V30 Series RTU Gateway

Introduction

V30 is a wireless data acquisition and communication device specially used for gas meter reading. V30 can collect the readings of multiple gas meters supporting the modbus protocol through the serial ports, and report the data to the platform server through the MQTT protocol or other customized protocols. In addition, V30 supports the door magnetic switch detection, can be used to monitor whether the equipment chassis is opened, and supports an analog amount of 4-20 mA, can be used to connect the temperature and humidity sensors. With 4G and Lora network, main power and built-in battery working mode, and a special gas cloud platform server, makes V30 easy to use and fully functional.

Basic Features

➢ **Physical characteristics**

- 4G FDD/TDD LTE, compatible with 3G / 2G

- 1x SIM card slot

- Lora local communication (customization)

- 1x RS232 debugging port

- 2x RS485, each can be connected to two gas meters

- 2x DI digital signal input, for switch signals, such as door magnetic

- 2x AI, for external 4-20 mA sensor signals

- 2x Power output, 5V/9V/12V/24V adjustable,for powering the sensors

- Non-polar power supply (7.5V~32V DC)

- Built-in lithium battery (optional), enter the low power operation mode when the external power supply is cut off

- Aluminum casing

➢ Basic Functions

- 2x RS485, each can be connected to two gas meters, for connecting gas meters, and collecting the data regularly

- 2x Power output, 5V/9V/12V/24V adjustable,for powering the sensors

- A variety of mainstream gas meter data acquisition protocols

- 4G FDD/TDD LTE, compatible with 3G / 2G

- Cloud platform server communication supports the MQTT protocol

- Support manage local devices via RS232 serial port

- Support manage devices remotely via cloud platform server,such as, query and modify parameter configuration, upgrade firmware security, restart device, clock timing, data cleaning, and view the device online status, traffic usage, network registration and other functions on the platform

- Support online mode and low-power mode, device will monitor the external power supply in real time, automatically switch and actively report to the platform

- Support DI external door magnetic detection function, when the door magnetic detection function is opened, immediately send an alarm message to the platform

- Built-in 8MB data memory, used to save the unsent signal data, and send the data to center, ensure a high reporting rate of data.
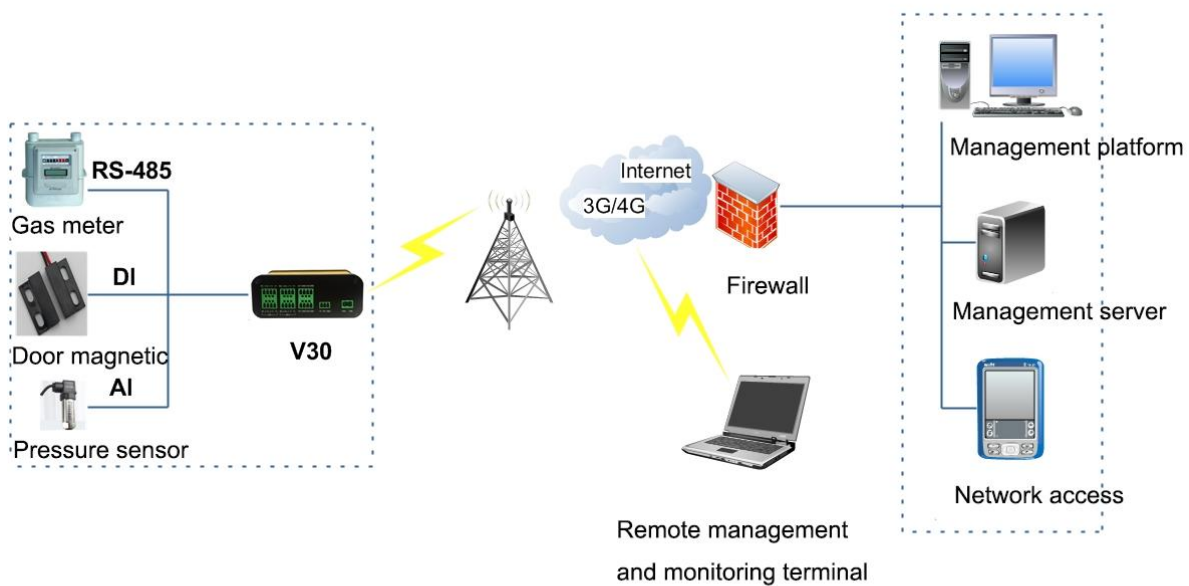
Interface Type

Item	V30	
2x RS485	2x 4 pins	Connect gas meter
1x RS232	3 pins，115200	Connect local management software
Switch signal acquisition	2x digital switch signal input, short circuit to ground or disconnected	Connect door magnetic
Simulation signal acquisition	2x 12bit ADC acquisition, connect 4~20Ma sensor input	Custom function
Antenna 1	GPRS/3G/4G LTE SMA interface，700MHz ~ 2600MHz	External antenna

Specifications

Item	Specific	Remarks
Physical characteristics		
Dimension	124 X 49 X 111 mm	
Weight	About 350g	No battery
Working temperature	−30 ～ 75℃	
Storage temperature	−40 ～ 85℃	
Humidity	0% ～ 95%, none condensation	
Impact, vibration	SAE J1455	
Electrical characteristics		
Working voltage	+7.5V～+32V DC	
Data Power consumption	100mA/12V	
Standby power consumption	1mA/12V	
2G/3G/4G		
GPRS	GPRS：850/900/1800/1900MHz	
WCDMA	900/2100MHZ　or 850/1900MHz	
4G	FDD Band1/3/5/8 ｜ TDD Band38/39/40/41	
Output power	Class4（2W）@900MHz；Class1（1W）@1800MHz	

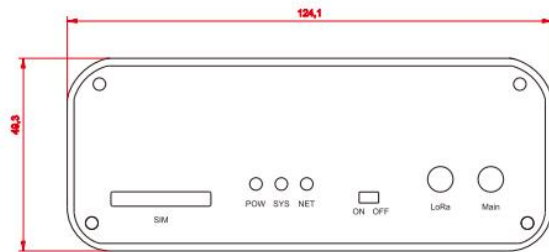| GPRS data	Class10	
Protocol	PPP、TCP、UDP、MQTT	
Gain	1.4dBi@900MHz，3dBi@1800MHz	
RF impedance	50Ω	
SIM card	1.8/3V micro-SIM	
Data storage		
Storage	Default 8MB, Maximum 64Mb	
Appearance		

Application

V30 RTU networking scheme

Product size
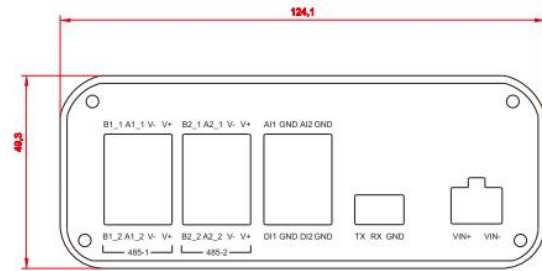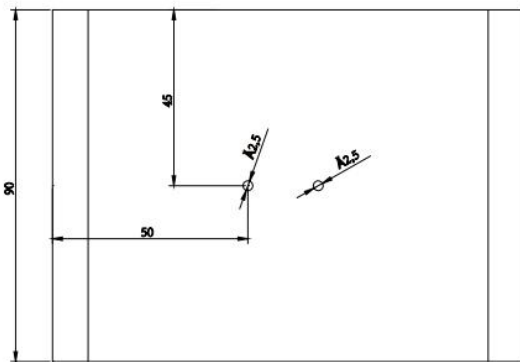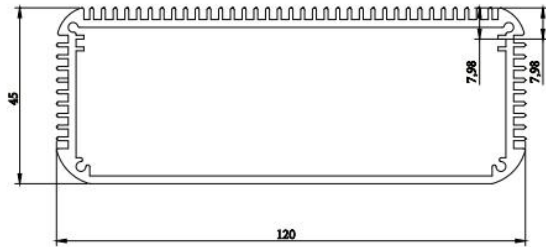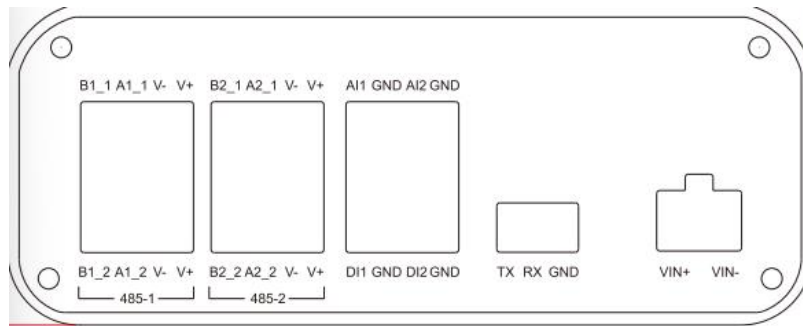

Back panel

Front panel

V30 RTU Appearance

Interface

Front panel：
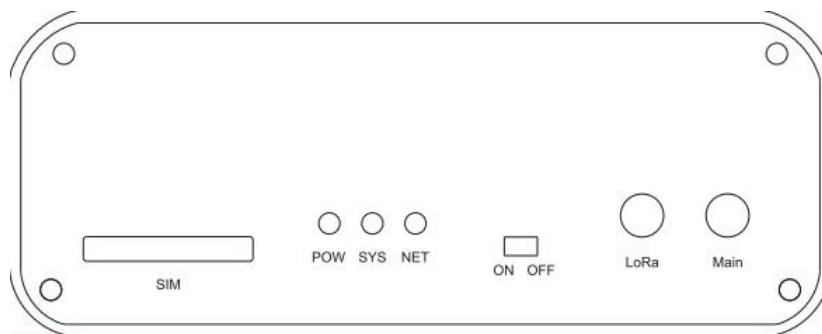
Item	Description
main	4G antenna interface
Lora	Lora antenna interface
On/off	Upgrading switch
POW/SYS/NET	Status
SIM	SIM card slot

Back panel：

| Item	Description
VIN+ VIN-	Power input
TX RX GND	RS232 interface
AI1 GND AI2 GND	2x Simulation interface
DI1 GND DI2 GND	2x Switch signal interface
B2_1 A2_1 V- V+	RS485-2
B2_2 A2_2 V- V+	RS485-2
B1_1 A1_1 V- V+	RS485-1
B1_2 A1_2 V- V+	RS485-1

Reference

a)   Digital switching quantity signal wiring diagram：DI1+ / DI2+ and GND
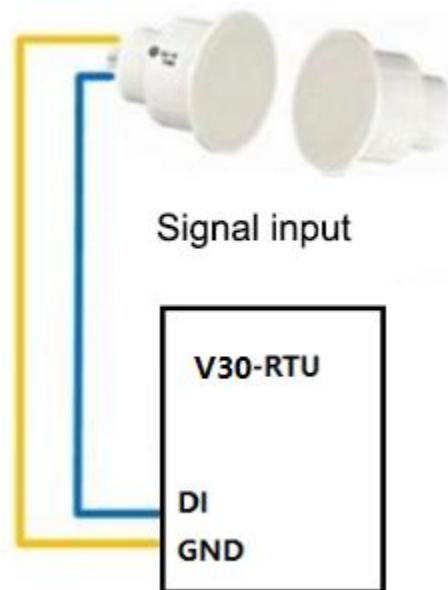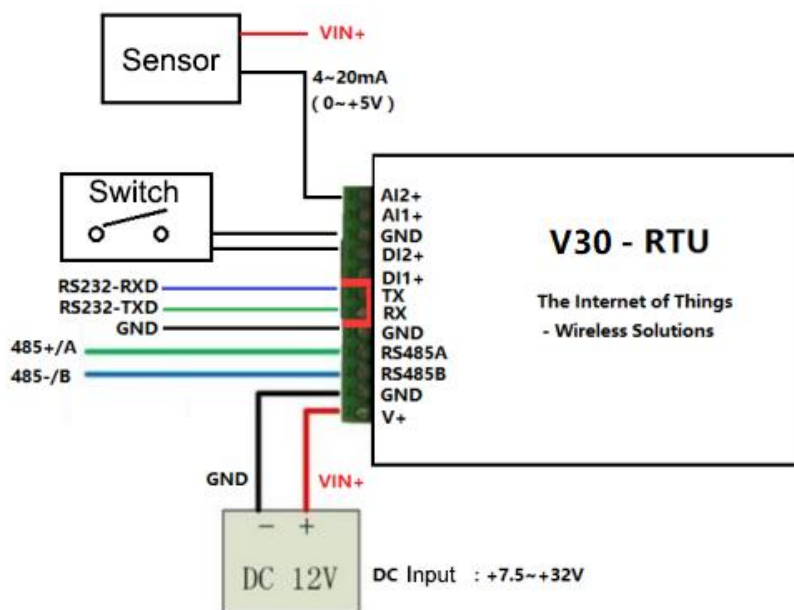

Graph - Digital switch signal wiring diagram

b)   AI analog signal input：support 4-20mA analog signal imput or 0-5V signal input.
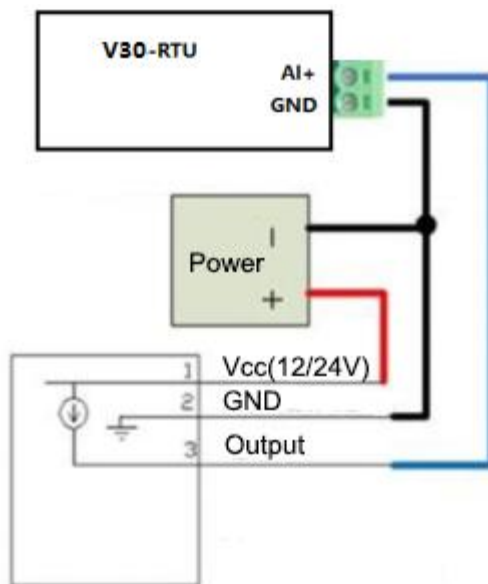
Graph - Analog signal input wiring diagram

c) RS485 bus wiring diagram

➢ V+: positive electrode input

Graph - Communication interface and power supply wiring diagram