M14 PRO Installation guide

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1、Product introduction

1.1 Introduction

M14 PRO is an embedded one-dimensional / two-dimensional bar code reading engine, using CMOS image technology and with independent intellectual property rights of the leading international level of intelligent image recognition system. M14 PRO read the powerful performance, you can read the print or magnetic bar code information on the bar; small size, you can easily embedded in a variety of OEM products (including hand-held, scanning guns, portable and fixed bar code collector) and so on. M14 PRO also provides users with a wealth of secondary development capabilities, including to provide users with a completely open image acquisition interface, device interface and I / O operation interface, the user can easily solve the individual needs of the SDK.

1.2 Main features

- ✓ Small size, easy to embed into other devices;
- ✓ Support the mainstream of the one-dimensional and two-dimensional code;
- ✓ Embedded high-performance processing chip, decoding speed, reading accuracy and high ability;
- ✓ Easy to configure, support for firmware upgrades;
- ✓ Can be customized to a high degree of technical support;

1.3 Performance parameters

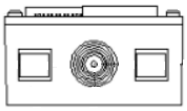
Parameters		
Reading mode		CMOS
Resolution		640x480
Barcode type	**2D**	PDF417，Micro PDF417，QR Code，Micro QR，Mirror QR，Data Matrix，HANXIN，Aztec
	1D	Code11，Code39，Code93，Code 128，EAN-13，EAN-8，UPC-A，UPC-E，Codabar，Interleaved 2 of 5，Matrix 2 of 5，Industial 2 of 5，MSI，GS1 Databar

Reading accuracy		≥ 5mil
Read depth of field		50mm~160mm
Print contrast		≥ 20%
Barcode rotation sensitivity		360°@ 0°Pitch and 0°Skew
Bar code tilt sensitivity		±55° @ 0°Roll and 0°Pitch
Barcode deflection sensitivity		±55°@ 0°Roll and 0°Skew
Ambient light intensity		0 ~ 100,000 LUX
Electrical characteristics		
Maximum power consumption		1.2W
Voltage		5V
Current	**Maximum current**	240 mA
	Working current	180 mA
Weight		3.6g
working environment		
Operating temperature		-20℃ ~ +60℃
Storage temperature		-40℃ ~ +80℃
Working humidity		5% - 95%（Non-condensing）

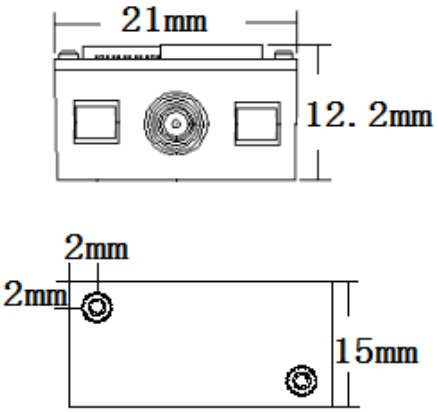
2、Sroduct Structure

The M14 PRO communicates with external devices via data jacks and data cables，As shown below。

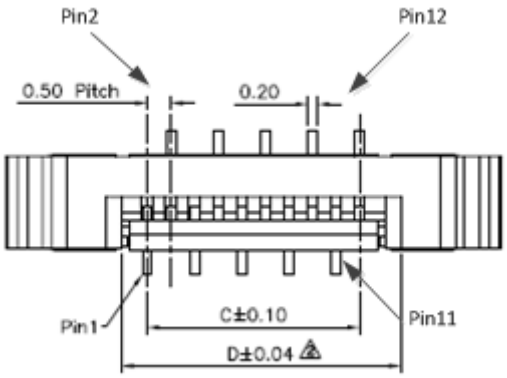
2.1 Product appearance



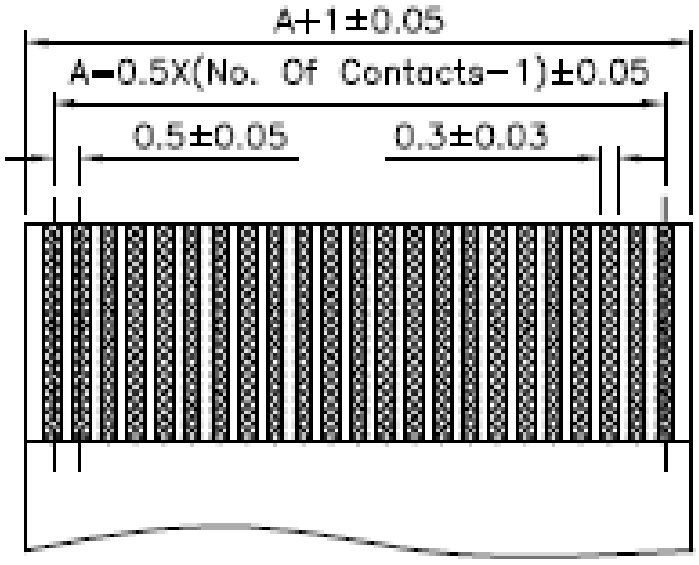
2.2 Product size



2.3 Data socket



2.4 Flexible cable



FFC/FPC Dimension
Thickness 0.30±0.03 mm ⚠

2.5 Structural components design points

2.5.1 Structural components

The structure should be designed to be wide enough to prevent any components from opposing and touching the M14 PRO electronics. Need to have enough space to place the flexible cable, but also to leave the cable to restore the normal space required, will not make the cable is squeezed or damaged.

2.5.2 Temperature

Electronic components, etc. will produce heat, especially in the case of continuous work, M14 PRO temperature will be higher. Please avoid the use of rubber and other insulation material winding M14 PRO shell.

If conditions permit, you can add a certain number of thermal components

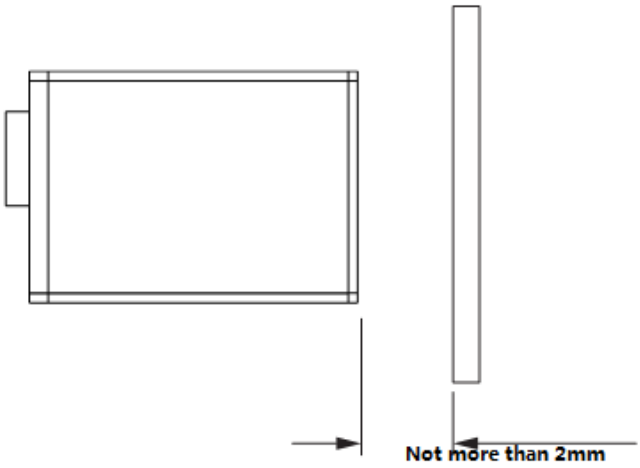
2.5.3 Read the window

Reading the window requires protection of the camera, focus lights and lights. Reading the window must follow the following principles:

1、The opaque part of the outer window should not block the lights, the focus lights and the camera

2、Use high-wear-resistant materials such as double-sided hard-coated materials.

3、It is recommended that the window glass be parallel to the lens and that the window must be perpendicular to the M14 PRO front plate and not more than 2 mm.



4、If you want to tilt the design, the window glass distance must be greater than 5mm, and the distance and tilt angle should ensure that the light is reflected by the glass light can not be reflected into the lens.

3、Hardware design

This section describes the M14 PRO hardware interface definition and hardware reference design.

3.1 Data interface definition

PIN	Input/output	Definitions	Explanation
PIN 1	-	-	-
PIN 2	power	VCC	Input power +5V。
PIN 3	GND	GND	GND & Signal ground
PIN 4	Input	RX	TTL serial port to receive the level signal, need 10K resistor pull up.
PIN 5	Output	TX	TTL serial transmission level signal.
PIN 6	USB	DM	DATA-
PIN 7	USB	DP	DATA+
PIN 8	-	-	-
PIN 9	Output	BUZ	Buzzer signal output. Driving capacity is not enough to directly drive the buzzer, there is a need to use the buzzer drive circuit. This pin is left floating when the signal is not used.
PIN10	Output	LED	Indicator signal output. Driving capacity is not enough direct drive indicator, there is a need to use the external light driver circuit. This pin is left floating when the signal is not used.
PIN11	-	-	-
PIN12	Input	TRIG	Read code trigger signal. Continuous output low for more than 20 ms Trigger the M14 PRO to start reading the bar code; when the pin is high, the M14 PRO will stop reading. Requires 10K resistor pull-up.

4、Software design

The M14 PRO provides a rich set of commands to communicate with it. The host computer can configure the M14 PRO through the command protocol set, the state query and the reading code and so on.

Specific code implementation please refer to the software reference design of the relevant source code and documentation；《Barcode Scanner Control Protocol Command List》&《Barcode Scanner Control Protocol Structure Descriptions》。

5、 Configuration tools and configuration bar code

The user can perform various operations on the M14 PRO by configuring the tool or by reading the bar code.

5.1 Configuration tools

The configuration tool provides a rich feature. Through the configuration tool, you can configure the M14 PRO , query status information, generate configuration bar code, access to images, firmware updates and other operations.

Please refer to the specific use《CodeBar Config Tool User Guide》。

5.2 Configuration bar code

Users can configure the bar code M14 PRO by the corresponding configuration, you can use the configuration tool to generate the corresponding configuration bar code。

Please refer to the specific use《CodeBar Config Tool User Guide》。