

超小体积 · 高集成度 · 嵌入式二维扫描模块 · 全黑环境可识读

XL-M100P 嵌入式二维扫描模块

XL-M100P Embedded 2D Scan Module

CMOS 640 × 480 @30fps

21.7 × 7.2 × 9 mm

重量 < 5 g

一维 ≥4 mil / 二维 ≥10 mil

TTL-232 / USB 2.0

+3.3V DC

01 超小体积 · 高集成

Ultra-Compact & Highly Integrated

机身仅 21.7 × 7.2 × 9 mm、重量不足 5 g，集成度高，轻松嵌入指环式、颈带式与蓝牙口袋便携读码器等穿戴设备。

Just 21.7 x 7.2 x 9 mm and under 5 g - easy to embed in ring scanners, neck-worn readers and pocket Bluetooth readers.

02 一维二维高速识读

Fast 1D & 2D Decoding

先进图像识别算法搭配广角光学镜头（水平 37° / 垂直 28°），各类一维码、二维码轻松高速读取。

Advanced imaging algorithms with wide-angle optics (37 deg H / 28 deg V) read 1D and 2D codes at high speed.

03 全黑环境可识读

Reads in Complete Darkness

白光补光 6500K LED + 红色 LED 瞄准，从完全黑暗到强曝光的各种照明环境下都能提供优秀识读性能。

6500K white illumination plus a red aiming LED deliver solid performance from pitch dark to strong ambient light.

04 易于集成

Easy to Integrate

13Pin 0.3mm 间距柔性电缆接口，TTL-232 与 USB 2.0 双输出，LED 提示与蜂鸣器均提供对外接口。

13-pin 0.3 mm FPC connector with TTL-232 and USB 2.0 output, plus external LED and buzzer interfaces.



扫描窗口与补光 (Scan Window)



光学镜头组 (Optical Lens)

应用场景 Applications

指环式读码器、颈带式读码器、蓝牙口袋便携读码器、自助终端、工业手持设备等嵌入式扫码场景；可适应冲击、振动、强曝光等苛刻复杂的工作环境。

Ring scanners, neck-worn readers, pocket Bluetooth scanners, self-service terminals and industrial handhelds. Built to cope with shock, vibration and strong ambient light.

产品特点 Product Features

- 超小尺寸 21.7 × 7.2 × 9 mm，重量不足 5 g
Ultra-compact 21.7 x 7.2 x 9 mm, under 5 g
- 白光补光 6500K LED / 红色 LED 瞄准
6500K white illumination LED / red aiming LED
- TTL-232 / USB 2.0 Full Speed 双接口
TTL-232 / USB 2.0 Full Speed interfaces
- +3.3V 低功耗：工作 170 mA、休眠 800 uA
+3.3 V low power: 170 mA working, 800 uA standby

- 先进图像识别算法 + 广角光学镜头
Advanced imaging algorithm with wide-angle optics
- 完全黑暗环境至强曝光全光照适应
Works from total darkness to strong exposure
- 13Pin 0.3mm 间距柔性电缆连接
13-pin 0.3 mm pitch FPC connection
- 适应冲击、振动、强曝光等严苛工况
Withstands shock, vibration and harsh conditions

扫码性能 / SCAN PERFORMANCE

传感器 Sensor	640 (水平) × 480 (垂直) CMOS @ 30fps
光源 Light source	白光补光 6500K LED / 红色 LED 瞄准
视场角 Field of view	水平 37° / 垂直 28°
识读精度 Precision	一维 ≥ 4 mil / 二维 ≥ 10 mil
符号反差 Print contrast	≥ 15%
识读角度 Reading angle	旋转 360°，倾斜 ±60°，偏转 ±60°
识读模式 Reading modes	连续模式、感应模式、手动模式、命令触发模式
识读景深 Depth of field	Code39 50 ~ 90 mm (5 mil) EAN13 40 ~ 210 mm (13 mil) Code128 45 ~ 250 mm (15 mil) QR 40 ~ 180 mm (15 mil)
二维码 2D 2D codes	QR, PDF417, DataMatrix (ECC200), Aztec, 汉信码, Maxicode, Micro QR, Micro PDF417
一维码 1D 1D codes	EAN13, EAN8, UPC-A, UPC-E0, UPC-E1, Code128, Code39, Code93, CodaBar, Interleaved 2 of 5, Industrial 2 of 5, Matrix 2 of 5, Code11, MSI-Plessey, Standard 2 of 5, Plessey, China Post, Code 16K, GS1 Databar (RSS-Expand / RSS-Limited / RSS-14 / GS1 Composite)

物理 / 电气 / 环境 / PHYSICAL & ENVIRONMENT

外观尺寸 Dimensions	21.7 × 7.2 × 9 mm (长 × 宽 × 高)
重量 Weight	< 5 g
接口 Interfaces	TTL-232 / USB 2.0 Full Speed
连接器 Connector	13Pin, 0.3 mm 间距, 下接触
识读提示 Indicators	LED 提示和蜂鸣器 (提供对外接口)
电压 Voltage	+3.3V DC ±5%
电流 Current	工作电流 170 mA; 休眠电流 800 uA
工作温度 Operating temp.	-20°C ~ +60°C
存储温度 Storage temp.	-40°C ~ +70°C
工作湿度 Humidity	5% RH ~ 95% RH (不凝结)
引脚定义 Pin definition	1 GND / 2 TRIG 触发输入 / 4 DLED LED 指示 / 5 BEEP 蜂鸣器控制 / 7 DP USB D+ / 8 DN USB D- / 9 UART_TX / 10 UART_RX / 12、13 3V3 电源

引脚接口与集成 Pinout & Integration

13Pin 引脚定义

01

13-Pin Connector Pinout

1 GND; 2 TRIG 触发输入信号; 3/6 NC; 4 DLED LED 指示;
5 BEEP 蜂鸣器控制; 7 DP (USB D+); 8 DN (USB D-);
9 UART_TX (TTL 串口发送); 10 UART_RX (TTL 串口接
收); 11 GND; 12/13 3V3 电源 3.3V 输入。

1 GND; 2 TRIG input; 3/6 NC; 4 DLED LED indicator; 5 BEEP buzzer
control; 7 DP (USB D+); 8 DN (USB D-); 9 UART_TX; 10 UART_RX; 11
GND; 12/13 3V3 power input.

集成提示

02

Integration Notes

使用时需用一根两端均为 13PIN、0.3mm 间距的直连同面柔性
电缆与外设连接; LED 与蜂鸣器为对外接口, 需外设驱动。

Connect to the host with a 13-pin, 0.3 mm pitch same-side FPC
cable. LED and buzzer are external interfaces driven by your device.

应用与适配 Applications

应用 / Application	说明 / Description	接入 / Interface
指环式读码器	Ring scanners	超小体积可嵌入戒指形态
颈带式读码器	Neck-worn readers	免手持, 仓储拣货作业
蓝牙口袋便携读码器	Pocket Bluetooth readers	低功耗 170 mA, 电池供电
自助终端 / 工业手持设备	Self-service / industrial handhelds	TTL-232 或 USB 2.0 接入
严苛工况适应	Harsh environments	抗冲击、振动与强曝光

使用提示 Notes

① 模块作为设备配件使用, 需自备主板与外壳集成, 通过 13Pin 0.3mm 间距柔性电缆连接; ② 白光补光 6500K LED 与红色 LED 瞄准配合, 完全黑暗环境也能稳定识读; ③ 供电 +3.3V DC $\pm 5\%$, 工作电流 170 mA、休眠 800 uA, 适合电池供电的便携设备; ④ 规格如有更改恕不另行通知, SDK 与开发文档可向我司索取。

① A device component requiring your own mainboard and housing, connected via a 13-pin 0.3 mm FPC cable. ② 6500K white illumination with red aiming LED keeps reading stable even in complete darkness. ③ Powered by +3.3 V DC ($\pm 5\%$), 170 mA working and 800 uA standby - ideal for battery-powered wearables. ④ Specifications subject to change; SDK and development documents available on request.