3onedata
Make network communication more reliable

GW11X8-8D (3IN1)-RJ45 Series

Modbus Gateway User Manual

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【Summarize】

The GW11X8-8D(3IN1)-RJ45 series gateways are serial-to-Ethernet Modbus gateways that convert between Modbus TCP and Modbus RTU/ASCII protocols. They support 8-channel RS-232/485/422 serial ports (RJ45) and 1/2-port 10/100Base-T(X) Ethernet interface optional.

Modbus TCP, Modbus RTU and Modbus ASCII protocol are integrated in the products, users can easily realize the seamless integration of Modbus Ethernet devices and Modbus serial devices and even multi master and slave hybrid networks. At the same time, the user can be set up by Web or Telnet. The simple design can not only realize the fast application, but also guarantee the application of the entire real industrial environment.

The products using EMC protection design. Power has over current, over voltage protection, and can work in rugged environment. The design support wall mounting installation, easy to use for your projects.

【Packing list】

Please check the packaging and accessories when you first use the device.

- Modbus Gateway x 1
- Documentation and software CD x 1
- User manual x 1
- Wall mounting kits x 2
- Power adapter x 1
- Straight-through cable x 1
- Rubber shock absorber pad x 4
- RJ45 (3IN1 serial port) to DB9-Male (or Female) conversion line x 1
- Warranty card x 1
- Qualify certificate x 1

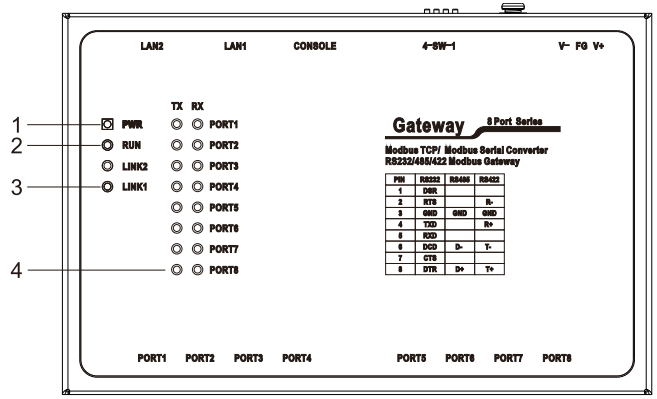
Please contact us or our distributors if your equipment has been damaged or if any accessories are lost. We will try our best to satisfy you.

【Feature】

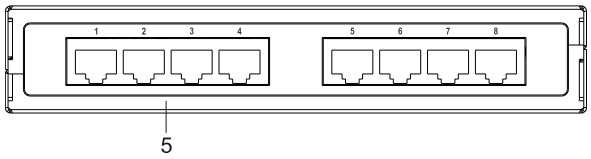
- Supports 1/2-port 10/100Base-T(X) and 8-channel RS-232/485/422 serial port optional
- The 2-port 10/100Base-T(X) Modbus gateway supports two IP addresses and two MAC addresses
- Supports 300~115200bps non-blocking communication
- Supports RTU Slave, RTU Master, ASCII Slave and ASCII Master working modes
- Supports Modbus TCP, Modbus RTU, Modbus ASCII, IP, ARP, DHCP and DNS protocols
- Slave mode support 16 TCP master connections
- Master mode support 32 slave TCP connection requests
- Supports response timeout and interval timeout settings
- Supports ID mapping function, to achieve the management of the host ID
- Supports WEB and Telnet configurations
- Supports IP address and MAC address filtering function
- Supports cross-gateway and cross-router communication
- Provide Windows configuration tools for easy to use, easy to bath install.
- IP30 protection grade, metal shell, wall mounted installation
- No fan, low consumption design
- Working temperature: -40～85°C

【Panel layout】

Vertical view:

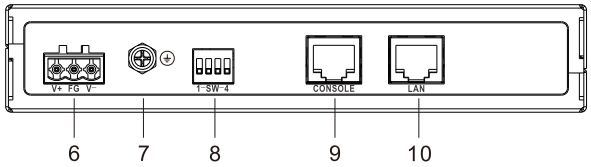


Front view:

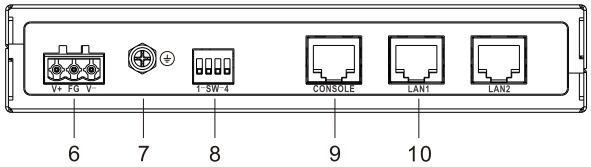


Rear view:

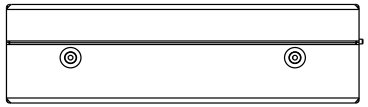
➢ **GW1108-8D(3IN1)-RJ45**



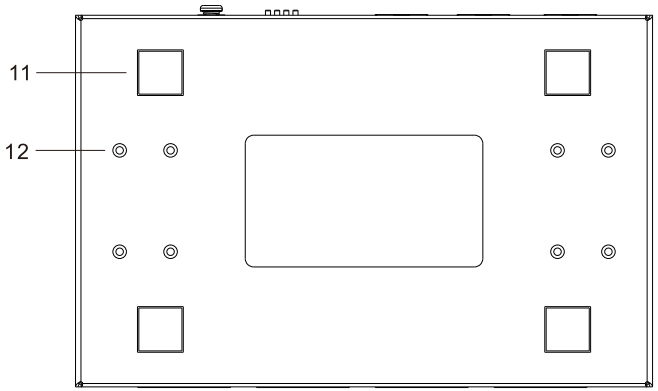
➢ **GW1118-8D(3IN1)-RJ45**



Side view:



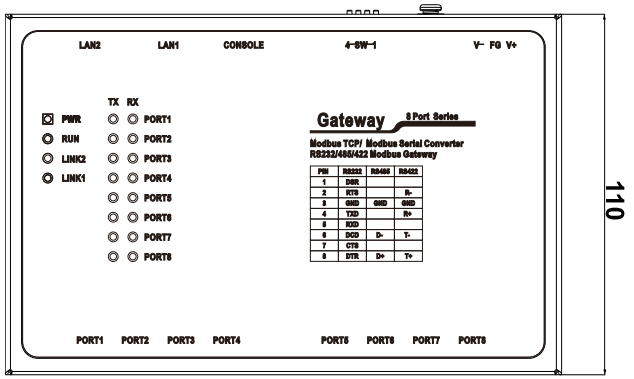
Bottom view:

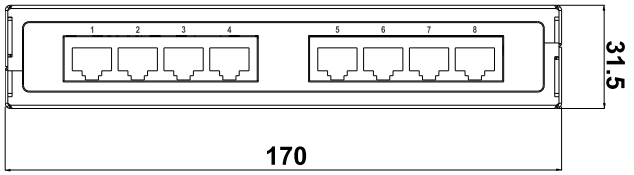


1. Power indicator
2. Running statues indicator
3. Ethernet port Link/ACT indicator
4. Serial port receive and transmits data indicator
5. RS-232/485/422 serial port
6. Power input terminal block
7. Grounding screw
8. DIP switch
9. Console port
10. 10/100Base-T(X) Ethernet port
11. Rubber shock absorber pad
12. Screw holes for Wall Mounting Kit

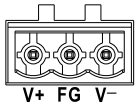
【Dimension】

Unit: mm





【Power supply input】



The device provide DC power input, voltage input is the three terminal form, plug type 3-pin spacing of 5.08mm terminals, wherein the power input range of 12~48VDC. (V+, FG, V-)

Notice:

1. Power ON operation: insert power cable's terminal block into device's power port, and then connect power supply plug to a power source.
2. Power OFF operation: unpin power plug, and then disconnect the terminal block, please note operation sequence.

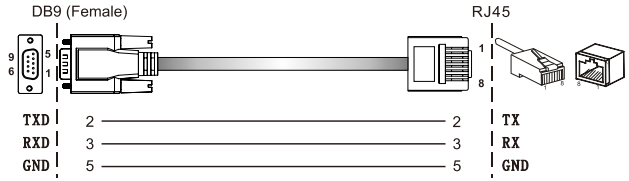
【DIP switch】



The rear panel provides a 4-pin DIP switch to do function configure (OFF is default factory). 1, 3 and 4 are reserved. 2 is recovery default factory. Please power off and power on when you change the status of a DIP switch.

【Console port】

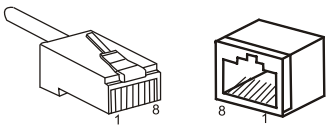
The device provides 1pcs procedure test port based on the serial port. It adopts RJ45 interface, located on the front panel, can configure related command through RJ45 to DB9 female cable.



【Communication connector】

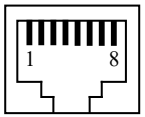
10/100Base-T(X) Ethernet port

The pinout define of RJ45 port display as below, connect by UTP or STP. The connect distance is no more than 100m. 100Mbps is used 120Ω of UTP 5, 10Mbps is used 120Ω of UTP 3, 4, 5.



RJ 45 port support automatic MDI/MDI-X operation, connect the PC, Server, Converter and HUB .Pin 1,2,3,6 Corresponding connection in MDI. 1→3, 2→6, 3→1, 6→2 are used as cross wiring in the MDI-X port of Converter and HUB. 10/100Base-T(X) are used in MDI/MDI-X, the define of

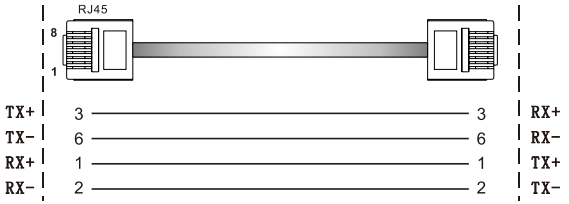
Pin in the table as below.



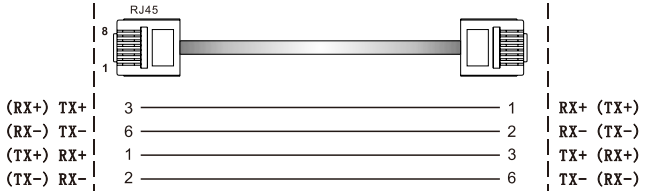
NO.	MDI signal	MDI-X signal
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-
4, 5, 7, 8	—	—

Note：“TX±” Transmit Data±，“RX±” Receive Data±，“—” Not use.

10/100Base-T(X) MDI (straight-through cable)



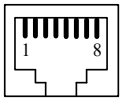
10/100Base-T(X) MDI-X (Cross over cable)



MDI/MDI-X auto connection makes switch easy to use for customers without considering the type of network cable.

Serial port connection

Modbus gateway device adopts RJ45 connector. The PIN defines is as follows, RS-232/485/422 port (3 in 1):



PIN	RS-232	RS-485	RS-422
1	DSR	—	—
2	RTS	—	R-
3	GND	GND	GND
4	TXD	—	R+
5	RXD	—	—
6	DCD	D-	T-
7	CTS	—	—
8	DTR	D+	T+

【LED Indicator】

LED indictor light on the top panel of product, the function of each LED is described in the table as below.

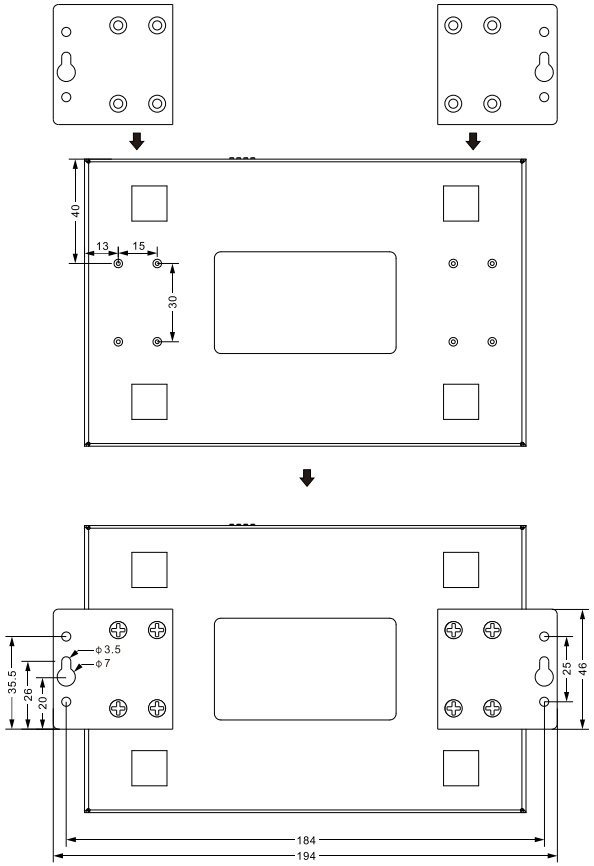
System statue LED		
LED	Indicate	Description
PWR	ON	The power connection is operating normally.
	OFF	The power is not connected or is not working properly.
RUN	ON	The system is not working properly.
	Flashing	The system is running normally.
	OFF	The system is not running or running abnormally.
LINK (1~2)	ON	The Ethernet interface has established an active network connection.
	Flashing	The Ethernet interface is in a network activity state.
	OFF	The Ethernet interface does not establish an active network connection.
RX Port(1~8)	OFF	No data or abnormal data is being received through serial port.
	Flashing	Serial port is receiving data.
TX Port(1~8)	OFF	No data or abnormal data is being transmitted through serial port.
	Flashing	Serial port is transmitting data

【Installation】

Before installation, ensure that the working environment meet the installation requirement, including the power needs and abundant space. Whether it is close to the connection equipment and other equipment are prepared or not.

1. Avoid in the sunshine, keep away from the heat fountainhead or the area where in intense EMI.
2. Check the cables and plugs that installation requirements.
3. Check whether the cables be seemly or not (less than 100m) according to reasonable scheme.
4. Power: 12~48VDC power input
5. Environment: Working temperature: -40～85°C
   Storage Temperature: -40～85°C
   Relative humidity 5%～95%

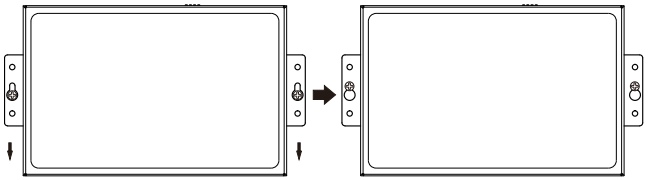
Wall Installation



1. Attach the wall mount plates with M3 screws on the bottom panel of the Modbus gateway, as shown above.
2. Mounting the Modbus gateway to a wall requires 2 (M4) screws. Use the Modbus gateway as a guide to mark the correct positions of the 2 screws.
3. Use the 2 screws in the panel mounting kit.
4. Do not screw the screws in all the way—leave a space of

about 2 mm to allow room for sliding the Modbus gateway between the wall and the screws.

5. Before tightening the screws into the wall, make sure the screw head and shaft size are suitable by inserting the screw through one of the keyhole-shaped apertures of the gateway.
6. Once the screws are fixed in the wall, hang the Modbus gateway on the 2 screws through the large opening of the keyhole-shaped apertures, and then slide the switch downwards. Tighten the two screws for added stability, as shown below.



Wiring Requirements

Cable laying need to meet the following requirements,

1. It is needed to check whether the type, quantity and specification of cable match the requirement before cable laying;
2. It is needed to check the cable is damaged or not, factory records and quality assurance booklet before cable laying;
3. The required cable specification, quantity, direction and laying position need to match construction requirements, and cable length depends on actual position;
4. All the cable cannot have break-down and terminal in the middle;
5. Cables should be straight in the hallways and turning;
6. Cable should be straight in the groove, and cannot beyond the groove in case of holding back the inlet and outlet holes. Cables should be banded and fixed when they are out of the groove;
7. User cable should be separated from the power lines. Cables, power lines and grounding lines cannot be overlapped and mixed when they are in the same groove road. When cable is too long, it cannot hold down other cable, but structure in the middle of alignment rack;
8. Pigtail cannot be tied and swerved as less as possible. Swerving radius cannot be too small (small swerving causes terrible loss of link). Its banding should be moderate, not too tight, and should be separated from other cables;
9. It should have corresponding simple signal at both sides of the cable for maintaining.

【Specification】

Ethernet port

Standard: 10Base-T, 100Base-TX

Protocol: Support Modbus TCP, Modbus RTU, Modbus ASCII, IP, APR, ICMP, DNS and DHCP

Signal: Rx+, Rx-, Tx+, Tx-

Speed: 10/100Mbps

Working: Full duplex and half duplex

Transfer distance: 100m

Connector: RJ45

Serial port

Serial port number: RS-232/485/422

RS-232 signal: DSR, RTS, GND, TXD, RXD, DCD, CTS, DTR

RS-485 signal: D+, D-, GND

RS-422 signal: T+, T-, R+, R-, GND

Parity bit: None, Even, Odd, Space, Mark

Data bit: 7bit, 8bit

Stop bit: 1bit, 2bit

Baud rate: 300bps～115200bps

RS-232 transfer distance: 15m

RS-485/422 transfer distance: 1200m

Direction control: RS-485 using data flow automatic control technology

Load capacity: support 32 point polling environment (customizable 128 points)

Connector: RJ45

LED Indicator

Run indicator: RUN

Power supply indicator: PWR

Ethernet Link/Act indicator: LINK

RS-232/485/422 port transmit data indicator: TX

RS-232/485/422 port receive data indicator: RX

Power requirements

Input voltage: 12~48VDC

Type of input: 3-pin 5.08mm spacing terminal block

No-load consumption: 1.8W@12VDC

Full-load consumption: 3.9W@12VDC

Environment limits

Working temperature: -40～85°C

Storage temperature: -40～85°C

Relative humidity: 5%~95%（non-condensing）

Mechanical

Shell: IP30 protection, metal shell

Installation: Wall mounting

Weight: 580g

Size (L×W×H): 170.0mm×110.0mm×31.5mm

Standard

EMI: FCC Part 15, CISPR (EN55022) class A

EMS:

IEC 61000-4-2 (ESD), Level 4

- Contact: 8 kV
- Air: 15 kV

IEC 61000-4-4 (EFT), Level 3

- Power: 2 kV
- Signal: 1 kV

IEC 61000-4-5 (Surge), Level 3

- Power: common mode 2 kV
  difference mode 1 kV
- Signal: common mode 1 kV
  difference mode 1 kV

Shock: IEC 60068-2-27

Free fall: IEC 60068-2-32

Vibration: IEC 60068-2-6

Warranty: 3 years

Certificates

CE, FCC, RoHS, UL508 (pending)