INDUSTRIAL CONNECTIVITY / ENGLISH TECHNICAL DOCUMENT

# CM510-71X Series

## Industrial cellular data transfer unit




Original source photograph

Source v1.2 | English review edition | 19 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 and selection

Source p. 1

The CM510-71X Series DTU is an industrial wireless data-transfer unit providing long-distance transparent TCP/UDP transfer. It connects RS232 devices through DB9. PLC and industrial-control data can be transferred to a data center for acquisition, communication and remote equipment control.

Options include seven-mode cellular access, LTE/GSM Cat 1 and 5G according to the selected model, with China Mobile/Unicom/Telecom service support as described.

The source calls the processor ARM7 and describes a real-time OS and three-level protection. Online-maintenance and stability statements are source claims.

The source reports a Mo'er environmental-reliability report: high temperature 75 °C at 85% humidity and low temperature -30 °C, with continuous transmit/receive testing for 4 hours in each temperature condition. This does not replace the separately listed operating limits.

Applications include electricity/water meter collection, heat/gas/water monitoring, environmental/weather/seismic monitoring and traffic control.

### Model selection

| Model | Networks | RS232 | RS485 | Data buffer |
|---|---|---|---|---|
| **CM510-71F** | 2G/3G/4G | Yes | No | 8k |
| **CM510-71T** | 4G/GSM | Yes | No | 8k |
| **CM510-71FS-GC** | 2G/3G/4G/5G | Yes | No | 8k |

# Advantages and detailed functions

Source pp. 2-4

- Online-maintenance technology exchanges data with the base station, redials after disconnection, restarts the cellular module and can power-cycle the device. The source claims reconnection within tens of milliseconds without test conditions.
- TCP/UDP transparent transfer and remote parameter/restart control. Source describes multiple data formats and higher rates without a benchmark.
- Private APN/VPDN service; DSC addressing by fixed IP or domain; operator-assigned private-network IP acquisition.
- MQTT-based IoT integration with Alibaba Cloud, Tencent Cloud, power-industry platforms and Amazon AWS; point-to-point/multipoint CAIMORE forwarding-platform access.
- Remote fault alarms, SIM management without a fixed IP, upgrades, self-recovery, multiple encryption techniques and remote management/maintenance. Algorithms are not identified in these statements.
- Industrial components, low consumption, wide temperature/power design and unattended operation; software/WDT/VWM recovery as described.

- The source reports a 3000 V electrical test, CCC, Mo'er temperature testing, EMC and environmental reliability testing. Certificate/report identifiers and exact variant scope NEEDS_VERIFICATION.
- Serial AT configuration during operation; 5G SA/NSA and 4G Cat 1/4/6 with 3G/2G options; MQTT, Modbus RTU/TCP, Ntrip Client/Server and HJ212-2005/2017.
- TCP/UDP/SMS communication; SMS 7-bit/8-bit/UCS2 encoding including Chinese messages; international/local phone numbers.
- Integrated mounting bracket/enclosure; compact dimensions 93 x 61 x 24 mm, 216 g in the feature section; physical table says 0.21 kg.
- Industrial wireless modules with source-listed FCC/CE approvals; real-time OS; PCB following stated 20H/3W principles with Shengyi board materials; selected industrial components.
- 7-32 V DC design input, reverse-polarity/overvoltage/overcurrent protection; SIM and RS232 15 kV ESD protection; automatic/manual DNS.
- Up to four simultaneous TCP/UDP centers; fixed-IP/dynamic-domain access; APN; packet-transfer status reporting; serial software upgrade and remote configuration.
- Sleep/wake by serial data or I/O; serial AT commands; SMS IP/port settings and remote I/O/SMS alarms. Some functions require hardware confirmation, particularly the 71X DB9 I/O claim.
- Third-party SCADA support named in source: RealInfo/Zijin Bridge, KingView/Yakong and ForceControl. Source driver selection names CAIMORE (Sangrong) or Sangrong. C# and VC center software and serial/network diagnostic tools assist testing. These are integration statements, not bundled software licenses.

# Pin definitions and accessories

Source pp. 4-5




Original source product photograph

### Interface pins

| Pin | Signal | Description |
|---|---|---|
| **1** | NC | Unused |

| Pin | Signal | Description |
|---|---|---|
| **2** | RX | RS232 receive; input from PC to DTU. |
| **3** | TX | RS232 transmit; output from DTU to PC. |
| **4** | NC | Unused |
| **5** | GND | RS232 ground. |
| **6** | NC | Unused |
| **7** | SW | Optional power enable. Source description: -10 to 0 V or floating ON, 3.3-30 V OFF. Electrical column instead says 0 V OFF, floating/high ON. Conflicting logic: NEEDS_VERIFICATION before wiring. |
| **8 / 9** | NC | Unused |

### Accessories

| Parameter | Source specification |
|---|---|
| **Illustrated** | Power connector/adapter, RS232 data cable and antenna. |

# Software specifications

Source pp. 5-6

### Connectivity and protocols

| Parameter | Source specification |
|---|---|
| **Access / authentication** | APN/VPDN; CHAP/PAP/MS-CHAP/MS-CHAPv2. |
| **Protocols** | IP/ICMP/PPP, TCP/UDP, TCP Server and DNS. MQTT; Modbus RTU/TCP conversion; Ntrip Client/Server; HJ212-2005/2017. |
| **Custom messages** | Custom TCP/UDP registration and heartbeat packets; up to 4 centers. |

### Security, recovery and management

| Parameter | Source specification |
|---|---|
| **User levels** | Administrator and maintenance user; secure login authentication. |
| **Upgrade protection** | Dedicated secure upgrade mechanism, as described. |
| **Link detection** | PPP heartbeat, ICMP probing, TCP keepalive and application heartbeat; automatic reconnection. Continuous-online wording is a source claim. |
| **Watchdog** | Operating self-check and fault self-recovery. |
| **Dialing** | Persistent connection or short connection; local-data/SMS/call activation and scheduled activation/disconnection. |
| **Configuration** | Local serial tool; RTool, SMS and CAIMORE forwarding-platform remote configuration. |
| **Backup** | Import/export configuration files. |
| **Upgrades / logs** | Local serial or remote software upgrade; local/remote log output. |
| **Optional platforms** | Industrial cloud; Amazon AWS; Tencent Cloud; power cloud; Alibaba Cloud and other IoT platforms; CAIMORE forwarding platform; centralized management and batch configuration. |

## Interfaces, radio and operating system

Source pp. 6-7

### Interfaces

| Parameter | Source specification |
|---|---|
| **Serial** | 8 data bits; 1/1.5/2 stop bits; none/odd/even parity; 300-115200 bit/s; no flow control. 1 RS232 DB9. |
| **Enable** | External device power control; contradictory logic in pin table. |
| **Indicators** | Data-transfer and online status. |
| **Antenna** | SMA female, 50 ohm; optional 3/5/10/15 m extension leads. |
| **SIM** | 1.8/3/5 V push-type interface; 15 kV ESD protection. |
| **Power connector** | Standard three-pin locomotive-style socket. |

| Parameter | Source specification |
| --- | --- |
| **OS** | Real-time operating system. |

### Cellular module

| Parameter | Source specification |
| --- | --- |
| **Module** | Industrial low-power module; source lists FCC, CE, CCC and RoHS. Exact scope NEEDS_VERIFICATION. |
| **5G** | NR n1/n2/n3/n5/n7/n8/n20/n28/n41/n66/n71/n77/n78/n79; applies to 5G models. |
| **LTE FDD** | B1/B3/B8 |
| **LTE TDD** | B38/B39/B40/B41 |
| **Legacy networks** | TD-SCDMA B34/B39; WCDMA B1; CDMA2000 1X/EVDO B5 (none of these on CM510-71T); GSM/GPRS/EDGE B3/B8. |
| **Transmit power** | <24 dBm |
| **Receiver sensitivity** | <-109 dBm |

## Power, environment and mechanics

Source pp. 7-8

### Power

| Parameter | Source specification |
| --- | --- |
| **Input** | 7-32 V DC with reverse-polarity, overvoltage and overcurrent protection. |
| **Standard supply** | 9 V DC / 1330 mA |
| **Communication current** | 60 mA at 12 V DC |
| **Standby** | 25 mA at 12 V DC |

## Physical/environment

| Parameter | Source specification |
|---|---|
| **Enclosure** | Metal, shielding, isolated enclosure/system, lightning-protection design, power-safety requirements; IP41. |
| **Body** | 93 x 61 x 24 mm, excludes antennas/mounting; actual model takes precedence. |
| **Package** | 298 x 226 x 60 mm; actual model takes precedence. |
| **Weight** | 0.21 kg |
| **Operating** | -30 to +75 °C |
| **Storage** | -45 to +90 °C |
| **Humidity** | 95%, non-condensing. |
| **Shock / vibration / drop** | IEC 60068-2-27 / IEC 60068-2-6 / IEC 60068-2-32. |

## Source-listed EMC parameters

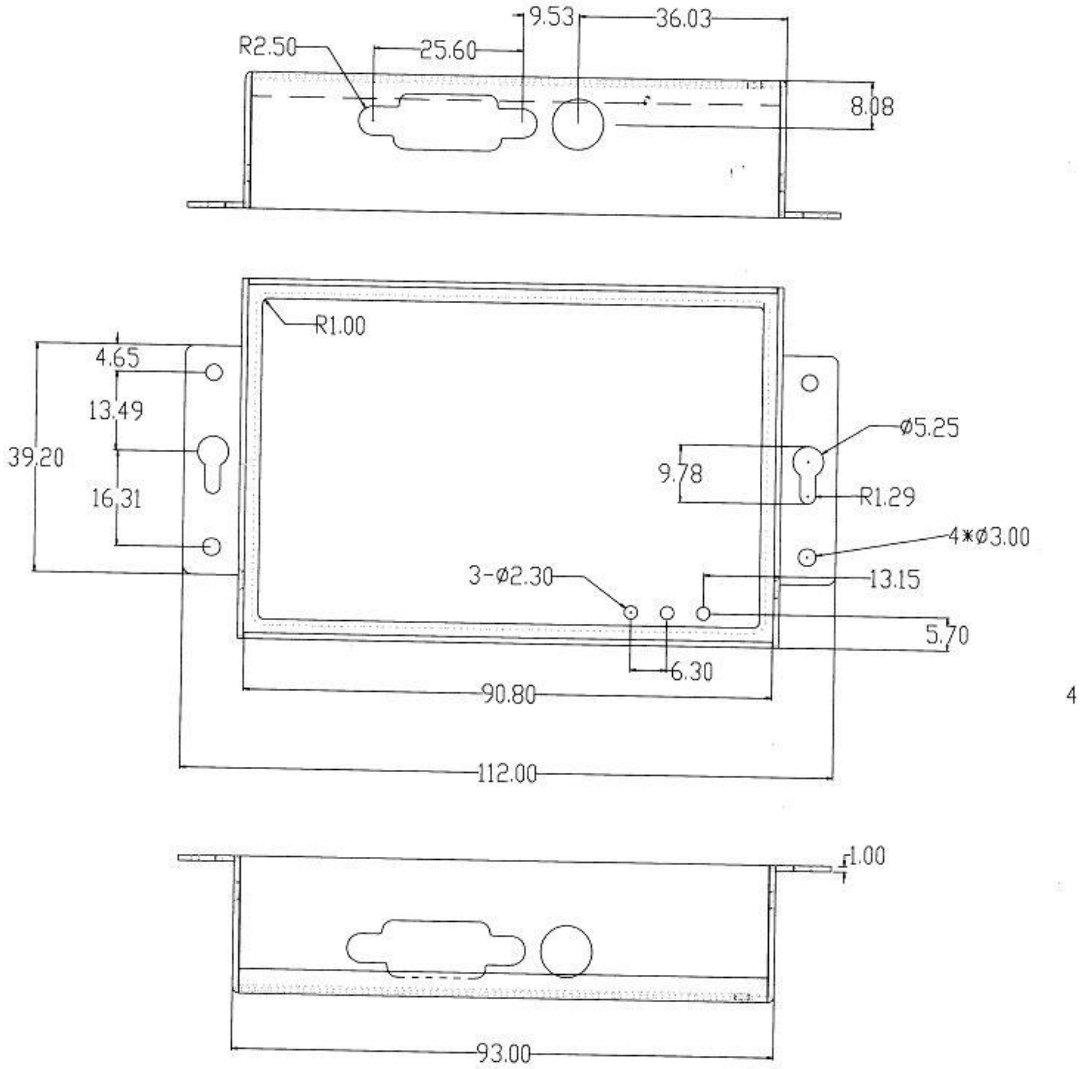
| Parameter | Source specification |
|---|---|
| **ESD** | EN 61000-4-2, level 3 |
| **Radiated electric field** | EN 61000-4-3, level 3 |
| **Electrical fast transient** | EN 61000-4-4, level 3 |
| **Surge** | EN 61000-4-5, level 3 |
| **Conducted disturbances** | EN 61000-4-6, level 3 |
| **Power-frequency magnetic field** | EN 61000-4-8; horizontal/vertical 400 A/m (level 3), as stated. NEEDS_VERIFICATION. |

## Source-listed product tests

| Parameter | Source specification |
|---|---|
| **Claims** | Chinese CCC; EMC testing; Mo'er high/low-temperature testing; environmental reliability report. No report IDs or model-specific certificate scope supplied. |

# Installation drawing

Source p. 8




Original source drawing. Confirm model/revision and source dimensions before integration.

# Application architectures and typical uses

Source pp. 9-10

### Source architecture examples

| Parameter | Source specification |
|---|---|
| **Monitoring** | Pollution, meteorology, hydrology, water and earthquake monitoring. |
| **Pipelines** | Gas, oil, heat and water-network monitoring. |

| Parameter | Source specification |
| --- | --- |
| **Control** | Oilfields, streetlights, traffic control and vehicle guidance. |
| **Path** | Field equipment > DTU > operator cellular network > data center / monitoring application. External sensors and platform software are integration components. |

### Typical applications

| 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 PLCs through the model-listed RS232 interface. The source generic application text also mentions RS485; that interface is not listed for this 71X model. |

# Company profile and historical recognition

Source p. 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. |

| Year | Recognition stated in source |
|---|---|
| **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** | 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. |

| Parameter | Source specification |
| --- | --- |
| **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 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

Translated from the supplied Chinese file. Repeated page furniture and repeated procedures are consolidated. Original hardware figures are preserved; Chinese software screenshots remain visual references with English explanations. NEEDS_VERIFICATION identifies unresolved source issues. No device tests or website upload have been performed.

## Review checklist

| Source / topic | Review note |
| --- | --- |
| **Hardware limits** | Preserve this datasheet's power, serial, dimensions and environment separately from the 7X manual. Do not substitute newer/older values. |
| **Source discrepancies** | Feature weight 216 g vs table 210 g; SW enable logic conflicts within the pin row. |
| **Scope / claims** | Test temperature is not the continuous operating rating. Encryption methods, recovery timing, radio availability, certification scope and 400 A/m level need supporting evidence. |
| **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. |