INDUSTRIAL CONNECTIVITY / TECHNICAL DATASHEET

# CM520-56FB Series

## Two-port single-modem dual-SIM router




Original source photograph




Original source photograph

Source revision: not stated | models CM520-56FB / CM520-56FBS | 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 CM520-56FB industrial router family uses an open software architecture, metal enclosure and two RJ45 Ethernet ports. It supports single-modem dual-SIM operation with 3G/4G/5G WAN access depending on model. Software features include VPN, IPTABLE firewall controls, routing tables, DHCP server/client, SNAT/DNAT, DMZ, network diagnostics, transparent DTU transmission, user management, APN/VPDN, power-on dialing and link maintenance.

Source-listed applications include small and medium enterprise networking, vehicle connectivity, ATM monitoring, financial and postal transactions, smart grids and transport, environmental/fire/security monitoring, water monitoring, public safety, advertising, remote surveying, industrial control, oilfield and gas monitoring, earthquake and weather monitoring, instrument monitoring, water/electricity/gas/heat meters, centralized meter reading, charging piles, parcel lockers, vending machines and recycling equipment.

### Model selection

| Model | Source-listed cellular | Modem / SIM configuration |
|---|---|---|
| **CM520-56FB** | Seven-mode cellular, as stated | 1 x 4G / 2 SIM |
| **CM520-56FBS** | 2G/3G/4G/5G | 1 x 5G / 2 SIM |

### Shared features

| Parameter | Source specification |
|---|---|
| **Interfaces** | Ethernet and terminals; RS232; optional RS485. |
| **Memory** | 16 MB Flash / 128 MB SDRAM. |

# Industrial design

Source p. 2

- Industrial 32-bit CPU at 650 MHz; 32 KB data cache (D-cache) and 64 KB instruction cache (I-cache) improve data and instruction access.
- Industrial wireless module for stable transmission and interference resistance.
- PCB design follows the source's "3H and 3W" principles, using high-quality board materials and selected industrial components.
- Ethernet interfaces include 1.5 kV electromagnetic isolation.
- Metal enclosure with interference shielding; IP30; lightning-protected antennas; wide-temperature design intended for harsh industrial environments.

- Wide input: 6-32 V DC. The power circuit includes reverse-polarity, overvoltage and overcurrent protection. SIM/UIM interface protection is stated as 15 kV ESD.

# Reliability

Source p. 2

- 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.
- RS232 serial interface includes 15 kV ESD protection.
- 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. IP30 is stated for this series.
- 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.
- A high-speed industrial CPU processes protocol conversions and is described as addressing false-online, unresponsive and crashed states. The MMU is intended to prevent memory-related instability.
- 16 MB Flash, expandable to 32 MB, and 128 MB SDRAM provide transmit-data buffering and space for large received packets. The source describes a complete TCP/IP stack and reduced disconnection probability.
- 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

- 3G/4G/5G wireless dial-up for mobile network service.
- VPN tunnels including PPTP, L2TP and IPsec; TCP/IP, UDP and ICMP protocols.
- Online detection, connection maintenance and automatic redial; IPTABLES firewall and packet filtering.
- DHCP/DHCPD; SNAT/DNAT port mapping; DMZ host; APN/VPDN private-network SIMs; SSH.
- One RS232 connection can operate as a DTU interface for TCP/UDP transparent transmission.
- One RS485 connection is optional and can operate as a DTU interface for TCP/UDP transparent transmission.
- Factory reset; local configuration; local upgrades.
- MQTT; Modbus RTU-to-Modbus TCP conversion; Ntrip Client and Ntrip Server; HJ212-2005/2017 and other protocols.
- 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.
- The general network-support list includes GSM, GPRS, EDGE, WCDMA, EVDO, TD-SCDMA and LTE TDD/FDD. The model/radio tables additionally give 5G NR support for the 56FBS configuration.

# Interfaces and accessories

Source pp. 4-5




Front interfaces




Rear interfaces



Side view

## External interfaces

| Parameter | Source specification |
|---|---|
| **Ethernet** | 2 x 10/100 Mbps Base-T; IEEE 802-3 / 802-2 as printed; 1.5 kV isolation. |
| **WAN / LAN** | One WAN/LAN port, switchable to LAN, plus one default 100 Mbps LAN port. |
| **Serial** | 1 RS232, 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. |
| **Cellular antennas** | SMA female, 50 ohm; optional 3/5/10/15 m extensions. Source states six antennas for 5G models and one for other models. |
| **SIM** | Two push-type SIM slots; 1.8/3/5 V; 15 kV ESD protection. |
| **Power** | Standard round socket. |
| **Indicators** | POWER, ONLINE and WIFI (reserved). A reserved WIFI LED does not establish Wi-Fi radio support. |
| **RESET** | Restore factory defaults. |

### Accessories

| Parameter | Source specification |
| --- | --- |
| **Illustrated** | Power supply, Ethernet cable and optional antennas. |

# Cellular radio parameters

Source pp. 5-6

### 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 environment

Source p. 6

## Hardware

| Parameter | Source specification |
| --- | --- |
| **CPU** | 650 MHz industrial embedded CPU with MMU. |
| **Flash** | 16 MB; reliability section states expandable to 32 MB. |
| **SDRAM** | 128 MB. |

## Power

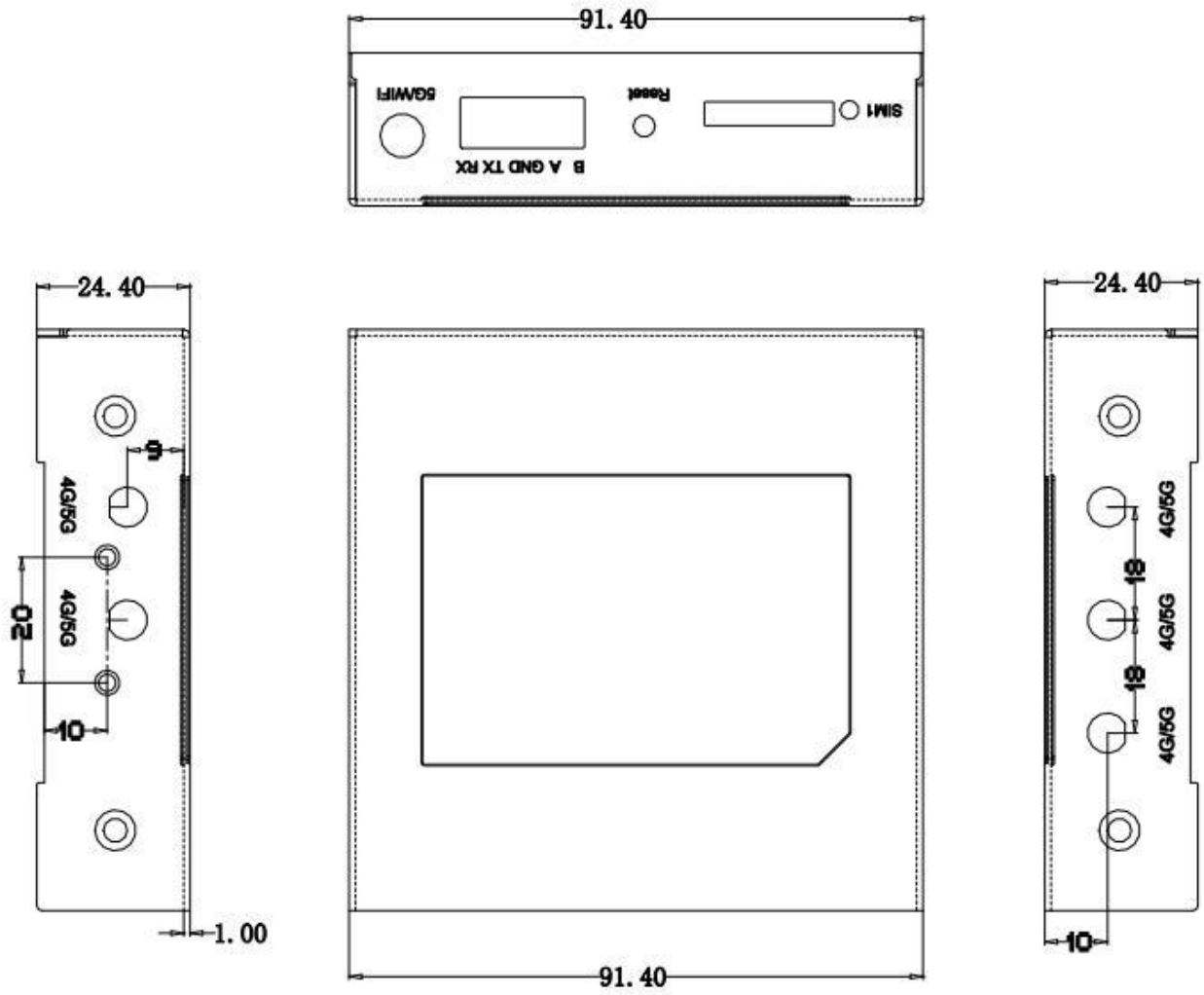
| Parameter | Source specification |
| --- | --- |
| **DC input** | 6-32 V; reverse-polarity, overvoltage and overcurrent protection. |
| **Standard supply** | 9 V DC / 1.5 A |
| **Communication current** | Average 220 mA at +9 V DC; registration peak 1.0 A at +9 V DC. |
| **Standby** | Average <200 mA at +9 V DC. |

## Mechanics and environment

| Parameter | Source specification |
| --- | --- |
| **Enclosure** | Metal, shielding, isolated enclosure/system, lightning protection and IP30. |
| **Body** | 92 x 89 x 25 mm, excluding antennas and mounting hardware. |
| **Package** | 350 x 215 x 88 mm |
| **Weight** | 0.7 kg, as stated. |
| **Operating temperature** | -35 to +75 °C |
| **Extended operation** | -40 to +80 °C |
| **Storage** | -40 to +85 °C |
| **Humidity** | 95%, non-condensing. |

# Installation drawing

Source p. 7




Original manufacturer dimension drawing; confirm exact model and revision before installation.

# Application architectures

Source pp. 7-9

### Distribution-room environmental monitoring

| Parameter | Source specification |
| --- | --- |
| **Users** | Mobile services, centralized control platform, electrical supervision, power bureau and maintenance personnel. |

| Parameter | Source specification |
|---|---|
| **Network / platform** | Power private network; site management platform with firewall, management server and desktop controller; local LAN. |
| **Inspection** | Rail-mounted robot and CAIMORE router. |
| **Environment / controls** | Temperature/humidity, gas, standing water and illuminance; alarms and fan, water-level and lighting control. |
| **Security** | Video surveillance and access control. |
| **Online monitoring** | Partial discharge, switchgear temperature and electrical measurements. |

## Traffic-signal networking

| Parameter | Source specification |
|---|---|
| **Platforms** | Traffic command/dispatch; signal control/management databases, communications services and clients. |
| **Control / publishing** | Adaptive-control services, information publishing, firewall and public-information services. |
| **Back end / field** | Servers, communications/database services and simulated signal equipment; operator network and CAIMORE field routers connected to traffic equipment. |

## Smart-city roadside parking

| Parameter | Source specification |
|---|---|
| **Field equipment** | License-plate recognition / law-enforcement terminal with imaging and supporting electronics. |
| **Communications** | 4G/5G vehicle-recognition terminal sends parking-payment transactions to the back-end server in real time. |
| **Back end** | Plate number, billing standard, parking duration and fee; plate-recognition-triggered timed billing and payment services. |
| **Users** | Networked parking-management services and user terminals shown in the illustration. |

### Environmental online monitoring

| Parameter | Source specification |
| --- | --- |
| **Field monitoring stations** | VOC detector, camera, vacuum pump, dust/humidity filter, circuit-breaker protection, CAIMORE wireless module, power supply, drying agent, infrared monitoring and flowmeter. Two example monitoring stations are shown. |
| **Communications** | Operator cellular network and Internet; the source diagram labels 4G/5G. Applicable generation depends on the ordered 56FB or 56FBS modem. |
| **Services / users** | Web service, LED display, environmental monitoring center, mobile app and user-access terminal. |

# Typical applications

Source p. 10

### Application examples

| Parameter | Source specification |
| --- | --- |
| **Internet access** | Small and medium enterprise wireless access; household wireless Internet. |
| **Power and utilities** | Power monitoring; street-light monitoring; meter monitoring; equipment-room monitoring; distribution-network automation and remote control; remote meter reading. |
| **Power: additional example** | Charging-pile monitoring. |
| **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. |
| **Self-service equipment** | Parcel lockers, vending machines and recycling equipment. |

# Company profile and historical recognition

Source pp. 10-11

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. |
| **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** | 18 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 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 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 |
|---|---|
| **Variant scope** | 56FB is one 4G modem with two SIMs; 56FBS is one 5G modem with two SIMs. Do not describe either as dual-modem or simultaneous dual-active cellular. |
| **Serial / reserved indicator** | RS232 plus optional RS485 wording differs from the interface row specifying RS232 optionally configured as RS485. WIFI indicator is reserved; no Wi-Fi radio parameters are supplied. |
| **Weight** | 0.7 kg for the stated 92 x 89 x 25 mm device is preserved as printed; confirm whether this includes packaging/accessories. |
| **Radio claims** | This source includes 5G NR bands and peak rates. Modem peak rate is not the 100 Mbps Ethernet throughput. DD800 and HSUPA+ wording, voice/fax and test/certification scope require review. |
| **Drawing revision** | Body table says 92 x 89 x 25 mm, while drawing includes 91.40 mm and 24.40 mm marked extents. Confirm dimensional definitions and manufacturing revision. |
| **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. |