



XL-3040M Integration Technical Manual



V1.1



1. Brief Introduction

XL-3040M is a CMOS 2D barcode scanning engine, with characteristics of fast reading, high resolution, small sized, long scanning distance, can be easily embedded in various devices.

This module has the core technology which is independently researched and, designed and manufactured by SUNLUX company independently, including outline structure, optical imaging system, photoelectric conversion system, waveform digital processing, graphics processing algorithms, decoding algorithms, embedded systems, a series of integrated technology. Therefore, the product can be customized according to the special needs of different customers. Multiple kinds of 1D/2D codes can be read easily. Advantages as below:

- ✧ Support serial mode, and support serial command control.
- ✧ Support USB virtual serial port, compatible with a variety of software.
- ✧ Standard cable, compatible with most products on the market.
- ✧ Support firmware upgrade, convenient for maintenance and function expansion.
- ✧ Support Multi language, support a variety country languages keyboard.

2. Working Parameters

Supported Interface

- ◆ **UART-TTL:** Serial communication interface of TTL level

Apply to various kinds of embedded working environments, providing high performance of bar code reading, especially for POS, cash registers, PDA, etc.

- ◆ **USB-HID:** keyboard simulation device based on USB-HID protocol, can be directly connected to the USB of PC without installing drivers.

Connect a variety of USB devices, HID output data, suitable for devices under WinCE, WINDOWS, and LINUX system.

- ◆ **USB-VCP:** Serial communication simulation device based on USB, can be connected directly to the USB of PC, and need to install driver.

It supports virtual serial port connection to achieve high-speed and stable transmission.



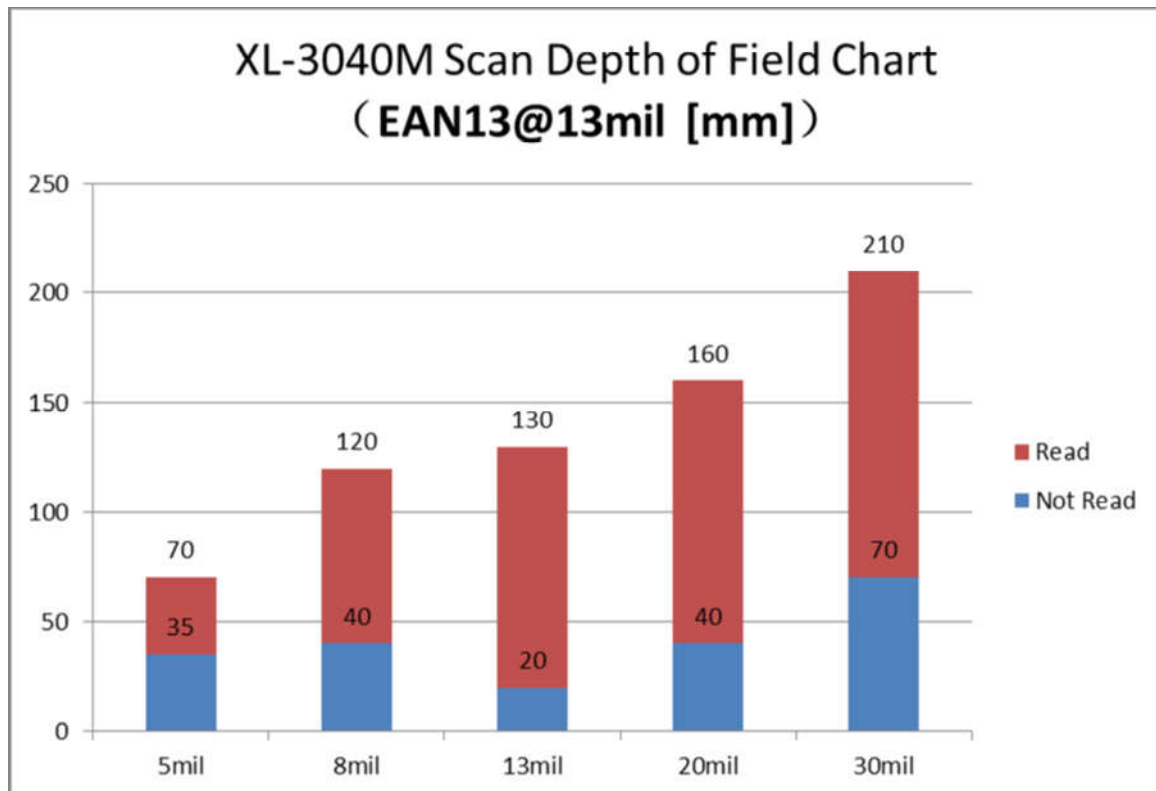
Working Environment

Working Voltage	5V
Working Current	70mA
Max Current	100mA
Working Temperature	-20°C to 60°C
Working Humidity	5% to 90%
Ambient Light Intensity	0-100,000lx

Storage Environment

Storage Temperature	-40°C to 85°C
Storage Humidity	5% to 90%

Depth of field performance



** for more than 13mil bar code, blind area mainly depends on the angle of view*



3. Performance characteristics

Sensing mode	CMOS
Light source	LED (6000K) 900lux @100mm
Aiming light	No
Light source intensity	265 LUX (130 mm)
Scanning angle	All direction decode
Scanning speed	30 times / second
Resolving power	640*480 pixel
Reading accuracy	≥8mil
Print contrast	≥20%
Supported barcode type	1D Support: industrial 25, standard, matrix 25, china post 25, code 11, codabar, MSI/Plessey, code39 (standard 39 & full ASCII code 39), code 32, code 93, code128, UPCA, UPCE, EAN13, EAN8, UPC/EAN, add-on 2/5, ISBN, ISSN, GS1(RSS) RSS-14, LIMITED, EXPENDED, include GS1 STACK 2D Support: PDF417, Data Matrix , QR code . ect.

4. Electrical Characteristics

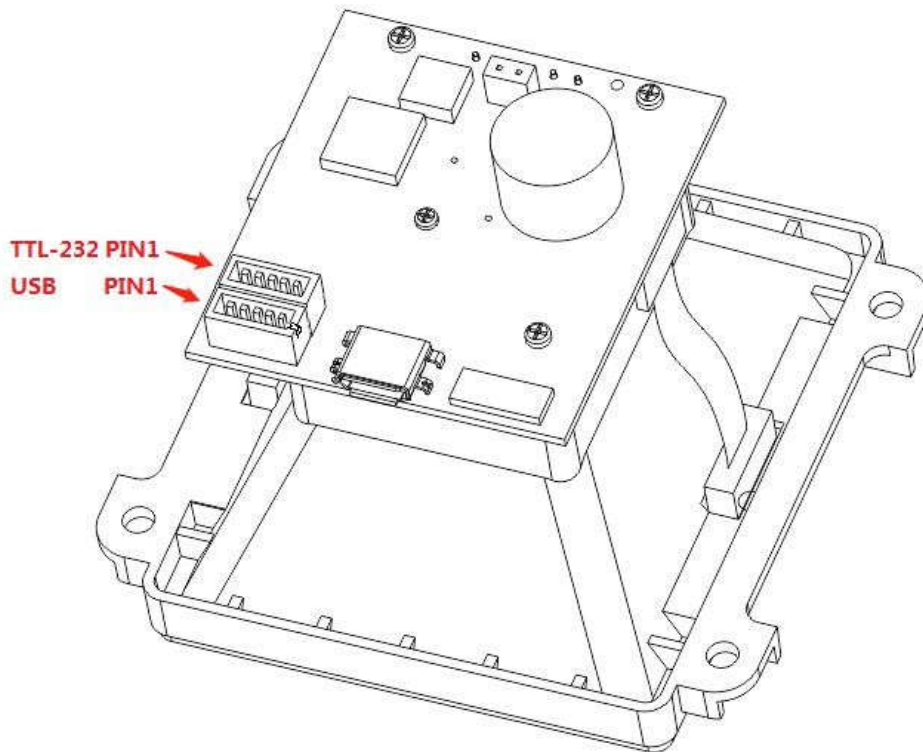
Physical Dimension

Overall Dimension	67.7*61.2*48mm
Positioning Hole	φ1.4mm *2mm
Weight	45g±0.1g



Pin Definition

This module supports USB and serial port (TTL-232) interface,
PIN definition as follows:



PIN	NAME	TYPE	NOTE
1	GND	Grand	Grand
2	RXD	IO	TTL level
3	TXD	IO	TTL level
4	VCC	power	DC 5V
5	GND	GRAND	GRAND

TTL-232 PIN

PIN	NAME	TYPE	NOTE
1	GND	Grand	Grand
2	D+	IO	USB DP
3	D-	IO	USB DM
4	VCC	Power	DC 5V
5	GND	GRAND	GRAND

USB PIN



Connection Socket

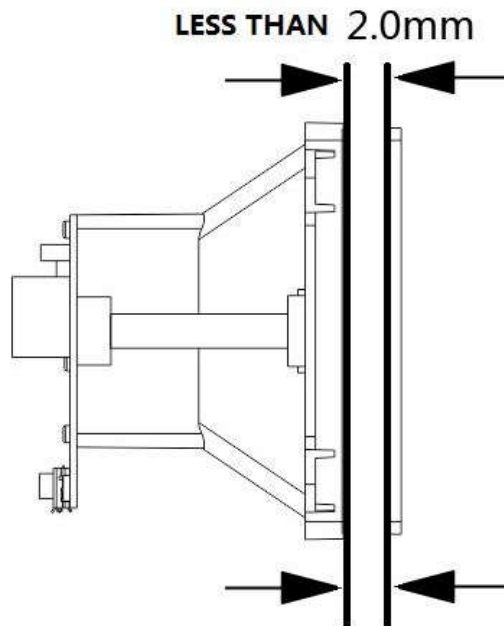
The connection socket of this module adopts 5Pin FPC with 1.275mm interval.
Other version support RS232 interface, which adopts 12Pin FPC with 0.5mm interval.

5. Installation

Optical Requirements

Window Placement

When install this module, a transparent medium window can be installed in front of the module in order to separate the inside and outside of the product. The size of the window can make the illuminating beam completely emitted and prevent light reflection from entering the module. If illuminating light reflects into the module, it will affect the reading performance. In order to ensure good reading performance, the distance between the far end of the window to the front end of the module is not more than 3mm, and the distance between the near end of the window to the front end of the module is not more than 2mm. If the window is designed by tilt, vertical installation is required.



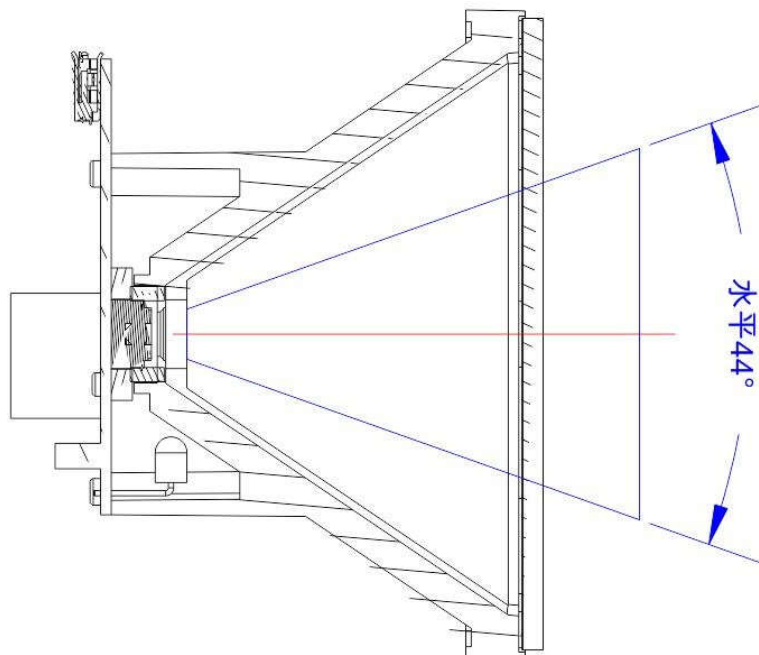


Material and Color of Window

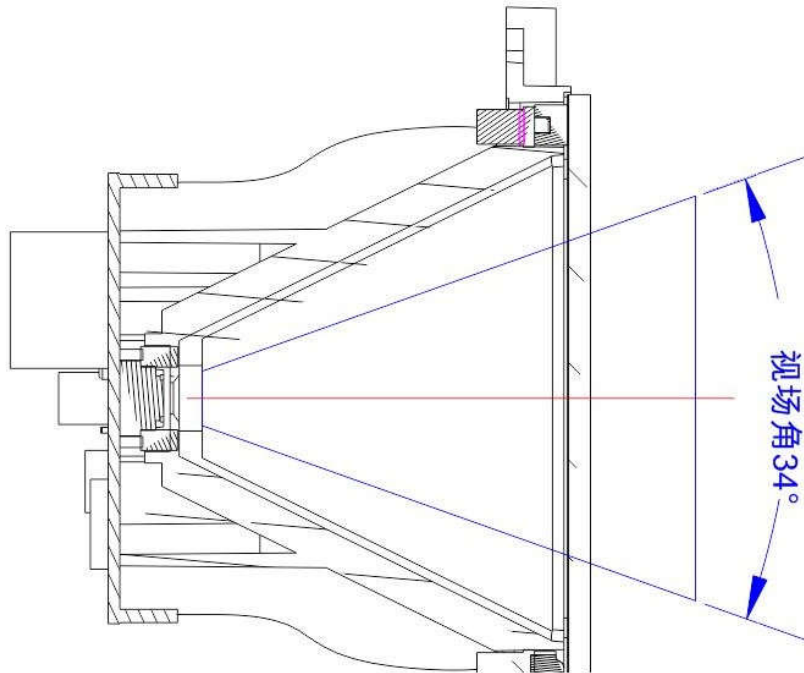
When selecting material and color of the window, there are the main points of the main consideration: high transmittance of light (red light), high definition and the uniform refractive index. Optical glass or PMMA is usually used. At the same time, should consider the design of anti fouling and scratch prevention, because scratching and fouling will affect the performance of reading. Wear resistant materials or coatings can be selected on the window material.

Window Size

The size of the window is based on the premise that the field of view is not blocked, and the area of illumination is not blocked as far as possible. The optical area of this module is shown as below.



Optical Vertical Diagram, horizontal scanning field angle: 44 degrees.



Optical Horizontal Diagram, vertical scanning field angle: 34d egress.



Ambient Light

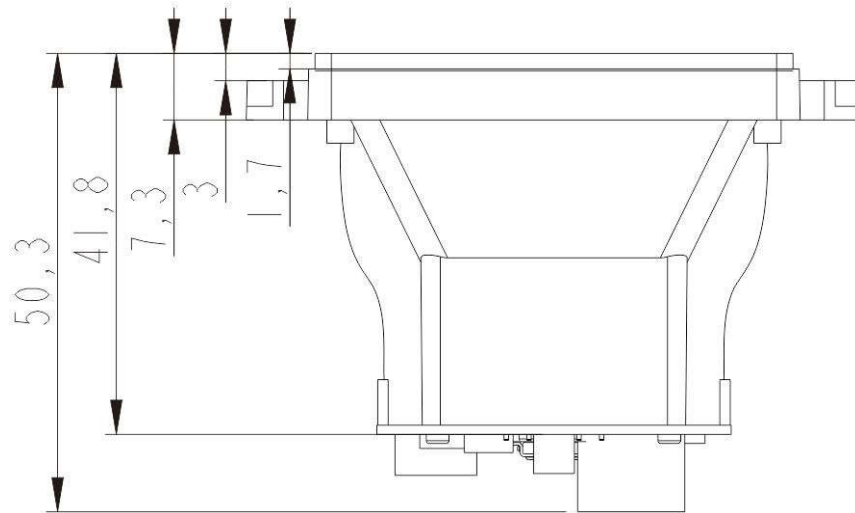
The module has its own lighting, which can be used normally without environmental light. Meanwhile, it can be well adapted to 50Hz~60Hz's commonly used lighting and alternating current fluorescence flicker.

Use Safety

The illuminating light used in this module is LED light, and the wavelength range generated by the module is safe. But when using, avoid eye looking directly to the lighting as far as possible, so as not to cause any discomfort.

Install

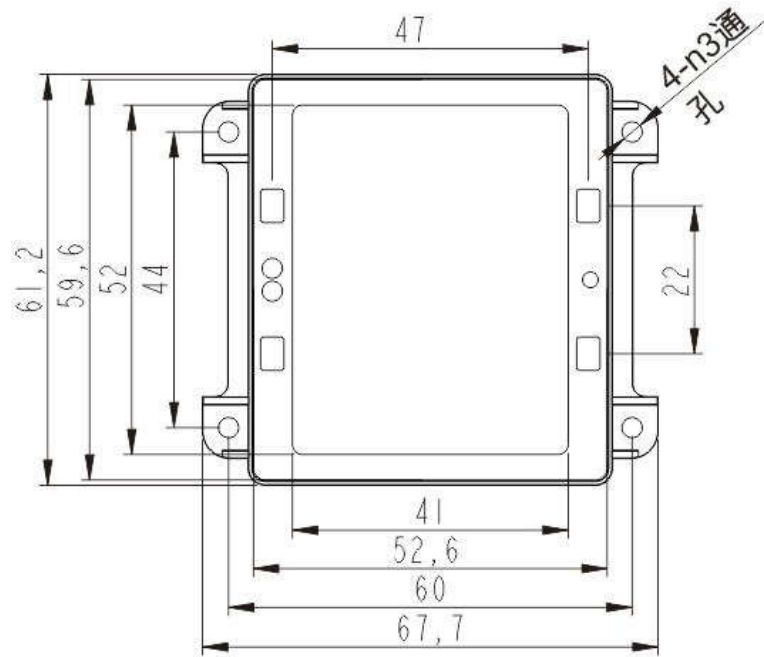
When installation, please refer to the following physical size specifications.



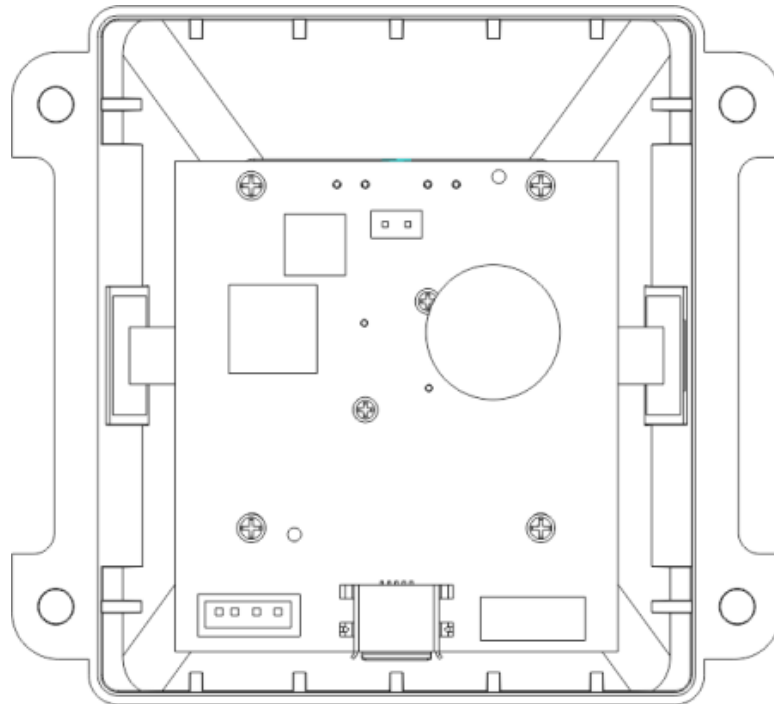
Height chart



Front View (Unit: mm)



Bottom View (Unit: mm)





perspective drawing

