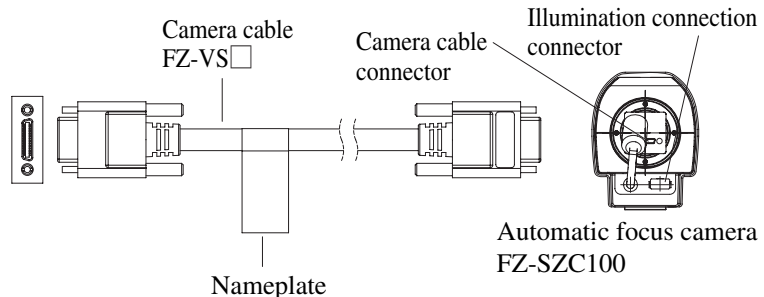
Make adjustment after disconnecting cable from the connector.

Loosen 3 screws located on the ring portion in the figure below using the attached hexagonal wrench. Turn the ring to adjust the direction. After adjustment, tighten the screws securely.



Connection

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



※ The camera cable (FZ-VS, FZ-VSL, FZ-VSB) is polarized, so, make sure that the end bearing a nameplate is connected to the Controller FZseries.

Suitability for Use

THE PRODUCTS CONTAINED IN THIS SHEET ARE NOT SAFETY RATED. THEY ARE NOT DESIGNED OR RATED FOR ENSURING SAFETY OF PERSONS, AND SHOULD NOT BE RELIED UPON AS A SAFETY COMPONENT OR PROTECTIVE DEVICE FOR SUCH PURPOSES. Please refer to separate catalogs for OMRON's safety rated products.

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used. Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT 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.

EUROPE

OMRON EUROPE B.V. Sensor Business Unit
Carl-Benz Str.4, D-71154 Nufringen Germany
Phone: 49-7032-811-0 Fax: 49-7032-811-199

NORTH AMERICA

OMRON ELECTRONICS LLC
One Commerce Drive Schaumburg, IL 60173-5302 U.S.A
Phone: 1-847-843-7900 Telephone Consultation
1-800-55-OMRON Fax : 1-847-843-7787

ASIA-PACIFIC

OMRON ASIA PACIFIC PTE LTD
83 Clemenceau Avenue, #11-01 UE Square, Singapore 239920
Phone : 65-6-835-3011 / Fax : 65-6-835-2711

OMRON Corporation