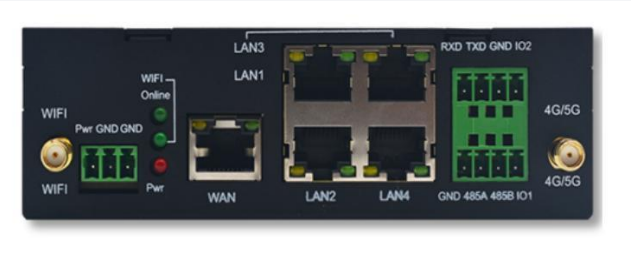
INDUSTRIAL CONNECTIVITY / TECHNICAL DATASHEET

CM520-57 Series

Five-port industrial Wi-Fi gateway



Original source photograph



Original source photograph

Source filename 2025 revised edition | file date code 260522 | English review edition | 18 October 2026

REVIEW EDITION - translated from the supplied Chinese document. Source inconsistencies and optional features are retained. See the final review checklist.

Inside this document

Overview and configuration / Functions / Interfaces / Radio specifications / Power and mechanics / Applications / Company profile / Source review notes

Product overview

Source p. 1

The CM520-57 industrial gateway family uses an open software architecture and metal enclosure with five RJ45 Ethernet ports and 2.4 GHz Wi-Fi. Local Wi-Fi and 5G/4G/3G WAN access are combined with VPN tunnels and Wi-Fi authentication for mobile broadband connectivity.

The source identifies an industrial MIPS communications processor and embedded real-time operating system, supporting protocols from the logical link layer to the application layer: VPN (PPTP + L2TP + MPPE and IPsec + GRE), IPTABLE firewall, static/dynamic routing, PPPoE, PPP server/client, DHCP server/client, DDNS, SNAT/DNAT, DMZ, web configuration, APN/VPDN, automatic dialing, link maintenance, scheduled online/offline operation and power switching.

Source applications include electronic bus-stop signs, parcel lockers, self-service terminals, vehicle Wi-Fi, ATM monitoring, financial/postal transactions, smart grids, transport, environmental/fire/security/water monitoring, remote sensing, industrial control, oilfields, coal mines, earthquakes, weather, instruments and water/electricity/gas meter reading.

Options include a 1.8 GHz integrated public/private-network module and overseas-network modules selected for the destination country. The interface photos specifically illustrate 57F with one 4G antenna and one 2.4 GHz Wi-Fi connector; antenna counts differ by model.

Model selection

Model	Cellular	Wi-Fi	Modems	SIM slots	RS232	RS485
CM520-57F	4G	2.4 GHz	1	1	Yes	Optional
CM520-57FB	4G	2.4 GHz	1	2	Yes	Optional
CM520-57FS-GC	5G	2.4 GHz	1	1	Yes	Optional
CM520-57FBS-GC	5G	2.4 GHz	1	2	Yes	Optional

Advantages and integration

Source p. 2

- 5G SA/NSA access; 4G Cat 1 / Cat 4 / Cat 6 options, with stated backward compatibility to 3G/2G. Capability depends on the ordered modem.
- Online-maintenance technology interacts with the base station to maintain connectivity. The source claims reconnection within tens of milliseconds, followed by module restart or a complete device power cycle if needed. This timing is a source claim without test conditions: NEEDS_VERIFICATION.
- Wired/wireless link switching and dual-SIM network backup. Dual-SIM models use one modem; the source does not claim two simultaneous cellular links.

- Web and SNMP management, remote configuration and upgrades, router OTA and user-application OTA for large deployments.
- Python custom application development; Linux/OpenWrt system development.
- Optional industrial protocols: Modbus TCP, Modbus RTU, EtherNet/IP and Modbus TCP Slave.
- Optional IoT platforms: Alibaba Cloud, Tencent Cloud, power-industry platforms and Amazon AWS; centralized management and batch configuration.
- PPTP, L2TP, IPsec and OpenVPN; TCP/IP, UDP and ICMP; DMZ isolation, virtual IP mapping, MAC-IP binding, WAN access restrictions and user privileges.
- Three-layer system protection adds Virtual Man Watch (VWM) monitoring to software protection and the CPU watchdog timer (WDT). On a network or interference-related exception, the device can perform a full reset, intended to provide recovery without an on-site power cycle.
- High-speed industrial CPU for protocol conversion and recovery from false-online, unresponsive or crashed states.
- The source reports a 3000 V electrical test and lists CE, FCC, RoHS, E-mark, CCC, Mo'er high/low-temperature tests and EMC testing. Certificate identifiers and model-specific scope are not supplied.

Industrial design and detailed functions

Source p. 3

- 5G/4G/3G dial-up; VPN including PPTP, L2TP and IPsec; TCP/IP, UDP and ICMP.
- Online detection, connection maintenance, automatic redial, IPTABLES firewall and packet filtering.
- DHCP/DHCPD; SNAT/DNAT port mapping; DMZ; APN/VPDN private networks; SSH.
- One RS232 channel and an optional RS485 channel, described as TCP/UDP transparent DTU transmission; two I/O channels. Interface coexistence needs verification against the interface table.
- Factory reset; local configuration and firmware upgrades.
- Wired WAN, cellular and Wi-Fi Internet access; 3G/4G/5G, PPPoE, DHCP or static-IP connections with wired/wireless mutual backup and intelligent switching.
- Local system and serial-output logs; MQTT, Modbus RTU/Modbus TCP conversion, Ntrip Client/Server and HJ212-2005/2017.

Industrial platform and protection

Parameter	Source specification
Processor	Industrial 32-bit processor, 650 MHz; 32 KB D-cache and 64 KB I-cache. The overview identifies MIPS.
Wireless / PCB	Industrial wireless module; PCB design following the stated 3H and 3W principles; selected industrial components.
Ethernet protection	1.5 kV electromagnetic isolation.

Parameter	Source specification
Enclosure	Metal, shielding, enclosure/system isolation, lightning protection and IP31.
Power protection	7-32 V DC in design section; later power table says 7-36 V DC. Reverse-polarity, overvoltage and overcurrent protection.
SIM / serial protection	1.8/3/5 V push-type SIM/UIM; 15 kV ESD protection. RS232 also described with 15 kV ESD protection.
Memory	MMU; Flash 128 Mbit, expandable to 256 Mbit; SDRAM 1 Gbit. Packet buffering and complete TCP/IP stack described.

Commissioning and interfaces

Source pp. 4, 7

Photos show the 57F configuration, with one 4G antenna and one 2.4 GHz Wi-Fi connector. Antenna counts vary by model; photos do not define every variant.

- Factory default settings support quick commissioning with few or no parameter changes, depending on the installation.
- A graphical configuration tool provides quick configuration.
- The product manual provides quick-configuration instructions.
- SYSLOG output supports inspection of operating logs and fault analysis. Serial debugging software provides different diagnostic-output levels to help locate problems.
- Network options listed: GSM, GPRS, EDGE, WCDMA, EVDO, TD-SCDMA, LTE TDD/FDD and 5G SA/NSA; applicability depends on the modem.



Front interfaces



Side interfaces



Rear view, captioned as in source

External interfaces

Parameter	Source specification
Ethernet	1 RJ45 WAN and 4 RJ45 LAN ports, 10/100 Mbps; WAN switchable to LAN; 1.5 kV isolation.
WAN / LAN	1 WAN, configurable as LAN; 4 LAN ports.
Terminal serial port	1 RS232 port, optionally configured as RS485 (specify when ordering). Data bits: 7/8; stop bits: 1/2; parity: none/odd/even; 300-4000000 bit/s; no, hardware or software flow control. Other feature text suggests both ports: NEEDS_VERIFICATION.
Cellular / Wi-Fi antennas	SMA female, 50 ohm. Source lists cellular extensions 3 m / 5 m / 10 m / 15 with the final unit omitted; confirm the last length.
SIM/UIM	1.8/3/5 V push-type full-size card interface, 15 kV ESD protection; slot count depends on model.
Power	3-pin terminal socket.
Indicators	POWER, ONLINE and WIFI.
RESET	Restore factory defaults.

Accessories shown

Parameter	Source specification
Power	Optional power supply with terminal lead
Network	Optional ethernet cable
Antennas	Optional optional antenna set

Software specifications

Source pp. 5-7

Network connectivity and IP functions

Parameter	Source specification
Network access	APN / VPDN
Authentication	CHAP / PAP / MS-CHAP / MS-CHAPv2
Radio system	See cellular radio specifications.
LAN protocols	ARP / Ethernet
IP applications	Ping, traceroute, DHCP server/relay/client, DNS relay, DDNS, Telnet, SSH, HTTPS, TFTP, FTP and SFTP.
Routing	Static and dynamic routes.

Security and reliability

Parameter	Source specification
Firewall	Stateful packet inspection (SPI), denial-of-service (DoS) protection, multicast/Ping filtering and access-control lists (ACL).
Address translation	NAT, PAT, DMZ, port mapping and virtual servers.
Users / AAA	User privilege levels; local authentication, RADIUS, TACACS+ and LDAP.
Data security	CA support, including automatic application; SM1/SM2/SM3/SM4 algorithms.
Backup	VRRP, interface backup and optional dual-SIM backup; depends on ordered model.
Link monitoring	Heartbeat checks and automatic reconnection.
Watchdog	Operating self-check and fault self-recovery.

Management and optional integration

Parameter	Source specification
WLAN	Marked optional in the software-table heading; confirm ordered configuration.

Parameter	Source specification
Configuration	Local or remote HTTPS, Telnet and SSH.
"Upgrade method" source row	The source actually lists local/remote log output and log retention after power loss. Heading/content mismatch: NEEDS_VERIFICATION.
SMS, optional	Status inquiry, configuration and restart.
On-demand dialing	Data-triggered or SMS-triggered connection; scheduled online/offline operation.
Management	SNMP and power-industry TR-069; DM central management and batch configuration.
Development / platforms, optional	Python custom development; AWS, Tencent Cloud, power-industry platforms, Alibaba Cloud; central and batch management.
Industrial protocols, optional	Modbus TCP, Modbus RTU, EtherNet/IP and Modbus TCP Slave.

Additional software-table entries

Parameter	Source specification
Optional WLAN	IEEE 802.11ac/a/b/g/n; open-system/shared-key/WPA/WPA2 authentication; WEP/TKIP/AES encryption. Detailed Wi-Fi table lists only b/g/n: NEEDS_VERIFICATION.
WLAN modes	AP and Client; detailed table also lists repeater.
DM / diagnostics	Centralized management and batch configuration; Ping, traceroute and Sniffer packet capture.

Security and reliability additions

Parameter	Source specification
Data security	CA support, including automatic application as stated; SM1/SM2/SM3/SM4 cryptographic algorithms.
VPN	IPsec, L2TP, PPTP, GRE, N2N, L2TP over IPsec, GRE over IPsec, EOIP and OpenVPN.
Hardware encryption	State Grid, China Southern Power Grid and Chinese commercial-cryptography encryption support, as stated. Exact algorithms, modules and approvals require confirmation.
Link health	Online maintenance, heartbeat detection and automatic reconnection.
Management	SNMP and power-industry TR-069; DM central management and batch configuration.

Parameter	Source specification
DHCP / translation	DHCP server/client; SNAT/DNAT port mapping; DMZ.

Communication, Wi-Fi and access functions

Parameter	Source specification
Transport	5G/4G/3G; Ethernet-to-cellular; Ethernet-to-Wi-Fi; serial/RS485-to-cellular, Wi-Fi and Ethernet.
Transparent services	DTU and MQTT transparent transfer; APN/VPDN; VXLAN.
Link backup	Wired/cellular mutual backup; Wi-Fi/cellular primary/backup.
Health checks	Online maintenance and DTU LAN-client heartbeat packets.
Radio restrictions	Cellular frequency locking and SIM locking, as named in source.
Wi-Fi access	Client-count limits and client isolation.
Multiple SSIDs	Up to four Wi-Fi names, each with an independent MAC address.
Identity / controls	MAC and serial-number persistence; access restrictions; port alarms.
Positioning	BeiDou-only, GPS-only or combined positioning is listed in the software section; no positioning interface is specified in the physical table. Confirm ordered hardware.

Optional customized and platform functions

Parameter	Source specification
Three-link backup	Wired, Wi-Fi and cellular links as mutual primary/backup.
IP traffic splitting	Distribute flows by source/destination IP across network links, servers or paths to reduce congestion and improve utilization/stability.
Wi-Fi diagnostics	Client signal-strength monitoring.
Session records	Online/offline timestamps for wired, cellular and Wi-Fi users.
TF security	Software encryption for TF cards. Physical TF-slot availability depends on hardware.
Product customization	Customer-customized product log and model identifier, as written; whether log means logo NEEDS_VERIFICATION.

Parameter	Source specification
Central platform	Remote parameters, OTA, remote multimedia updates (music/video/advertising), allow/block lists, traffic and online statistics, radio-system statistics, SMS/WeChat/Wi-Fi authentication, traffic and speed controls, time limits, Internet-behavior controls, Wi-Fi probe and multi-level user management. Backend/platform scope requires configuration review.

Optional development and industrial protocols

Parameter	Source specification
Development / clouds	Python custom development; Amazon AWS, Alibaba Cloud, Tencent Cloud and power-industry platforms.
Industrial protocols	Modbus TCP; Modbus TCP/RTU conversion; Modbus RTU; EtherNet/IP; Modbus TCP Slave; MQTT; Ntrip Client and Ntrip Server.
Power-industry protocols	101/104, 61850 and TR-069, as written; no unspecified editions or conformity inferred.
Environmental protocol	HJ212-2005/2017.

Radio and Wi-Fi

Source pp. 8-9

Cellular parameters

Parameter	Source specification
Wireless module	Industrial-grade module.
5G SA/NSA bands	n1 / n2 / n3 / n5 / n7 / n8 / n20 / n28 / n41 / n66 / n71 / n77 / n78 / n79
TDD frequency group	LTE TDD: 2600/2300 MHz; UMTS: 2100/900 MHz; GSM: 850/900/1800/1900 MHz; UMTS Rx diversity: 2100/900 MHz.
FDD frequency group	LTE FDD: 2600/2100/1800/DD800 MHz (DD800 reproduced as printed); UMTS and UMTS Rx diversity: 2100/900 MHz.
Radio schemes	NR/LTE/UMTS/HSPA+/HSDPA/HSUPA/WCDMA/EDGE/GSM
5G NR rate	DL 3.4 Gbps / UL 350 Mbps. Modem theoretical figures, not Ethernet throughput.

Parameter	Source specification
TDD rates	LTE TDD: DL 68 Mbps / UL 17 Mbps; DC-HSPA+: DL 42 Mb/s (Category 24); HSPA+: DL 28 Mb/s (Category 18); HSDPA: DL 14.4 Mb/s (Category 8); HSUPA+: DL 5.76 Mb/s (Category 6), as printed; WCDMA CS: UL/DL 64 kbps; WCDMA PS: UL/DL 384 kbps.
FDD rates	LTE FDD: DL 100 Mbps / UL 50 Mbps; other DC-HSPA+, HSPA+, HSDPA, HSUPA+ and WCDMA values are the same as the TDD table.
Transmit power	LTE: 23 dBm; WCDMA/HSDPA: 24 dBm.
Receiver sensitivity	<-109 dBm
Source-listed module functions	Data, voice, SMS and fax; actual hardware/firmware applicability NEEDS_VERIFICATION.
Power private network	1.8 GHz power-industry private-network bands and integrated public/private modules.
Overseas options	The source claims broad international coverage; specify country and required bands so an appropriate optional modem can be selected. No universal band or certification claim is inferred.

Wi-Fi

Parameter	Source specification
Module	Integrated chipset Wi-Fi module.
Standards / rates	802.11 b/g/n; 6/9/12/18/24/36/48/54 Mbps; maximum stated 300 Mbps.
Encryption	WEP, WPA and WPA2; hardware security engines listed as 802.11i 4.0, TKIP, AES and CCMP.
Modes	AP and repeater.
Coverage claim	Up to 100 m outdoors without obstructions; test conditions not specified. NEEDS_VERIFICATION.

Hardware, power and mechanics

Source pp. 9-10

Hardware

Parameter	Source specification
CPU	650 MHz industrial embedded processor with MMU.
Flash	128 Mbit, expandable; reliability section states up to 256 Mbit.
SDRAM	1 Gbit, described as expandable.

Power and environment

Parameter	Source specification
Input	7-36 V DC in power table; design section gives 7-32 V. Reverse-polarity, overvoltage and overcurrent protection. NEEDS_VERIFICATION.
Standard supply	9 V DC / 1.33 A
Communication current	Average 430 mA at +9 V DC; registration peak 1.0 A at +9 V DC.
Standby	Average <200 mA at +9 V DC.
Operating temperature	-35 to +75 °C
Storage	-40 to +85 °C
Relative humidity	95%, non-condensing.

Source-listed EMC parameters

Parameter	Source specification
ESD	EN 61000-4-2, level 3
Radiated electric field	EN 61000-4-3, level 3
Electrical fast transient	EN 61000-4-4, level 3
Surge	EN 61000-4-5, level 3
Conducted disturbances	EN 61000-4-6, level 3

Parameter	Source specification
Power-frequency magnetic field	EN 61000-4-8; horizontal/vertical 400 A/m (level 3), as stated. NEEDS_VERIFICATION.

Physical characteristics

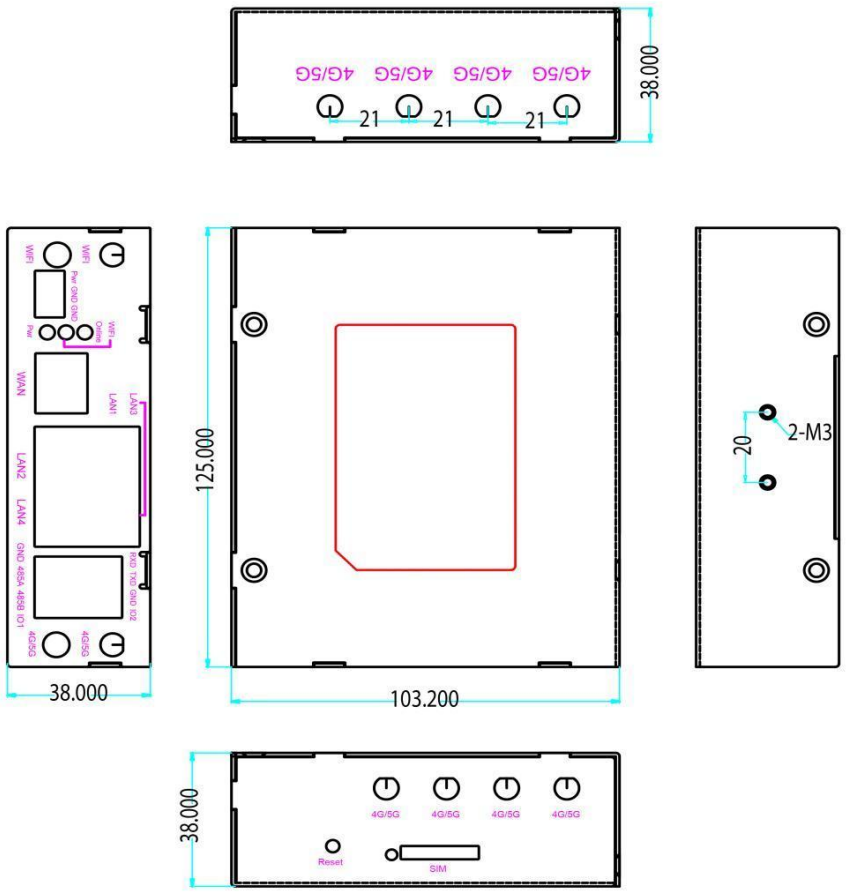
Parameter	Source specification
Enclosure	Metal, shielding, isolated enclosure/system and lightning protection; IP31.
Body	125 x 103.2 x 38 mm; excludes antennas and mounting hardware; tolerance +/-0.5 mm.
Package	350 x 215 x 88 mm
Weight	0.44 kg
Shock / vibration / drop	IEC 60068-2-27 / IEC 60068-2-6 / IEC 60068-2-32

Source-listed certifications

Parameter	Source specification
Domestic	MIIT network-access permit, CRCC, Ministry of Housing and Urban-Rural Development interoperability certificate, CCC, radio-committee certificate, EMC and high/low-temperature testing.
International	CE, FCC, E-mark, CB and RoHS.
Scope	Certificate identifiers, validity and exact model scope NEEDS_VERIFICATION.

Installation drawing and terminals

Source p. 11



Original manufacturer drawing; confirm ordered hardware revision before installation.

Terminal definitions

Pin	Label	Description
1	RXD	RS232 receive
2	TXD	RS232 transmit
3	GND	Common ground
4	IO2	I/O channel 2
5	GND	Common ground

Pin	Label	Description
6	485A	RS485 +
7	485B	RS485 -
8	IO1	I/O channel 1

Application architectures

Source pp. 12-13

Manufacturing connectivity

Parameter	Source specification
Field equipment	Injection-molding machines connected through PLCs and wireless routers.
Communication	Local Wi-Fi / mobile monitoring and 4G/5G operator access through a firewall.
Factory services	Machine operating data and fault information; WeChat server and factory service network.

Traffic-control / electronic policing

Parameter	Source specification
Signals	Camera control and video signals via industrial gateway.
Control	Control-code distributor and control keyboard.
Video	Video distributor, monitor, recorder, video matrix, screen splitter and projection controller.

Distribution-room environmental monitoring

Parameter	Source specification
Users	Mobile services, centralized control, electricity supervision, power bureau and maintenance staff.
Platform	Power private network; site management platform with firewall, management server and desktop controller; LAN to subsystems.

Parameter	Source specification
Inspection robot	Rail-mounted inspection robot with CAIMORE routing equipment.
Power / environment	Temperature/humidity, gas, standing water, illuminance, alarms, fan/water-level/lighting control.
Security	Video surveillance and access control.
Online monitoring	Partial discharge, switchgear temperature and electrical measurements.

Company profile and historical recognition

Source p. 14

The following company information is translated from the supplied document and describes the source-era profile. Awards, counts and certifications have not been updated to the present day. English award names are descriptive translations.

Company honors

Year	Recognition stated in source
2011	Named a "Best Supplier for Customer Satisfaction in China's Industrial Control Industry"; the company's GPRS DTU received an "Innovative Product Award".
2012	Became a member of China Quality Long March.
2013	Became a member of the Strategic Alliance for Technological Innovation in the Intelligent Power Transmission and Distribution Equipment Industry.
2014	Recognized as an innovative pilot enterprise. The Zhanjiang Wi-Fi coverage project received a "Model Engineering Project Award" at the 13th China Automation Annual Conference.
2015	Video products were named among the "Top Ten Video Transmission Enterprises" by China Industrial Control and by Huaqiang Security Network. The noise-monitoring project received a "Model Engineering Project Award" at the 14th China Automation Annual Conference.
2016	The video product line was named a "2015-2016 Quality Supplier in China's Security Industry" by Huaqiang Security Network. Charging-pile communication equipment received a "Best Charging Equipment Component Supplier" award.
2016	Received a product gold award at the 7th Guangzhou International New Energy Automobile Industry Exhibition. The organizing committee of the 3rd China Good Wi-Fi event named CAIMORE a "2016 Best Wi-Fi Industry Application Solution Provider".

Year	Recognition stated in source
2018	Industrial routers and DTUs were named among China's top ten brands in their respective categories. Recognized as a key reserve enterprise for public listing in Xiamen.
2019	Recognized as a key reserve enterprise for public listing in Xiamen and Fujian Province. Selected as a DICT solution partner of China Telecom Corporation Limited, Shanghai Branch.
2020	Recognized as a key reserve enterprise for public listing in Xiamen.

Company qualifications

Parameter	Source specification
High-tech enterprise	Nationally recognized high-tech enterprise; year not stated.
Dual-software enterprise	Nationally recognized dual-software enterprise; year not stated.
Management systems listed	ISO 9001:2015 quality management; ISO 14001:2015 environmental management; ISO 45001:2018 occupational health and safety management.
Intellectual property	More than 100 patent-technology and software-copyright certificates in total, as stated; separate counts are not supplied.
Regional offices	6 regional offices across China, providing nearby customer service.
Registered capital	RMB 12.8 million.
Industry experience	Industry R&D and application experience accumulated since 2008; no explicit year count supplied.

Contact information

Parameter	Source specification
Company	Xiamen CAIMORE Communication Technology Co., Ltd.
Address as printed in source	8th Floor, No. 1 Xixishanwei Road, Software Park Phase III, Xiamen Torch High-tech Zone, Xiamen, China
Telephone / fax	+86-592-5902655 / +86-592-5975885
Website / email	https://www.caimore.com / caimore@caimore.com

Source address variations

Parameter	Source specification
Pages 1, 5 and 14	8th Floor, No. 1 Xixishanwei Road, Software Park Phase III, Xiamen Torch High-tech Zone.
Other repeated page headers	Units 901 and 904, No. 63 Chengyi North Street, Software Park Phase III. Confirm the preferred public contact address.

Translation and source review notes

Editorial review; not additional manufacturer specifications

English review edition translated from the supplied Chinese source. Optional features and variant differences are retained. Manufacturer images and numeric drawings preserve the original hardware details; application architectures are reformatted in English. NEEDS_VERIFICATION marks an unresolved source ambiguity. No absent specification has been invented.

Review checklist

Source / topic	Review note
Revision / variant scope	New source lists 57FS-GC and 57FBS-GC, rather than the old unsuffixed FS/FBS rows. Keep 4G/5G and one/two SIM differences; all models have one modem.
Input voltage	Design section 7-32 V vs power table 7-36 V. Maximum approved voltage NEEDS_VERIFICATION.
Hardware and pictures	IP31 and 128 Mbit Flash / 1 Gbit SDRAM are preserved from this revision. Pictures show 57F with one 4G and one Wi-Fi connector; antenna counts vary by model.
Software versus hardware	Generic software positioning and TF encryption require confirmation of fitted hardware; physical interface table does not specify positioning/TF connectors. No bandwidth-aggregation claim is added because this source does not list it.
Serial / Wi-Fi / terminology	RS232 plus optional RS485 versus alternative configuration remains unclear. Generic software WLAN lists ac/a/b/g/n; detailed Wi-Fi table lists b/g/n. Final 15 antenna-extension length lacks unit; product log may mean logo.
Contact / technical evidence	Page headers contain two addresses. Recovery timing, 100 m coverage, DD800, HSUPA+ wording, 400 A/m EMC and certification scope require confirmation.
Source-era statements	Company office, patent, software-copyright and years-of-experience counts differ among the supplied documents. Each translation preserves its own source counts rather than combining them into a new current company profile.
Certificates and historic awards	Certification and award statements are translations of source material, not independent verification. No certificate numbers were supplied; CGD and Mo'er naming are not expanded into assumed issuing bodies.
Publication status	This English review edition is prepared for technical/editorial review. Resolve the identified source discrepancies before replacing the review status with a public website release.