

FCU3101 Embedded Control Unit

The FCU3101 Embedded Control Unit is equipped with a quad-core 1.6GHz Cortex-A53 edge AI processor, delivering a native AI computing power of 3TOPS and offering a comprehensive range of industrial interface resources. Available in both industrial-grade and extended commercial-grade versions, the product adapts to various application scenarios. It is widely applicable in areas such as production line defect detection, campus security monitoring, and edge AI recognition. While efficiently performing edge AI computing, it also supports multiple functions including device communication, data acquisition, and upload transmission.

Product Features:

- 4× Cortex-A53, 1.6Hz clock, Linux6.1
- 3TOPS NPU, meeting edge AI requirements;
- 2 x network ports: 1 Gigabit + 1 100 Mbps
- 2 x RS485 , 2 x RS232
- 2 x DI, 2 x DO
- One-click network parameter restoration
- Programmable Light Strip Design: Combining aesthetics with functionality



4×A53 Architecture	3TOPS NPU	Linux6.1 Kernel Version:
-40°C~+85°C Industrial-grade	2 × Ethernet Gigabit + 100 Mbps	2 × RS485 Rich Interfaces

SoM Parameters:

Processor	Rockchip RV1126B/RV1126BJ 4×Cortex-A53@1.6GHz
RAM	2GB/4GB
ROM	16GB/64GB
Ambient Temperature	Industrial Level: -40°C~+85°C Extended Commercial Grade Version: -20°C to +85°C
Operating Voltage	Rated DC 24V, supporting 9V ~ 36V wide voltage input, with reverse connection protection and overcurrent protection
EMC	Triple Electromagnetic Protection
Overall	202*123*42mm

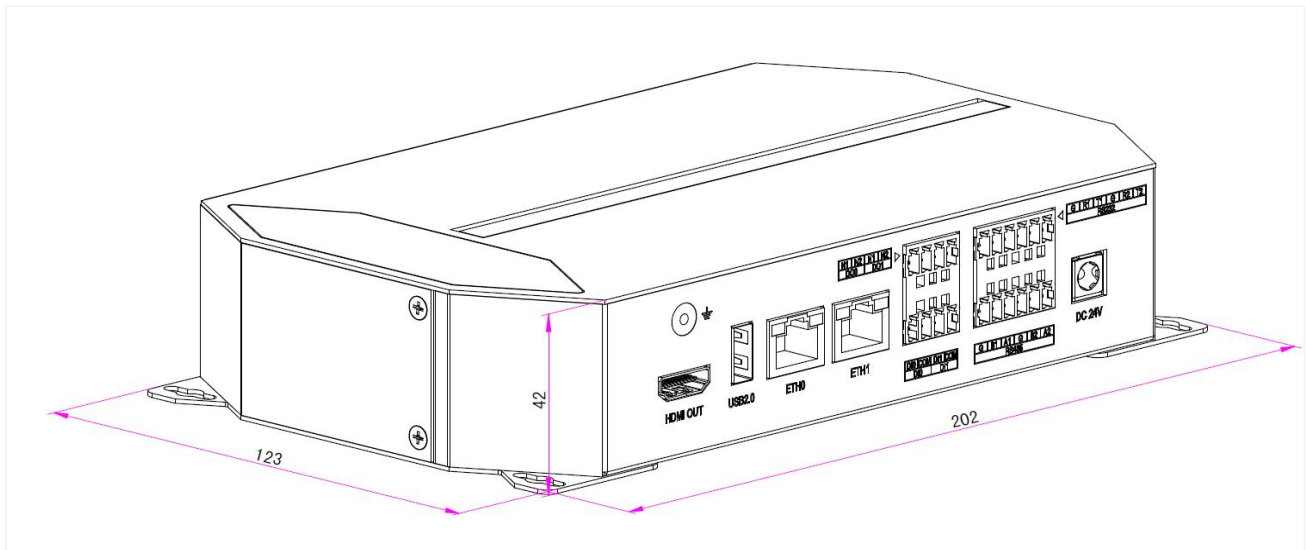
Dimensions:	
Heat Dissipation:	Passive heat dissipation, fanless design
Overall Weight	0.8kg
Installation	Desktop mounting with ears (Screw specification: M3)
Certification	High and Low Temperature Test Report, Cold and Hot Start Test Report, Electromagnetic Compatibility (EMC) Test Report Third-Party Certifications: CE, FCC, RoHS*

Note: Third-party certification reports are expected to be released in Q4

Interface:

Interface Type	Quantity	Parameter Description
Ethernet	2	1 x 10M/100Mbps/1000Mbps, 1 x 10M/100Mbps
DEBUG	1	Type-C port led out, enabling PC connectivity via Type-C cable
USB	2	USB3.0 HOST+USB2.0 HOST
HDMI	1	Maximum resolution 1920* 1080
RS485	2	115,200 bps; by default, there is no 120-ohm terminating resistor, but one can be added via the internal DIP switches.
RS232	2	115200bps
DI	2	Dry contact input
DO	2	Relay output, contact rating 5A 30VDC (normally open)
4G	1	4G Cat1 communication module, optional
SIM card slot	1	Self-ejecting Nano SIM socket
TF card slot	1	Supports TF cards up to 128GB.
Wi-Fi& Bluetooth	1	Supports Wi-Fi4, BT4.2.
Audio Output	1	3.5mm AUX socket, analogue audio output
RESET KEY	1	One-key recovery of network parameters, key functions can be customized
Input Voltage	1	Default 24V, supports a wide input voltage range of 9–36V DC, and features reverse polarity protection and overcurrent protection
Buzzer	1	Built-in
RTC	1	Internal battery power supply
Watchdog	1	Support
Programmable Light Strip Design	1	Default blue flowing light effect; supports custom programming.

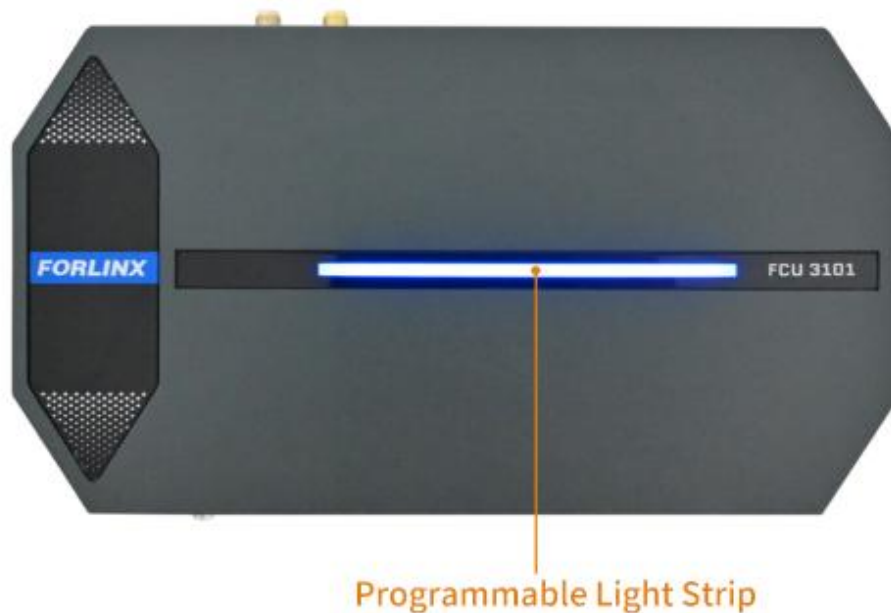
Appearance & Dimensions:

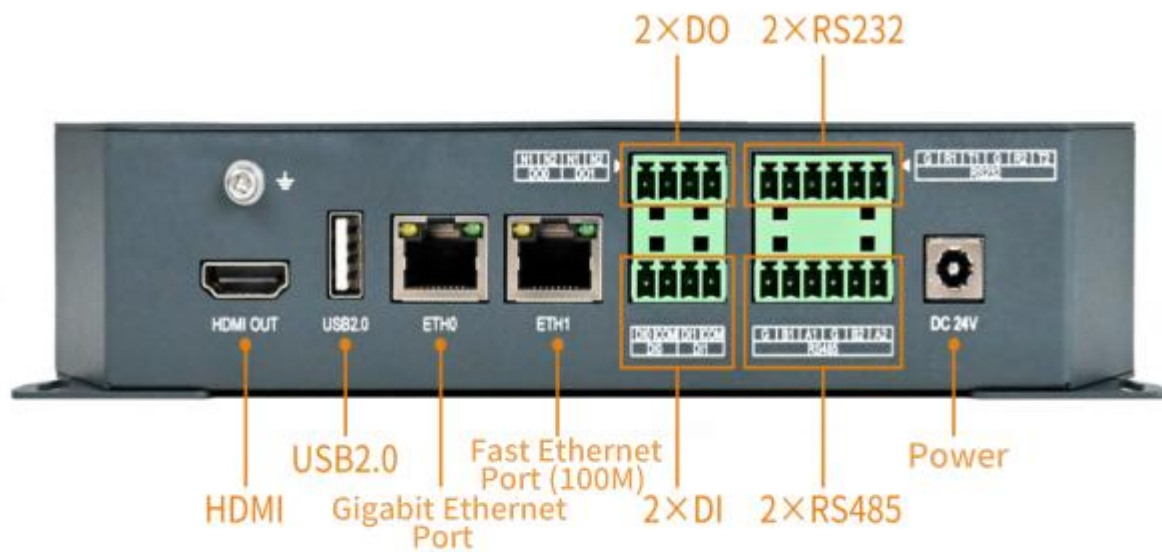


Overall dimensions: Length 202mm × Width 123mm × Height 42mm

Interface Diagram:

Top:



Front:**Back:**

Software Support:

OS	Linux6.1
	QT5.15.11
	SSH
	FTP
	Nginx server, supporting reverse proxy and WebServer
	Lrzs
	Curl
	MQTT
	TCP/IP
	UDP
	NTP
	Telnet
Software Support:	IPtables
	Cron
	DHCP
	System self-starting script
	Client self-starting script
	SQLite3
	Web Management Interface
	4G Guardian
	Image version number management
	Device status information reading API
	The USB flash disk is automatically mounted
	Modbus RTU

Product Materials:

Materials List:	Software User Manual, Installation Manual, Application Update Manual, AI Management Manual, Dimensional Drawing, Factory Image, Unpacked Image, Flashing Tool, DEMO, Application Notes
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Note: The documentation will be gradually provided and enriched after the product is released

Ordering Model List:

Specification Model	Configuration Abbreviation	Temperature Range	RAM	ROM	Supply
FCU3101 Industrial Level	FCU3101 Industrial Level	-40°C~+85°C	2GB	16GB	Mass Production
FCU3101 Extended commercial - grade	FCU3101 Extended commercial - grade	-20°C~+85°C	4GB	64GB	Mass Production