5-Port Industrial Cellular Gateway

Model: FCT-6300-F5

4 LAN + 1 WAN · 10/100 Mbps

4G Cat.4 / 5G RedCap · eSIM

2 channels serial / up to 4 I/O channels · PoE optional



Product Overview

- Integrates 4 LAN channels and 1 Fast Ethernet WAN channel, connects instruments and on-site data to the network, suitable for water, automation, and energy monitoring.
- 2 serial ports can be replaced with up to 4 I/O channels. Each group has 2 channels of the same signal type. Select the type independently for each group.
- Uses OpenWrt, offers both Cat.4 and RedCap versions, supports eSIM and Wi-Fi options; connects to monitoring platforms via Modbus, MQTT/JSON.

Key Features

- **Device Aggregation** 4 LAN + 1 WAN, reducing external switching equipment
- **Flexible I/O** 2 serial ports or up to 4 I/O ports, replaceable per group
- **Link Failover** Wired and cellular backup, dual SIM, single standby
- **Platform Integration** Modbus conversion; transparent transmission / JSON
- **Options** Cat.4 / RedCap, eSIM; PoE optional

Typical Application



Example for water pumping station: 1 RS-485 line + 2 AI lines; PLC handles on-site control, while the gateway is responsible for data collection and remote communication. The diagram shows 4G configuration.

Cellular Version	Supported Networks	Theoretical downstream / upstream rate of the module
4G Cat.4	LTE FDD / TDD	FDD: 150 / 50 Mbps; TDD: 130 / 30 Mbps
5G RedCap	5G SA / LTE Cat.4	5G SA: 226 / 120 Mbps; LTE: 150 / 50 Mbps (module theoretical peaks).

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The theoretical peak depends on the module configuration and network. Throughput on a single Fast Ethernet port is limited by the 100 Mbps link and protocol overhead.

Typical Application



Industrial automation example: PLC connected via Ethernet, serial instruments connected via RS-485; wired and cellular links provide remote networking and backup as configured.



Energy monitoring example: 2 RS-485 channels connect to electricity meters and environmental instruments, collecting on-site data and feeding into a remote business platform. The platform can be selected according to the project.

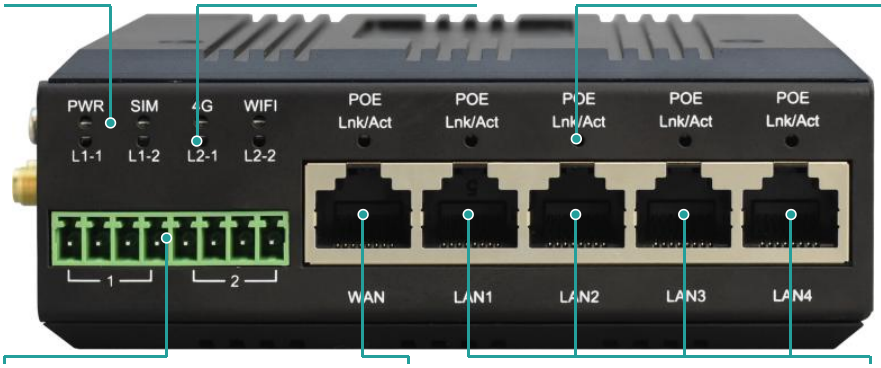
The application diagram shows the physical appearance of the device, while the scene and interface are schematic representations and not construction wiring diagrams. The diagram indicates a 4G configuration; the RedCap version connects to the cellular network according to the selected antenna scheme.

Sensor type, independent power supply, PoE load, and grounding shall be confirmed per project. Dual SIM single standby, only one cellular connection at a time; eSIM requires operator activation.

Interfaces and Installation

FCT-6300-F5 · 4G version appearance example; back panel shows engineering structure diagram

Front Interfaces



Status LED
PWR / SIM / 4G / WIFI

Terminal Indicator Light
L1 / L2

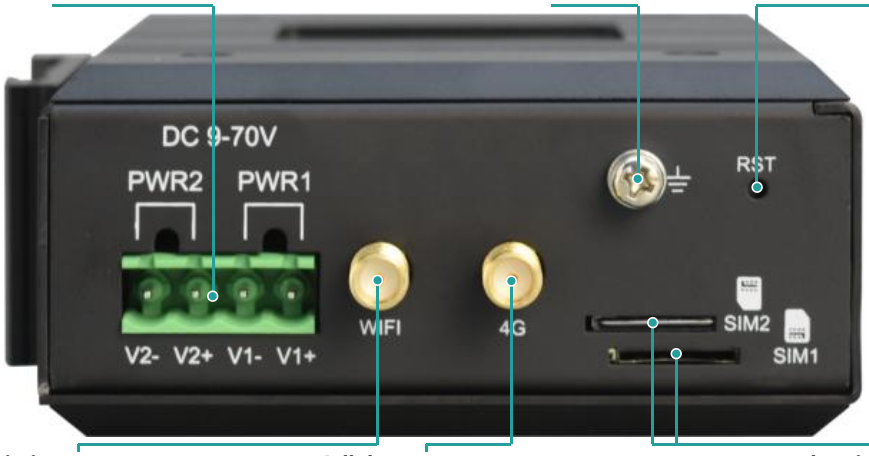
Network Port Indicator Light
PoE / Lnk/Act

2 serial ports / I/O terminals
Terminal No. 1—2

WAN copper Ethernet port

LAN1—LAN4 Copper Ethernet ports
4 × 10/100 Mbps

Side Interfaces



Dual-channel redundant DC power supply
PWR1 / PWR2

Ground Stud

Reset hole
RST

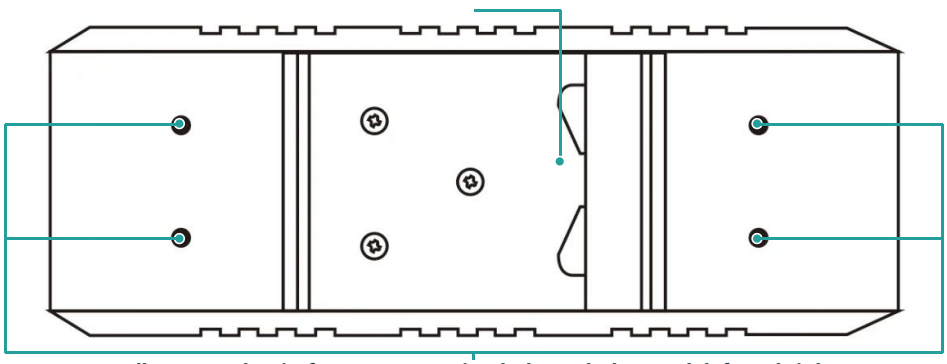
Wi-Fi antenna port
2.4 GHz

Cellular Antenna Port
Illustrated as 4G version

Dual entity SIM card slot
SIM1 / SIM2

Rear Mounting

35 mm rail clamp



Wall-mounted strip fastener mounting holes (4 holes total, left and right)
Installable wall mount clip

Two sets of terminals can be configured with serial ports or DI / DO / AI / AO according to the order; optional: 2 serial ports, 1 serial port + 2 I/O, or 4 I/O. Actual interfaces and terminals depend on the order configuration.

This device has two DC 9–70 V inputs; when PoE is enabled, DC 48–55 V must be input. PoE PSE power supply function for five network ports is optional.

RedCap antenna options include "dual cellular, no Wi-Fi" or "single cellular + Wi-Fi". eSIM is a built-in function with no external card slot; see antenna selection for details.

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Hangzhou Fei Chang Technology Co., Ltd

Hardware Specifications

Communication Interfaces	
Processor	Industrial-grade 32-bit communication processor
LAN	4 × RJ45, 10/100 Mbps, full / half-duplex adaptive.
WAN	1 × RJ45, 10/100 Mbps, full / half-duplex adaptive.
Ethernet characteristics	Auto-MDI/MDIX, 4096 MAC address entries
Serial / I/O	2 RS-232 / RS-422 / RS-485 channels (selected by order); each channel can be replaced with 2DI / 2DO / 2AI / 2AO; up to 4 I/O channels of the same type in the same group.
SIM / eSIM	2 physical SIM card slots, dual SIM single standby; supports eSIM
Antenna interface	4G: cellular + Wi-Fi; RedCap: dual cellular (no Wi-Fi) or single cellular + Wi-Fi
Power Supply Terminals	4-pin, 5.08 mm pitch pluggable terminals

Serial port speed: 300–150000 bps; RS-232: RXD / TXD / GND; two-wire RS-485: A / B / GND.

RS-422 and four-wire RS-485: TxD+ / TxD− / RxD+ / RxD− / GND. Interface type is selectable during order placement.

Mechanical and Environmental	
Dimensions	110 × 86 × 40 mm
Enclosure and Heat Dissipation	Aluminum alloy casing, fanless cooling
IP Rating	IP40
Mounting	DIN 35 mm rail installation, wall mount installation
Weight	0.55 kg / unit
Operating Temperature	4G version: -40 ℃ to +85 ℃; RedCap version refers to temperature specifications
Storage temperature	-40 ℃ to +85 ℃
Operating Humidity	0% to 95% RH, no condensation
Wireless LAN	
Wireless LAN	2.4 GHz, IEEE 802.11b/g/n, single antenna; theoretical wireless rate up to 150 Mbps

Wireless speed is theoretical peak; actual service speed depends on network, antenna, and load; Ethernet port is 10/100 Mbps

Serial and I/O Interfaces

Serial Port	I/O	Configuration Examples
2-channel	0-channel	D2: 2 RS-485 Channels
1-channel	2-channel	D1K2: 1 RS-485 line + 2 DI lines
0-channel	4-channel	K2J2: 2 channels DI + 2 channels DO

Two sets of resources; each set can select 1 serial port or 2 I/O devices of the same type.

Electrical and I/O

Power and PoE	
Power input of this unit	The unit has dual redundant DC 9–70 V supplies; DC 48–55 V when PoE is enabled
Protection function	Overload Protection, Reverse Connection Protection
Local Power Consumption	< 3 W, without PoE
PoE role and port	PSE power output, 5 Ethernet ports, optional
PoE input requirements	When PoE is enabled, local DC input is 48–55 V
PoE output capability	5 ports support IEEE 802.3at; total available output per port depends on specific items
I/O Options	
Serial port and I/O relationship	Replace 1 serial port with 2 identical acquisition interfaces; two groups of resources, up to 4 I/O channels.
Allowed I/O combinations	Each group can select 1 serial port or 2DI / 2DO / 2AI / 2AO; two groups can be combined without overlapping resources.
Digital input DI	Dry contact or NPN/PNP transistor input.
Digital output DO	Dry contact: 30 VDC / 2 A. MOS / optical MOS: 24 VDC / 0.12 A.
Analog Parameters	12-bit resolution; sampling rate 1K samples per second
Analog input range	0–20 mA, 4–20 mA, 0–5 V, 0–10 V, -5 to +5 V

2 serial ports, 1 serial port + 2 I/O, or 4 I/O; signal types and ranges shall be determined according to the order.

RedCap temperature notes: Cellular module operating temperature -35 ℃ to +75 ℃, extended temperature -40 ℃ to +85 ℃; extended conditions and overall application scope are determined according to the order.

Cellular Options and Antennas

Cellular Version	
4G Cat.4	UF; LTE FDD / TDD, non-carrier aggregation.

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Cellular Version	
5G RedCap	UR; Rel-17, 5G SA / LTE Cat.4; see frequency table for regions

RedCap Antenna Selection

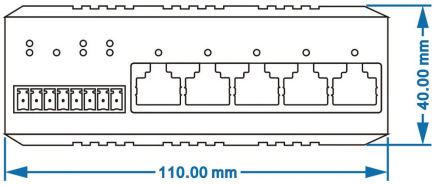
Configuration	Use Case	Order Code
2 cellular antennas, no Wi-Fi	Priority cellular reception performance	UR (dual cellular)
1 cellular antenna + 2.4 GHz Wi-Fi	Wi-Fi must be used simultaneously	UWUR (single cell)

A single cellular antenna may reduce reception performance, throughput, and connection stability under weak signal and multipath conditions. This is an engineering judgment; impact severity requires on-site testing.

Dimensions and Mounting

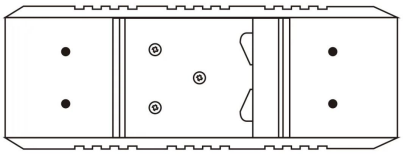
Physical dimensions 110 × 86 × 40 mm; dimensions in mm. The following figure shows five views: front, back, top, left, and right.

Front

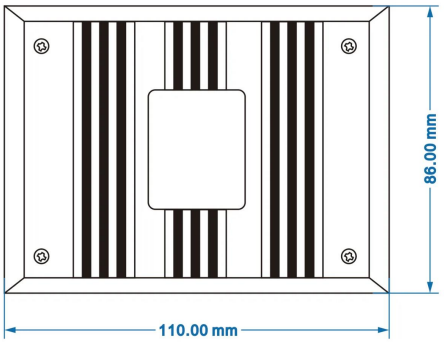


110 × 40 mm

Rear

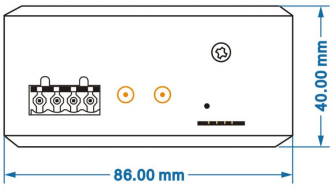


Top



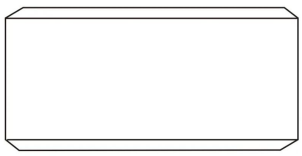
110 × 86 mm

Left



86 × 40 mm

Right



Interface location can be checked by referring to the physical diagram on the previous page; sufficient space is reserved for terminal operation, antenna connection, and cable bending during installation.

Networking and Software

System: OpenWrt

Networking and Data	
Operating System	OpenWrt
Wired Connection	Static IP, DHCP, PPPoE
Cellular Access	Honeycomb dialing; APN / VPDN private network
Dial authentication	CHAP, PAP, MS-CHAP, MS-CHAPv2, no authentication
Link Failover	Backup for wired and cellular links; supports wired recovery detection and dual SIM failover.
Online Maintenance	Heartbeat detection, online monitoring, connection retry, watchdog, and system monitoring
Routing function	NAT, PAT, DMZ, port mapping, virtual server, DDNS
Firewall	SPI status packet detection, iptables firewall configuration
VPN compatible	PPTP / L2TP; Dialing interval and count can be set

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Networking and Data	
Device Management	Web management / upgrade; SMS control, network connection, and status notification
Wi-Fi management	Wireless relay, WDS bridging, guest network, time scheduling, regional channel, and transmission power adjustment.
Serial port transparent transmission	TCP / UDP Server、Client
Protocol Conversion	Modbus RTU to Modbus TCP
MQTT data	Multiple topic publishing and subscription, MQTT transparent transmission, Modbus data conversion to JSON, JSON parsing and scheduled reporting.

Dual SIM single standby; two cellular connections are not established simultaneously. eSIM requires operator activation; link switching and service restoration are affected by network and configuration.

Cellular Regions and Bands

4G Cat.4 Regional Band

Model / Region	-CN	-AU	-EU
	China / India	Latin America / Australia / New Zealand	EMEA / Southeast Asia
LTE-FDD	B1/3/5/8	B1/2/3/4/5/7/8/28/66	B1/3/5/7/8/20/28
LTE-TDD	B34/38/39/40/41	B40	B38/40/41
WCDMA	B1/5/8	B1/2/4/5/8	B1/5/8
GSM	EGSM900 / DCS1800	GSM850 / EGSM900 / DCS1800 / PCS1900	EGSM900 / DCS1800

5G RedCap regional frequency band

Model / Region	-CN	-EU
	China	EMEA / Southeast Asia Australia / New Zealand
5G NR SA	n1/3/5/8/28/40/41/78/79	n1/3/5/7/8/20/28/38/40/41/77/78
LTE-FDD	B1/3/5/8	B1/3/5/7/8/20/28
LTE-TDD	B34/38/39/40/41	B38/40/41/42/43

Regional suffixes depend on cellular version: Cat.4 corresponds to CN / AU / EU; RedCap corresponds to CN / EU, with EU for Australia and New Zealand. EMEA refers to Europe, Middle East, and Africa; actual connectivity requires matching the operator and site coverage.

Ordering and Selection

FCT-	6300-	F5	Interface code + quantity	UW	UF / UR	-P	-CN / -AU / -EU
Company + Type	Product Series	5 Fast Ethernet copper ports	Such as D2, D1A2	Wi-Fi optional features	Cellular Option A or B	PoE optional	4G：CN / AU / EU；RedCap：CN / EU

Interface letters followed by quantity, e.g., D2 = 2 RS-485 channels, D1A2 = 1 RS-485 channel + 2 current input channels. Wireless options arranged as UW + UF / UR; UW omitted when no Wi-Fi.

NO	Name		Definition
1	Company name		FC = Feichang
2	Product Type		T = Industrial gateway
3	Product Series		6300 = 110 mm industrial rail series
4	Port Specifications	Ethernet	F = Fast Ethernet copper port; F5 = 5 Fast Ethernet RJ45 copper ports, fixed as 4 LAN + 1 WAN.
		Serial Port	D = RS-485； R = RS-232； X = RS-422。
		DI / DO	K = Digital input DI; J = Digital output DO
		AI / AO	A = current input; M = current output; V = voltage input; Y = voltage output
5	Wireless configuration of this unit		UW = 2.4 GHz Wi-Fi (optional); UF = 4G Cat.4; UR = 5G RedCap. Choose either UF or UR.
	Other wireless codes		UL = LoRa; UX = Wi-Fi 6; UB = Wi-Fi 7; UO = 4G Cat.1; UG = 5G full functionality. Only for general naming reference; not confirmed configuration of this machine.
6	eSIM / PoE		Supports eSIM; requires operator activation; -P = optional five-port standard PoE PSE; available for 4G or RedCap. Input DC 48–55 V when enabled; omit -P when no PoE.

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NO	Name	Definition
7	Region suffix	Cat.4: -CN / -AU / -EU; RedCap: -CN / -EU. Suffixes are placed at the end of the full model name; regions and frequency bands are shown in the table above.

Complete model example

Example of order model	Configuration
FCT-6300-F5D2UWUF-P-CN	2-channel RS-485 + Wi-Fi + 4G Cat.4 + PoE, Chinese version
FCT-6300-F5D2UF-CN	2 RS-485 lines + 4G Cat.4, no Wi-Fi / PoE; Chinese version.
FCT-6300-F5D2UR-P-CN	2 RS-485 channels + RedCap-CN + PoE, dual cellular antennas, no Wi-Fi.
FCT-6300-F5D2UR-P-EU	2 RS-485 channels + RedCap-EU + PoE, dual cellular antennas, no Wi-Fi.
FCT-6300-F5D2UWUR-P-EU	2 RS-485 channels + RedCap-EU + Wi-Fi + PoE, single cellular antenna.
FCT-6300-F5D1A2UF-CN	1 RS-485 channel + 2 current input channels + Cat.4, no Wi-Fi / PoE.

All examples have 4 LAN ports and 1 WAN port and support eSIM. Choose either dual cellular antennas or Wi-Fi for RedCap. Check site signal strength when using 1 cellular antenna with Wi-Fi. Each pair of I/O channels of the same type replaces 1 serial port.

Cloud service: Feichang Cloud provides optional construction services, with fees and bulk discounts agreed upon through business negotiation; video services require a separate video platform.

Packaging accessories: honeycomb/Wi-Fi antenna provided per version; power and installation accessories subject to order list. PoE load and power supply capacity determined per project.

Document version: V1.8 EN Revision date: 2026-11-15