The Next Generation of Advanced Color Sensing. For Demanding, Color-Critical Applications.
Have you heard about some of the sensor problems on your production lines?
Introducing the new Smart Sensor from OMRON.

If you listen carefully, you'll probably hear people complaining about these sensor problems.

With optical sensors...
- It's difficult to make fine settings.
- Detection is unstable, leading to quality problems.
- It's difficult to reset the line when products change.

With image sensors...
- It takes time to make settings and adjustments.
- They're expensive.
- Only people with technical knowledge can operate them.

Optical sensors and image sensors. The general consensus on the production line is that they both have their advantages and disadvantages. Many users hesitate to introduce a full-scale image sensor system, but at the same time, find it difficult to install and use an optical sensor system. Now there is a sensor that answers these problems. Not an optical sensor and not an image sensor, it's a brand new type of smart sensor. With the increasing importance that is being placed on quality control today, you will find this sensor to be a major help in moving your production lines forward.

Introducing the new Smart Sensor from OMRON.
Simple to use. Detection abilities close to human vision. Smart Sensor provides the best combination of optical and image sensors.

Color or position differences are a good example. A person can see these with a glance, but it’s both costly and labor-intensive to set up a system that will allow a sensor to detect these differences.

If only there were a simpler way, something that resembled human vision...

Now there is, because we have added color capabilities to the Smart Sensor. In addition to being able to distinguish colors, the new Smart Sensor also offers stable detection for ordinary, conventional workpieces.

It goes a long way toward answering many of the problems that today’s production lines are facing.
Easier than image sensors in a variety of ways.

With image sensors...
- You need to worry about the initial cost and the work to build the system.
- You don't need advanced functions for simple inspections.
- Settings are complicated and maintenance is a chore.

With smart sensors...
- Start-up is easy because the sensor and the light source are integrated. Of course, it is also reasonably priced.
- Only the functions that your production people truly need are provided. By including the essential functions of the image sensor, we have achieved highly stable measurement.
- Even new users can make settings and adjustments easily by selecting the icons while watching the LCD monitor. You don't have to be an expert to use it.

Smart Sensor ZFV

From sensing **points to sensing areas**

With optical sensors...
There's a chance they will fail to detect due to problems like a shift in the position of printed text.

The color ZFV!
It distinguishes shapes, so its measurements maintain stability.

The Color Filter function also improves contrast for more stable detection of even faint text.

**Freshness date**
2009 6 20

**Freshness date**
2009 6 20

Double-check with **shape and color**

Smart Sensor inspects objects using both shape and color, the two main criteria used by people.

Check by shape

Check by color

Note: The operational flow varies depending on the selected item.

Set-up is **easy**, even for first-time users.

Start setting

Menu window

Select inspection item.

Specify area

Simple menu selection using icons. Just select the icon for the application you want.

One-touch teaching function
The basic settings for inspection items are made by watching the monitor and simply pressing the appropriate button. This also speeds up resetting operations when products change.

Finish setting

Easier than **image sensors** in a variety of ways.

Simplicity

Easiest

Stability

Reliability

Ease
OMRON Color Technology Provides Superior Sensing.

The original Smart Sensor was designed to be easy enough for anybody to use, and our color model shares the same characteristic. The ZFV-C Color Smart Sensor is designed with the same Target, Teach, Go simplicity as the original ZFV.

The Color Filter function is completely automatic, and colors can be easily extracted while watching the monitor. This sensor is smart enough to handle even advanced applications.

The Automatic Color Filter function adds stability to your images.

This function increases the image contrast to make measurements more stable. There are a total of seven color filters in all. The one that obtains the most suitable contrast is automatically selected, so there’s no need to worry about color setting parameters.

Simply choose the candidate color to complete color extraction.

For items that use color extraction, you simply specify the area you want. The color components in that area are then analyzed and the extraction color candidates are automatically displayed. All you have to do is select the color to be measured. The extraction conditions for the candidate colors can also be fine-tuned if necessary.

This is OMRON’s unique human-machine interface for color extraction.

Actual color measurement

- Inspecting for the intermixture of different-colored packages

Actual colors can be measured, and those differing from the reference color can be easily distinguished.

Simultaneous, one-touch checking of multiple colors

- Inspecting for the intermixture of different cap types

Multiple colors can be extracted, so that the surface area of each color can be distinguished.

OMRON Color Technology Provides Superior Sensing.
Seven High-level Matching Capabilities for a Wide Range of Applications

- **Pattern**: Measure difference or presence of patterns to match shape of object.
  - OK
  - NG

- **Position**: Measure the edge position of labels or sheets.
  - OK
  - NG
  - NG

- **Brightness**: Detecting dirt on battery surfaces.
  - OK
  - NG

- **Area**: Measure the area of shapes and compare against model to detect broken cookies.
  - OK
  - NG

- **Number**: Count the number of cookies.
  - OK
  - NG

- **Width**: Measure width between leads.
  - OK
  - NG

- **Character**: Match entire character string or detect one missing character.
  - OK
  - NG
Additional Special Features

Wider Field of View of 150 mm

With an FOV from 5 to 150 mm, you can inspect even large workpieces that could not be previously handled.

Adjustable View
Simple Focus Adjustment
An easy to use, manual focus adjustment on the camera eliminates the need to change the head or modify programming for different workpiece sizes.

Optimize Lighting Pattern
Intelligent Lighting
The lighting pattern can be varied to ensure a uniformly bright display even when the Sensor Head is mounted at an angle. Also, the light turns in sync with the shutter operation, for excellent stability and a long service life.

Fast Mounting
Multi-mount Bracket
Mounts to either of the four Sensor Head surfaces, allowing highly flexible mounting and removal.

Ultra Fast for High-speed Production Lines
High-speed Random Shutter CCD
Captures images without any blur, even on high-speed lines. Even at high shutter speeds, the LED power is automatically controlled to provide crisp, clear images.

IP67-compliant Design
Washable Head
Featuring an IP67-equivalent design, these models can be completely immersed in water for washing. The entire structure, including the light source, is water resistant.

High-quality Data Transmission
Digital Interface Capability
The image captured by the Sensor Head is quickly transmitted in digital format, making it immune to noise.
Optional Lighting with Easy, One-touch Mounting

A wide variety of optional Lighting Units are available for when the light intensity of the integrated lighting is not sufficient, or when through-beam lighting or some other lighting method is required. Simply plug in the connector to add on.

There is also no need for a special power supply for lighting. Plus, the optional Units feature strobe lighting in sync with the Sensor Head shutter, to provide stable lighting for an extended period of time and a long service life.

Vision Amplifier with Monitor Features Versatile Functions in a Compact Body

Integrated with a 1.8-inch LCD monitor, this Amp is the same compact size as our monochrome models.

It enables operation while viewing the image, so the measurement status can be checked while the line is moving.

It also features USB and RS-232C interfaces for connection to a personal computer.

Selectable Display Patterns

Select the image display that is easiest to see from among color, monochrome, and color extraction display patterns.

Quick and Easy Operation

Fixed keys are allotted with various functions for easy, one-touch operation.

Japanese-English Selection

The menu can be switched to Japanese or English to match the application.

High-speed Color Processing

The processing speed is approximately the same as that for monochrome, even when detecting color images with high precision.

OMRON’s image processing technologies remove the usual hesitation to use color processing due to its reduced efficiency.
Excellent Expandability Meets Even More Applications

With today’s rapid pace of new product development, it is essential to select sensors that have future expandability. The Smart Sensor provides the same level of quality control as larger sensor systems, thanks to its newly enhanced application capabilities and data management and analysis.

Flexible Combinations
High-speed Digital Bus Connection

Controllers can now be directly connected to prevent delays in response. By altering the connection, multiple areas can be simultaneously processed, measurement items can be combined, and the output from two Sensor Heads can be integrated. This also provides sufficient response to future workpiece changes.

Convenient for Personal Computer Operation and Management
Smart Monitor ZFV Support Software

This software allows settings and image data to be saved and loaded with a personal computer. For details on the Smart Monitor ZFV Support Software, please contact your OMRON representative.

Easy Operation Achieved by Considering the Operator’s Viewpoint

In addition to offering easy basic operation, the ZFV has been designed to provide the best possible operation in a variety of situations. It helps your quality control system evolve and become smarter by allowing machines to handle the bothersome tasks.

Handy for Maintenance
I/O Monitor Function

The parallel I/O status can be displayed on the monitor to simplify wiring checks, to make maintenance and system start-up faster and easier.

Extend the Service Life
ECO Mode

When not in use, the LCD backlight is automatically turned OFF. This greatly extends the service life compared with having the backlight constantly ON.

Versatile Teaching Modes
Freeze-screen Teaching

This function enables easy one-button teaching, using an image of an instantaneous event that was captured with an external trigger.

Visually Check Judgment Settings
Adjustment Mode

Judgment settings are displayed in bar format, so judgment conditions can be intuitively set.

Flexible Controller Installation

Flexible installation meets the specific needs of each production line. In addition to DIN rail mounting, installation is easy in control panels.

Workpiece-movement Teaching

The optimum lighting can be automatically selected by using an external trigger to input an image of a moving workpiece.
## Ordering Information

### Models

#### Sensor Heads

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Type</th>
<th>Setting distance</th>
<th>Sensing area</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow View</td>
<td>34 to 49 mm (variable)</td>
<td>5 x 4.6 mm to 9 x 8.3 mm (variable)</td>
<td>ZFV-SC10</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>31 to 187 mm (variable)</td>
<td>10 x 9.2 mm to 50 x 46 mm (variable)</td>
<td>ZFV-SC50 (IP65) ZFV-SC50W (IP67)</td>
<td></td>
</tr>
<tr>
<td>Wide View</td>
<td>66 to 141 mm (variable)</td>
<td>50 x 46 mm (H x V) to 90 x 83 mm (H x V)</td>
<td>ZFV-SC90 (IP65) ZFV-SC90W (IP67)</td>
<td></td>
</tr>
<tr>
<td>Ultra-wide View</td>
<td>114 to 226 mm (variable)</td>
<td>90 x 83 mm (H x V) to 150 x 138 mm (H x V)</td>
<td>ZFV-SC150 (IP65) ZFV-SC150W (IP67)</td>
<td></td>
</tr>
</tbody>
</table>

#### Amplifier Units

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Power supply</th>
<th>Output type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 VDC</td>
<td>NPN</td>
<td>ZFV-CA40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PNP</td>
<td>ZFV-CA45</td>
</tr>
</tbody>
</table>

#### Accessories

##### Data Storage Units

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Power supply</th>
<th>Output type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24 VDC</td>
<td>NPN</td>
<td>ZS-DSU11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PNP</td>
<td>ZS-DSU41</td>
</tr>
</tbody>
</table>

### Controller Link Unit

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ZS-XCN</td>
</tr>
</tbody>
</table>

### Panel-mounting Adapter

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ZS-XPM1 First Unit</td>
</tr>
<tr>
<td></td>
<td>ZS-XPM2 Additional Units (for expansion)</td>
</tr>
</tbody>
</table>

### Sensor Head Extension Cable

<table>
<thead>
<tr>
<th>Cable length</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 m</td>
<td>ZFV-XC3BV2</td>
</tr>
<tr>
<td>3 m</td>
<td>ZFV-XC8BRV2 (Robot cable type)</td>
</tr>
<tr>
<td>8 m</td>
<td>ZFV-XC8BV2 (See note 1.)</td>
</tr>
</tbody>
</table>

Note 1: The ZFV-XC8BV2 Extension Cable can be used only with ZFV-SC10/SC50/SC50W Sensor Heads.

A maximum of two Extension Cables can be connected to extend the cable length of each Sensor Head. There are no restrictions on the combinations of the two Extension Cables to be used.

### External Lighting

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Type</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bar Lighting</td>
<td>ZFV-LTL01</td>
</tr>
<tr>
<td></td>
<td>Bar Double Lighting</td>
<td>ZFV-LTL02</td>
</tr>
<tr>
<td></td>
<td>Bar Low-angle Lighting</td>
<td>ZFV-LTL04</td>
</tr>
<tr>
<td></td>
<td>Light Source for Through-beam Lighting</td>
<td>ZFV-LTF01</td>
</tr>
</tbody>
</table>
## Specifications

### Sensor Heads

<table>
<thead>
<tr>
<th>Item</th>
<th>ZFV-SC10 (Narrow View Type)</th>
<th>ZFV-SC50/SC50W (Standard Type)</th>
<th>ZFV-SC90/SC90W (Wide View Type)</th>
<th>ZFV-SC150/SC150W (Ultra-wide View Type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting distance (L)</td>
<td>34 to 49 mm (variable)</td>
<td>31 to 187 mm (variable)</td>
<td>67 to 142 mm (variable)</td>
<td>115 to 227 mm (variable)</td>
</tr>
<tr>
<td>Sensing range (H x V)</td>
<td>5 x 4.6 mm to 9 x 8.3 mm (variable)</td>
<td>10 x 9.2 mm to 50 x 46 mm (variable)</td>
<td>50 x 46 mm to 90 x 83 mm (variable)</td>
<td>90 x 83 mm to 150 x 138 mm (variable)</td>
</tr>
<tr>
<td>Sensing range (V)</td>
<td>(H)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensing range (V)</td>
<td>(H)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relation between setting distance and sensing range</td>
<td><img src="#" alt="Diagram" /></td>
<td><img src="#" alt="Diagram" /></td>
<td><img src="#" alt="Diagram" /></td>
<td><img src="#" alt="Diagram" /></td>
</tr>
<tr>
<td>Built-in lens</td>
<td>Focus: 115.65</td>
<td>Focus: 113.47</td>
<td>Focus: 16.1</td>
<td></td>
</tr>
<tr>
<td>Object lighting method</td>
<td>Pulse lighting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Object light source</td>
<td>Eight white LEDs</td>
<td>Thirty-six white LEDs</td>
<td>Twenty white LEDs</td>
<td>Seventy-two white LEDs</td>
</tr>
<tr>
<td>Optional lighting interface</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sensing element</td>
<td>1/3-inch CCD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shutter</td>
<td>Electronic shutter, shutter time: 1/500 to 1/8,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>15 VDC (Supplied from Amplifier Unit.)</td>
<td>15 VDC, 48 VDC (Supplied from Amplifier Unit.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>Approx. 200 mA</td>
<td>Approx. 350 mA (15 V: approx. 150 mA, 48 V: approx. 200 mA, including current when external light is connected)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>1,000 VAC, 50/60 Hz for 1 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration resistance (destruction)</td>
<td>10 to 150 Hz, 0.35-mm single amplitude, 10 times each in X, Y, and Z directions for 8 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance (destruction)</td>
<td>150 m/s², three times each in six directions (up/down, left/right, forward/backward)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>Operating: 0 to 40°C, Storage: −20 to 65°C (with no icing or condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient humidity range</td>
<td>Operating and storage: 35% to 85% (with no condensation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient atmosphere</td>
<td>Must be free of corrosive gas.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection method</td>
<td>Prewired, Standard cable length: 2 m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of protection (IEC 60529 standard)</td>
<td>IP65</td>
<td>IP65</td>
<td>IP67</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>Case: ABS, Mounting bracket: PBT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 200 g (including mounting bracket and cord; packaged condition: approx. 300 g)</td>
<td>Approx. 270 g (including mounting bracket and cord; packaged condition: approx. 350 g)</td>
<td>Approx. 300 g (including mounting bracket and cord; packaged condition: approx. 380 g)</td>
<td>Approx. 600 g (including mounting bracket and cord; packaged condition: approx. 780 g)</td>
</tr>
<tr>
<td>Accessories</td>
<td>Mounting bracket (ZFV-XMF) (1), Ferrite core (2), Instruction sheet</td>
<td>Mounting bracket (ZFV-XMF2) (1), Ferrite core (2), Instruction sheet</td>
<td>Mounting bracket (ZFV-XMF2) (1), Ferrite core (2), Instruction sheet</td>
<td>Ferrite core (2), Instruction sheet</td>
</tr>
<tr>
<td>LED class (See note.)</td>
<td>Class 1</td>
<td>Class 2</td>
<td>Class 2</td>
<td>Class 1</td>
</tr>
</tbody>
</table>

**Note:** Applicable standards  
## Amplifier Units

<table>
<thead>
<tr>
<th>Item</th>
<th>ZFV-CA40</th>
<th>ZFV-CA45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output method</td>
<td>NPN open collector, 30 VDC 50 mA max., residual voltage 1.2 V max.</td>
<td>PNP open collector, 50 mA max., residual voltage 1.2 V max.</td>
</tr>
<tr>
<td>Serial I/O</td>
<td>USB2.0 1 port, full-speed (12 Mbps) MINI-B</td>
<td>RS-232C 1 port, 115200 bps max.</td>
</tr>
<tr>
<td>Inspection items</td>
<td>Patterns (PATTERN), Brightness (BRIGHT), Area (AREA), Width (WIDTH),</td>
<td></td>
</tr>
<tr>
<td>Teaching area size</td>
<td></td>
<td>Position (POSITION), Count (COUNT), Color inspection (HUE), Character (CHARA)</td>
</tr>
<tr>
<td>Sensing area</td>
<td>Full screen</td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>468 × 432 (H × V) max.</td>
<td></td>
</tr>
<tr>
<td>Bank selection</td>
<td>Supported for 8 banks.</td>
<td></td>
</tr>
<tr>
<td>Image input cycle</td>
<td>13 ms (Standard), 8 ms (FAST mode), 5 ms (MAX mode)</td>
<td></td>
</tr>
<tr>
<td>Other functions</td>
<td>Control output switching: ON for OK or ON for NG, ON delay/OFF delay, One-shot output, “ECO” mode</td>
<td></td>
</tr>
<tr>
<td>Connecting to ZS-DSU (See note 2.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image logging trigger</td>
<td>Stores NG images or all images.</td>
<td></td>
</tr>
<tr>
<td>Sampling rate</td>
<td>ZFV measurement cycle (See note 1.)</td>
<td></td>
</tr>
<tr>
<td>Number of logged images</td>
<td>Logs up to 128 images in series</td>
<td></td>
</tr>
<tr>
<td>Number of connected Units</td>
<td>15 max. (ZFV: 5 Units max.)</td>
<td></td>
</tr>
<tr>
<td>External bank function</td>
<td>Amplifier Unit setting data can be saved to the memory card as bank data. Reading bank data enables bank switching.</td>
<td></td>
</tr>
<tr>
<td>Output signals</td>
<td>(1) Control output (OUTPUT) (2) Enable output (ENABLE) (3) Error output (ERROR)</td>
<td></td>
</tr>
<tr>
<td>Input signals</td>
<td>(1) Sync measurement input (TRIG)/Continuous measurement input (TRIG); switched from menu</td>
<td>(2) Bank selection input (BANK1-3)</td>
</tr>
<tr>
<td>Sensor Head interface</td>
<td>Digital interface</td>
<td></td>
</tr>
<tr>
<td>Image display</td>
<td>TFT 1.8-inch LCD (Display dots: 557 × 234)</td>
<td></td>
</tr>
<tr>
<td>Indicators</td>
<td>Judgment result indicator (OUTPUT, Color: orange)</td>
<td>Inspection mode indicator (RUN, Color: green)</td>
</tr>
<tr>
<td>Operation interface</td>
<td>Cursor keys (up, down, left, right)</td>
<td>Error indicator (ERR, Color: red)</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>20.4 to 26.4 VDC (including ripple)</td>
<td>Ready status indicator (READY, Color: blue)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>800 mA max. (with Sensor Head connected)</td>
<td></td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>1,000 VAC, 50/60 Hz for 1 min between leads and Amplifier Unit case</td>
<td></td>
</tr>
<tr>
<td>Noise immunity</td>
<td>1 kV, Pulse rise: 5 ns, Pulse width: 50 ns, Burst duration: 15 ms, Cycle: 300 ms</td>
<td></td>
</tr>
<tr>
<td>Vibration resistance (destruction)</td>
<td>10 to 150 Hz, 0.1-mm single amplitude, 10 times each in X, Y, and Z directions for 8 min</td>
<td></td>
</tr>
<tr>
<td>Shock resistance (destruction)</td>
<td>150 m/s², three times each in six directions (up/down, left/right, forward/backward)</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>Operating: 0 to 50°C, Storage: −25 to 65°C (with no icing or condensation)</td>
<td></td>
</tr>
<tr>
<td>Ambient humidity range</td>
<td>Operating and storage: 35% to 85% (with no condensation)</td>
<td></td>
</tr>
<tr>
<td>Ambient atmosphere</td>
<td>Must be free of corrosive gas.</td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IEC 60529, IP20</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>Polycarbonate</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 300 g (including cord; packaged condition: 450 g)</td>
<td></td>
</tr>
<tr>
<td>Accessories</td>
<td>Ferrite core (1), Instruction sheet</td>
<td></td>
</tr>
</tbody>
</table>

Note 1: This is the sampling rate when logging images. To log measurement data only, use the ZS-DSU settings.
Note 2: Restrictions exist depending on the versions of the connected devices. Ask your OMRON representative for details.
Dimensions (Unit: mm)

- **Sensor Heads**

  **ZFV-SC10**

  - Mounting Bracket can be attached to any side.
  - Heat-resistant vinyl-insulated cable 5.8 dia., standard length: 2 m.

  **ZFV-SC50/SC50W**

  - Mounting Bracket can be attached to any side.
  - Heat-resistant vinyl-insulated cable 6.2 dia., standard length: 2 m.

  **ZFV-SC90/SC90W**

  - Mounting Bracket can be attached to any side.
  - Heat-resistant vinyl-insulated cable 6.2 dia., standard length: 2 m.

  **ZFV-SC150/SC150W**

  - Mounting Bracket can be attached to any side.
  - Heat-resistant vinyl-insulated cable 6.2 dia., standard length: 2 m.

- **Mounting Bracket**

  - Heat-resistant vinyl-insulated cable 6.2 dia., standard length: 2 m.

- **Mounting Hole Dimensions**

  - Two, M4
  - Depth: 6
  - 1/4-20UNC
  - 8.5

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This document provides information mainly for selecting suitable models. Please read the User's Manual (Z240) 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.
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- Systems, machines, and equipment that could present a risk to life or property.

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