INDUSTRIAL CONNECTIVITY / TECHNICAL DATASHEET

CM520-8A / 8V

Vehicle Wi-Fi router family



Original manufacturer photograph



Original manufacturer photograph

Source revision: not stated | English review edition | 18 October 2026

REVIEW EDITION - translated from the supplied Chinese document. Optional functions and source discrepancies are retained. See the final review checklist.

Inside this document

Models and functions / Interfaces / Radio and hardware / Power and mechanics / Applications / Source review notes

Product overview and model selection

Source p. 1

The industrial CM520-8AX/8VX router family combines Wi-Fi with one WAN and four RJ45 LAN ports. Local 802.11 a/b/g/n Wi-Fi and 3G/4G/Wi-Fi WAN connectivity are described, with VPN tunnels and Wi-Fi security authentication. The model table additionally includes 5G variants.

The source identifies an industrial MIPS communications processor and embedded real-time operating system. Functions include 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 timed power switching.

Industrial construction, WDT and SWP (System Watch Protect), a stated 3000 V electrical test and proprietary connection-maintenance technology are described. The source cites strict testing and eight years of practical application; these are source-era statements.

Model selection

Model	Interface	Cellular	GPS/BeiDou	Wi-Fi	Buffering
CM520-8VF	RJ45	4G	No	Yes	Yes
CM520-8VT	RJ45	4G Cat 1	No	Yes	Yes
CM520-8VFS	RJ45	5G	No	Yes	Yes
CM520-8AF	RJ45	4G	Yes	Yes	Yes
CM520-8AT	RJ45	4G Cat 1	Yes	Yes	Yes
CM520-8AFS	RJ45	5G	Yes	Yes	Yes

Industrial design and reliability

Source p. 2

- Industrial-grade high-performance embedded CPU and industrial wireless module, described as interference-resistant and stable.
- A real-time operating system with a memory-management unit supports real-time operation and firmware upgrades.
- PCB design follows the source's stated "20H and 3W" principles; industrial-grade components are selected for interference resistance and reliability.
- The industrial power design is stated as 5-35 V DC, with reverse-polarity, overvoltage and overcurrent protection. The power table also states 5-35 V DC.
- SIM/UIM ESD protection is stated as 15 kV; the power interface includes reverse-polarity and overvoltage protection.

- 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.
- The 1.8 V / 3 V / 5 V push-type UIM/SIM interface includes 15 kV ESD protection.
- Serial interfaces RS232/RS485/TTL/RS422 are described with 15 kV ESD protection; actual supplied interface configurations depend on the model.
- The source describes a metal enclosure with electromagnetic-interference shielding, lightning protection and isolation between the enclosure and system, designed for industrial environments and power-safety requirements. The reliability section states IP41; the physical specification states IP30: NEEDS_VERIFICATION.
- The source states that wireless modules have CGD, FCC or CE certification. "CGD" is reproduced as written; the certification name and model-specific scope need verification.
- Automatic DNS acquisition avoids manual DNS entry and is intended to avoid frequent restarts caused by an unsuitable DNS server.
- The TCP/IP protocol stack is intended to improve communication performance and reduce disconnections.
- The source reports a 3000 V electrical test and favorable EMC/EMI performance, CE certification and EMC testing. It also cites a 2010 customer-satisfaction supplier award. Test conditions, certificates and the award date require source review before publication.

Functions and commissioning

Source p. 3

- APN/VPDN private-network access.
- Ethernet data communication and routing; serial TCP/UDP transparent data transmission or serial configuration.
- Online detection, connection maintenance and automatic redial after disconnection.
- Mutual backup between cellular 4G/5G and wired broadband links, with automatic switching to PPPoE broadband when wireless communication is unavailable, and vice versa.
- Scheduled connection and disconnection; dynamic and static routing; scheduled power on/off.
- TCP/IP, UDP, ICMP, SMTP, HTTP, POP3, OICQ, Telnet and FTP protocols.
- QoS bandwidth management.
- NAT port mapping, including SNAT and DNAT; DMZ host support.
- Dynamic DNS services: PeanutHull, 88IP and dyndns, as listed in the source.
- Local and remote web configuration; local firmware upgrades.
- Extended wireless RTU management-platform protocols.
- Linux and Windows support is stated without defining whether this concerns the device OS or management host. NEEDS_VERIFICATION.
- SNMP remote management and alarm traps; remote TFTP software upgrades; real-time clock.
- A standard wired WAN port supports PPPoE and direct connection to ADSL equipment or metropolitan broadband.

- 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 in the source cover GSM (2G), GPRS (2.5G), EDGE (2.75G), WCDMA/EVDO/TD-SCDMA (3G), LTE TDD/FDD (4G).
- Network availability and compatibility depend on the ordered modem and regional carrier; the model-selection table determines cellular capability.
- The graphical configuration tool also supports batch configuration of multiple devices.

Interfaces and accessories

Source p. 4



Source product view



Front interfaces



Rear interfaces

External interfaces

Parameter	Source specification
Serial interface	1 x RS232. Data bits: 7/8; stop bits: 1/2; parity: none/odd/even/SPACE/MARK; 110-230400 bit/s; no, RTS/CTS hardware or XON/XOFF software flow control.
WAN	1 x WAN (LAN0), supporting PPPoE.
LAN	4 x 10/100 Mbps Base-T LAN ports, LAN1-LAN4; Ethernet IEEE 802-3 / 802-2 as printed; 1.5 kV isolation.
GPS antenna	Standard SMA female, 50 ohm. GPS/BeiDou is listed for 8A variants, not 8V variants.
Indicators	POWER, ACT (communication) and Online.
Cellular antenna	Standard SMA female, 50 ohm; optional 3/5/10/15 m extension cables.
UIM	1.8/3/5 V push-type card interface with 15 kV ESD protection.
Power connector	Standard three-pin locomotive-style power socket.

Parameter	Source specification
Wi-Fi antenna	Standard SMA female, 50 ohm; optional 3/5/10/15 m extension leads.
RESET	Reset button for restoring factory defaults.
TF cards	Two TF slots; stated support 1-32 GB. Whether the capacity is per slot NEEDS_VERIFICATION.
USB	1 x USB 2.0 host port; source-listed rate 12 Mbps. This is not a claim of 480 Mbps operation.

Accessories shown

Parameter	Source specification
Power	Power lead / connector or adapter, as illustrated.
Cables	Ethernet cable and serial cable.
Antennas	Optional antenna set.

Cellular radio specifications

Source pp. 5-6

Theoretical maximum downlink (DL) and uplink (UL) values are translated as printed. Actual speed depends on base-station signal strength, interference, weather and operating conditions. Bands and network modes depend on the selected modem.

5G module specifications

Parameter	Source specification
Module	Industrial-grade wireless module.
5G NR bands	n1 / n2 / n3 / n5 / n7 / n8 / n20 / n28 / n41 / n66 / n71 / n77 / n78 / n79
LTE bands listed with 5G module	b1 / b2 / b3 / b4 / b5 / b7 / b8 / b12 / b13 / b14 / b17 / b20 / b25 / b26 / b28 / b29 / b30 / b38 / b39 / b40 / b41 / b42 / b43 / b46 / b48
Theoretical peak rates (DL / UL)	5G NR: 3.4 Gbps / 350 Mbps; LTE Cat 20: 2.0 Gbps / 150 Mbps; HSPA+: 42 Mbps / 5.76 Mbps.
Transmit power	<24 dBm

Parameter	Source specification
Receiver sensitivity	<-97 dBm
Source-listed module functions	Data, voice, SMS and fax.

4G module specifications

Parameter	Source specification
Module	Industrial-grade 4G wireless module.
Bands as listed	LTE TDD: bands 38/39/40/41; LTE FDD: bands 1/2/3/4/5/7/13/17/25; TD-SCDMA: bands 34/39; GSM: bands 2/3/8; UMTS: bands 1/5.
Coding / radio schemes	LTE/UMTS/HSPA+/DC-HSPA+/HSDPA/HSUPA/WCDMA/EDGE/GSM
Source-listed theoretical rates	LTE TDD: DL 61 Mbps / UL 18 Mbps; LTE FDD: DL 100 Mbps / UL 50 Mbps; DC-HSPA+: DL 42 Mbps / UL 5.76 Mbps. HSPA+: DL 28 Mb/s (Category 18); HSDPA: DL 14.4 Mb/s (Category 8); HSUPA+: DL 42 Mbps / UL 5.76 Mbps (as written; NEEDS_VERIFICATION). WCDMA CS: DL 64 kbps / UL 64 kbps; WCDMA PS: DL 384 kbps / UL 384 kbps; EDGE: DL 237 kbps / UL 118 kbps; GSM: DL 171 kbps / UL 171 kbps.
Transmit power	LTE: 23 dBm; WCDMA/HSDPA: 24 dBm.
Receiver sensitivity	<-109 dBm
Source-listed module functions	Data, voice, SMS and fax.

Hardware, power and environmental specifications

Source pp. 6-7

Hardware system

Parameter	Source specification
CPU	Industrial embedded CPU, 533 MHz.
MMU	CPU memory-management unit, described as preventing overflow-related system exceptions.
Flash	128 Mbit; expandable to 256 Mbit.

Parameter	Source specification
SDRAM	1 Gbit.

Power

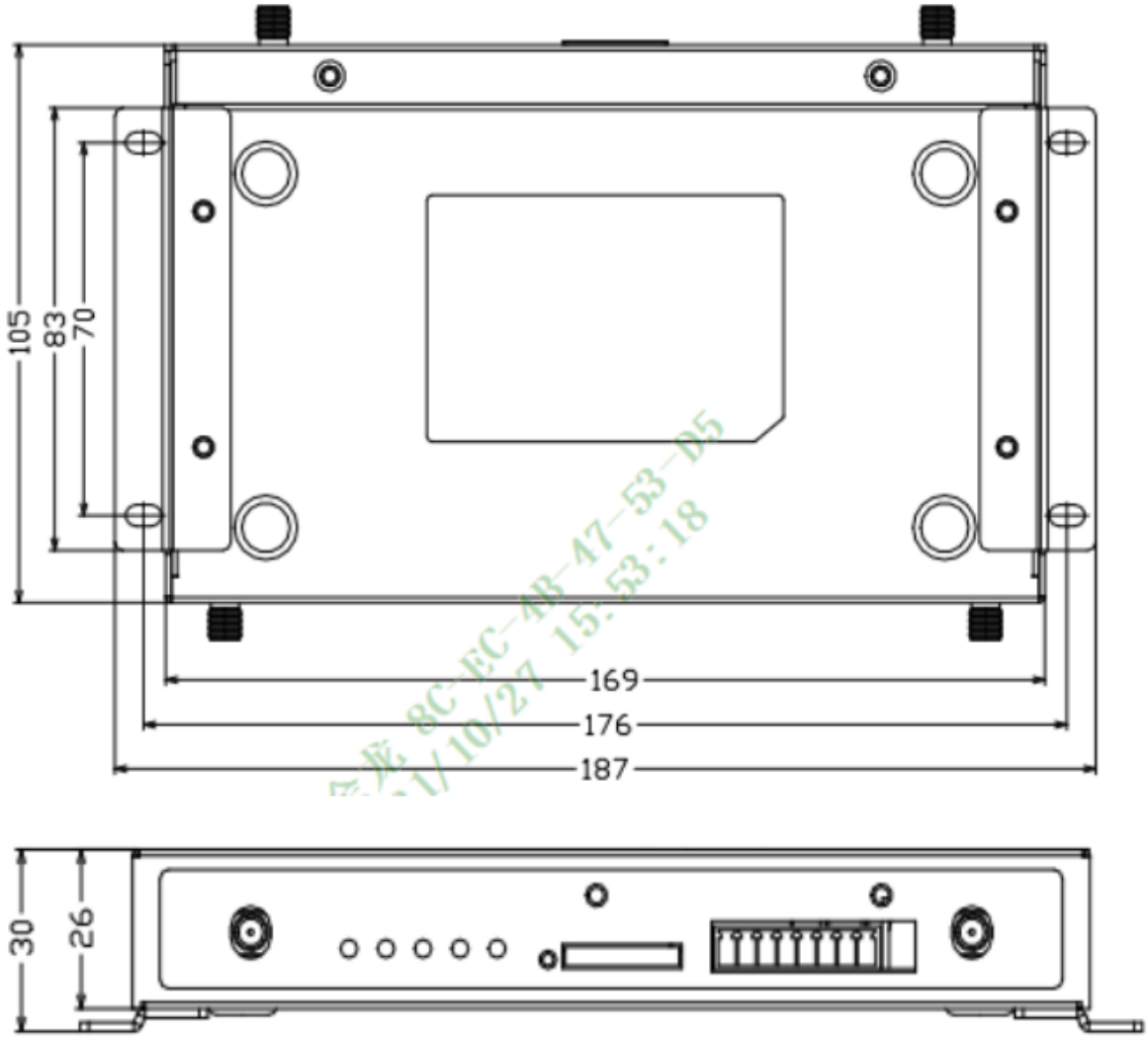
Parameter	Source specification
DC input	5-35 V DC; reverse-polarity, overvoltage and overcurrent protection.
Standard supply	9 V DC / 1.5 A
Communication current	Average: 390 mA at +9 V DC; peak during network registration: 1.0 A at +9 V DC.
Standby current	Average <56 mA at +9 V DC.

Mechanical and environmental

Parameter	Source specification
Enclosure	Metal; electromagnetic shielding, interference resistance, isolated enclosure/system and lightning-protection design. IP30 is stated here, conflicting with IP41 in the reliability section.
Body dimensions	168 x 104 x 26 mm; excludes antennas and mounting hardware.
Package dimensions	350 x 215 x 88 mm
Weight	0.7 kg
Operating temperature	-35 to +75 °C
Extended operating temperature	-40 to +80 °C
Storage temperature	-40 to +85 °C
Relative humidity	95%, non-condensing.

Mechanical drawing

Source p. 7

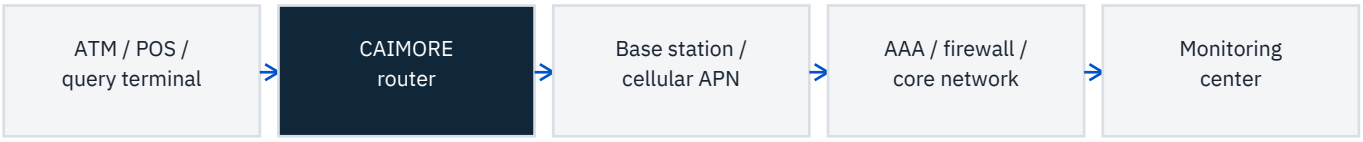


Original manufacturer drawing. Numeric labels retained; figure and dimension-table revision require confirmation.

Application architectures

Source pp. 8-9

FINANCIAL TRANSACTION / TRAFFIC-CONTROL ACCESS



VIDEO MONITORING / DATA TRANSMISSION



English redraw of source schematics. Detailed source components are listed in the tables.

Enterprise and household access

Parameter	Source specification
Example	Wireless gateway providing local Internet access for business and household users.

Financial transaction / traffic-control schematic

Parameter	Source specification
Field devices	ATM; query/payment terminal; POS/payment terminal.
Local connection	RJ45 Ethernet to a CAIMORE router.
Cellular access	Base stations and operator cellular/private APN network.
Network services	Switches/routers, firewalls and AAA authentication servers.
Monitoring center	Management/application and database servers, connected to a supervisory agency or higher-level department as shown.

Video monitoring / transmission schematic

Parameter	Source specification
Source endpoints	Cameras and local monitoring equipment in the sectors illustrated.
Access path	CAIMORE router, base station and operator wireless network.
Core network	Switch/router, firewall, Internet/private network and data acquisition/forwarding services.
Monitoring endpoints	Mobile terminal, workstation and central monitoring display.

Typical applications

Source p. 9

Application examples

Parameter	Source specification
Power and utilities	Power monitoring; street-light monitoring; meter monitoring; equipment-room monitoring; distribution-network automation and remote control; remote meter reading.
Transportation	Traffic guidance; vehicle guidance; highway monitoring; traffic-light control and image transmission.
Water	Water-resource monitoring; real-time water-supply network monitoring.
Environment, meteorology and oilfields	Key pollution-source monitoring; environmental monitoring; weather monitoring; real-time noise monitoring; oilfield monitoring; heat-network monitoring; coal and gas monitoring; earthquake monitoring.
Serial equipment	Wireless data transmission for domestic and international PLCs with serial or RS485 interfaces; DTU data transmission.

Company profile and historical recognition

Source p. 10

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.
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.

Parameter	Source specification
Intellectual property	7 patented technologies for device stability and 31 software copyright certificates.
Regional offices	9 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	16 years of R&D and industry application experience, as stated in this source.

Contact information

Parameter	Source specification
Company	Xiamen CAIMORE Communication Technology Co., Ltd.
Address as printed in source	Units 901 and 904, No. 63 Chengyi North Street, Software Park Phase III, Xiamen, China
Telephone / fax	+86-592-5902655 / +86-592-5975885
Website / email	https://www.caimore.com / caimore@caimore.com

Translation and source review notes

Editorial notes; not additional manufacturer specifications

English review edition translated from the supplied Chinese document. Source-era claims, optional functions and conflicting values are retained. NEEDS_VERIFICATION marks unresolved issues. Technical review is required before website upload.

Review checklist

Source / topic	Review note
Source pp. 2, 6	IP41 in reliability text conflicts with IP30 in physical characteristics. NEEDS_VERIFICATION.
Source pp. 6-7	Body table: 168 x 104 x 26 mm; drawing: 169 x 105 mm with additional mounting dimensions. Confirm revision.
Source pp. 1, 4	Only 8A variants list GPS/BeiDou. Serial-table support is RS232; generic reliability mentions other interface standards without confirming these variants.
Source p. 4	USB 2.0 host is listed at 12 Mbps; TF capacity wording does not specify per-slot/total. Preserve source values.
Source pp. 1, 3, 5	Overview and network list emphasize 3G/4G, but selection/radio tables include 5G. Radio capability depends on ordered variant. HSUPA+ rate anomaly retained.
Source p. 2	CGD certification acronym and 3000 V test conditions are undefined; Linux/Windows scope is unspecified.
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.