FCT-6300-F2B1

2 RJ45 + 1 SFP Industrial Cellular Gateway

4G Cat.4 / 5G RedCap



One RJ45 WAN, one RJ45 LAN1 and one 100 Mbps SFP LAN2. Four shared serial / I/O groups provide up to 4 serial ports OR 8 I/O channels. Optional 2.4 GHz Wi-Fi. No PoE.

Selection boundaries

Each resource group provides one serial port OR two same-type I/O channels. Dual DC 9-70 V inputs power the gateway; external devices require separate power. Dual SIM is single standby. Match the cellular region, antennas, optical transceiver and signal types to the order.

English specification | Edition 2026-10-27. Photos show the 4G version; RedCap antenna arrangements follow the selected configuration.

Product Overview & Selection Essentials

FCT-6300-F2B1 connects industrial instruments and acquisition interfaces through one copper LAN, one copper WAN and one 100 Mbps SFP LAN port.

Check Before Selecting

• Network interfaces One RJ45 WAN, one RJ45 LAN1 and one 100 Mbps SFP LAN2. Select an optical transceiver compatible with the order and peer device.

• Serial & acquisition Four shared groups: each provides one serial port OR two same-type I/O channels. Up to four serial ports OR eight I/O channels.

• Cellular versions Choose 4G Cat.4 or 5G RedCap. Dual SIM is single standby; eSIM requires operator provisioning.

• Power & mounting Dual DC 9-70 V, without PoE. Dimensions: 110 x 87 x 52 mm; DIN rail or wall mounting.

• Antenna configuration RedCap: dual cellular antennas without Wi-Fi, or one cellular antenna with Wi-Fi. Assess site signal conditions for the latter.

Configure & Request a Quote

Model Naming Rules & Complete Examples

Code / position	Meaning
FCT-	Company + type
6300-	Series
F2B1	2 copper + 1 fiber port
Interface code + quantity	For example D4, D2A4
UW	Optional Wi-Fi
UF / UR	Choose one cellular version
-CN / -AU / -EU	4G: CN / AU / EU RedCap: CN / EU

An interface letter is followed by its quantity: D4 = four RS-485 ports; D2A4 = two RS-485 ports + four current inputs. Wireless codes follow UW + UF / UR. Omit UW when Wi-Fi is not selected.

NO	Item	Definition
1	Company	FC = FCTELE
2	Product type	T = industrial gateway
3	Series	6300 = 110 mm industrial DIN-rail series

NO	Item		Definition
4	Port specification	Ethernet	F = Fast Ethernet copper; B = Fast Ethernet fiber. F2B1 = two Fast Ethernet RJ45 ports (one WAN + one LAN) + one 100 Mbps SFP LAN2 port.
		Serial Ports	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		UW = optional 2.4 GHz Wi-Fi; UF = 4G Cat.4; UR = 5G RedCap. Choose UF or UR.
	Other wireless codes		UL = LoRa; UX = Wi-Fi 6; UB = Wi-Fi 7; UO = 4G Cat.1; UG = full-featured 5G. These are general naming references, not confirmed options for this model.
6	eSIM / PoE		eSIM supported with operator provisioning. This gateway has no PoE and no -P model suffix.
7	Regional suffix		Cat.4: -CN / -AU / -EU. RedCap: -CN / -EU. Place the regional suffix last; see the band tables.

Complete Model Examples

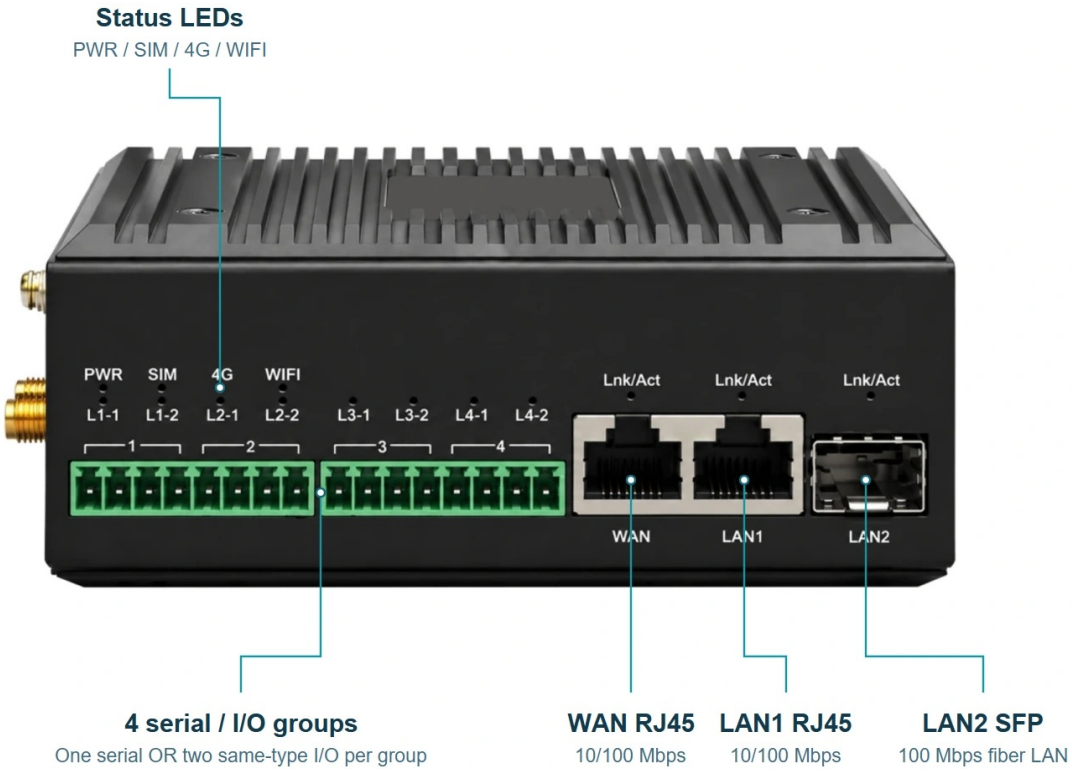
Example Ordering Model	Configuration Details
FCT-6300-F2B1D4UWUF-CN	4 RS-485 + Wi-Fi + 4G Cat.4, China version
FCT-6300-F2B1D4UR-CN	4 RS-485 + RedCap-CN, dual cellular antennas, no Wi-Fi
FCT-6300-F2B1D4UR-EU	4 RS-485 + RedCap-EU, dual cellular antennas, no Wi-Fi
FCT-6300-F2B1D4UWUR-EU	4 RS-485 + RedCap-EU + Wi-Fi, one cellular antenna
FCT-6300-F2B1D2A4UF-CN	2 RS-485 + 4 current inputs + Cat.4, without Wi-Fi

All examples have two copper ports, one fiber port, eSIM support and no PoE. RedCap offers dual cellular antennas without Wi-Fi OR one cellular antenna with Wi-Fi; assess site signal conditions for the latter. Every two same-type I/O channels replace one serial port.

Cloud service: an FCTELE monitoring platform is optional. Service charges and volume arrangements follow the commercial agreement. Video applications require a separate video platform.

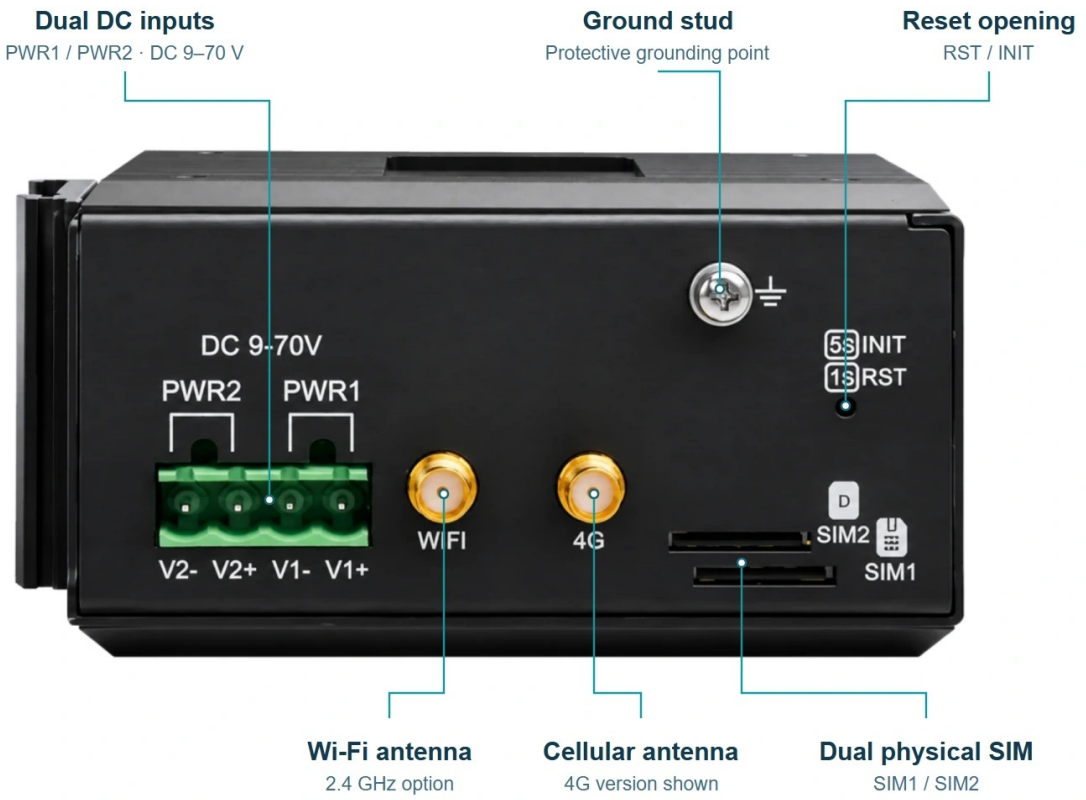
Included accessories: cellular / Wi-Fi antennas follow the selected version. Optical transceivers, fiber, power supplies and mounting accessories follow the order list.

Interface & Mounting Guide



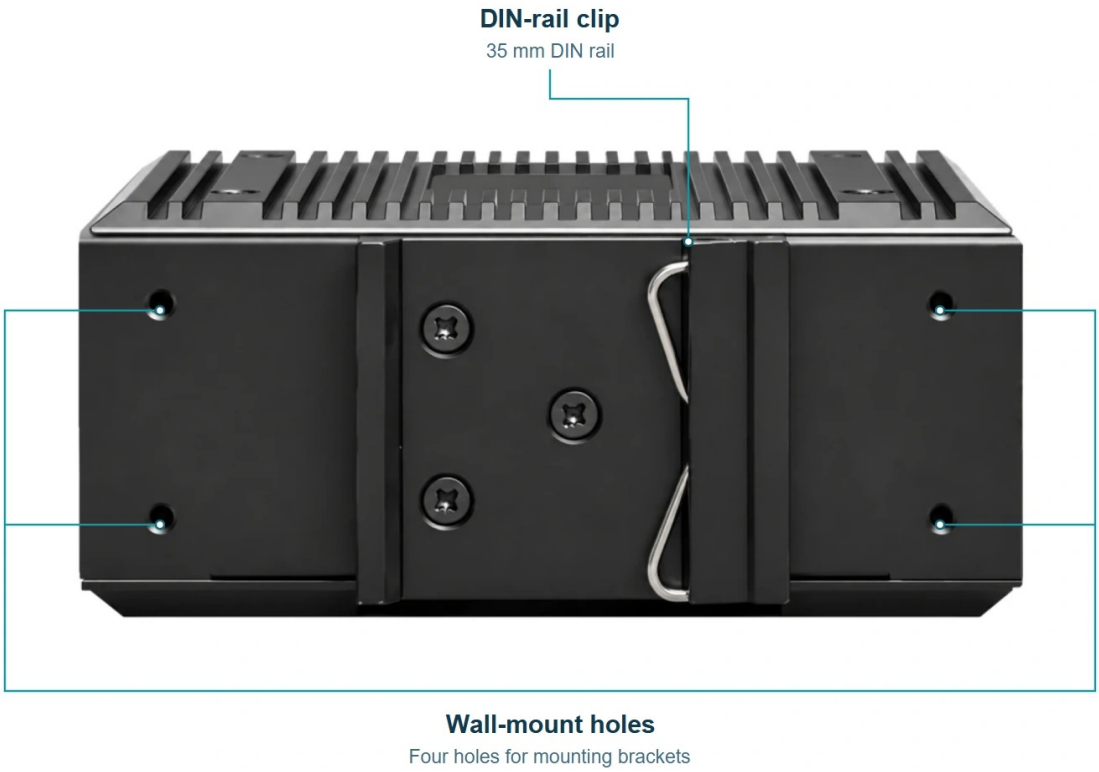
FCT-6300-F2B1 front interface callouts

- Status LEDs: PWR / SIM / 4G / WIFI; L1-L4 indicate terminal-group status.
- Serial / I/O: Four terminal groups. Choose one serial port OR two same-type I/O channels per group.
- WAN and LAN1: One 10/100 Mbps RJ45 port each.
- LAN2: 100 Mbps SFP Ethernet, used as a LAN port.



FCT-6300-F2B1 power and antenna callouts

- Power: Dual PWR1 / PWR2 DC 9-70 V inputs. No PoE.
- Ground and reset: Ground stud and RST / INIT reset opening.
- Antennas: The photo shows the 4G version. RedCap antennas follow the ordered configuration.
- SIM: Two physical SIM slots, dual SIM single standby, with eSIM support.



FCT-6300-F2B1 rear mounting callouts

• DIN rail: 35 mm DIN-rail clip.

• Wall mounting: Four wall-mount bracket holes, two on each side.

• Enclosure: Aluminum alloy, fanless cooling.

• Dimensions: 110 x 87 x 52 mm. Allow space for terminals, antennas and fiber bend radius.

Configure each of the four groups as one serial port OR two same-type DI / DO / AI / AO channels: up to four serial ports OR eight I/O channels. RedCap offers dual cellular antennas without Wi-Fi, or one cellular antenna with Wi-Fi; see the ordering options.

Specifications

Check interfaces and power first, then expand software, frequency bands and mounting dimensions.

Hardware Specifications

Communication interfaces	
LAN1 RJ45	1 x RJ45, 10/100 Mbps, auto-negotiated full / half duplex
WAN RJ45	1 x RJ45, 10/100 Mbps, auto-negotiated full / half duplex
LAN2 SFP	1 x SFP, 100 Mbps fiber Ethernet, used as LAN; transceiver selected for the configuration
Ethernet features	Auto-MDI/MDIX; 4,096-entry MAC address table
Serial / I/O	4 ordered RS-232 / RS-422 / RS-485 ports. Each serial resource can be replaced by 2 DI / 2 DO / 2 AI / 2 AO of the same type: up to 8 I/O channels.
SIM / eSIM	2 physical SIM slots; dual-SIM single standby; eSIM supported
Antenna interfaces	4G: cellular + Wi-Fi. RedCap: dual cellular without Wi-Fi, or single cellular + Wi-Fi
Power connector	4-position pluggable terminal, 5.08 mm pitch

Serial rate: 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 selected when ordering.

Mechanical and environmental specifications	
Dimensions	110 x 87 x 52 mm
Enclosure & cooling	Aluminum-alloy enclosure; fanless cooling
Ingress protection	IP40
Mounting	35 mm DIN rail or wall mounting
Weight	0.55 kg per unit
Operating temperature	4G: -40 to +85 degC; see the RedCap temperature note
Storage temperature	-40 to +85 degC
Operating humidity	0-95% RH, non-condensing

Wireless LAN	
Wireless LAN	2.4 GHz, IEEE 802.11b/g/n, single antenna; theoretical wireless rate up to 150 Mbps

Wireless rates are theoretical peaks; actual application throughput depends on the network, antennas and load. Ethernet ports operate at 10/100 Mbps.

Serial & Acquisition Interfaces

Serial Ports	I/O	Example Configuration
4 channels	0 channels	D4: 4 RS-485
3 channels	2 channels	D3K2: 3 RS-485 + 2 DI
2 channels	4 channels	D2A4: 2 RS-485 + 4 current inputs
1 channel	6 channels	1 serial port + three groups of 2 I/O channels
0 channels	8 channels	Four I/O groups; 2 channels per group, with the type selected for each group

Four resource groups: choose one serial port OR two same-type I/O channels per group.

Electrical & Acquisition

Power	
Gateway power input	Dual redundant DC 9-70 V inputs
Protection	Overload and reverse-polarity protection
Gateway consumption	<3 W

Acquisition interface options	
Serial / I/O relationship	Every two same-type acquisition channels replace one serial port; four shared groups, up to 8 I/O channels
Allowed combinations	Each group: one serial port OR 2 DI / 2 DO / 2 AI / 2 AO. Combine four groups without allocating a resource twice
Digital input (DI)	Dry contact or NPN / PNP transistor input
Digital output (DO)	24 V DC applications; switching current: dry contact 0.5 A, MOS / optical MOS 0.12 A
Analog characteristics	12-bit resolution; sampling rate 1,000 samples/s
Analog input ranges	0-20 mA, 4-20 mA, 0-5 V, 0-10 V, -5 to +5 V

Choose 4 serial ports, 3 serial + 2 I/O, 2 serial + 4 I/O, 1 serial + 6 I/O, or 8 I/O. Confirm signal types and analog ranges with the order.

RedCap temperature: cellular-module operation -35 degC to +75 degC, with an extended module range of -40 degC to +85 degC. Confirm extension conditions and complete-device applicability for the order.

The SFP is LAN2. Match single-mode / multimode, wavelength, distance and connector to the peer device. This gateway has no PoE: external devices need separate power. Photos show the 4G version; RedCap antennas follow the order.

Cellular Versions & Antennas

Cellular versions	
4G Cat.4	UF; LTE FDD / TDD, without carrier aggregation
5G RedCap	UR; Release 17, 5G SA / LTE Cat.4; see regional bands

RedCap Antenna Selection

Configuration	Application Priority	Ordering Code
2 cellular antennas, without Wi-Fi	Prioritize cellular reception	UR (dual cellular)
1 cellular antenna + 2.4 GHz Wi-Fi	Wi-Fi required alongside cellular	UWUR (single cellular)

A single cellular antenna may affect reception, throughput and connection stability in weak-signal or multipath conditions. Assess the effect through on-site testing.

Cellular Versions & Theoretical Rates

Cellular versions	Supported Network	Module Theoretical Downlink / Uplink
4G Cat.4	LTE FDD / TDD	FDD: 150 / 50 Mbps; TDD: 130 / 30 Mbps
5G RedCap	5G SA / LTE Cat.4	SA 64QAM and LTE: 150 / 50 Mbps; optional SA 256QAM: 226 / 120 Mbps

Theoretical peaks depend on module configuration and network support. Traffic on an individual Fast Ethernet port is limited by its 100 Mbps rate and protocol overhead.

Networking & Software Functions

Networking & Software

Operating system: OpenWrt

Network and data functions	
Wired access	Static IP, DHCP, PPPoE
Cellular access	Cellular dial-up; APN / VPDN private networks
Dial-up authentication	CHAP, PAP, MS-CHAP, MS-CHAPv2, or no authentication
Link backup	Wired / cellular backup, wired recovery detection and dual-SIM failover
Connection maintenance	Heartbeat and online detection, reconnection, watchdog and system monitoring
Routing	NAT, PAT, DMZ, port mapping, virtual server, DDNS
Firewall	SPI stateful packet inspection and iptables firewall configuration

Network and data functions	
VPN compatibility	PPTP / L2TP; configurable redial intervals and attempts
Device management	Web management / upgrade; SMS connection control and status notification
Wi-Fi management	Wireless repeater, WDS bridging, guest network, scheduling, regional channels and transmit-power adjustment
Serial tunneling	TCP / UDP Server, Client
Protocol conversion	Modbus RTU to Modbus TCP
MQTT data	Multi-topic publish / subscribe, MQTT tunneling, Modbus-to-JSON conversion, incoming JSON parsing and periodic reporting

Dual SIM is single standby: two cellular connections are not established simultaneously. eSIM requires operator provisioning. Link switching and service recovery depend on the network and configuration.

Regional Versions & Supported Bands

Cellular Regions & Frequency Bands

4G Cat.4 Regional Bands

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 Bands

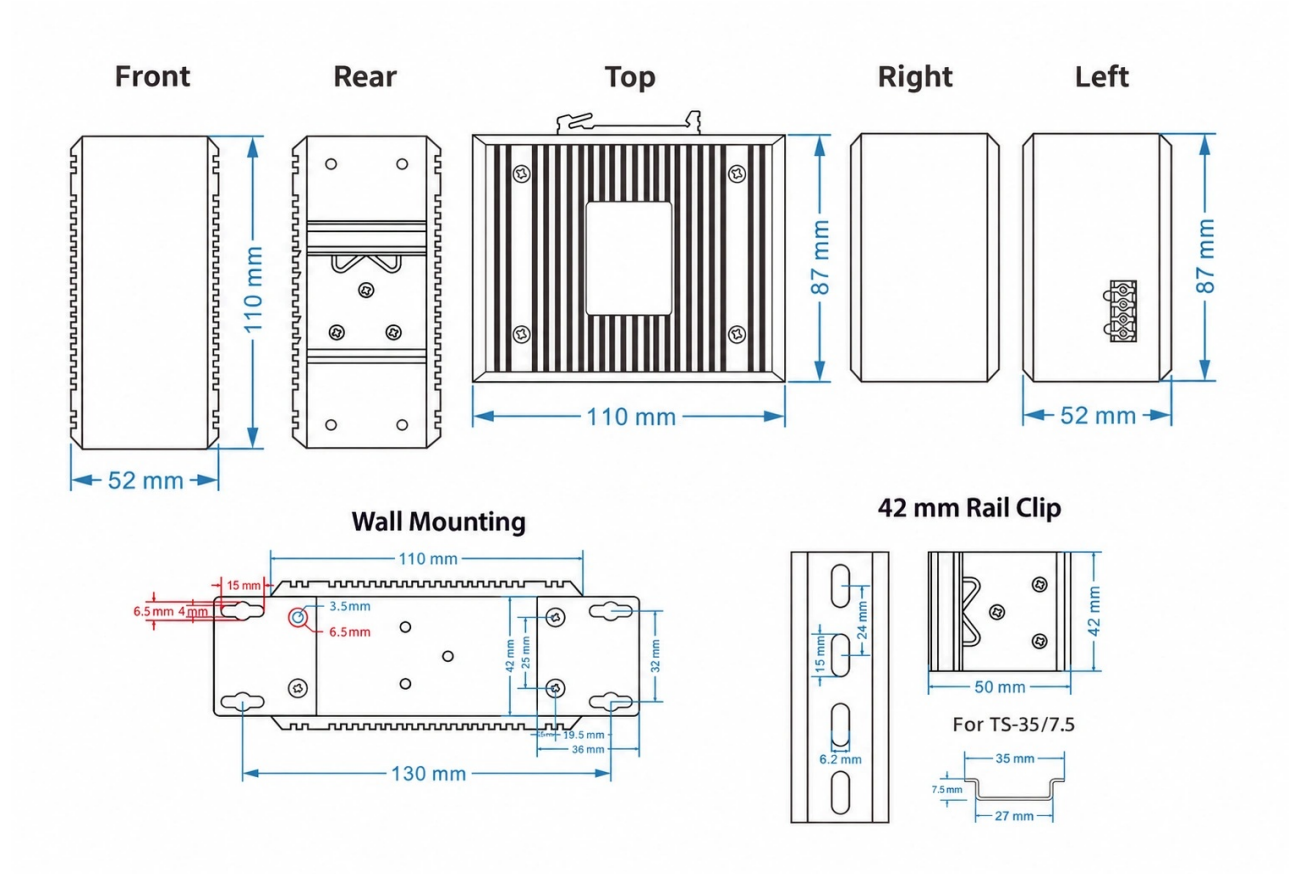
Model / Region	-CN	-EU
	China	EMEA / Southeast Asia Australia / New Zealand
5G NR SA	n1/3/5/8/28/ 40/41/78/79	n1/3/5/7/8/20/ 28/38/40/41/77/78
LTE-FDD	B1/3/5/8	B1/3/5/7/8/20/28
LTE-TDD	B34/38/39/40/41	B38/40/41/42/43

Regional suffixes depend on the cellular version: CN / AU / EU for Cat.4; CN / EU for RedCap. Select EU for RedCap projects in Australia and New Zealand. EMEA means Europe, the Middle East and Africa. Verify operator bands and site coverage.

Dimensions & Mounting Drawing

Dimensions & Mounting

Overall dimensions: 110 x 87 x 52 mm. Dimensions are in mm; the drawing includes five views, wall-mount holes and DIN-rail mounting.



FCT-6300-F2B1 five-view dimensions, wall-mount holes and 35 mm DIN rail

Typical Applications

Each application is shown separately. Click an image to enlarge it on this page.

Water Pump Station · Remote Monitoring

Water pump station example: 2 RS-485 + 4 AI. Fiber LAN joins the local site network; WAN / 4G provides remote connectivity. The PLC retains local control.



Water pump station application

Industrial Automation · Device Connectivity

Industrial automation example: 2 serial ports + 2 DI + 2 DO. Collect equipment status; connect DO loads through suitable external relays. The PLC / safety system retains production control.



Industrial automation application

Power Room · Energy Monitoring

Energy monitoring example: four RS-485 ports collect meter and environmental-instrument data. The fiber LAN connects the local aggregation network; WAN / cellular links reach the remote business platform.



Energy monitoring application

Resources & FAQs

FCT-6300-F2B1 Selection FAQs

Check interfaces, power and site network conditions, then confirm the complete ordering model.

1. What do the two copper ports and one fiber port provide?

One RJ45 WAN, one RJ45 LAN1 and one SFP LAN2. RJ45 ports support 10/100 Mbps; the fiber port is 100 Mbps Ethernet used as LAN. Match transceiver mode, wavelength, distance and connector to the peer device and ordered configuration.

Reference: product specification Interfaces , Hardware & electrical · Check Communication Interfaces to

2. Can all four serial ports and eight I/O channels operate together?

Serial and I/O share four resource groups. Each group provides one serial port OR two same-type DI, DO, AI or AO channels. Valid totals are 4 serial, 3 serial + 2 I/O, 2 serial + 4 I/O, 1 serial + 6 I/O, or 8 I/O. Do not add both maximum counts together. Signal types and ranges follow the order.

Reference: product specification Interfaces , Hardware & electrical · Check Shared Resources to

3. How do I order two RS-485 ports and four current inputs?

Use interface code D2A4: D means RS-485 and A means current input. FCT-6300-F2B1D2A4UF-CN specifies two RS-485 ports, four current inputs and China-version 4G Cat.4, without Wi-Fi. Confirm any other cellular version, region and analog ranges when ordering.

Reference: product specification Hardware & electrical , Ordering & regional bands · Check Complete Model Examples to

4. How do I choose RedCap cellular antennas and Wi-Fi?

RedCap offers two configurations: UR has dual cellular antennas without Wi-Fi; UWUR has one cellular antenna and 2.4 GHz Wi-Fi. Choose UWUR when Wi-Fi is needed and assess the site signal. Verify reception, throughput and stability with one cellular antenna in weak-signal or multipath conditions.

Reference: product specification Hardware & electrical , Ordering & regional bands · Check Antenna Options to

5. Which region should I select for China, Europe or Australia?

Cat.4 uses -CN, -AU or -EU. RedCap uses -CN or -EU. For Australia and New Zealand, this specification lists Cat.4 -AU and RedCap -EU. Always check the frequency table, operator network and site coverage; a regional label does not replace band verification.

Reference: product specification Ordering & regional bands · Check Regions & Bands to

6. Does this gateway support PoE, and how is it powered?

This model has no PoE and no -P suffix. It uses dual redundant DC 9-70 V inputs, overload and reverse-polarity protection, and has specified device consumption below 3 W. External instruments and other devices need separate power. Power supplies and accessories follow the order list.

Reference: product specification Hardware & electrical , Ordering & regional bands · Check Power & Accessories to

7. Can both SIMs connect at the same time, and how is eSIM used?

Two physical SIM slots support dual-SIM single standby, with only one cellular connection active at a time. The specification lists dual-SIM failover, wired / cellular backup and wired-link recovery detection. Switching and service recovery depend on the network and configuration. eSIM requires operator provisioning.

Reference: product specification Interfaces , Hardware & electrical , Networking & dimensions · Check Networking & Maintenance to

8. Can it convert Modbus data and report MQTT JSON?

The specification lists Modbus RTU-to-TCP conversion, multi-topic MQTT publish / subscribe, transparent MQTT transport, Modbus-to-JSON conversion, incoming JSON parsing and scheduled reporting. Check instrument protocols, registers, platform topics and data formats, then validate them with the delivered firmware.

Reference: product specification Networking & dimensions · Check Network & Data Functions to

9. How should I check 4G and RedCap operating temperatures?

The 4G operating range is -40 degC to +85 degC. The RedCap cellular-module range is -35 degC to +75 degC, with an extended module range of -40 degC to +85 degC. Confirm extension conditions and complete-device applicability with the order; module extension figures are not a complete-device temperature guarantee.

Reference: product specification Hardware & electrical · Check Temperature Conditions to

10. How much mounting space is required?

The enclosure measures 110 x 87 x 52 mm and supports 35 mm DIN rail or wall mounting. Allow extra space for terminals, antennas, ventilation and fiber bend radius. Check mounting holes and structure against the five-view drawing and interface / mounting illustrations.

Reference: product specification Interfaces , Networking & dimensions · Check Dimensions & Mounting to

Documentation & Verification References

Use these references to check the FCT-6300-F2B1 configuration. Cellular version, serial / I/O allocation, optical transceivers and included accessories follow the selected order.

Specification · Interfaces

Interfaces & Mounting

Four terminal groups, WAN / LAN roles, DC power, SIM slots, antennas, DIN-rail clip and wall-mount holes.

Specification · Hardware

Hardware, Electrical & Antennas

Shared serial / I/O allocation, power, temperature, analog ranges and RedCap antenna options.

Specification · Networking

Dimensions & Networking

Five-view drawing and mounting details; OpenWrt, network maintenance, Modbus and MQTT features.

Specification · Ordering

Regional Bands & Ordering Codes

Cat.4 / RedCap regional suffixes, cellular bands, interface codes and complete example models.

Product Views & Dimensions

The four product views show the 4G version. Check RedCap antenna arrangements and delivered interfaces against the selected order. Use the interface and dimension drawings to plan mounting.

The water, factory and energy graphics illustrate typical applications and device / network roles. Project-specific equipment, platforms and validation requirements follow the application.

Project Documentation

If the project requires temperature, EMC or continuous-operation test records, state the applicable standard, conditions and configuration in your inquiry. Technical staff can check the corresponding documentation and scope. Validate wiring and software settings against the delivered firmware, instrument protocols and platform requirements.

Related Technical Guides

These guides explain general principles and commissioning methods. Check model-specific functions and configuration steps against the product specification and delivered firmware.

Transparent Serial Transport & Modbus Conversion to

Distinguish byte transport from message conversion, then match host and instrument protocols.

Serial Device Servers vs. Modbus Gateways: Transport, Conversion and Selection

Serial Settings & Commissioning to

Check the physical interface, serial settings, network addressing and data path step by step.

Serial Device Server Setup: Settings, Loopback, Virtual COM and Acceptance Testing

Selection & Site Acceptance to

Define repeatable acceptance checks for recovery, application data and site conditions.

Choosing a Serial Device Server: Interfaces, Buffers, Flow Control and Recovery