



XM-8600A Industrial Controller User Manual

Product Model: XM-8600A

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PART1

1. Safety Information

1. This product is a precision electronic device. Avoid impact, drops, and strong vibration. Mechanical shock may loosen components or damage internal circuits, which can cause functional issues.
2. During packaging and transportation, protect the product with bubble wrap, EPE foam, or equivalent cushioning material.
3. Do not operate the product in ambient temperatures of 158°F (70°C) or higher, or -4°F (-20°C) or lower. Extreme temperatures may reduce performance or cause abnormal operation.
4. Do not leave the controller exposed outside the equipment enclosure. Exposed installation can create a risk of electric shock or accidental contact. The controller and the customer equipment must be properly grounded.
5. For best user experience, install the product in a low-interference environment with wireless signal strength stronger than -90 dBm.

PART2

2. Product Overview

The XM-8600-A is an Android-based industrial controller designed for smart retail and vending applications. It uses a high-performance quad-core ARM A53 processor and integrates a 4G cellular data module on the main board. The controller provides multiple peripheral interfaces, including dual RJ45 Ethernet ports, four IP camera ports, USB, two electronic lock interfaces, and one 12 V power output.

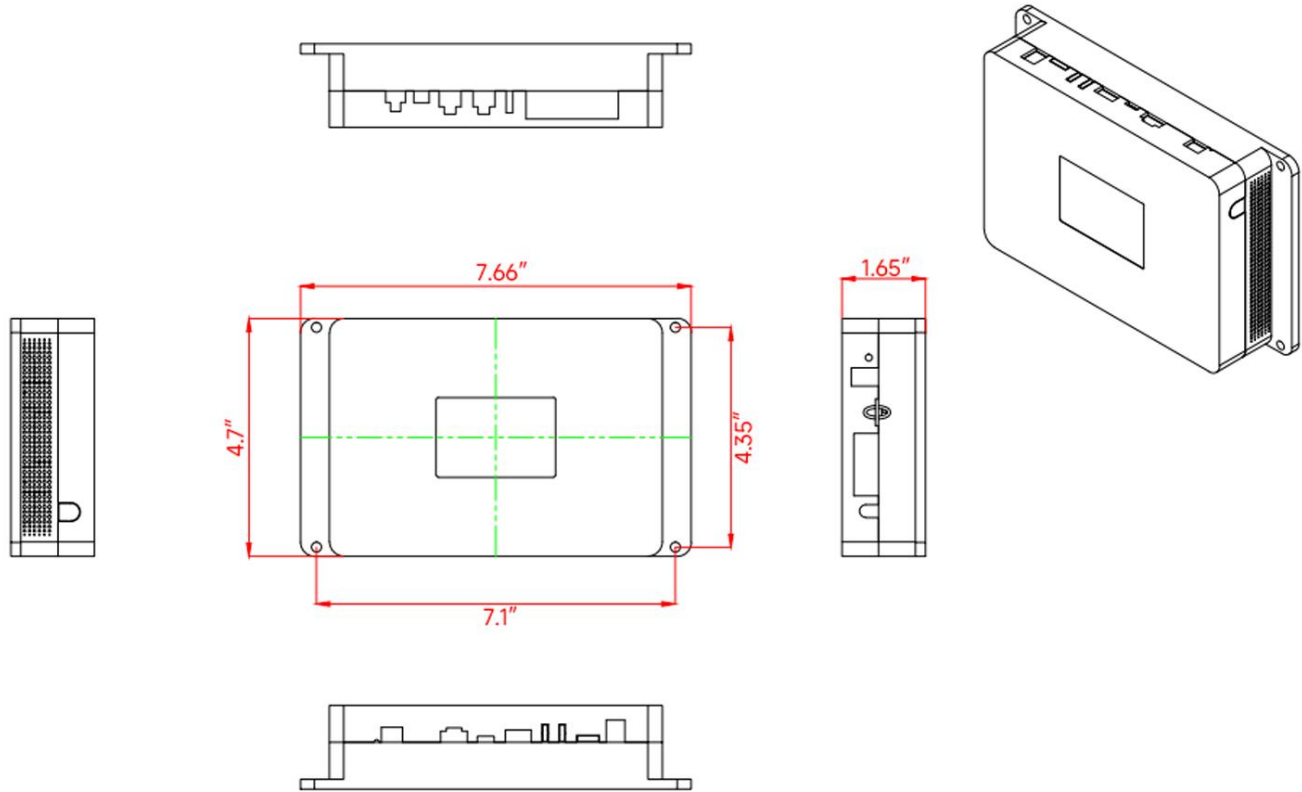
PART3

Product Features

- High-performance quad-core ARM A53 processor
- Android 10 operating system
- Integrated 4G wireless communication module
- Integrated PowerVR GE8300 GPU
- Rich peripheral interface support
- Low-power, fanless design
- Remote system upgrade support

PART4

4. Physical Dimensions



Unit : inch

PART5

5. Specifications

Category	Item	Specification
System	CPU	Quad-core ARM A53, 4 × 1.5 GHz
System	GPU	Imagination PowerVR GE8300
System	Memory / Storage	1 GB RAM + 8 GB flash storage
System	Operating System	Android 10
Network	Cellular	4G cellular module. Carrier and band compatibility must be confirmed for the target U.S. carrier/SIM configuration.
Network	Ethernet	RJ45, 100 Mbps
Interfaces	Power Input	DC 12 V / 3 A
Interfaces	SIM Card	eSIM + Micro SIM slot; dual-card, single-

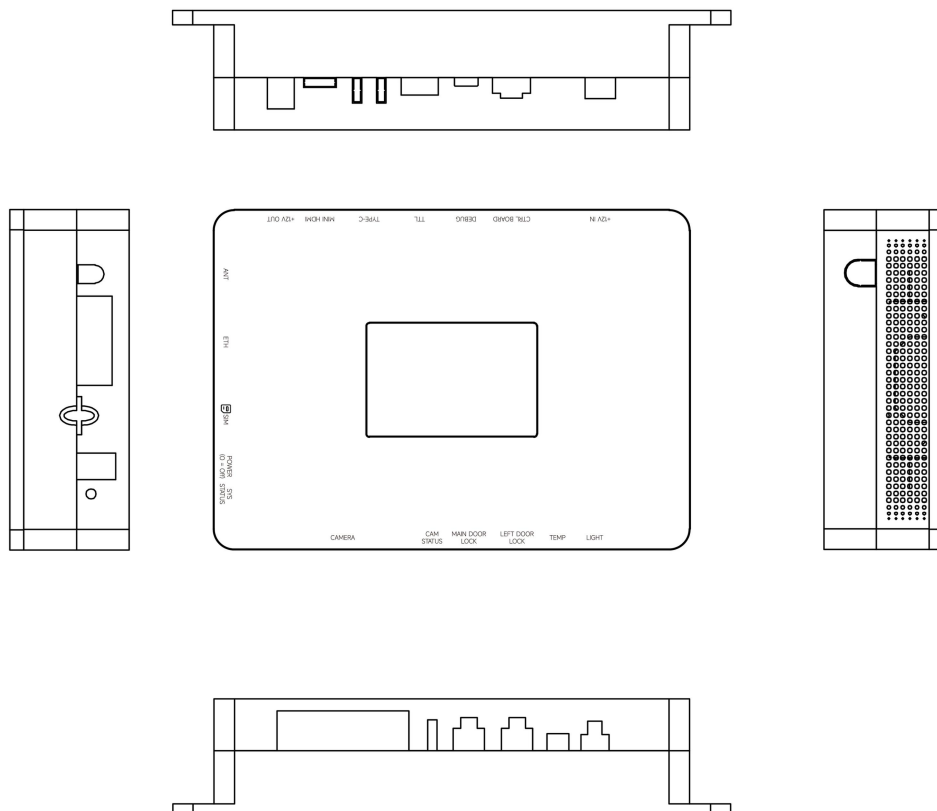
		standby configuration
Interfaces	RS232	1 channel
Interfaces	RS485	2 customizable RS485 channels, or expandable to 2 RS232 channels; hardware reserved
Interfaces	WLAN	2 channels
Interfaces	USB	1 channel
Interfaces	LOCK	2 channels
Interfaces	LED Strip	1 channel; maximum single-channel output 12 V / 2 A
Interfaces	Speaker	Built-in 4 Ω , 3 W speaker
Interfaces	Keys	K2 reset, K3 flashing/programming
Indicators	Indicator Lights	6 channels: PWR, SYS, and 4 camera indicators
RF	4G Antenna	SMA male external thread / female center contact
Watchdog	Hardware WDG	Hardware watchdog supported
Other	Startup	Automatic startup after power-on
Other	UPS Battery	Battery capacity greater than 1,500 mAh
Environment	Operating Temperature	14°F to 140°F
Environment	Storage Temperature	-31°F to 176°F
Compliance Reference	Electrostatic Discharge	Reference standard: GB/T 17626.2
Compliance Reference	Electromagnetic Compatibility	Reference standard: GB/T 17626.3

This document is for reference only. Actual product configuration and appearance are subject to the delivered unit.

PART6

Interface Description

Connector orientation in the original diagrams is described from left to right.

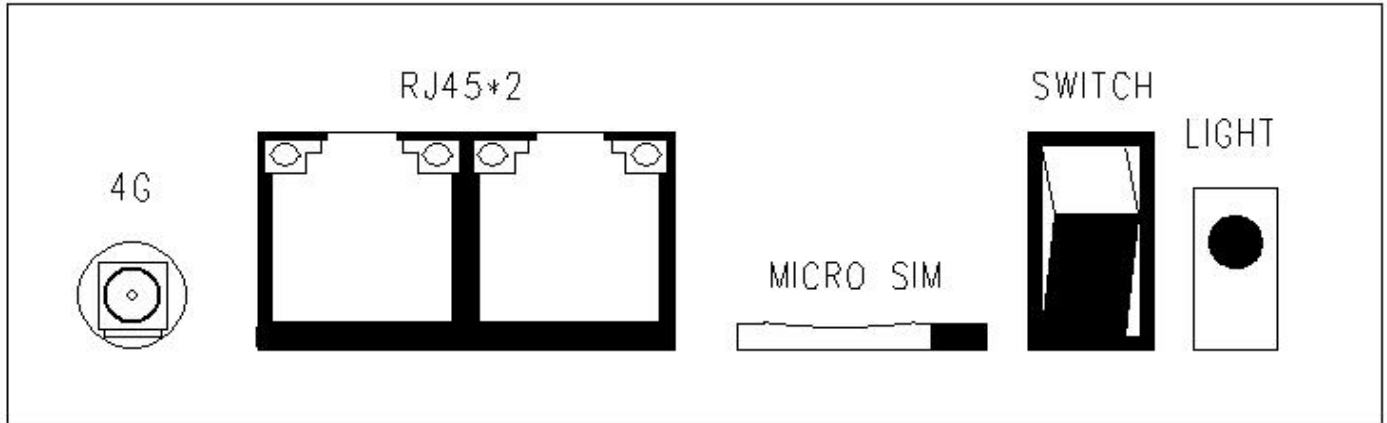


6.1 Side A Interfaces

Silkscreen / Label	Name	Description	Notes
Camera Port	Camera interface	Four RJ11 POP camera ports. Cameras may be plugged into any of the four ports. 6-pin signal definition from left to right: 12 V, GND, TX+, TX-, RX+, RX-.	No fixed insertion order required.
Camera LED	Camera LED indicator	Fast flashing = normal. Slow flashing = abnormal. Off = not connected or not conducting.	
LOCK1 / LOCK2	Electromagnetic lock interface	LOCK1: main lock for single-door configuration. LOCK2: left lock for dual-door configuration. Pin definition: 1 lock feedback, 2 door feedback, 3 common (COM), 4 lock control, 5 GND, 6 12 V.	2 × 3-pin connector, 0.12 in pitch.
Temperature Sensor	Cabinet temperature sensor	2-pin non-polarized connection. Connector model: XH-2AW.	Approx. 0.30 in × 0.28 in.
LED Strip	LED strip interface	Controlled independently by the MCU. The LED output remains available during device restart. 2 LED strip ports; maximum output per port: 12 V / 1 A.	

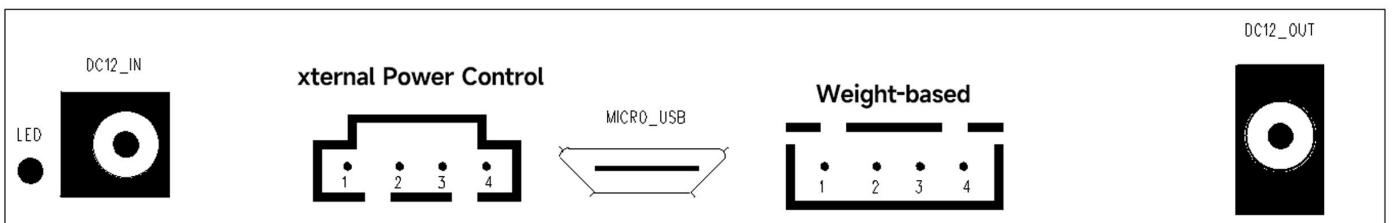
6.2 Side B Interfaces

Silkscreen / Label	Name	Description	Notes
4G	4G antenna	4G antenna connector.	Female connector, standard wiring.
RJ45 × 2	Ethernet ports	Two RJ45 Ethernet ports.	RJ45x2p_12p
MICRO SIM	Removable data SIM card	Micro SIM push-push card slot. Install the card with the notched corner facing outward and the chip facing down.	Confirm SIM and carrier compatibility before deployment.
SWITCH	Rocker switch	Press the "O" side to power off. Controls system power on/off.	
LIGHT	System status indicator	Off = system not started. Fast flashing = normal operation. Slow flashing = main controller not online.	



6.3 Side C Interfaces

Silkscreen / Label	Name	Description	Notes
Left 1 - Wi-Fi Antenna	Wi-Fi antenna interface	Wi-Fi antenna connector.	Male connector, standard wiring.
DC12_IN	Main power input	Main controller power input: DC 12 V. Round DC jack, 5.5 mm / 2.1 mm.	Use the specified 12 V DC power source.
External Power Control	Single/multiple relay control	12 V switching signal used to drive a 220 V relay in the original configuration. Typical uses: compressor on/off control; internal fan or cabinet heater power and switching control; electric heated door power and switching control.	HX25418-4WA. For U.S. installations, verify relay and load ratings against applicable local electrical requirements.
Debug Port	Serial debug port	Pin sequence: GND, RX, TX.	
Gravity	Gravity sensor interface	UART serial interface, 5 V power supply. Pin sequence: RX, TX, GND, 5 V.	4-pin, XH2.54 connector; approx. 0.10 in pitch.
Type-C	Reserved for high-end face-recognition configuration	Two vertical Type-C connectors reserved for optional configuration.	HX25418-4WA
miniHDMI	Reserved for high-end face-recognition configuration	One miniHDMI connector reserved for optional configuration.	
DC12_OUT	12 V power output	Standard-wiring plastic DC power socket, right-angle installation. Inner contact diameter approx. 0.079 in; outer contact diameter approx. 0.232 in.	DC-005-5A-2.0



PART7

7. After-Sales Support

For technical support, please contact XMAI / Xiaomai Retail Technology Co., Ltd.

Support Item	Contact
Email	guts@xmaivending.com
Phone	+1 8165537029
Website	https://xmaivending.com/

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.