INDUSTRIAL CONNECTIVITY / TECHNICAL DATASHEET

CM520-52 Series

Five-port industrial cellular gateway



Original source photograph



Original source photograph

Source filename v1.1.260525 | 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 CM520-52 industrial gateway family uses an open software architecture, a metal enclosure and five RJ45 Ethernet ports. It provides 5G/4G/3G WAN access depending on model, with VPN tunneling and authentication for mobile broadband communication. This source does not provide a Wi-Fi radio specification.

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 connectivity, 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.

Model selection

Model	Cellular	SIM slots	RS232	RS485
CM520-52F	4G	1	Yes	Optional
CM520-52FS	5G	1	Yes	Optional
CM520-52FB	4G	2	Yes	Optional
CM520-52FBS	5G	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.
- 3G/4G/5G WAN access, wired/wireless switching and dual-SIM backup depending on model. Single-modem dual-SIM does not mean simultaneous dual-cellular connections.
- 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.

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.
Enclosure	Metal, electromagnetic shielding, enclosure/system isolation, lightning-protection design, IP30.
Power protection	7-35 V DC input; 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 a complete TCP/IP stack are described.

Parameter	Source specification
Source claims	Wireless modules described as CGD, FCC or CE certified. CGD and the 3000 V test conditions are undefined. A 2010 customer-satisfaction award is cited here; the company table gives 2011.

Commissioning and interfaces

Source pp. 4, 6-7

- 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 view



Rear view, captioned as in source

External interfaces

Parameter	Source specification
Ethernet	5 x 10/100 Mbps Base-T ports; Ethernet IEEE 802-3 / 802-2 as printed; 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 antennas	SMA female, 50 ohm; optional 3/5/10/15 m extensions.

Parameter	Source specification
Positioning, optional	GPS and BeiDou.
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.
Wi-Fi applicability	WIFI is printed in the indicator list and WLAN is an optional software-table heading; no Wi-Fi radio table is supplied. NEEDS_VERIFICATION.

Accessories shown

Parameter	Source specification
Power	Power supply with terminal lead
Network	Ethernet cable
Antennas	Optional antenna set

Software specifications

Source pp. 5-6

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.

Parameter	Source specification
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	IPsec VPN, OpenVPN and CA support, including automatic application as stated.
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.
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
Development / platforms, optional	Python custom development; Amazon AWS; Tencent Cloud; power-industry cloud platforms; Alibaba Cloud and other IoT cloud platforms; centralized management and batch configuration.
Industrial protocols, optional	Modbus TCP, Modbus RTU, EtherNet/IP and Modbus TCP Slave.

Cellular radio parameters

Source pp. 7-8

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.
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.

Hardware, power and mechanics

Source pp. 8-9

Hardware

Parameter	Source specification
CPU	650 MHz embedded industrial CPU with MMU
Flash / SDRAM	Flash 128 Mbit / SDRAM 1 Gbit, described as expandable.

Power and environment

Parameter	Source specification
Input	7-35 V DC; reverse-polarity, overvoltage and overcurrent protection.
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
Extended operation	-40 to +80 °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

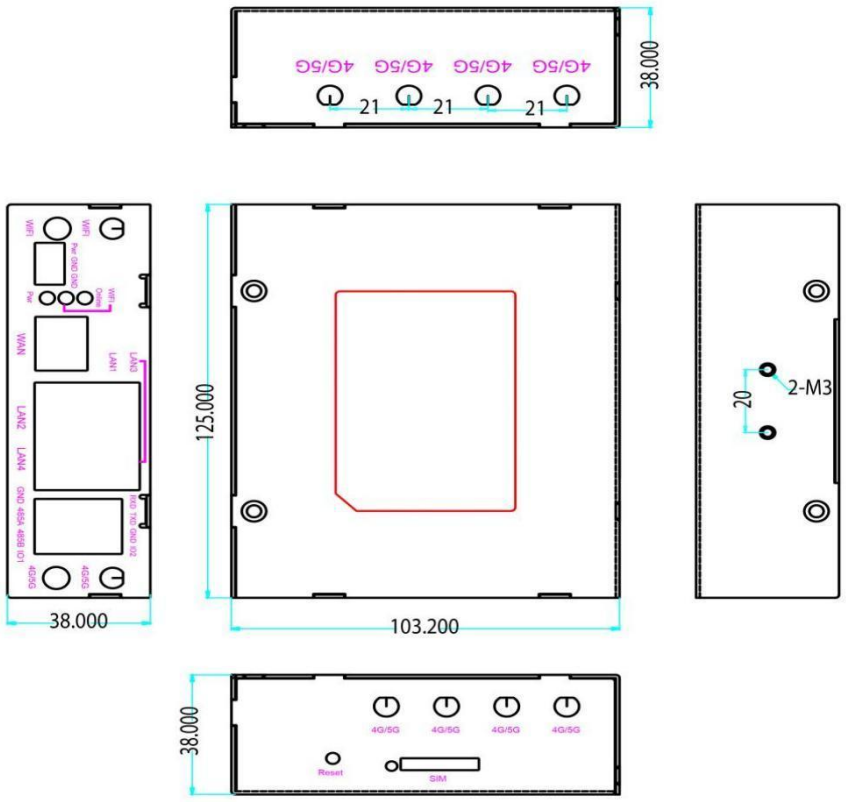
Parameter	Source specification
Enclosure	Metal, isolated enclosure/system, lightning protection, IP30.
Body	125 x 103.2 x 38 mm, excluding antennas and mounting hardware.
Package	350 x 215 x 88 mm
Weight	0.44 kg
Shock / vibration / drop	IEC 60068-2-27 / IEC 60068-2-6 / IEC 60068-2-32

Certifications stated

Parameter	Source specification
Domestic	MIIT network-access permit, CCC, EMC, CRCC railway certification and Mo'er high/low-temperature testing.
International	CE, FCC, E-mark and RoHS.
Scope	Certificate numbers, validity and exact model applicability NEEDS_VERIFICATION.

Installation drawing and terminals

Source p. 10



Original manufacturer drawing; dimensions in mm. Confirm the ordered 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
6	485A	RS485 +
7	485B	RS485 -

Pin	Label	Description
8	IO1	I/O channel 1

Application architectures

Source pp. 11-12

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.
Inspection robot	Rail-mounted inspection robot with CAIMORE routing equipment.
Power / environment	Temperature/humidity, gas, standing water, illuminance, alarms, fan/water-level/lighting control.

Parameter	Source specification
Security	Video surveillance and access control.
Online monitoring	Partial discharge, switchgear temperature and electrical measurements.

Company profile and historical recognition

Source p. 13

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".
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.

Year	Recognition stated in source
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	Recognized nationally as a high-tech enterprise in 2009.
Dual-software enterprise	Recognized nationally as a dual-software enterprise in 2010.
Management systems listed	ISO 9001:2015 quality management; ISO 14001:2015 environmental management; ISO 45001:2018 occupational health and safety management.
Intellectual property	14 patented technologies for device stability and 39 software copyright certificates.
Regional offices	6 regional offices across China, providing nearby customer service.
Registered capital	RMB 20.58 million. The source identifies CAIMORE as a high-tech enterprise supported by Xiamen.
Industry experience	15 years of industry R&D accumulation and application experience, as stated in the source.

Contact information

Parameter	Source specification
Company	Xiamen CAIMORE Communication Technology Co., Ltd.
Address as printed in source	Units 7-8, Room 802, Building C10, Software Park Phase III, Xiamen, China
Telephone	+86-592-5902655
Website / email	https://www.caimore.com / caimore@caimore.com

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
Wi-Fi	No Wi-Fi radio parameters or antenna row are supplied. Generic WLAN heading and WIFI indicator wording do not establish built-in Wi-Fi.
Serial availability	Feature text describes RS232 plus optional RS485, while the interface row says RS232 can be configured as RS485. Confirm simultaneous availability and I/O mapping.
Variant scope	5G and dual SIM depend on FS/FBS and FB/FBS model rows; single-modem dual-SIM is not dual-active cellular.
Source claims	Upgrade-method row contains log information. DD800, HSUPA+ wording, recovery timing, 400 A/m EMC level, voice/fax and certification scope require review.
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.