INDUSTRIAL CONNECTIVITY / ENGLISH TECHNICAL DOCUMENT

CM510-81T

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 CM510-81T DTU is an industrial wireless data-transfer unit providing long-distance transparent TCP/UDP transfer. It connects RS232 and RS485 equipment. PLC and industrial-control data can be transferred to a data center for acquisition, communication and remote equipment control.

The source identifies LTE Cat 1 and support for China Mobile, China Unicom and China Telecom.

The source describes an industrial embedded processor, 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 80 °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
CM510-81T	4G	Yes	Yes	Not specified

Advantages and detailed functions

Source pp. 2-3

- 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.
- MQTT and Modbus RTU/TCP conversion.
- Integrated mounting bracket/enclosure; compact dimensions 53.9 x 41.4 x 22.8 mm, 80 g.

- 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.
- 6-32 V DC design input, reverse-polarity/overvoltage/overcurrent protection; SIM and RS232/RS485 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.
- 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 p. 4



Original source product photograph

Interface pins

Pin	Signal	Description
1	POWER	Positive input, 7-32 V in this pin table; 6-32 V elsewhere.
2	GND	Power ground.
3 / 4	485A / 485B	RS485 A / B.
5	GND	Common serial ground.
6 / 7	RXD / TXD	RS232 receive input / transmit output.

Accessories

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

Software specifications

Source p. 5

Connectivity and protocols

Parameter	Source specification
Access / authentication	APN/VPDN; CHAP/PAP/MS-CHAP/MS-CHAPv2.
Protocols	TCP/UDP and DNS; MQTT; Modbus RTU/TCP conversion.
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.
Configuration	Local serial tool; RTool 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 p. 6

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 RS485 and 1 RS232 communication port.
OTG	Diagnostic interface for fault investigation.
Reset	Quick restart.
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	Industrial green terminal.
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.
LTE FDD	B1/B3/B5/B8
LTE TDD	B34/B38/B39/B40/B41
Transmit power	<24 dBm
Receiver sensitivity	<-109 dBm

Power, environment and mechanics

Source pp. 7-8

Power

Parameter	Source specification
Input	6-32 V DC with reverse-polarity, overvoltage and overcurrent protection.
Standard supply	9 V DC / 1330 mA
Communication current	30 mA at 9 V DC
Standby	10 mA at 9 V DC

Physical/environment

Parameter	Source specification
Enclosure	Metal, shielding, isolated enclosure/system, lightning-protection design, power-safety requirements; IP41.
Body	53.9 x 41.4 x 22.8 mm, excludes antennas/mounting; actual model takes precedence.
Package	298 x 226 x 60 mm; actual model takes precedence.
Weight	80 g
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

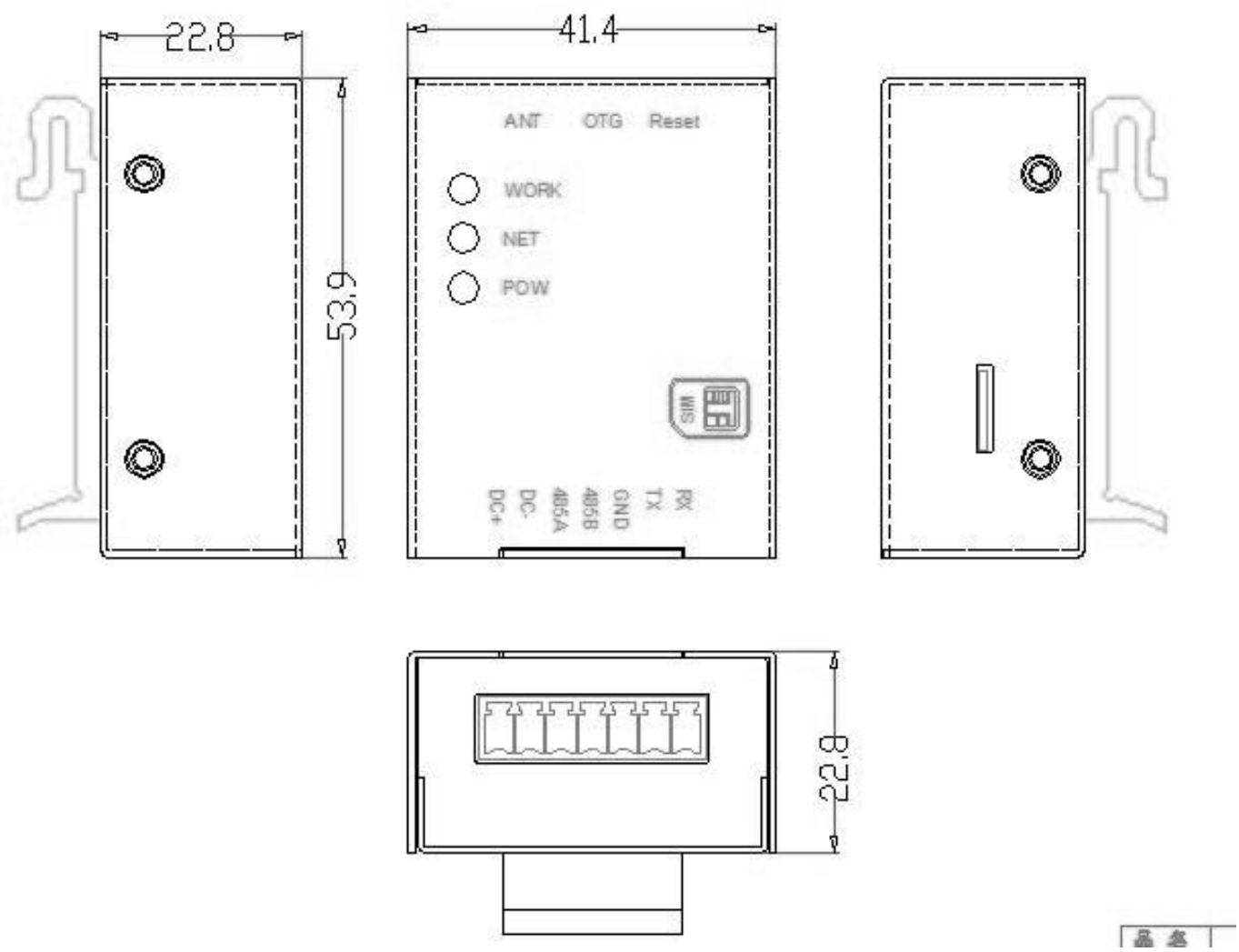
Parameter	Source specification
Surge	EN 61000-4-5, level 3
Conducted disturbances	EN 61000-4-6, level 3
Power-frequency magnetic field	EN 61000-4-8; horizontal/vertical 400 A/m (level 3), as stated. NEEDS_VERIFICATION.

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 domestic and international PLCs with serial or RS485 interfaces; DTU data transmission.

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.
2013	Became a member of the Strategic Alliance for Technological Innovation in the Intelligent Power Transmission and Distribution Equipment Industry.

Year	Recognition stated in source
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.
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	Pin-table input 7-32 V vs design/power 6-32 V; source says RS232 or RS485 in one feature line but interface table lists both.
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.