

## MV-SC3013XM

### 1.3 MP Mono Vision Sensor

With built-in high-precision vision algorithms, MV-SC3013XM vision sensor can realize counting, existence, measurement, recognition and other functions. It can be easily configured and operated via the SCMVS client software, and it uses RS-232 and Ethernet to output vision tool results and customized results.



## Key Features

- Adopts embedded hardware platform to realize high-speed image processing.
- Built-in high-precision positioning, measurement and recognition algorithms for counting, defects, existence, positioning and other functions.
- Supports RS-232, TCP, UDP, FTP, Modbus, PROFINET, EtherNet/IP and other communication modes.
- Adopts multiple IO interfaces for input and output signals.
- Supports viewing the device's status in real time via 360° visual indicator, convenient for debugging and maintenance.
- Rotatable cable tail design, suitable for narrow space.
- Adopts polarized, diffuser, and full-transparent multiple optical lighting with good environmental adaptability.
- IP67 protection without fear of harsh industrial application environments.

## Typical Application

- Consumer electronics
- Food and pharmaceutical
- Automobile



## Specification

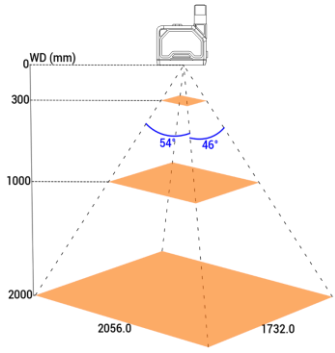
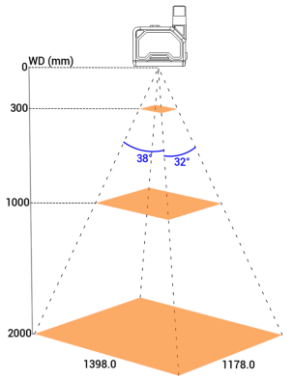
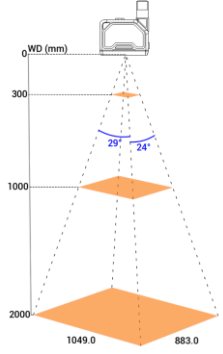
| Model                  | MV-SC3013XM-08M-WBN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | MV-SC3013XM-12M-WBN | MV-SC3013XM-16M-WBN |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|
| Tool                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                     |
| Vision tool            | <ul style="list-style-type: none"><li>● Measurement: P2P measurement, P2L measurement, contrast measurement, grayscale size, edge width measurement, width measurement, brightness average value, L2L angle, diameter measurement, line angle</li><li>● Existence: Spot existence, edge existence, contour existence, pattern existence, circle existence, line existence, anomaly judge, existence detection</li><li>● Count: Spot count, edge count, contour count, pattern count, learning-based count</li><li>● Recognition: Multi-object count, code recognition, category recognition, classification registration, object registration, OCR, learning-based OCR, character horizontal stripe detection</li><li>● Logic: Calculator, if module, logic judge, format output, condition judge, character comparison, combination judge</li><li>● Location: Calibration convert, single point alignment, point rectify, point grasp, scale transformation, fixture</li><li>● Deep learning: DL classification, DL object detection</li><li>● Defect detection: Anomaly detection</li><li>● Industry tools: OCR and defect detection</li></ul> |                     |                     |
| Solution capacity      | Supports importing and exporting project, up to 32 projects can be stored.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                     |
| Communication protocol | RS-232, TCP, UDP, FTP, PROFINET, Modbus, EtherNet/IP, MELSEC/SLMP, FINS, Keyence KV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                     |
| Camera                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                     |
| Sensor type            | CMOS, global shutter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                     |
| Pixel size             | 6.9 μm × 6.9 μm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                     |
| Sensor size            | 1/1.45"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                     |                     |
| Resolution             | 1216 × 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                     |                     |
| Max. frame rate        | 60 fps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                     |
| Gain                   | 0 dB to 15 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                     |
| Exposure time          | 6 μs to 1 sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                     |
| Pixel format           | Mono 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                     |
| Mono/color             | Mono                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                     |                     |
| Electrical feature     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                     |
| Data interface         | Fast Ethernet (100 Mbit/s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |                     |
| Digital I/O            | 12-pin M12 connector provides power and I/O, including opto-isolated input (LINE 0/1/2) × 3, opto-isolated output (LINE 3/4/5) × 3, and RS-232 × 1<br>Supports triggering device via pressing top trigger button                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                     |
| Power supply           | 24 VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                     |
| Power consumption      | Avg. 7 W @ 24 VDC (light source enabled)<br>Max. 22 W @ 24 VDC (light source enabled)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                     |
| Mechanical             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                     |
| Lens mount             | M12-mount, mechanical autofocus supported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                     |
| Focal length           | 8 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 12 mm               | 16 mm               |

|                      |                                                                                                                                                             |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lens cap             | Polarized + diffuser + full-transparent lens cap                                                                                                            |
| Light source         | White spot light source. Red/blue/IR point light source is optional                                                                                         |
| Aiming system        | 1 LED                                                                                                                                                       |
| Indicator            | 360° visual indicator                                                                                                                                       |
| Dimension            | Straight angle: 80.1 mm × 43 mm × 44.3 mm (3.2" × 1.7" × 1.7")<br>Right angle: 58.5 mm × 43 mm × 65.4 mm (2.3" × 1.7" × 2.6")                               |
| Weight               | Approx. 190 g (0.4 lb.)                                                                                                                                     |
| Ingress protection   | IP67 (under proper installation of waterproof lens cap)                                                                                                     |
| Temperature          | Working temperature: 0 °C to 50 °C (32 °F to 122 °F)<br>Storage temperature: -30 °C to 70 °C (-22 °F to 158 °F)                                             |
| Humidity             | 20% RH to 95% RH (no condensation)                                                                                                                          |
| Vibration resistance | Meets standard IEC 60068-2-6:2007.<br>Device only (without installation bracket): 10 Hz to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours per axis (X, Y, Z) |
| Shock resistance     | Meets standard IEC 60068-2-27:2008.<br>Device only (without installation bracket): 30 g / 11 ms, half-sine wave, 500 shocks per axis (6 directions)         |
| <b>General</b>       |                                                                                                                                                             |
| Client software      | SCMVS                                                                                                                                                       |
| Certification        | CE, KC                                                                                                                                                      |

## Available Model

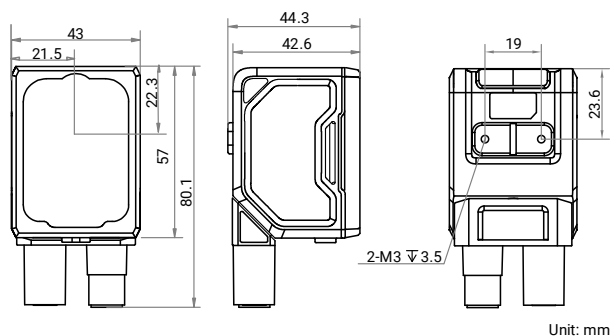
- 8 mm focal length: MV-SC3013XM-08M-WBN
- 12 mm focal length: MV-SC3013XM-12M-WBN
- 16 mm focal length: MV-SC3013XM-16M-WBN

## Detection Range

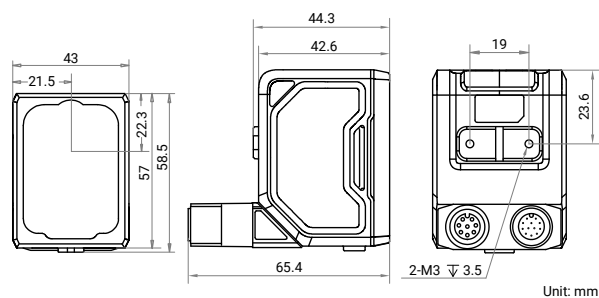
| MV-SC3013XM (Unit: mm) |                  |               |      |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------|------------------|---------------|------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lens Focal Length      | Working Distance | Field of View |      | Single Pixel Accuracy | Diagram of Field of View                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                        |                  | H             | V    |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 8                      | 30               | 31            | 26   | 0.03                  |  <p>Diagram illustrating the field of view for the 8mm lens. The vertical axis represents Working Distance (WD) in mm, with markers at 0, 300, 1000, and 2000. The horizontal axis represents the field of view dimensions at 2000mm WD, with values 2056.0 (horizontal) and 1732.0 (vertical). The diagram shows a camera icon at the top, with dashed lines forming a cone representing the field of view. The horizontal angle is 54° and the vertical angle is 46°.</p>   |
|                        | 100              | 103           | 87   | 0.08                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 200              | 206           | 173  | 0.17                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 300              | 308           | 260  | 0.25                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 600              | 617           | 520  | 0.51                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 1000             | 1028          | 866  | 0.85                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 2000             | 2056          | 1732 | 1.69                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 12                     | 60               | 42            | 35   | 0.03                  |  <p>Diagram illustrating the field of view for the 12mm lens. The vertical axis represents Working Distance (WD) in mm, with markers at 0, 300, 1000, and 2000. The horizontal axis represents the field of view dimensions at 2000mm WD, with values 1398.0 (horizontal) and 1178.0 (vertical). The diagram shows a camera icon at the top, with dashed lines forming a cone representing the field of view. The horizontal angle is 38° and the vertical angle is 32°.</p> |
|                        | 100              | 70            | 59   | 0.06                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 200              | 140           | 118  | 0.12                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 300              | 210           | 177  | 0.17                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 600              | 420           | 353  | 0.35                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 1000             | 699           | 589  | 0.58                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 2000             | 1398          | 1178 | 1.15                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 16                     | 110              | 58            | 49   | 0.05                  |  <p>Diagram illustrating the field of view for the 16mm lens. The vertical axis represents Working Distance (WD) in mm, with markers at 0, 300, 1000, and 2000. The horizontal axis represents the field of view dimensions at 2000mm WD, with values 1049.0 (horizontal) and 883.0 (vertical). The diagram shows a camera icon at the top, with dashed lines forming a cone representing the field of view. The horizontal angle is 29° and the vertical angle is 24°.</p> |
|                        | 200              | 105           | 88   | 0.09                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 300              | 157           | 132  | 0.13                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 600              | 315           | 265  | 0.26                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 1000             | 524           | 442  | 0.43                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                        | 2000             | 1049          | 883  | 0.86                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Dimension

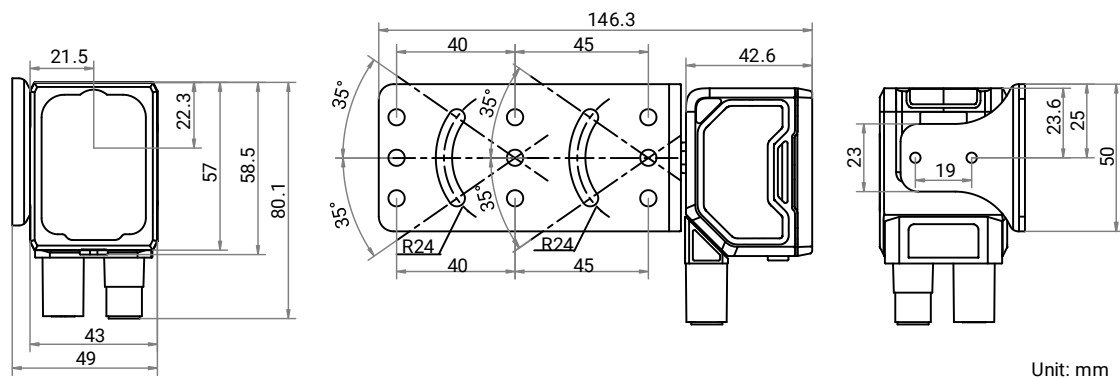
Device (Straight Angle):



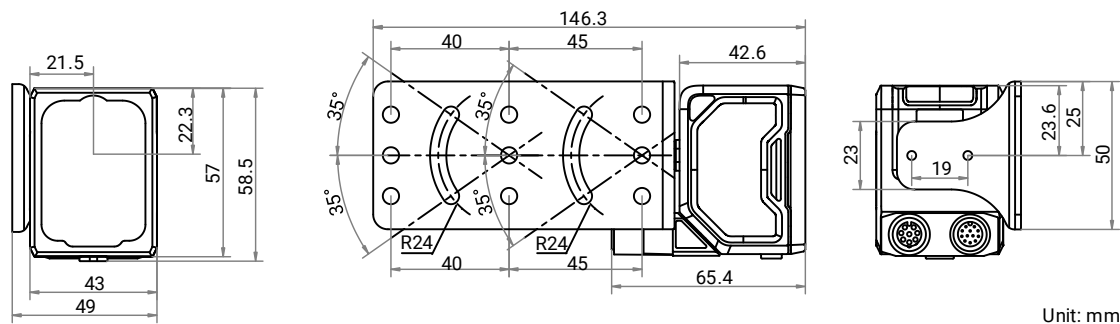
Device (Right Angle):



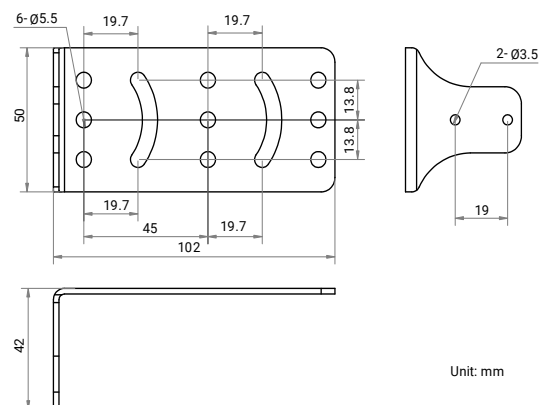
Device and Installation Bracket (Straight Angle):



Device and Installation Bracket (Right Angle):



Installation Bracket:



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