

# **KPM202 User manual**

## **V1.2**

## I. Overview

### 1. Product introduction

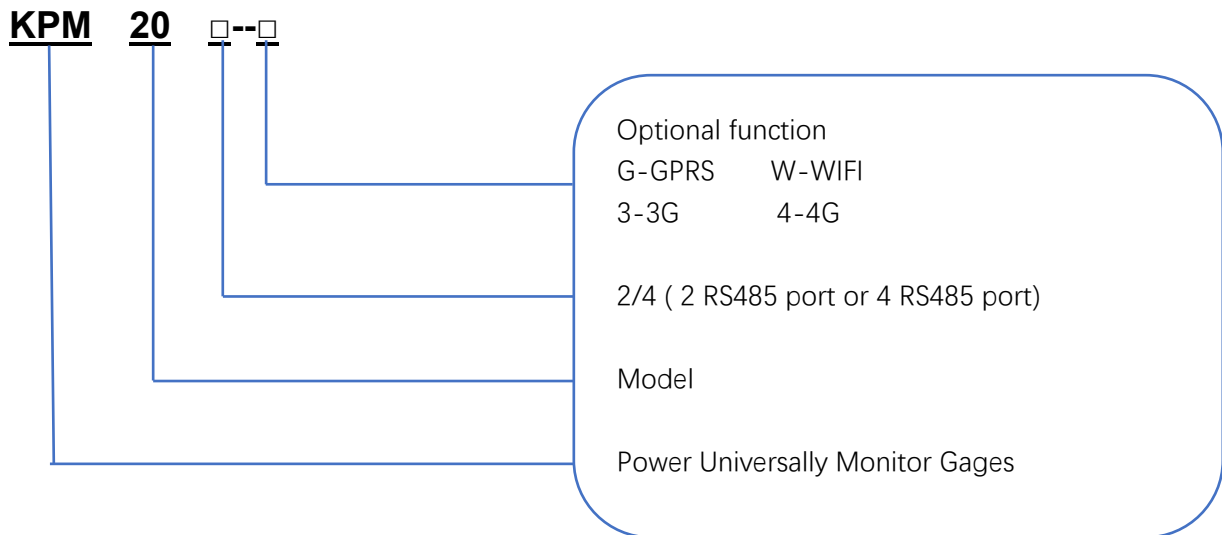
The KPM202 gateway is an industrial-grade embedded software and hardware integration device based on the industrial IoT architecture. It can realize data acquisition, storage, forwarding, control logic, alarm, man-machine interface configuration, report development, user rights management, system maintenance, domain name management and other functions of various equipments on the industrial site. Users can use the browser on the PC. Configuration. It can be widely used in photovoltaic power stations, wind power stations, small hydropower, energy storage power stations, power distribution rooms, 10KV, 35KV transformer substations, pumping units, irrigation areas, pipelines, environmental monitoring stations, irrigation and drainage stations, agricultural greenhouses, air monitoring stations, laboratory, computer room, unattended station (mobile telecom Unicom base station, railway ore signal station) and other station monitoring and park energy management systems, various online monitoring systems.

KPM202 series wireless remote intelligent controller is based on RISC architecture ARM926EJS processor, clocked at 300MHz, supports 2 \*10/100/1000Mbps adaptive industrial Ethernet interface, 4 serial ports (RS-232/422/485 selectable, support power IEC60870-101, 103, 104 protocol, DL/T645, Modbus RTU and other protocols, support IEC61850 protocol, energy management machine and other communication protocols, with 1 debug serial port, large-capacity SD storage, WIFI, GPRS/3G/4G remote communication function It is easy for users to realize remote monitoring applications. It is ideal for industrial field signal acquisition and control of on-site and remote equipment.

The KPM202 series adopts a high-performance, low-power, small-volume embedded microprocessor with 128 MB DDR2, and an optional large-capacity SD memory card. It has powerful computing, storage, local and remote wireless communication capabilities, real-time data collection and processing, complex control algorithms and massive on-site data storage, combined with rich peripheral interfaces and communication functions. It is ideal for applications such as data acquisition and control systems, communication systems, remote device monitoring systems which require higher computing power. The rugged metal casing and internal circuit "three-proof" treatment is especially suitable for harsh environments. The series of intelligent controllers pre-installed the embedded Linux operating system, providing an open and efficient software platform for user software development. Combined with the WEB

development environment independently developed by Compere, the application development and interactive debugging can be completed conveniently and efficiently.

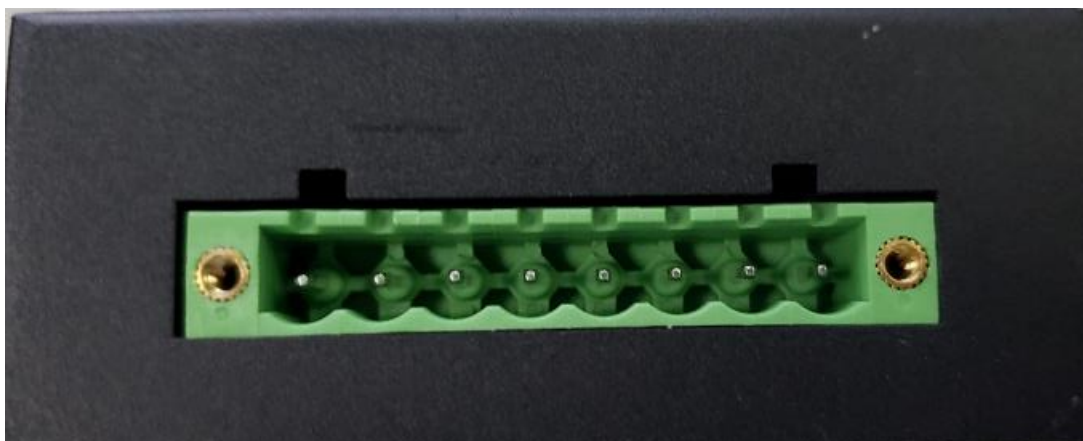
## 2. Model selection



## 3. Interface



**Fig 1**



**Fig 2**

As showed in Fig 1:

**1) Power supply interface / VIN**

No.	Sign	Function
1	12V+	12V/24V power +
2	12V-	12V/24V power -
3	PG	Ground protection

**2) SIM card**

No.	Sign	Function
1	SIM	SIM card slot

**3) 4G antenna**

No.	Sign	Function
1	4G	Antenna interface

**4) 4G indication light**

No.	Sign	Function
1	12V+	12V/24V power +
2	12V-	12V/24V power -

**5) Network interface (ETH)**

No.	Sign	Function
1	LAN1	Ethernet interface 1

**6) RS485 interface**

As showed in Fig3:

No.	Sign	Function
1	nA	Channel n RS485 communication port A (n=1/2)
2	nB	Channel n RS485 communication port B (n=1/2)
3	G	Communication ground
4	nA	Channel n RS485/RS232 communication port A (n=1/2)
5	nB	Channel n RS485/RS232 communication port B (n=1/2)

NOTE: Channel 3 and Channel 4 is optional RS485 and RS232 channel, which are selected by internal jump.

**7) Indicator light**

No.	Sign	Function
1	POW	System power indicator light

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2	RUN	System running indicator light
3	RXn/TXn	Channel n RS485/RS232 communication indicator light

#### 4. Hardware specification

- NUC970 CPU:
  - 32bit ARM926EJ-S, clocked 300MHz, 1.1MIPS/MHz, max support 300MHz
  - 16KB I-cache, 16KB D-cache
  - Support MMU, support JTAG Debug
- RAM:
  - Built-in 64Mbyte DDR2, 56Kbyte SRAM
  - High frequency 150MHz SDRAM clock
- FLASH:
  - 128Mbyte NAND Flash, max support 512Mbyte (optional 128M/256M/512M)
  - Support SLC、MLC, etc. NAND FLASH
- Encryption:
  - Support PRNG/DES/3DES/AES/SHA/HMAC encryption, up to 256-bit encryption mode (reserved function)
- Watchdog:
- Built-in WDT, Overflow time is less than 14 seconds, support idle wake-up and power-down wake-up
- RTC:
  - Real time clock, built-in battery
- RS485:
  - 2 RS232 communication port, multiplexed with RS485, built-in ESD protection, fully isolated protection design
- RS485:
  - 1 RS232 communication port, built-in ESD protection, fully isolated protection design
- SD card:
  - Built-in SD card interface
- Network:

- 1 10M/100M adaptive Industrial Ethernet, standard RJ45 interface
  - Built-in ESD protection (8KV), surge protection (4KV)
- Wireless function:
  - RF band 800/900/1800/1900MHz (optional 2/3/4G)
  - WIFI: can connect to AP, or use as AP
  - 1 SIM card slot, 1 antenna interface
  - Transmission speed: Standard speed to achieve the corresponding function
- Power supply:
  - Voltage input: 9~35VDC, recommended 12VDC/3A or 24VDC/1.5A
  - Consumption: < 3W
- Mechanical properties
  - Metal shell
  - Size: 135mm \* 110mm \* 42mm
  - Protection level: IP63
- Working environment
  - Working temperature: -40°C~+85°C
  - Working humidity: 5% ~ 95%

## 5. Software specification

The KPM202 software system is divided into three parts: Bootloader, Linux kernel and Rootf.

The gateway configuration software independently developed by the company is in the file system. The acquisition and forwarding configuration needs to refer to the KPBuild user manual.

Management machine default IP: LAN1:192.168.1.177.

## II. Web maintenance management platform operation steps and instructions

### 1. Login management

Use the Ethernet cable to connect gateway to computer network port with LAN1. Configure the computer IP to be on the same network segment as the gateway. For example, when connecting LAN1, set 192.168.1.230 and subnet mask 255.255.255.0.

Modify the IPv4 of "Ethernet" (where win7 is "local connection") under Control Panel\Network and Internet\Network Connections. The detailed configuration is shown below:





Open a browser and enter 192.168.1.177 in the address bar to enter the login screen of the management machine web. As shown:



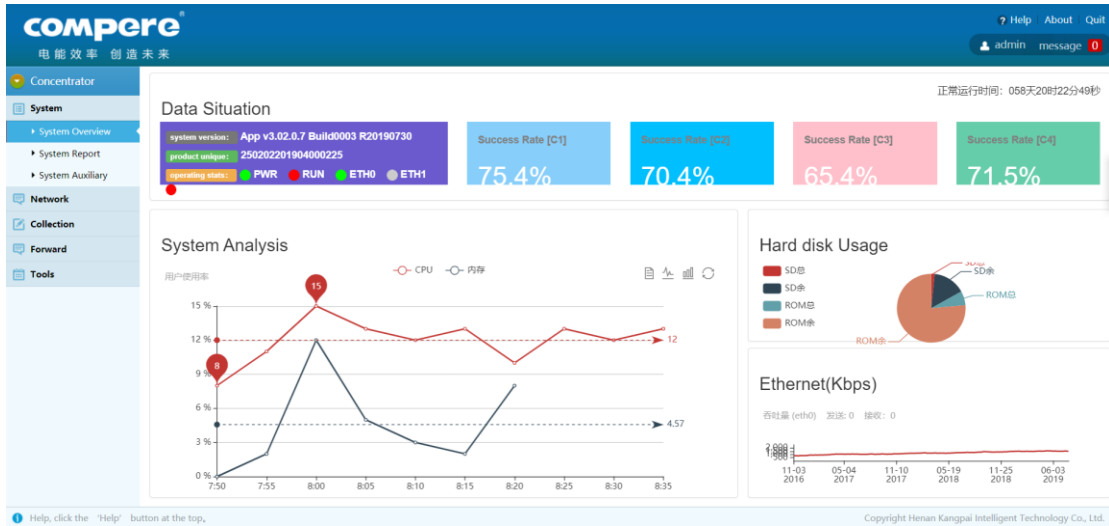
Click the device performance monitoring management system to enter the user login page.



Enter the username: admin, the default initial password: 123456.  
Click Login to enter the main interface of the management platform.

## 2. System information

The gateway name and model number, the program version number, the production number, and the device status can be seen.



The system report is used for downlink data debugging and displays the function of collecting information in real time.

The system report interface displays the following table:

序号	名称(英文)	描述(中文)	当前值	时间	质量	变化	HAN	数据	读写	采集周期	状态
1	io.C2.D1.ua	A相电压	221.9	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
2	io.C2.D1.ub	B相电压	227.3	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
3	io.C2.D1.uc	C相电压	221.8	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
4	io.C2.D1.ua	A相电流	0.334	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
5	io.C2.D1.ub	B相电流	0.434	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
6	io.C2.D1.uc	C相电流	0.175	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
7	io.C2.D1.uab	Ab线电压	384.331	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
8	io.C2.D1.ubc	Bc线电压	393.684	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
9	io.C2.D1.uca	Ca线电压	384.158	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
10	io.C2.D1.fha	A相有功功率	0.0665353	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-
11	io.C2.D1.fhb	B相有功功率	0.0891803	2019-09-23 15:21:36	未知	-	-	1569223296	R	-	-

### 3. Network configuration

Click network to enter the network configuration interface



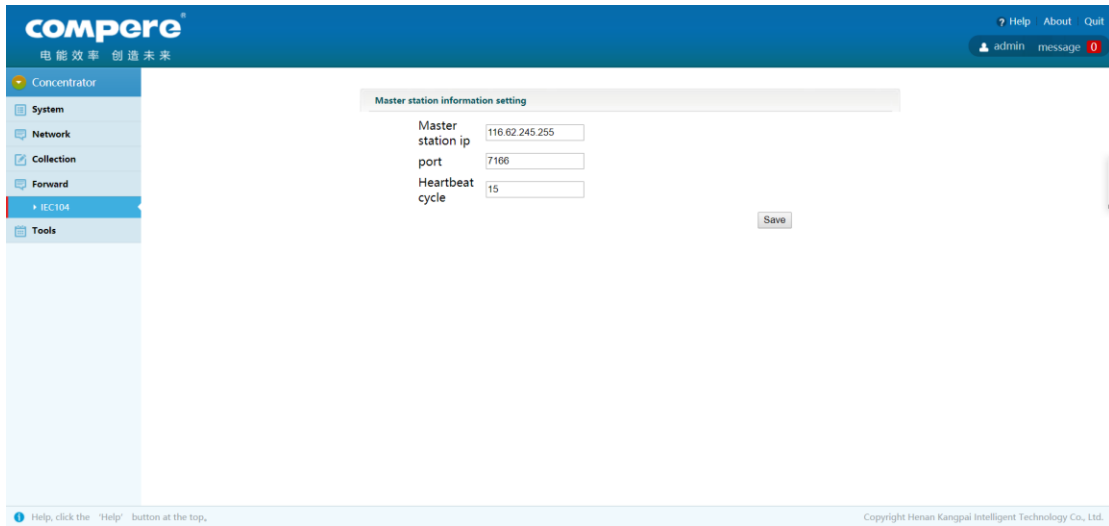
Click the Modify button and set the static IP settings as shown:



After the setting is completed, click Save to take effect after restarting.

#### 4. Forwarding configuration

Under the Forward menu, click on the IEC104 page to display the relevant configuration information for the upstream 104. The details are as shown.



The port is used to set the forwarding client or server. The remote IP is used to configure the server address of the front platform, and the remote port is the remote server port.

Note: Please refer to the corresponding page for details. The remote IP of Smart Energy is 116.62.245.255 and the remote port number is 7166. Please fill in the detailed configuration with the project leader.

### 5. Reboot the system

After completing all the above steps and confirming it is correct, select the System Tools menu and click on the System Restart page.

