

Modbus TCP/RTU Gateway

Hardware Installation Guide

for models

IE-GW-MB-2TX-1RS232/485
IE-GWT-MB-2TX-1RS232/485

Second Edition, June 2014
1516600000/01/06.14

Important note:

The detailed user manual, additional product information, tools and any firmware update can be downloaded using following links:

<http://www.weidmueller.com>

► Select **Product Catalogue**

- ⇒ Select „Industrial Ethernet active“
- ⇒ Select „Modbus TCP/RTU Gateway“
- ⇒ Select Product model
 - ⇒ Click and expand section „Downloads“
 - ⇒ Download needed software or documentation

► or alternatively:

Firmware and Tool „Modbus Gateway Administrator“ via...

- ⇒ Select Downloads
- ⇒ Select Software
 - ⇒ Select „Industrial Ethernet“
 - ⇒ Goto section Modbus TCP/RTU Gateway ...

Documentation via...

- ⇒ Select Downloads
- ⇒ Select Print Media
 - ⇒ Select Manuals
 - ⇒ Goto section „Industrial Ethernet“
 - ⇒ Download „Manual-IE-GW-MB-2TX-1RS232/485...“

Copyright Notice

Copyright © 2014 Weidmüller Interface GmbH & Co. KG

All rights reserved.

Reproduction without permission is prohibited.

Weidmüller 

1. Overview

The Modbus gateways IE-GW-MB-2TX-1RS232/485 and IE-GWT-MB-2TX-1RS232/485 (equipped with 1 serial port and 2 Ethernet ports) convert between Ethernet-based Modbus TCP and serial-based Modbus ASCII/RTU protocols. They can be used to allow Ethernet masters to control serial slaves, or to allow a serial master to control Ethernet slaves. Up to 16 TCP masters and 31 serial slaves can be connected simultaneously.

2. Package Checklist

Before installing the Modbus TCP/RTU Gateway, verify that the package contains the following items:

- 1 Modbus TCP/RTU Gateway
- 1 Hardware Installation Guide

If any of these items are missing or damaged, please contact your Weidmüller customer service for assistance.

3. Hardware Description

LED Indicators

Name	Color	Function
PWR1	Red	Power is being supplied to the power input
PWR2	Red	Power is being supplied to the power input
RDY	Red	Steady: Power is on and the unit is booting up
		Blinking: IP conflict, DHCP or BOOTP server did not respond properly, or a relay output occurred
	Green	Steady: Power is on and the unit is functioning normally
		Blinking: Unit is responding to Locate function
Off	Power is off or power error condition exists	
Ethernet 1 / 2	Orange	10 Mbps Ethernet connection
	Green	100 Mbps Ethernet connection
	Off	Ethernet cable is disconnected
P1	Orange	Serial port is receiving data
	Green	Serial port is transmitting data
	Off	Serial port is not transmitting or receiving data

Interfaces

1 Connector for dual input power and relay output

2 Ethernet Ports 10/100BaseT(X)

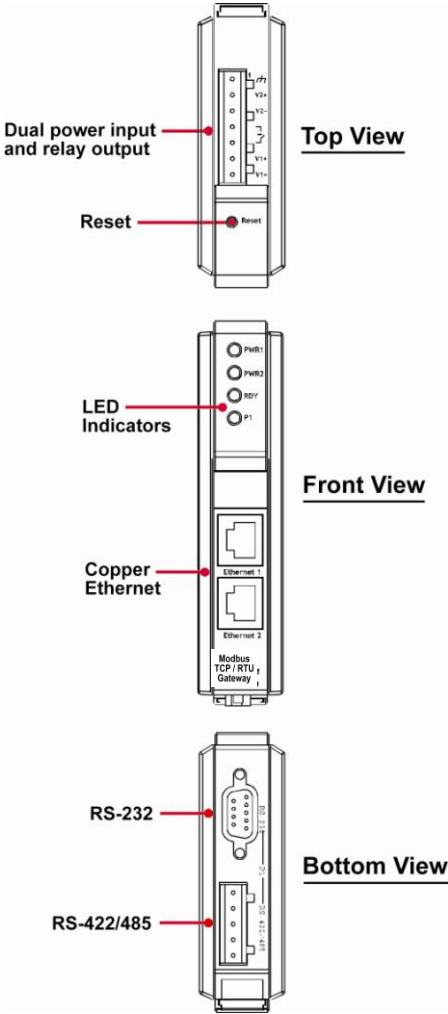
1 Terminal block for connecting serial Modbus devices with RS422/RS485 interface **or alternatively useable**

1 Serial DB9 port (male) for connecting serial Modbus devices with RS232 interface

Note: The serial ports may only be used alternatively, either the RS232-DB9 or the RS422/485 connector can be used at one time.

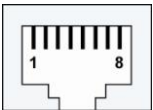
Reset Button

The reset button is used to load factory defaults. Use a pointed object such as a straightened paper clip to hold the reset button down for five seconds. Release the reset button when the Ready LED stops blinking.



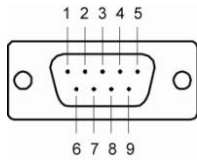
Pin Assignments

10/100BaseT(X) Ethernet Port Connection



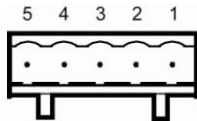
Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-

Serial Port RS232 (Male DB9)



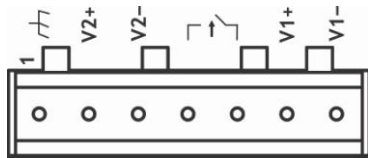
Pin	RS-232
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	---



Serial Port RS485 / RS422 (Terminal Block)



Pin	RS-422/485 (4W)	RS-485 (2W)
1	TxD+(B)	---
2	TxD-(A)	---
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	GND	GND

Power Input and Relay Output Pinouts



	V2+	V2-		V1+	V1-
Shielded Ground	DC Power Input 1	DC Power Input 1	Relay output	DC Power Input 2	DC Power Input 2

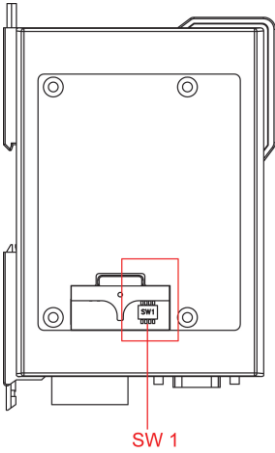
Relais conditions:

Open when Power-off or when a relay-based alarm is triggered.

Closed when Power-on and no relay-based alarm is triggered.

DIP switches for RS422/485 line termination and setting pull high/low resistors

The DIP switches (SW1) are located inside of the housing behind the screwable side-gate.



To add a 120 Ω termination resistor, set switch 3 to ON. To disable the termination resistor set switch 3 to OFF (default setting).

To set the pull high/low resistors to 150 K Ω , set switches 1 and 2 to OFF (default setting).

To set the pull high/low resistors to 1 K Ω , set switches 1 and 2 to ON.

DIP switch 4 is reserved for future use.



ATTENTION

Do not use the 1 K Ω pull high/low setting **ON** the device when using the RS-232 interface. Doing so will degrade the RS-232 signals and reduce the effective communication distance.

4. Hardware Installation Procedure

STEP 1: Use a standard Ethernet cable to connect the unit to an Ethernet device or a network switch.

STEP 2: Connect your Modbus RTU/ASCII device to the Gateway's serial port.

STEP 3: Mount the unit on a DIN-rail.

STEP 4: Connect the power source to power input.

5. Software-based Device Configuration

The Modbus TCP/RTU Gateway can be configured via one of the 2 Ethernet ports by

- Integrated Webinterface
- Telnet Console or
- by PC-based utility “Modbus Gateway Administrator”

Accessing the Web interface:

The Web interface can be accessed via IP address 192.168.1.110 and subnet mask 255.255.255.0 (Factory default value).

Connect the PC to one of the both Ethernet ports and set the PC’s IP address to a free one of network range 192.168.1.0 / 255.255.255.0

Start a Web browser and enter the IP address of the connected Gateway into the browser’s address line.

<http://192.168.1.110>

After the appearance of the login prompt, please enter following login data (factory settings):

User name: **admin**
Password: **Detmold**

Configuration via PC-based tool “Modbus Gateway Administrator”:

1. Download the software from Weidmüller Internet page (Download link see page 1).
2. Install the software according to attached installation guide (contained in the ZIP-file).
3. Start the “Modbus Gateway Administrator” to configure the Modbus TCP/RTU Gateway.

Note: For more detailed information about configuration and using the Modbus TCP/RTU Gateway please read the downloadable manual from Weidmüller Internet page (Download link see page 1).

6. Specifications

Power Requirements	
Power Input	12 to 48 VDC
Power Consumption	Max. 435 mA @ 12 VDC, Max. 130 mA @ 48 VDC
Physical Characteristics	
Housing	Plastic, IP30
Dimensions	29 (W) x 124.5 (H) x 89.2(D) mm
Installation	DIN-Rail Mounting

Ethernet Interfaces	
Ethernet ports	2 RJ45 ports 10/100BaseT(X), Auto MDI/MDI-X
Magnetic isolation protection (RJ45)	1.5 kV built-in
Serial Interfaces	
Serial ports	1
Serial connector types	DB9 RS-232, 5-pin terminal block for RS-422/485
Baudrates	Baud rate 50 bit/s to 921.6 kbit/s
RS-485 data direction control	ADDC® (automatic data direction control)
Serial line protection	15 KV ESD protection for all signals
Pull high/low resistor for RS-485	1 kOhm, 150 kOhm
Terminating resistor for RS-485	120 Ohm
Alarm Contact	
Relay Output	1 relay output with a current capacity of 1 A @ 30 VDC Relais conditions: Open when Power-off or when a relay-based alarm is triggered. Closed when Power-on and no relay-based alarm is triggered.
Environmental Limits	
Operating Temperature	0 to 55°C (32 to 131°F), -40 to 75°C (-40 to 167°F) for -T model -40 to 85 °C (-40 to 185 °F)
Operating Humidity	5 to 95% RH
Regulatory Approvals	
EMC standards	FCC Part 15 Subpart B Class A EN 55022 Class A EN 61000-4-2 (ESD), Level 3 EN 61000-4-3 (RS), Level 3 EN 61000-4-4 (EFT), Level 4 EN 61000-4-5 (Surge), Level 3 EN 61000-4-6 (CS), Level 3 EN 61000-4-8 EN 61000-4-11
Security	UL 508
Hazardous Location	UL/cUL Class 1 Div 2 Groups A, B, C, D
Free fall	according to IEC 60068-2-32
Shock	according to IEC 60068-2-27
Vibration	according to IEC 60068-2-6
MTBF	
Time	210.794 hrs
Database	Telcordia (Bellcore), GB
WARRANTY	
Time Period	5 years

Weidmüller gives a 5 year warranty on this product in accordance with the warranty terms as described in the general conditions of sale of the Weidmüller company which has sold the products to you. Weidmüller warrants to you that such products the defects of which have already existed at the time when the risk passed will be repaired by Weidmüller free of charge or that Weidmüller will provide a new, functionally equivalent product to replace the defective one. Safe where expressly described otherwise in writing in this catalogue/product description, Weidmüller gives no warranty or guarantee as to the interoperability in specific systems or as to the fitness for any particular purpose. To the extent permitted by law, any claims for damages and reimbursement of expenses, based on whatever legal reason, including contract or tort, shall be excluded. Where not expressly stated otherwise in this warranty, the general conditions of purchase and the expressive liability commitments therein of the respective Weidmüller company which has sold the products to you shall be applicable.

Contact Information

Weidmüller Interface GmbH & Co. KG
Postfach 3030
32760 Detmold
Klingenbergstraße 16
32758 Detmold
Germany

Phone +49 (0) 5231 14-0
Fax +49 (0) 5231 14-292083
E-Mail info@weidmueller.com
Internet www.weidmueller.com