

MV-SC2023XM

2.4 MP Mono Vision Sensor



Introduction

With built-in positioning and measurement algorithms, MV-SC2023XM vision sensor can realize counting, existence, measurement detection, and recognition. It can be monitored and operated via the SCMVS client. It can output results via RS-232 and Ethernet, and cooperate with other processes via IO. The vision sensor supports multiple result output methods and customized result text output.

Available Model

- 5 mm focal length: MV-SC2023XM-05M-WBN
- 12 mm focal length: MV-SC2023XM-12M-WBN
- 16 mm focal length: MV-SC2023XM-16M-WBN

Applicable Industry

Consumer electronics, food and pharmaceuticals, and automotive industries.

Key Features

- Adopts embedded hardware platform for high-speed image processing.
- Adopts built-in positioning and measurement algorithms to for counting, existence, measurement detection, and recognition.
- Provides multiple IO interfaces for input and output signals.
- Provides multiple indicators for displaying device status.
- Adopts light source to ensure uniform brightness in the illuminated area.
- Supports multiple communication protocols, including RS-232, TCP, UDP, FTP, PROFINET, Modbus, Ethernet/IP, etc.

Specification

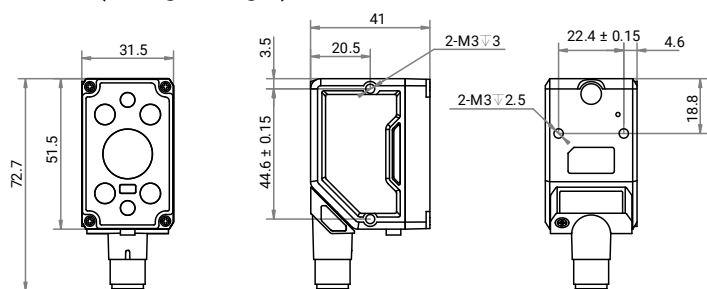
Model	MV-SC2023XM-05M-WBN	MV-SC2023XM-12M-WBN	MV-SC2023XM-16M-WBN
Tool			
Vision tool	● Measurement: P2P measurement, P2L measurement, contrast measurement, grayscale size, edge width measurement, width measurement, brightness analysis, L2L angle, diameter measurement, line angle ● Existence: Anomaly judge, spot existence, edge existence, contour existence, pattern existence, circle existence, line existence ● Count: Spot count, edge count, contour count, pattern count ● Recognition: Category recognition, code recognition, OCR ● Logic: Calculator, if module, logic judge, condition judge, string comparison, combination judge, format output ● Defect detection: Anomaly detection ● Location: Calibration convert, single point alignment, point rectify, point grasp, scale transformation, fixture		
Solution capacity	Supports solution importing and exporting, up to 16 solutions and 40 modules can be stored.		
Communication protocol	RS-232, TCP, UDP, FTP, PROFINET, Modbus, EtherNet/IP, MELSEC/SLMP, FINS, Keyence KV		
Performance			
Sensor type	CMOS, global shutter		
Pixel size	2.2 μm × 2.2 μm		
Sensor size	1/3.52"		
Resolution	1920 × 1280		
Max. frame rate	75 fps		
Gain	0 dB to 48 dB		
Exposure time	36 μs to 100 ms		
Pixel format	Mono 8		
Mono/color	Mono		
Electrical feature			
Data interface	Fast Ethernet (100 Mbit/s)		
Digital I/O	17-pin M12 connector provides power and I/O, including isolated input (Line 0/1) × 2, isolated output (Line 2/3) × 2, RS-232 × 1 Supports device triggering via pressing side button.		
Power supply	24 VDC		
Power consumption	Avg.: 5 W @ 24 VDC (light source enabled) Max.: 12 W @ 24 VDC (light source enabled)		
Mechanical			
Lens mount	M12-mount, mechanical autofocus supported		
Focal length	5 mm	12 mm	16 mm
Lens cap	Transparent lens cap by default. Half-polarized and fully-polarized caps are optional.		
Light source	White light by default. Red, blue, IR, UV, and two-color (red/blue) lights are optional.		
Aiming system	2 green LED lights		
Indicator	Power indicator (PWR), network indicator (LNK), result indicator (OK/NG), and user-defined indicator (U1)		
Dimension	Straight angle: 72.7 mm × 31.5 mm × 41 mm (2.9" × 1.2" × 1.6") Right angle: 51.5 mm × 31.5 mm × 61 mm (2.0" × 1.2" × 2.4")		
Weight	118 g (0.3 lb.)		

Model	MV-SC2023XM-05M-WBN	MV-SC2023XM-12M-WBN	MV-SC2023XM-16M-WBN
Ingress protection	IP65		
Temperature	Working temperature: 0 °C to 50 °C (32 °F to 122 °F) 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. Bare device withstands 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. Bare device withstands 30 g / 11 ms, half-sine wave, 500 shocks per axis (6 directions)		
General			
Client software	SCMVS		
Certification	CE, KC		

Detection Range

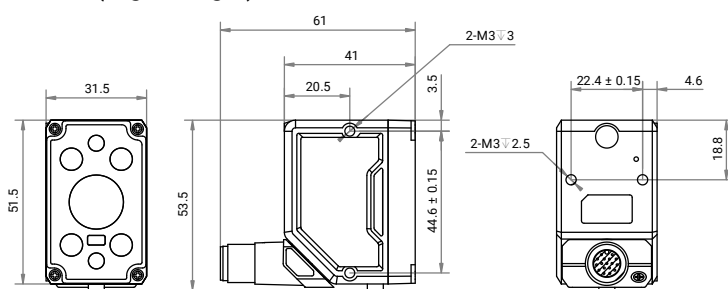
MV-SC2023XM (Unit: mm)					
Lens Focal Length	Working Distance	Field of View		Single Pixel Accuracy	Diagram of Field of View
		H	V		
5	25	21	14	0.01	
	100	84	56	0.04	
	200	169	113	0.09	
	300	253	169	0.13	
	500	422	282	0.22	
	800	676	451	0.35	
	1000	845	563	0.44	
12	60	21	14	0.01	
	100	35	23	0.02	
	200	70	47	0.04	
	300	106	70	0.06	
	500	176	117	0.09	
	800	282	188	0.15	
	1000	352	235	0.18	
16	125	33	22	0.02	
	200	53	35	0.03	
	300	79	53	0.04	
	500	132	88	0.07	
	800	211	141	0.11	
	1000	264	176	0.14	

Device (Straight Angle)



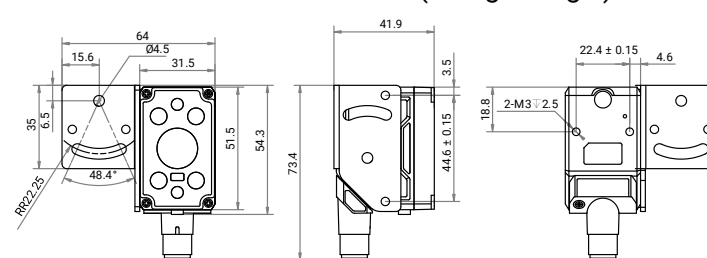
Unit: mm

Device (Right Angle)



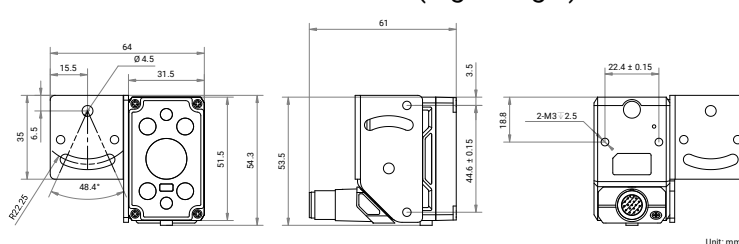
Unit: mm

Device and Installation Bracket 1 (Straight Angle)



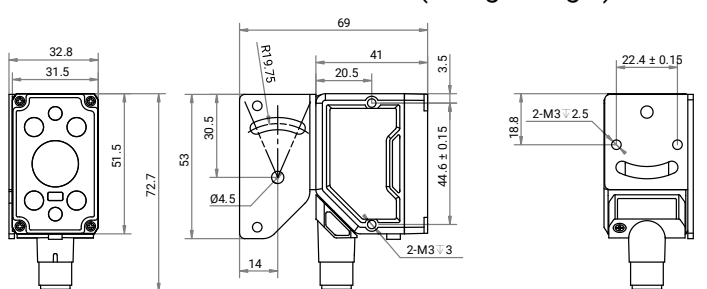
Unit: mm

Device and Installation Bracket 1 (Right Angle)



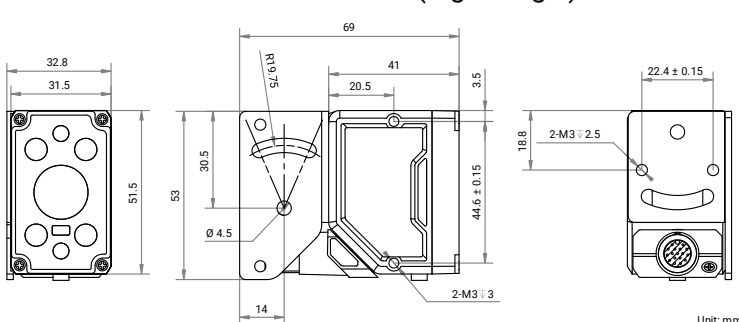
Unit: mm

Device and Installation Bracket 2 (Straight Angle)



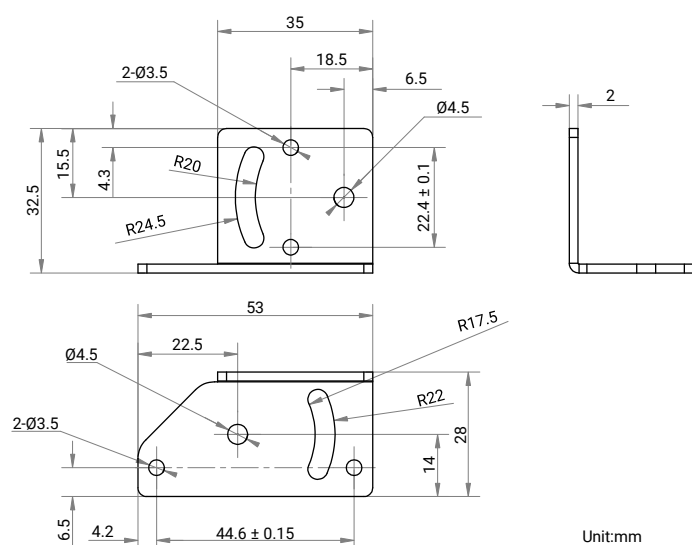
Unit: mm

Device and Installation Bracket 2 (Right Angle)



Unit: mm

Bracket



Unit: mm