Embedded Scan Engine • TTL-232 / USB • 12-PIN FPC

XL-F31-BW Industrial Scan Engine

680 × 480 CMOS | ≥ 3.3 mil | 36 × 14 × 11.3 mm | 5 g | TTL-232 + USB | 200 mW low power

01 Compact & Easy to Integrate

36×14×11.3 mm and 5 g, with M1.6×3 mounting holes for handheld and portable devices.

02 TTL-232 & USB on One Cable

A single 12-pin 0.5 mm FPC connector carries both TTL-232 and USB for the host design.

03 Reliable Reading

680×480 CMOS with white illumination and red dot aimer; ≥3.3 mil precision, 5–26 cm depth of field.

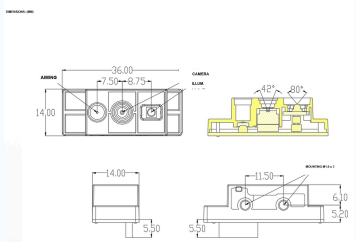
04 Low Power, Wide Range

3.3 V ±5%, 200 mW typical power, storage from −40 °C to +70 °C.





Front View: Aiming / Camera / Illumination



Dimensions: 36 × 14 × 11.3 mm

Applications

Handheld terminals and industrial PDAs, portable medical and nursing devices, power inspection and outdoor terminals, self-service cabinets and production workstations.

Product Features

- 680×480 CMOS imager with white illumination and red dot aimer
- Ultra-compact 36×14×11.3 mm, only 5 g
- TRIG trigger, BEEP and DLED output signals
- 3.3 V ±5%, 200 mW typical power consumption
- ≥3.3 mil precision, 5–26 cm typical depth of field
- TTL-232 / USB via 12-pin 0.5 mm FPC cable
- Five reading modes, configured by setup codes or serial commands
- Storage −40 °C to +70 °C, humidity 5%–95%

PERFORMANCE	
Sensor	680 × 480 CMOS
Illumination	White LED
Aiming	Red dot
Precision	≥ 3.3 mil
Depth of field	Code128 3.3 mil:5 – 8 cm Code128 10 mil:4 – 21 cm QR 20 mil:5 – 26 cm
Min. contrast	≥ 25%
Reading angle	Tilt ±60°, Skew ±60°, Roll 360°
Field of view	42° H, 31.5° V
Ambient light	0 ~ 100,000 Lux

DECODING TYPES	
1D code	Code 11, Code 32, Code 39, Code 93, Code 128, EAN-8, EAN-13, UPC-A, UPC-E, Codabar, IATA 2 of 5, Interleaved 2 of 5, Matrix 2 of 5, Straight 2 of 5, MSI Plessey, GS1 DataBar
2D code	QR, Micro QR, PDF417, MicroPDF417, Data Matrix, Aztec, Grid Matrix

PHYSICAL	
Size	36 × 14 × 11.3 mm (max.)
Weight	5 g
Interfaces	TTL-232, USB
Connector	12-pin FPC, 0.5 mm pitch
Mounting	M1.6 × 3, 11.5 mm pitch

ELECTRICAL	
Voltage	3.3 V ±5%
Power	200 mW (typical)
Current	65 mA @ 3.3 V (typical)
Prompts	TRIG, BEEP, DLED
Configuration	Companion setup utility

ENVIRONMENTAL	
Storage temperature	-40 °C ~ +70 °C
Humidity	5% ~ 95% (non-condensing)

Specifications subject to change without notice.

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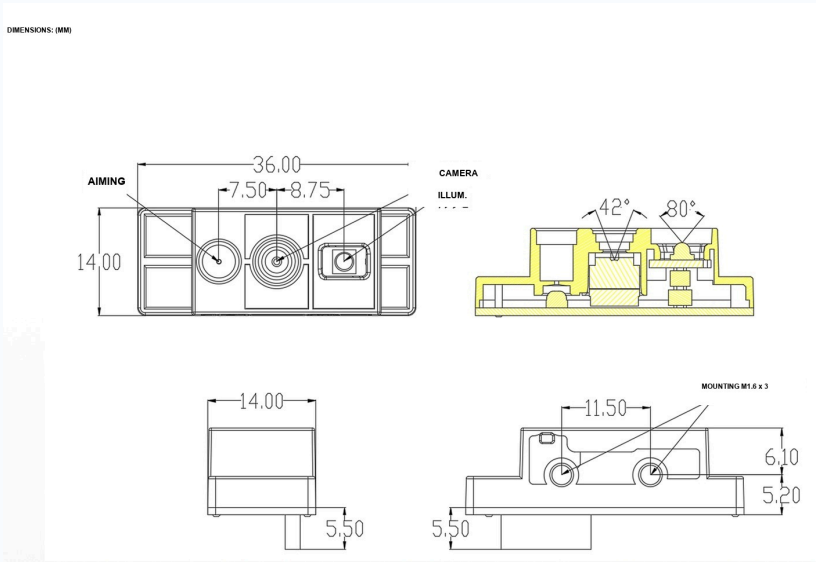
Mechanical Drawing



Units: mm | Overall 36.00 × 14.00 × 11.30 mm (max.) | Mounting M1.6 × 3, 11.50 mm pitch

Integration & Interfaces

Communication

One 12-pin 0.5 mm FPC cable carries both TTL-232 and USB — pick either on the host side, no second cable needed.

Control Signals

TRIG trigger, BEEP and DLED signals for button triggering, buzzer feedback and status LED.

Power Supply

3.3 V ±5% single supply, 200 mW typical and 65 mA working current — friendly to battery-powered devices.

Configuration

Five reading modes, set by setup codes or serial commands; the companion utility captures images, tunes parameters and updates firmware.

Field of View & Reading Angles



OPTICS	
Field of view	42° H, 31.5° V
Reading angles	Tilt ±60°, Skew ±60°, Roll 360°
Depth of field	5 – 26 cm (Code128 / QR)
Min. contrast	≥ 25%
Ambient light	0 ~ 100,000 Lux

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