AWT100 Series Wireless Communication Terminal

General

At present, wireless technology relies on the advantages of easy deployment, low construction cost, and wide application environment. Data diversification has gradually become an important direction for network development and application in the future industrial Internet. AWT100 data conversion module is a new data conversion DTU launched by Acrel Electric. Communication data conversion includes 2G, 4G, NB, LoRa, LoRaWAN, GPS, WiFi, CE, DP and other communication methods. The downlink interface provides a standard RS485 data interface. It can be easily connected to power meters, RTUs, PLCs, industrial computers and other equipment, and only needs to complete the initial configuration at a time to complete the data collection of the MODBUS equipment; at the same time, the AWT100 series of wireless communication terminals use powerful micro-processing chips to cooperate Built-in watchdog technology, reliable and stable performance.



Product Specifications

AWT100 - □

- 2G-2G communication terminal
- 4G-4G communication terminal
- LoRa-LoRa communication terminal
- LW:LoRaWAN Communication Terminal
- NB-NB-IOT communication terminal
- GPS:GPS positioning
- WIFI-WIFI Wireless
- CE:CE Ethernet Communication
- Dp:Profibus communication
- Acrel Data Conversion Module

Product Functions

■ Support serial MODBUS RTU protocol data collection, and communicate with Acrel server through Acrel platform protocol①.

■ Support data collection of up to 30 MODBUS RTU devices.

■ Support the collection of 5 register address fields for each MODBUS device, and the address range of each register does not exceed 64.

■ Support to preset alarm address and alarm value to trigger alarm for each MODBUS address range. There are currently at most 5 alarm addresses in each address domain.

■ Support server MODBUS or LoRa transparent transmission communication.

■ Support fixed IP and dynamic domain name resolution methods to connect to the data center. ■Support transparent transmission protocol, general mode (active round copy, regular report), MQTT protocol, smart power wireless protocol, prepaid wireless protocol It can be customized and developed.

■ AWT100-LW wireless communication terminal can upload data to the server through LoRa communication.

■ AWT100-GPS wireless module can measure geographic location, obtain latitude and longitude and satellite time.

■ The AWT100-WiFi wireless module can automatically access the WIFI hotspot according to the hotspot name and password, realize the transparent transmission of 485 and WIFI data, and also use our cloud platform protocol.

■ AWT100-CE can realize data transmission from 485 to Ethernet. It can be used as a TCP client and supports transparent transmission or our cloud platform protocol.

■ AWT100-DP can realize data transmission from ProfiBus to MODBUS.

Note: ①AWT100-2G/NB/4G wireless communication terminal can communicate with the Acrel server through the Acrel platform protocol.

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Technical Parameter

Parameter Name	AWT100-4G	AWT100-NB	AWT100-2G	AWT100-LoRa AWT100-LW
Working frequency	LTE-FDD B1 B3 B5 B8 LTE-TDD B34 B38 B39 B40 B41 CDMA B1 B5 B8 GSM 900/1800M	H-FDD B1 B3 B8 B5 B20	GSM 850 EGSM 900 DCS 1800 PCS 1900	LoRa 460 510MHz
Transmission rate	LTE-FDD;Maximum downlink rate 150Mbps;Maximum uplink rate 50Mbps;LTE-TDD ;Maximum downlink rate130Mbps; Maximum uplink rate 35Mbps; CDMA ;Maximum downlink rate 3.1Mbps;Maximum uplink rate 1.8MbpsGSM ;Maximum downlink rate 107Kbps;Maximum uplink rate 85.6Kbps	Maximum downlink rate 25.2Kbps Maximum uplink rate 15.62Kbps	GPRS Maximum downlink rate 85.6kbps Maximum uplink rate 85.6kbps	LoRa 62.5kbps
Downlink	RS485 Communication			
Uplink	4G Communication	NB-IoT Communication	2G Communication	LoRa Communication
SIM card voltage	3V，1.8V			/
Working current	Static power：≤1W，Transient power consumption：≤3W			Static power：≤0.5W， Transient power consumption：≤1W
Antenna interface	50Ω/SMA（Faucet）			
Serial port type	RS-485			
Baud rate	4800bps、9600bps、19200bps、38400bps（default 9600bps）			
Operating Voltage	DC24V或AC/DC220V①			
Operating temperature	-10℃～55℃			
Storage temperature	-40℃～85℃			
Humidity range	0～95% Non-condensing			

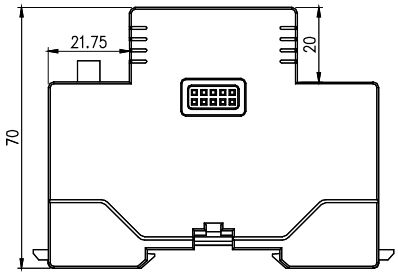
Parameter Name	AWT100-GPS	AWT100-WiFi	AWT100-CE	AWT100-DP
Working frequency	Positioning accuracy: 2.5-5m	support 2.4G frequency band WiFi rate: 115200bps	Ethernet rate 10/100M adaptive	Profibus address: 1~125. (Note)
Downlink	RS485 Communication			
Uplink	GPS positioning	WiFi wireless	Ethernet communication	Profibus communication
Working current	Static power：≤1W，Transient power consumption：≤3W			Static power consumption：≤0.5W， transient power consumption：≤1W
interface	50Ω/SMA（Faucet）		RJ45	DP9
Serial port type	RS-485 Communication			
Baud rate	4800bps、9600bps、19200bps、38400bps（Default 9600bps）			
Operating Voltage	DC24V or AC/DC220V①			
Operating temperature	-10℃～55℃			
Storage temperature	-40℃～85℃			
Humidity range	0～95% Non-condensing			

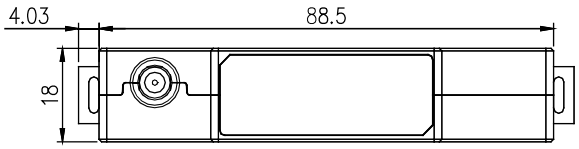
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Note: ①AC/DC220V power supply requires external AWT100-POW power supply module.

②Profibus communication rate: 9.6kbps, 19.2kbps, 45.45kbps, 93.75kbps, 187.5kbps, 500kbps, 1.5Mbps, 3Mbps, 6Mbps, 12Mbps. Data exchange length: total input length<=224 bytes, total output length<=224 bytes. The number of downstream instruments connected: 1~80.

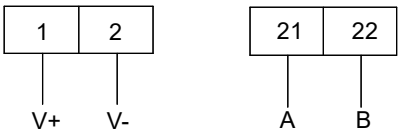
Dimensions drawings



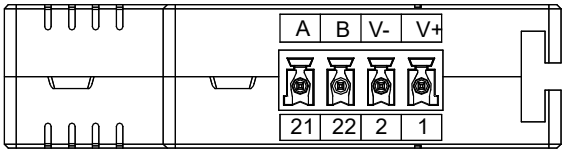


Wiring

■ AWT100-2G/NB/4G/LoRa/LW/GPS/WiFi terminal and wiring



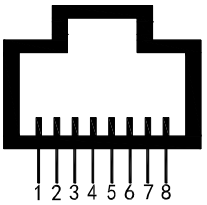
Auxiliary power（DC24V）



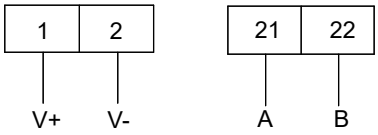
RS485 Communication

The function of the network port is the power interface and the RS485 interface. The specific definitions are as follows:

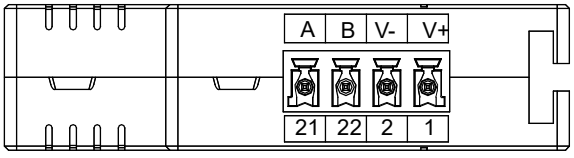
1	2	3	4	5	6	7	8
POWER（DC12V）		GND		NC		485A	485B



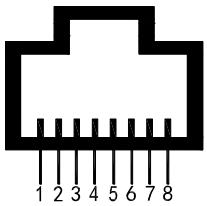
■ AWT100-CE terminal and wiring



Auxiliary power（DC24V）

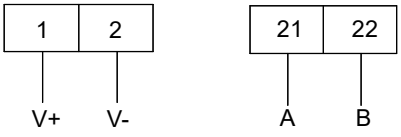


RS485 Communication

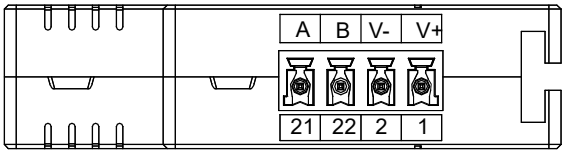


Ethernet communication

■ AWT100-DP terminal and wiring



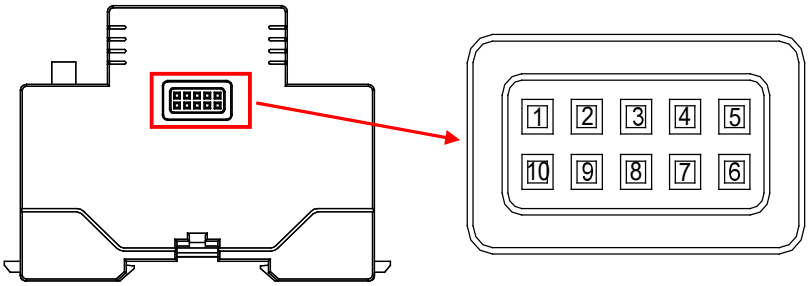
Auxiliary power（DC24V）



RS485 Communication

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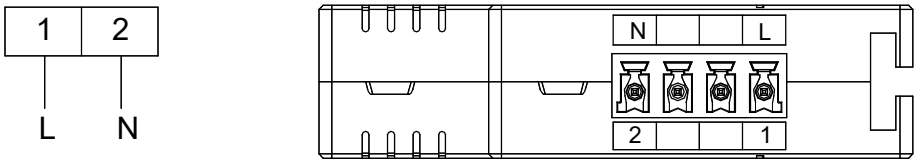
■ AWT100-2G/NB/4G/LoRa/LW/GPS/WiFi/CE/DP side interface definition

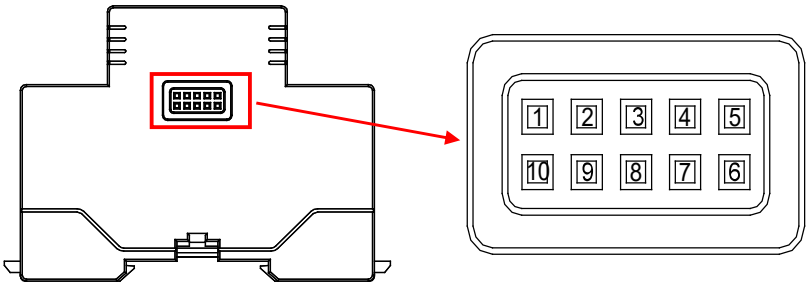


1	2	3	4	5	6	7	8	9	10
NC	+5V	GND	485A	NC		485B	GND	+5V	NC

Note: The two interfaces of network port and terminal can only be used by one of the two (except for AWT100-CE), and cannot be used at the same time.

■ Power module terminal definition





1	2	3	4	5	6	7	8	9	10
NC		GND	+5V	NC		+5V	GND	NC	

Panel light definition

■ Definition of AWT100-2G/NB/4G wireless communication terminal panel lights

LINK（Green）	RSSI（Red）	COMM（Orange）
The green indicator flashes for 2 seconds, the wireless module is being initialized	The red indicator flashes for 3 seconds to indicate that the signal is less than 20%	The orange indicator flashes to indicate that there is network data communication
The green indicator flashes for 1 second, connecting to the server		
The green indicator light is always on to indicate that the server is connected and the signal strength is greater than 20%		

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■ Definition of AWT100-LoRa wireless communication terminal panel light

RUN（Green）	LoRa（Red）	COMM（Orange）
The green indicator light is always on, indicating that the meter has been able to operate normally.	The red indicator light flashes for 1 second when there is a LoRa signal to receive and send data.	The orange indicator light flashes for 1 second when there is 485 to receive and send data.

■ AWT100-LW Definition of wireless communication terminal panel lights

RUN（Green）	LoRa（Red）	COMM（Orange）
The green indicator flashes for 1 second and the gateway is connecting.	The red indicator flashes for 1 second when there is LoRa signal to receive and send data.	The orange indicator flashes for 1 second when there is 485 to receive and send data.
The green indicator light is always on to indicate that the gateway has been connected		

■ AWT100-GPS Definition of wireless communication terminal panel lights

RUN（Green）	LoRa（Red）
The green indicator light is always on, indicating that the power supply voltage is normal.	After the positioning is successful, it flashes for 1 second and the green indicator light is off

■ AWT100-GPS Definition of wireless communication terminal panel lights

RUN（Green）	LoRa（Red）
Blinking in connection, the connection is successful.	Blinking when there is data transmission

■ AWT100-CE Ethernet communication panel light definition

RJ45: Ethernet interface

■ AWT100-DP data conversion module panel light definition

Digital tube: display Profibus address (1~99)

USB interface: configure the module parameters, connect to the upper computer

DB9 interface: communicate with upstream DP equipment, Profibus_DP protocol

485 interface: communication with downstream instruments, Modbus_Rtu protocol

■ AWT100-POW Panel light definition of power module

The green indicator light is always on to indicate that the power module is operating normally. If the indicator light is off, it indicates that the module is not powered on or is faulty.

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