

## Product Introduction

CM510-76F is an industrial-grade embedded wireless data transmission equipment that supports wireless networks: GPRS/CDMA/WCDMA/TD-SCDMA/EDGE/FDD-LTE/TDD-LTE; provides users with TCP/UDP/DCUDP wireless long-distance data transmission function.

The equipment supports serial port RS232 and RS485, and can be directly connected to customers' above-mentioned interface equipment, transparently transmitting the data of the customer's distribution network FTU equipment to the customer's data center, realizing the data collection, data transmission, equipment control and other functions of the customer equipment.

This product adopts ARM7 industrial-grade high-performance embedded processor, real-time operating system as the software support platform, and large memory; the device provides online maintenance technology to keep the data terminal permanently online and save the data link at any time to achieve high-speed and stable TCP/UDP/DCUDP transparent data transmission function.

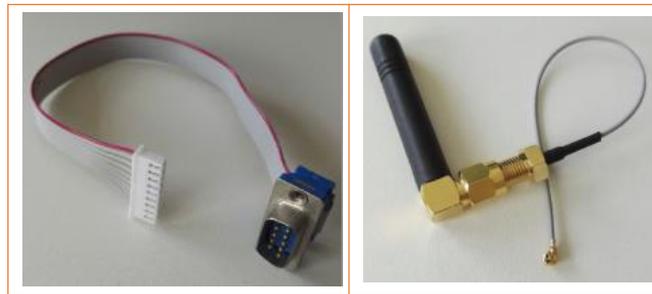
The product has an ARM7 industrial-grade processor and intelligent three-level protection. It not only passes the 3000V electric shock test, but also has patented technology, and the product performance is stable and reliable.

This product has been widely used in electric power meter reading, water meter reading, heating network monitoring, gas monitoring, water conservancy monitoring and control, environmental protection inspection, weather inspection, earthquake monitoring, traffic control and other industries.

## Device Interface Diagram



## CM510-76F DTU Accessories



## Product Feature

### Industrial Design

1. **Industrial-grade CPU (model STM32F401RET6):** Industrial-grade high-performance embedded processing, high-speed cache data, speed up high-speed data access speed, and strengthen instruction processing speed.
2. **Industrial-grade wireless module:** Industrial-grade wireless module is adopted, which has passed FCC certification and CE certification, with strong anti-interference and stable transmission.
3. **Real-time operating system:** real-time operating system is adopted, with strong real-time performance and stable system.
4. **Reinforced Circuit Board:** PCB follows the principle of 20H and 3W, and the PCB is produced with Shengyi material to ensure the stability and reliability of the board.
5. **Industrial Grade Components:** The components of the whole machine are manufactured by strictly screened industrial-grade components.
6. **Industrial-grade power supply:** wide-voltage power supply design, the power adaptable range is DC7V~DC32V, built-in power reverse protection and over-voltage and over-current protection.

## Stable and reliable

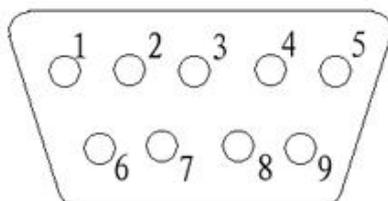
1. **Three-layer system protection:** On the basis of the original two-level (software protection + CPU built-in watchdog WDT protection) system protection, system virtual guard VWM (Virtual Man Watch) detection and protection function is added to ensure the system is stable and reliable
2. **UIM/SIM card ESD protection:** 1.8V/3V/5V standard push rod user card interface, built-in 15KV ESD protection.
3. **Serial ESD protection:** RS232/RS485, built-in 15KV ESD protection.
4. **DNS automatic acquisition:** support DNS automatic acquisition and DNS manual setting at the same time, to meet the needs of different occasions. Obtain DNS automatically, no need to manually configure and input DNS; avoid the serious phenomenon that the DTU device crashes due to the abnormal DNS server selected.
5. **Excellent EMC performance:** Pass the 3000V electric shock test, especially suitable for harsh industrial environments; the system has excellent EMC/EMI, which is stable and reliable and has passed the EMC test.

## Powerful

1. It is dedicated for power cover type FTU and supports power protocol. Power-level design, supports IEC101/104 power protocol, supports multi-center TCP/UDP/DCUDP transparent data transmission, and can seamlessly connect to various power master station platforms.
2. Embedded design, small size. Meet the structural requirements of power distribution network automation equipment. Dual serial port design, configurable serial port DEBUG mode and communication mode, support online debugging, log storage, historical log information retrieval.
3. Passed FCC certification and CE certification, with strong anti-interference and stable transmission.
4. Intelligent anti-dropping. Support online detection, online maintenance, automatic redial when disconnected, to ensure that the device is always online.
5. Support 5G, China Southern Power Grid/State Grid hardware encryption, power 1.4/1.8GHz private network.

# Technical Parameters

## Signal definition of Device interface



Pin	Pin Function	Remarks
1	V-	Power negative
2	TXD	Serial port 1, communication serial port sending
3	RXD	Serial port 1, communication serial port receiving
4	RXD2	Serial port 2, debug serial port to receive
5	GND	Signal ground
6	V+	Power positive
7	485B	485 communication interface
8	485A	485 communication interface
9	TXD2	Serial port 2, debug serial port to send

## Interface Parameters

Item	Description
<b>Serial Port</b>	Data bits: 8 bits Stop bits: 1, 1.5, 2 bits Parity: no parity, odd parity, even parity Serial port rate: 300bps ~ 115200bps Flow control bit: no flow control
<b>Indicator Light</b>	can indicate signal value, fault, online status
<b>Antenna Interface</b>	Standard SMA female antenna interface, characteristic impedance 50 ohm; 3M/5M/10M/15M antenna extension cable can be selected to meet the needs of different applications
<b>SIM/UIM Interface</b>	1.8V/3V/5V standard push rod user card interface, built-in 15KV ESD protection
<b>Power Interface</b>	Standard 3-pin locomotive power socket

## Wireless parameter

Item	Description
Wireless Module	Industrial-grade wireless module (EC20 or N720), stable performance, low power consumption, through FCC certification, CE certification, CCC certification and RoHS certification, strong anti-interference, stable transmission.
Standards and Frequency Bands	LTE FDD:B1/B3 LTE TDD:B39/B40/B41 TD-SCDMA:B34/B39 WCDMA:B1 CDMA2000 1X/EVDO:B5 GSM/GPRS/EDGE:B3/B8
Transmit Power	<23dBm
Receiver Sensitivity	<-129dBm

## Operating System

Item	Description
OS	Adopt real-time operating system, strong real-time performance and stable system

## Power Supply

Item	Description
Supply Voltage	Wide voltage design, DC7V-DC32V power supply can directly supply power to the device; built-in power reverse protection and over-voltage and over-current protection
Standard Power Supply	DC9V/1500mA
Current	Standby Current: 25mA@+12VDC Average Communication Current: 60mA@+12VDC

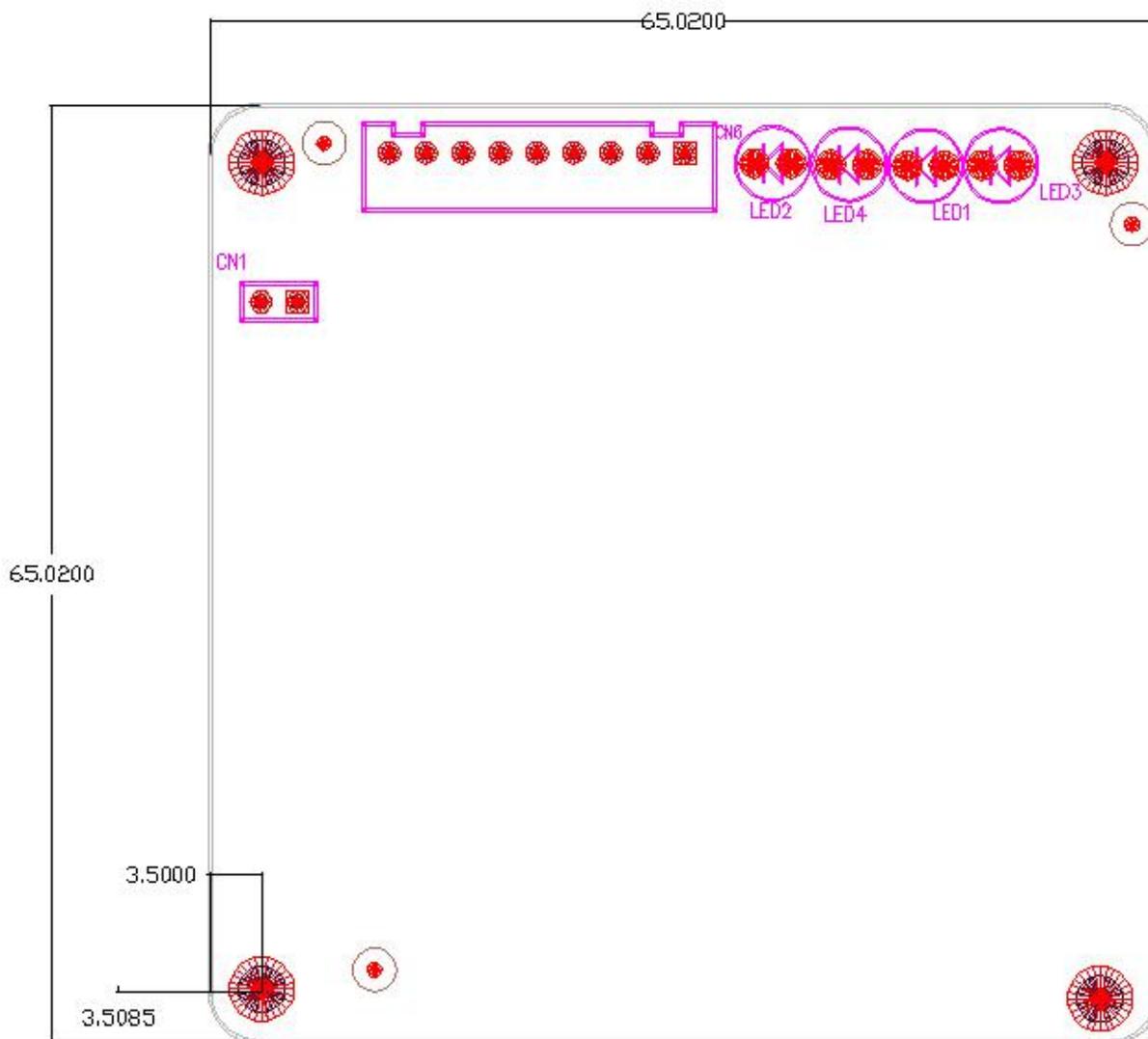
## Physical Features

Item	Description
Product Dimension	65*65*18mm (Antenna and fixer are not included)
Weight	0.040kg

## Environment Parameters

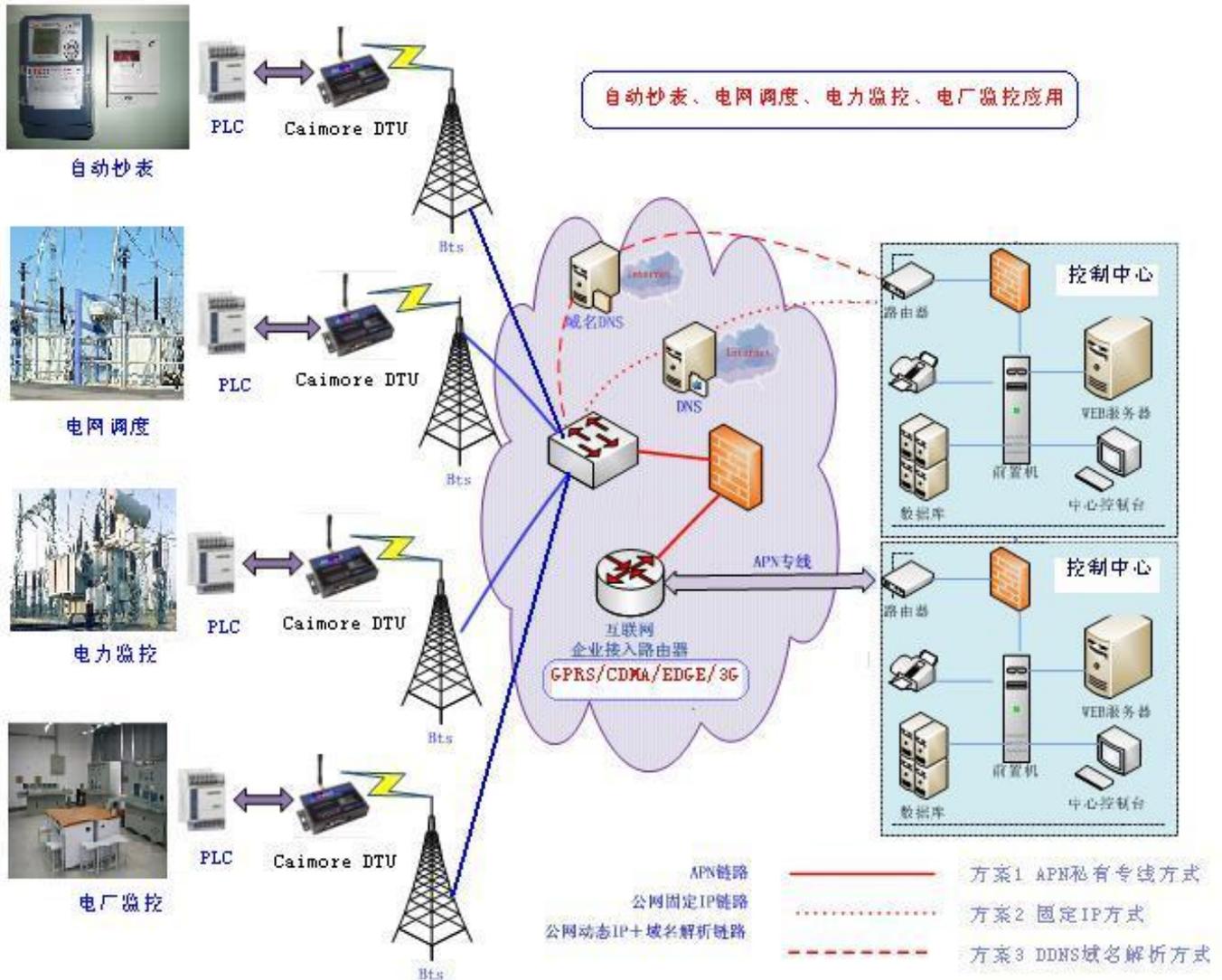
Item	Description
Operating Temperature	-30 °C ~+75°C
Storage Temperature	-45°C ~+90°C
Operating Humidity	95% no condensation

## Installation Dimension



# Product Application

Power industry application cases (distribution monitoring, grid automation, automatic meter reading, grid dispatching)



## Corporate Qualification

Item	Content
<p><b>Corporate Honor</b></p>	<p>2011, it was rated as "the best supplier for customer satisfaction in China's industrial control industry"; the company's GPRS DTU product was rated as "innovative product award".</p> <p>2012, the company became a member of "China Quality Travel".</p> <p>2013, the company became a member of the "Technical Innovation Strategic Alliance of Intelligent Power Transmission and Distribution Equipment Industry".</p> <p>2014, it was rated as an innovative pilot enterprise .</p> <p>2014, the company's Zhanjiang Wi-Fi coverage project was awarded the "Sample Engineering Award" by the 13th China Automation Annual Conference.</p> <p>2015, its video products were rated as "Top Ten Video Transmission Enterprises" by China's industrial control industry.</p> <p>2015, the noise monitoring project was awarded the "Sample Project Award" by the 14th China Automation Annual Conference.</p> <p>2015, its video products were rated as "Top Ten Video Transmission Enterprises" by Huaqiang Security Network.</p> <p>2016, the video products was rated by Huaqiang Security Network as "2015-2016 High-quality Supplier in China's Security Industry".</p> <p>2016, it was rated as the "best supplier of charging equipment parts" by charging pile communication equipment.</p> <p>2016, won the " Product Gold Award of 2016 7th Guangzhou International New Energy Automobile Industry Exhibition ".</p> <p>2016, The 3rd China Good Wi-Fi Organizing Committee awarded Caimore "2016 Best Wi-Fi Industry Application Solution Provider".</p> <p>2018, the company's industrial router was rated as "China's Top Ten Industrial Router Brands", and DTU was rated as "China's DTU Top Ten Brands"</p> <p>2018, it was rated as a key listed reserve enterprise in Xiamen City.</p> <p>2019, it was rated as a key listed reserve enterprise in Xiamen City.</p> <p>2019, it was rated as a key listed reserve enterprise in Fujian Province.</p> <p>2019, Shortlisted for China Telecom Corporation Limited, DICT solution partner of Shanghai branch</p> <p>2020, Selected as a key listed reserve company in Xiamen</p>
<p><b>High-tech Enterprise</b></p>	<p>2009, it was recognized as a high-tech enterprise by the country</p>

<b>Double-soft Enterprise</b>	2010, it was recognized as a double-soft enterprise by the country
<b>Occupational Health and Safety Management System Certification</b>	ISO9001:2015 quality management system conforms to the standard ISO14001:2015 environmental management system conforms to the standard ISO45001:2018 occupational health and safety management system conforms to the standard
<b>Copyright</b>	The company has 7 patented technology certificates to maintain equipment stability and 31 software copyright certificates.
<b>Offices</b>	Nine regional offices have been established nationwide to provide customers with close and considerate services.
<b>Registered Capital</b>	The company has a registered capital of 20.58 million; it is a key high-tech enterprise supported by Xiamen City.
<b>Historical Accumulation</b>	18 years of industry R&D accumulation and industry application test.