

Embedded Scanning Engine

EM25



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Core technologies developed in-house; capable of supporting customer development or customization requirements



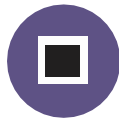
Highly integrated, stable and reliable



Quickly reads paper barcodes and screen codes



Quickly reads paper barcodes and screen codes Supports customizable standard OCRA and OCRB character set recognition



Standard: 4-6V (5V power supply)



Protocol: Default interfaces USB, TTL_3.3V Customizable RS232, RS485

Application Scenarios

Small self-checkout devices, rapid scanning of paper barcodes on assembly lines, and other application scenarios

EM23 Barcode Reading Engine Parameters

Scanning Performance	Image Sensor		640×480 CMOS
	Lighting		White LED 6500K
	Barcode	2D	PDF417, Data Matrix, QR Code, AZTEC
		1D	EAN-13, EAN-8, UPC-A, UPC-E, Code 39, Code 128, ISBN, Code 93, Code 11, UCC/EAN-128, GS1 Databar, Interleaved 2 of 5, Matrix 2 of 5, Industrial 2 of 5, Codabar, Standard 2 of 5, MSI-Plessey, GS1 composite code, etc
	Recognition accuracy*		1D ≥6mil 2D ≥10mil
	Typical Depth of Field Recognition*		10-200CM Alipay QR Code
			20-120CM EAN13 13mil
	Symbolic Contrast*		≥20%
	Barcode Sensitivity		Tilt ±55° , Swivel ±55° , Rotate 360°
	Field of view angle		Horizontal 66° , Vertical 50°
Mechanical Electrical Parameters	Communication Interface		USB(optional, HID, virtual serial port), TTL serial port; Customizable RS232, RS485
	External Dimensions(mm)		77.8(D)×66.4(W)×44.7 (H)
	Weight		70g
	Operating Voltage		Power Supply 1: 4-6V (5V power supply) default
			Power Supply 2: Customizable 5V-16V wide voltage range
			Note: Power Supply 1 and Power Supply 2—select one, not both simultaneously.
	Rated current		(Typical value) Less than 190mA (5V input)
Environmental Parameters	Operating Temperature		-20℃~+60℃
	Storage temperature		-40℃~+70℃
	Operating Humidity		5%~95%(No condensation)
	Ambient lighting		0~100,000LUX
Thermal shock resistance	maximum temperature		60° C (140 ° F)
	Lowest temperature		-20° C (-4 ° F)
	Number of cycles		30 minutes at high temperature; 30 minutes at low temperature
	Period		24

*Test Conditions: Ambient temperature = 23℃; Ambient illuminance = 300 LUX incandescent light;
Custom test sample code used

**Test Conditions: Test Distance = (Minimum Depth of Field + Maximum Depth of Field)/2; Ambient

Temperature=23℃; Ambient Illuminance=300 LUX Incandescent Light 2D: QR CODE; 10 Bytes;

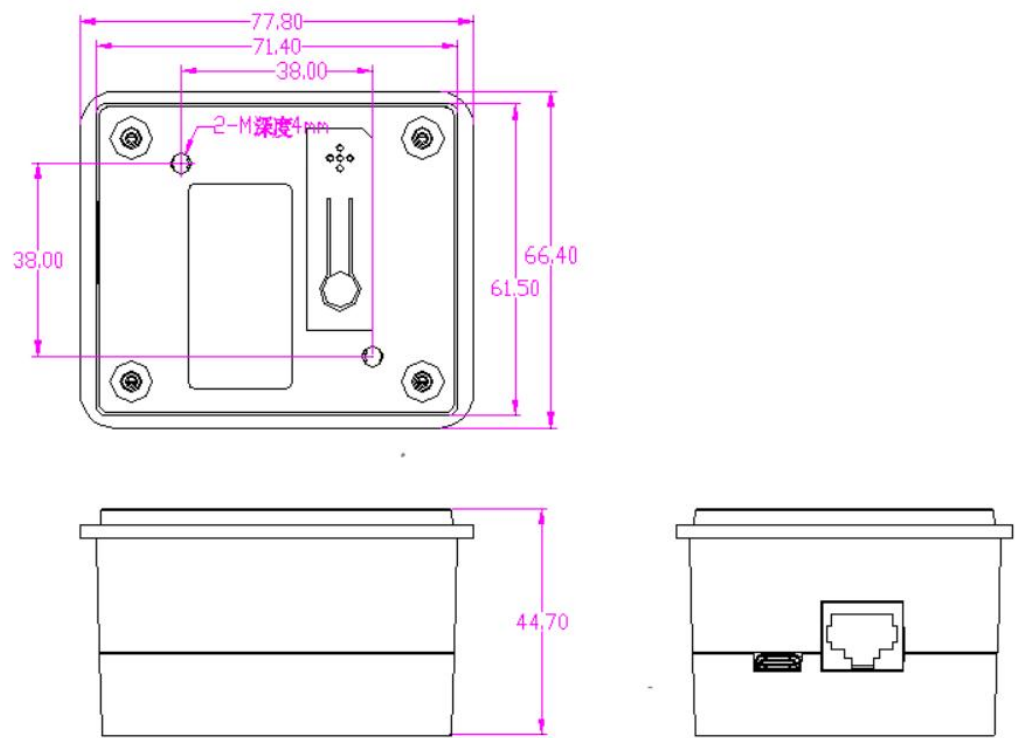
Minimum Bar/Space Width=15 mil; PCS=0.8;

Note: Specifications are subject to change without notice.

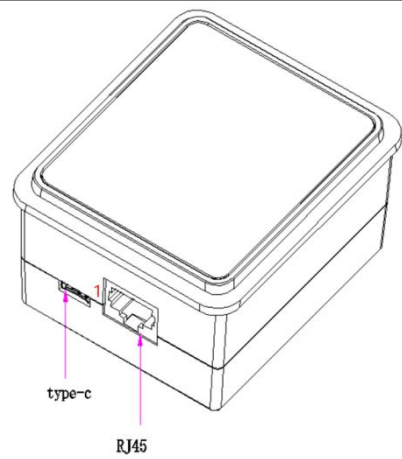
EM25 Product Dimension Drawing

Product Dimensions Drawing (Unit: mm,Tolerance $\pm 0.2\text{mm}$)

Mechanical Dimension Drawing



Interface Diagram



EM25 Communication Port Specifications

1.RJ45 Interface Wiring Diagram

Serial Number	pin	Signal Type	Description
1	NC	–	Suspended
2	VCC	Power	4–6V (default 5V power supply); customizable 5V–16V wide voltage range
3	D–	I/O	USB D– signal
4	D+	I/O	USB D+ signal
5	GND	GND	Earth
6	IO–Y	I	TTL–TX (default); Customizable RS232–TX, RS485–B
7	IO–X	O	TTL–RX (default); Customizable RS232–RX, RS485–A
8	NC/R ESET	–	Default floating; can be customized as a reset pin. Active low. Holding low for over 100 μs resets the device.
9	nTri g	I	Trigger input signal, low–level active
10	NC	–	Suspended

2.Standard Type–C USB interface

When using a Type–C USB cable for power supply, ensure the supply voltage is between 4.5V and 6.5V. Do not exceed this range.

Appendix: Version History

Version	Revision Date	Modify Notes
V1.00_20210220	February 20, 2023	Initial version
V1.01_20240803	August 3, 2024	Modify the format and correct some errors.