MV-ID2023XM

2.4 MP Industrial Code Reader

Introduction

MV-ID2023XM mini industrial code reader adopts Hikrobot's deep learning algorithm to process images with good robustness, and can recognize various complex codes. It integrates 4-channel light source control and multiple optical accessories to meet various demands in lightning, with working distance reaching 1 m at most. The device adopts a modular design with rotatable cable. Compatible with IDMVS client software V5.0.0 and later, it can achieve functions such as auto focusing and one-click tuning for easy use and fast debugging. Applicable industries include consumer electronics, PCB, automobile, lithium battery, photovoltaic industry, etc.

Key Features

- Adopts high-robustness algorithm to accurately identify difficult codes, such as stained code, skewed code, low-contrast code, and code on laser-marked metal surfaces.
- Integrates digital WDR image processing algorithm, and combines with 4-channel light source control and multiple optical accessories for enhancing code clarity.
- Adopts modular design, rotatable cable, separated cable, and multi-surface mounting interfaces for flexible mounting.
- Supports multi-channel isolated I/O and multiple industrial protocols for integration into diverse automation systems.
- Compatible with IDMVS client software V5.0.0 and later, it can achieve functions such as auto focusing and one-click tuning for fast debugging.

Available Model

Mechanical Focusing, Network-Type Device

- 5 mm focal length: MV-ID2023XM-05M-RBN
- 8 mm focal length: MV-ID2023XM-08M-RBN
- 12 mm focal length: MV-ID2023XM-12M-RBN
- 16 mm focal length: MV-ID2023XM-16M-RBN

Mechanical Focusing, USB-Type Device

- 5 mm focal length: MV-ID2023XM-05M-RBN-U
- 8 mm focal length: MV-ID2023XM-08M-RBN-U
- 12 mm focal length: MV-ID2023XM-12M-RBN-U
- 16 mm focal length: MV-ID2023XM-16M-RBN-U

Liquid Lens Focusing, Network-Type Device

- 8 mm focal length: MV-ID2023XM-08L-RBN
- 12 mm focal length: MV-ID2023XM-12L-RBN
- 16 mm focal length: MV-ID2023XM-16L-RBN

Liquid Lens Focusing, USB-Type Device

- 8 mm focal length: MV-ID2023XM-08L-RBN-U
- 12 mm focal length: MV-ID2023XM-12L-RBN-U
- 16 mm focal length: MV-ID2023XM-16L-RBN-U

Applicable Industry

Consumer electronics, PCB, automobile, lithium battery, photovoltaic industry, etc.

Specification

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Model	MV-ID2023XM-05M-RBN(-U)	MV-ID2023XM-08M-RBN(-U)	MV-ID2023XM-12M-RBN(-U)	MV-ID2023XM-16M-RBN(-U)
Performance				
Symbologies	1D codes: Code 39, Code 93, Code 128 (GS1-128 included), CodaBar, EAN 8, EAN 13, UPCA, UPCE ITF 14, ITF 25, Matrix 25, MSI, China Post, Code 11, Industrial 2of5, and Pharmacode (one/two-track)			
	2D matrix codes: QR Code (GS1-QR included), Data Matrix (GS1-DM included), MicroQR, AZTEC, HanXin			
	Stacked codes: PDF417, MicroPDF417			
Max. frame rate	60 fps			
Max. reading speed	80 codes/sec			
Sensor type	CMOS, global shutter			
Pixel size	2.2 μm × 2.2 μm			
Sensor size	1/3.52"			
Resolution	1920 × 1280			
Exposure time	36 μs to 100 ms			
Gain	0 dB to 48 dB			
Mono/color	Mono			
Communication protocol	Network type: SmartSDK, TCP Client, TCP Server, Serial, FTP, Profinet, Ethernet/IP, MELSEC/SLMP, Modbus, Fins, UDP USB type: SmartSDK, USB (CDC, HID)			
Electrical feature				
Data interface	Network type: Fast Ethernet (100 Mbit/s) USB type: USB 2.0 (with DC power supply)			
Digital I/O	17-pin M12 connector provides power and I/O, including isolated input (LineIn 0/1) × 2, isolated output (LineOut 3/4) × 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				
Focal length	5 mm	8 mm	12 mm	16 mm
Lens mount	M12-mount, mechanical focus supported			
Lens cap	Half-polarized lens cap by default. Transparent and fully-polarized caps are optional.			
Light source	Red light by default. White/blue/IR/UV/two-color (red/blue) light is optional.			
Aiming system	2 green LED lights			
Indicator	Power indicator (PWR), network indicator (LNK), result indicator (OK/NG), 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	Approx. 118 g (0.3 lb.)			
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	Device only: 10 Hz to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours per axis (X/Y/Z) (IEC 60068-2-6:2007\GB/T 2423.10-2019)			
Shock resistance	Device only, 30 g / 11 ms, half-sine wave, 500 shocks per axis (6 directions) (IEC 60068-2-27\GB/T 2423.5-2019)			
General				
Client software	IDMVS			
Certification	CE, RoHS, KC			

Specification

Model	MV-ID2023XM-08L-RBN(-U)	MV-ID2023XM-12L-RBN(-U)	MV-ID2023XM-16L-RBN(-U)
Performance			
Symbologies	1D codes: Code 39, Code 93, Code 128 (GS1-128 included), CodaBar, EAN 8, EAN 13, UPCA, UPCE ITF 14, ITF 25, Matrix 25, MSI, China Post, Code 11, Industrial 2of5, and Pharmacode (one/two-track)		
	2D matrix codes: QR Code (GS1-QR included), Data Matrix (GS1-DM included), MicroQR, AZTEC, HanXin		
	Stacked codes: PDF417, MicroPDF417		
Max. frame rate	60 fps		
Max. reading speed	80 codes/sec		
Sensor type	CMOS, global shutter		
Pixel size	2.2 μm × 2.2 μm		
Sensor size	1/3.52"		
Resolution	1920 × 1280		
Exposure time	36 μs to 100 ms		
Gain	0 dB to 48 dB		
Mono/color	Mono		
Communication protocol	Network type: SmartSDK, TCP Client, TCP Server, Serial, FTP, Profinet, Ethernet/IP, MELSEC/SLMP, Modbus, Fins, UDP USB type: SmartSDK, USB (CDC, HID)		
Electrical feature			
Data interface	Network type: Fast Ethernet (100 Mbit/s) USB type: USB 2.0 (with DC power supply)		
Digital I/O	17-pin M12 connector provides power and I/O, including isolated input (LineIn 0/1) × 2, isolated output (LineOut 3/4) × 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			
Focal length	8 mm	12 mm	16 mm
Lens mount	D14-mount, liquid lens focus supported		
Lens cap	Half-polarized lens cap by default. Transparent and fully-polarized caps are optional.		
Light source	Red light by default. White/blue/IR/UV/two-color (red/blue) light is optional.		
Aiming system	2 green LED lights		
Indicator	Power indicator (PWR), network indicator (LNK), result indicator (OK/NG), 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	Approx. 118 g (0.3 lb.)		
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	Device only: 10 Hz to 55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours per axis (X/Y/Z) (IEC 60068-2-6:2007\GB/T 2423.10-2019)		
Shock resistance	Device only, 30 g / 11 ms, half-sine wave, 500 shocks per axis (6 directions) (IEC 60068-2-27\GB/T 2423.5-2019)		
General			
Client software	IDMVS		
Certification	CE, RoHS, KC		

Detection Range

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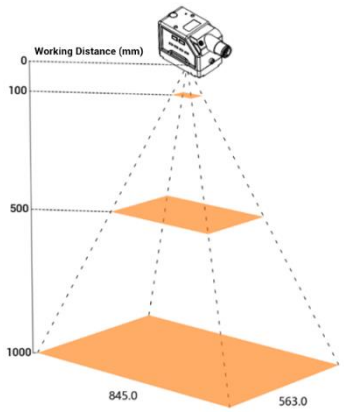
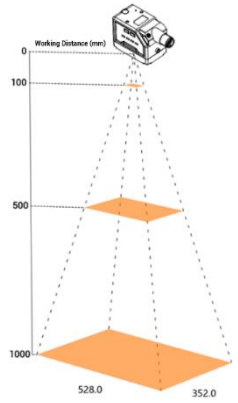
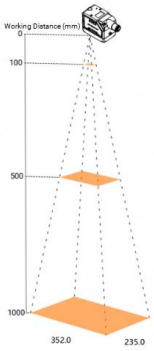
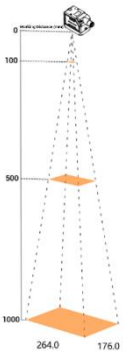
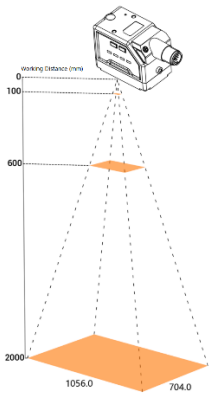
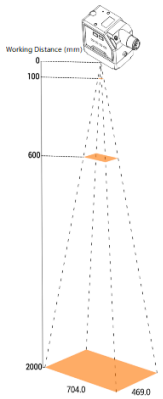
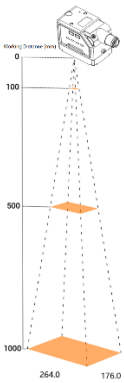
MV-ID2023XM-05/08/12/16M-RBN(-U) (Unit: mm)						
Lens Focal Length	Working Distance	Field of View		1D Min. Resolution*	2D Min. Resolution**	Diagram of Field of View
		H	V			
5	25	21	14	0.01	0.03	
	100	84	56	0.04	0.13	
	200	169	113	0.09	0.26	
	300	253	169	0.13	0.40	
	500	422	282	0.22	0.66	
	800	676	451	0.35	1.06	
	1000	845	563	0.44	1.32	
8	40	21	14	0.01	0.03	
	100	53	35	0.03	0.08	
	200	106	70	0.06	0.17	
	300	158	106	0.08	0.25	
	500	264	176	0.14	0.41	
	800	422	282	0.22	0.66	
	1000	528	352	0.28	0.83	
12	60	21	14	0.01	0.03	
	100	35	23	0.02	0.06	
	200	70	47	0.04	0.11	
	300	106	70	0.06	0.17	
	500	176	117	0.09	0.28	
	800	282	188	0.15	0.44	
	1000	352	235	0.18	0.55	
16	125	33	22	0.02	0.05	
	200	53	35	0.03	0.08	
	300	79	53	0.04	0.12	
	500	132	88	0.07	0.21	
	800	211	141	0.11	0.33	
	1000	264	176	0.14	0.41	

1D Min. Resolution (mm): Field of view (long side) / resolution (long side) × 1.*

*2D Min. Resolution (mm)**: Field of view (long side) / resolution (long side) × 3.*

Detection Range

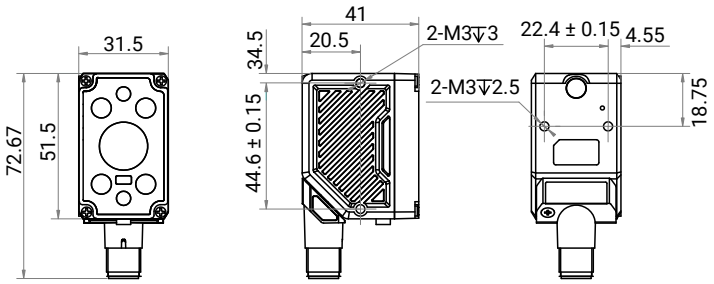
MV-ID2023XM-08/12/16L-RBN(-U) (Unit: mm)						
Lens Focal Length	Working Distance	Field of View		1D Min. Resolution*	2D Min. Resolution**	Diagram of Field of View
		H	V			
8	30	16	11	0.01	0.03	
	100	53	35	0.03	0.08	
	300	158	106	0.08	0.25	
	600	317	211	0.17	0.50	
	1000	528	352	0.28	0.83	
	1500	792	528	0.41	1.24	
	2000	1056	704	0.55	1.65	
12	60	21	14	0.01	0.03	
	100	35	24	0.02	0.06	
	300	106	70	0.06	0.17	
	600	211	141	0.11	0.33	
	1000	352	235	0.18	0.55	
	1500	528	352	0.28	0.83	
	2000	704	469	0.37	1.10	
16	75	20	13	0.01	0.03	
	100	26	18	0.01	0.04	
	300	79	53	0.04	0.12	
	500	132	88	0.07	0.21	
	700	185	123	0.10	0.29	
	900	238	158	0.12	0.37	
	1000	264	176	0.14	0.41	

1D Min. Resolution (mm): Field of view (long side) / resolution (long side) × 1.*

*2D Min. Resolution (mm)**: Field of view (long side) / resolution (long side) × 3.*

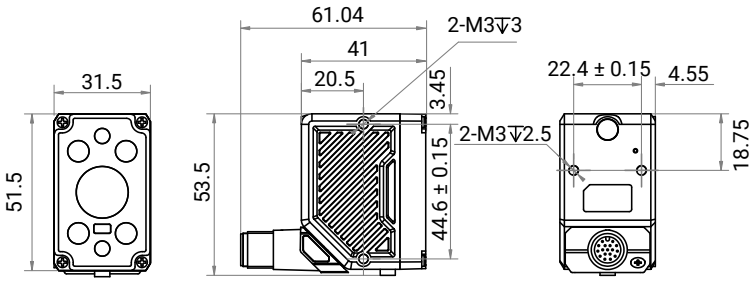
Dimension

Device (Straight Angle)



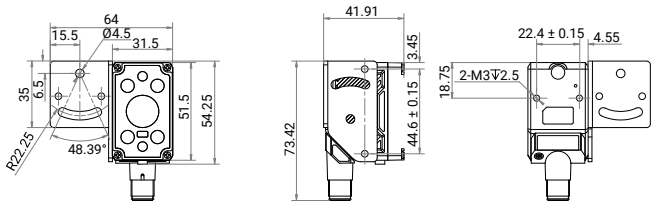
Unit: mm

Device (Right Angle)



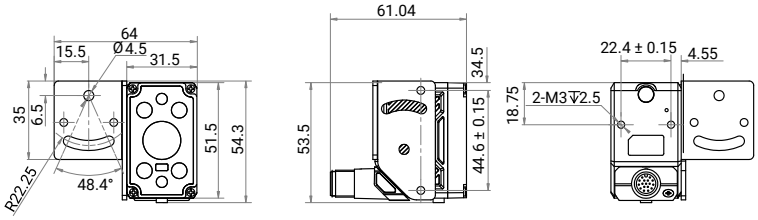
Unit: mm

Device and Installation Bracket 1 (Straight Angle)



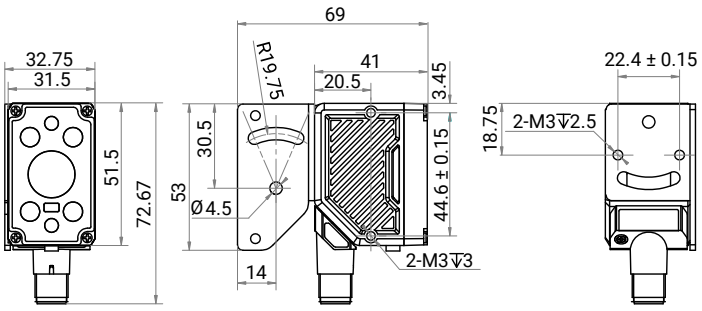
Unit: mm

Device and Installation Bracket 1 (Right Angle)



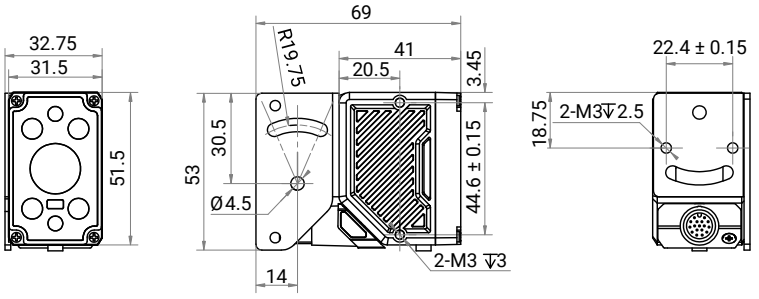
Unit: mm

Device and Installation Bracket 2 (Straight Angle)



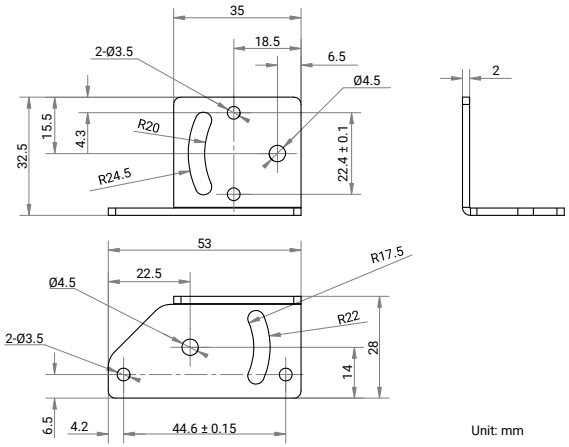
Unit: mm

Device and Installation Bracket 2 (Right Angle)



Unit: mm

Bracket



Unit: mm

Notes

- DC power supply is required for USB-type devices.
- Avoid direct eye exposure to a UV/IR light source which should be used with a transparent lens cap (without lamp cup) to prevent plastic embrittlement.
- The device package contains code reader, quick start guide, installation bracket, and screw pack. Cables should be purchased if required.

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