

FCU1501 Embedded Control Unit

The FCU1501 Embedded Control Unit employs a tri-core 1.5GHz Cortex-A7 processor as the main control core, offering a wide range of industrial interface resources. These include dual Gigabit Ethernet ports, 4 to 8 RS485 interfaces, 2 to 8 digital inputs (DI), 2 to 8 digital outputs (DO), and CAN FD bus support. It can be widely applied in numerous fields such as power and energy, industrial automation, and rail transportation. It is capable of efficiently achieving functions such as device communication, data acquisition, and data transmission and uploading.

Product Features:

- 3× Cortex-A7, 1.5GHz clock, Linux6.1;
- 2×100-Mbps Ethernet ports, supporting dual-band Wi-Fi and Bluetooth 5.0;
- 8 × RS485 and 2 × CANFD;
- 8 × DI, 2 x DO;
- One-click network parameter restoration;
- Industrial level temperature range: -40°C~+85°C.



3×A7 Architecture	1.5 GHz Clock	Linux6.1 Kernel Version:
-40°C~+85°C Industrial-grade	2×Ethernet 100M Ethernet	4-8×RS485 Rich Interface Resources

SoM Parameters:

Processor	Rockchip RK3506J 3×Cortex-A7@1.5GHz
RAM	256MB / 512MB DDR3
ROM	256MB NAND / 8GB eMMC
Environmental Temperature:	-40°C~+85°C
Working Voltage	Rated DC 12V3A, supporting 9V ~ 36V wide voltage input, with reverse connection protection and overcurrent protection
EMC	Level 3
Overall Dimensions:	177×130.5×45mm (with buckles and antenna mount: 187x152x45mm)
Cooling method	Passive cooling, fanless
Overall Weight	Basic version: 0.8kg (including buckle); extended version: 0.9kg (including buckle)
Installation	DIN35 guide rail, vertical mounting lug, vertical mounting lug

Interface:

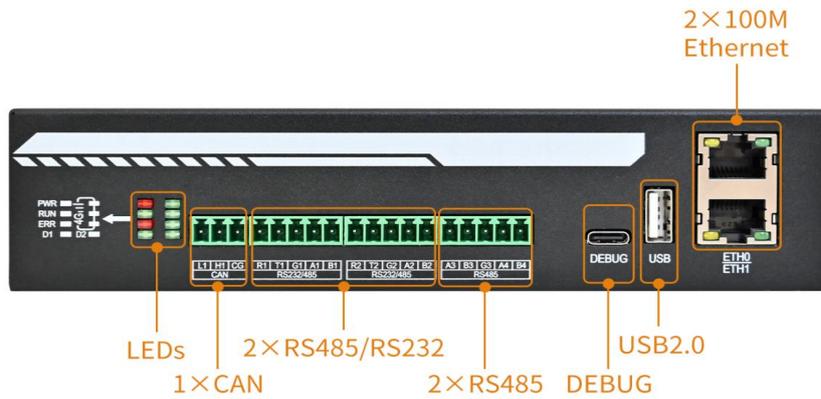
Interface Type	Number of Basic Versions	Number of Extended Versions	Parameter Description
LED	8	8	1 × PWR, 1 × RUN, 1 × ERR, 3 × 4G signal indicators, 2 × customizable indicators
USB	1	1	USB 2.0, Type-A port led out for system firmware programming via USB flash drive
DEBUG	1	1	Type-C port led out, enabling PC connectivity via Type-C cable
Ethernet	2	2	2 x 10M/100Mbps adaptive Network Port, not supporting POE device
CAN	1	2	Supports CANFD and CAN2.0B, with separate digital ground for each interface
RS485	4	8	RS485 interface, with separate digital ground for each interface
RS232	2	2	Multiplexed with RS485, with separate digital ground for each interface
DI	2	8	Dry contact input
DO	2	8	Relay output, contact capacity 5A 250VAC, 5A 30VDC (normally open)
4G	1	1	4G Cat1 communication module, optional
SIM card slot	1	1	Self-ejecting Nano SIM socket
Wi-Fi& Bluetooth	1	1	Dual-band Wi-Fi, BT5.0, dual antennas, standard
RESET KEY	1	1	One-key recovery of network parameters, key functions can be customized
Input Voltage	1	1	DC9 ~ 36V, with anti-reverse connection and overcurrent protection
Buzzer	1	1	Built-in
RTC	1	1	Internal battery power supply
Watchdog	1	1	Supported
DC OUT	1	1	Consistent with the input voltage, anti-reverse connection

■ Appearance & Dimension:

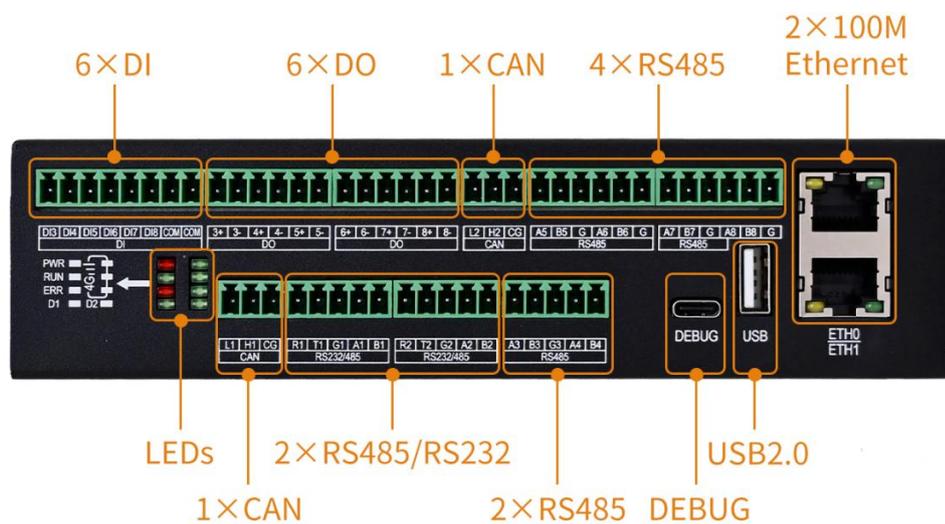
Note: The basic version is the same size as the extended version.

Interface Diagram

Basic Version



Extended Version



Software Support:

OS	Linux6.1
Software Support: In development, may differ from the final version; differences exist between the 256MB NAND version and the 8GB eMMC version.	Qt5.15 (only the eMMC version supports.)
	SSH
	FTP
	Nginx server, supporting reverse proxy and WebServer
	OpenSSL
	OpenVPN
	MQTT
	TCP/IP
	UDP
	NTP
	Telnet
	IPTables
	IPsec
	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, Web Interface Management Manual, Dimensional Drawing, Factory Image, Unpacked Image, Flashing Tool, DEMO, Application Notes
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*: The documentation will be gradually provided and enriched after the product is released.

Order Model List:

Specification Model	Configuration Abbreviation	Temperature Range	RAM	ROM	Supply
FCU1501 Basic Version	256MB Basic Version	-40°C~85°C	256MB	256MB	Under Development
FCU1501 Basic Version	512MB Basic Version	-40°C~85°C	512MB	8GB	Under Development
FCU1501 Basic Version 4G Cat1	512MB Basic Version 4G Cat1	-40°C~85°C	512MB	8GB	Under Development
FCU1501 Extended Version	512MB Extended Version	-40°C~85°C	512MB	8GB	Under Development
FCU1501 Extended Version including 4G Cat1	512MB Extended Version including 4G Cat1	-40°C~85°C	512MB	8GB	Under Development