

### Serial/Ethernet Converter / Modbus Gateway IE-CS-MBGW-2TX-1COM (Part No. 2682600000)

(from product Rev. V1.1)

## 1. Introduction

Device IE-CS-MBGW-2TX-1COM is a multi-purpose Serial/Ethernet converter and Modbus TCP/RTU-ASCII protocol gateway and is equipped with one configurable RS232/422/485 port and two Ethernet RJ45 ports (acting like an unmanaged 2-Port switch). If configured as Serial/Ethernet converter it can be used to convert data streams between serial and Ethernet networks. The converter supports standard device server features like Virtual COM Mode, TCP Server/Client or UDP Server/Client operation modes. Running as Modbus protocol gateway it can be used to convert data streams between protocols Modbus TCP (Ethernet) and Modbus ASCII/RTU (serial-based). The device supports the operation modes "ASCII/RTU Master to TCP Slave Gateway" and "TCP Master to ASCII/RTU Slave Gateway". The devices are designed for industrial applications and fitted with a robust housing. To ensure reliable, error-free operation, and to prevent damage or injury, please read the operating instructions, all safety information provided in this document and any other safety information that were supplied with the product.

## 2. Safety notice

|                                                                                     |                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | The device heats up during operation. Allow the unit to cool down or use protection gloves when carrying out any work.                                                                                                                                    |
|   | The device may only be connected to the supply voltage shown on the product label. Higher voltage than specified will destroy the device. The device must be supplied by a SELV source as defined in the Low Voltage Directive 2014/35/EU and 2014/30/EU. |
|  | Installation, commissioning and maintenance may only be performed by qualified electricians.                                                                                                                                                              |
|  | Observe the operating instructions.                                                                                                                                                                                                                       |

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|  | <ul style="list-style-type: none"> <li>Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the device and label.</li> <li>Utilisation en intérieur et degré de pollution II, il faut l'essuyer avec un chiffon sec pour nettoyer l'appareil et son étiquette.</li> <li>Do not block air ventilation holes.</li> <li>Ne bloquez pas les orifices de ventilation.</li> <li>If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.</li> <li>Si l'appareil est utilisé d'une manière non spécifiée par le fabricant, la protection qu'il apporte peut se voir diminuée.</li> <li>Shall be mounted in the Industrial Control Panel and ambient temperature is not exceed 70 degrees C.</li> <li>Doit être monté dans le panneau de commande industriel et la température ambiante ne doit pas dépasser 70 degrés C.</li> </ul> |
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**Intended use:** The device is intended for the realization of communication networks within an industrial environment, it is intended to be used in a restricted access location. The device may only be used within the scope of the specified technical data. The device is intended to be mounted to a well-grounded mounting surface, such as a metal panel. Any other use may result in unintentional malfunction and damage. Observing the documentation is part of the intended use.

**Environmental conditions:** This equipment is intended to be used in a restricted access location. When planning the installation site make sure that the ambient temperature during operation will not exceed the temperature given in the technical data. Also make sure that the air flow will not be compromised by other devices. Ensure that the mounted and wired device is not exposed to any mechanical stress.

**FCC compliance:** This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

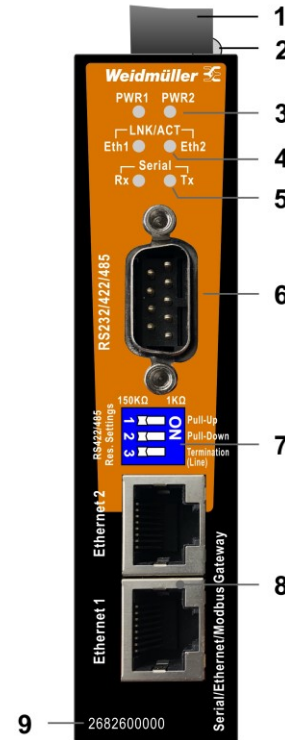
## 3. Package Checklist

- |                                              |                                 |
|----------------------------------------------|---------------------------------|
| 1 x Serial/Ethernet-Converter/Modbus-Gateway | 1 x Hardware Installation Guide |
| 1 x 4-Pin Terminal connector                 | 1 x Wall mounting kit           |
| 1 x Adapter DB9-Connector-to-Terminal-Block  |                                 |

## 4. Panel Layouts

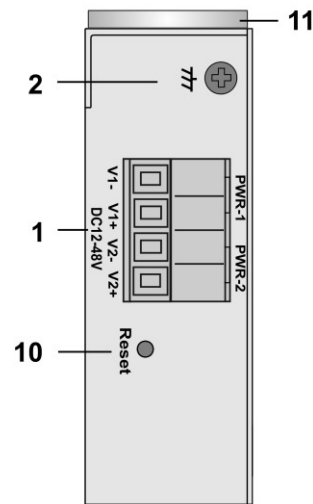
IE-CS-MBGW-2TX-1COM

Front Panel View

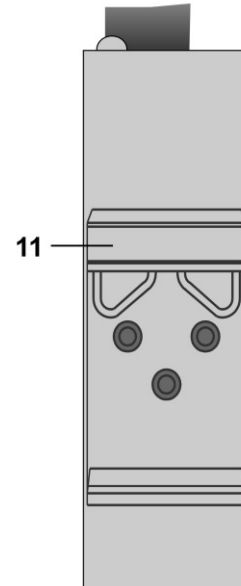


1. Terminal block for power input PWR1/PWR2
2. Grounding screw / Frame ground (Note: The shielding ground of the LAN port is electrically connected to the grounding screw)
3. Power input LEDs (PWR1 / PWR2)
4. Link/Activity LEDs Ethernet Ports
5. Data Transmission LEDs Serial Port
6. Serial Port (DB9 male Connector)
7. DIP Switches for serial line settings
  - SW1: Sets Pull-Up resistor to 1 KΩ (ON) or 150 KΩ (OFF).
  - SW2: Sets Pull-Down resistor to 1 KΩ (ON) or 150 KΩ (OFF).
  - SW3: Enables / Disables Line Termination.
 By factory default all DIP switches are set to OFF.
8. Ethernet RJ45 Ports 10/100BASE-T(X)
9. Article Number
10. Reset Button
11. DIN-rail kit

Top Panel View

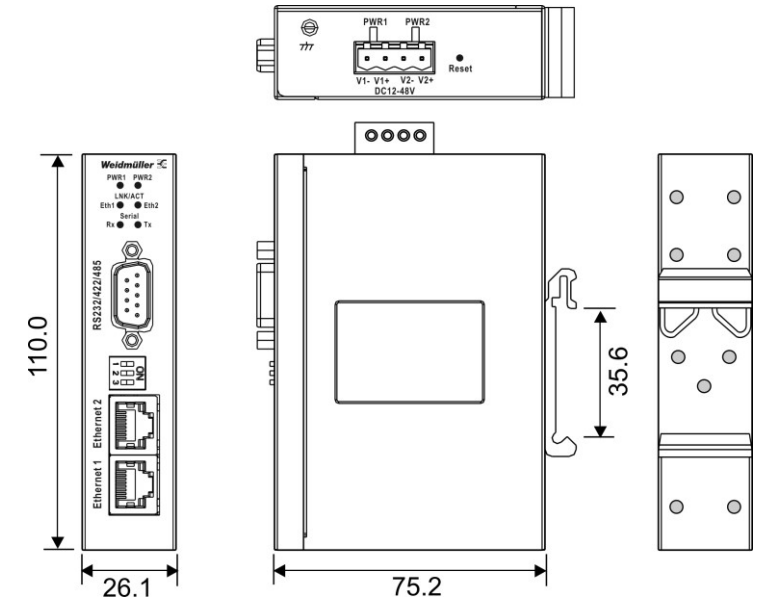


Rear Panel View



## 5. Mounting Dimensions

(units = mm)



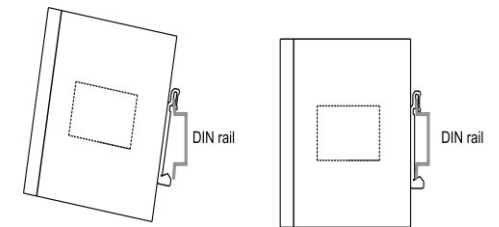
## 6. DIN-Rail Mounting

Slide the device onto DIN-rail and make sure that the Din-rail clip clicks into the rail firmly.

**STEP 1:** Insert the top of the DIN-Rail into the slot just below the stiff metal spring.

**STEP 2:** The DIN-Rail attachment unit will snap into place as shown below.

To remove the device from the DIN-rail simply reverse steps 1 and 2.



## 7. Grounding

|                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>ATTENTION</b> <ul style="list-style-type: none"> <li>Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI).</li> <li>Do the ground connection from the ground screw to the grounding surface prior to connecting devices.</li> <li>This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel.</li> <li>The shielding ground of the RJ45 ports are electrically connected to the ground connection (screw).</li> </ul> |
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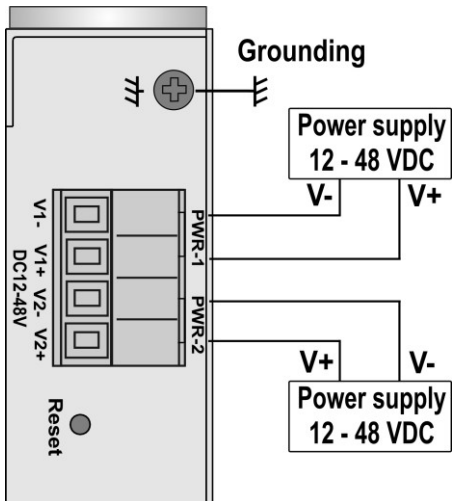
## 8. Wiring Redundant Power Inputs

The Converter/Gateway supports redundant power supply inputs. Refer to illustration below for correct wiring.



**Warning / Avertissement**

- Take into consideration the following guidelines before wiring the device
  - Tenez compte des directrices suivantes avant de câbler l'appareil.
- Terminal block is mating with Plug and suitable for 12-24AWG. Torque value 4.5 lb-in.
  - Le bornier est compatible avec les connecteurs et convient pour 12-24AWG. Valeur de couple 4,5 lb-in.
- The temperature rating of the input connection cable should higher than 105°C.
  - La température de service nominale du câble d'entrée doit être supérieure à 105 °C.
- Supplied by SELV source evaluated by UL 61010-1 or 61010-2-201 power supply only.
  - Fourni par la source SELV évaluée uniquement par l'alimentation UL 61010-1 or 61010-2-201.



## 9. Communication Connections

The Converter/Gateway is equipped with:  
2 x RJ45 Ethernet Port 10/100BASE-T(X) / Auto MDI-X  
1 x Serial Interface (DB9 male connector)

Please use for RJ45 Ethernet Ports only cables suitable for the respective type of communication and ensure that signals are protected from possible interference.

### 9.1 10/100BASE-T(X) RJ45 Ports

The 10/100BASE-T(X) ports are used to connect to Ethernet-enabled devices. Below table shows pinouts for both MDI (NIC-type) ports and MDI-X (HUB/Switch-type) ports. Auto MDI-X ensures that both wiring-schemes are supported (Automatic crossover).

| 10/100BASE-T(X) RJ45 Pinouts |        |                    |        |
|------------------------------|--------|--------------------|--------|
| MDI Port Pinouts             |        | MDI-X Port Pinouts |        |
| Pin                          | Signal | Pin                | Signal |
| 1                            | Tx+    | 1                  | Rx+    |
| 2                            | Tx-    | 2                  | Rx-    |
| 3                            | Rx+    | 3                  | Tx+    |
| 6                            | Rx-    | 6                  | Tx-    |

## 9.2 Serial Interface DB-9 Connector

Pinouts DB-9 Connector (male)

| Pin # | RS-232 (DTE Device) | RS-422 | RS-485 (4-wire) | RS-485 (2-wire) |
|-------|---------------------|--------|-----------------|-----------------|
| 1     | DCD                 | RX-    | RX-             | DATA-           |
| 2     | RXD                 | RX+    | RX+             | DATA+           |
| 3     | TXD                 | TX+    | TX+             | ---             |
| 4     | DTR                 | TX-    | TX-             | ---             |
| 5     | GND                 | GND    | GND             | GND             |
| 6     | DSR                 | ---    | ---             | ---             |
| 7     | RTS                 | ---    | ---             | ---             |
| 8     | CTS                 | ---    | ---             | ---             |
| 9     | RI                  | ---    | ---             | ---             |



## 10. Device Access (Login to Web Interface)

For configuration the Web interface can be accessed via following factory default settings:

|                       |                               |
|-----------------------|-------------------------------|
| IP address / Netmask: | 192.168.1.110 / 255.255.255.0 |
| Username:             | admin                         |
| Password:             | Weidmueller                   |

Connect the PC to any Ethernet port of the Converter/Gateway and set the PC's IP address to a free one of range 192.168.1.0 / 255.255.255.0

Start a web browser and enter the IP address of the connected device into the browser's address line (<http://192.168.1.110>).

After the appearance of prompt (login) enter the login credentials. After confirmation of your input with "OK" the home page of the Converter/Gateway will be displayed.

## 11. Device Reset

- Press reset button for < 5 seconds to reboot the device (Warm Start).
- Press reset button for >= 5 seconds to reset the Converter/Gateway to factory default settings.

## 12. LED Indicators

Description of front panel LED indicators:

| LED  | Color | Status   | Description                            |
|------|-------|----------|----------------------------------------|
| PWR1 | Green | On       | Power is supplied to power input PWR1. |
| PWR2 | Green | On       | Power is supplied to power input PWR2. |
| Eth1 | Green | On       | Ethernet Port 1 is connected.          |
|      |       | Blinking | Data is transmitted.                   |
| Eth2 | Green | On       | Ethernet Port 2 is connected.          |
|      |       | Blinking | Data is transmitted.                   |
| Rx   | Amber | Blinking | Receiving serial data.                 |
| Tx   | Green | Blinking | Transmitting serial data.              |

**Note:** If - after connecting the Converter/Gateway to the serial device via a **RS485 2-wire** connection - the Rx LED is constantly on (Amber) though no data traffic has been started, this indicates a reversed connection of DATA- (A) and DATA+ (B) between the devices (RS485 cabling error).

## 13. Disposal information

|                                                                                       |                                                                                                                                                                     |                                                                                       |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  | Observe the notes for proper disposal of the product. You can find the notes here: <a href="http://www.weidmueller.com/disposal">www.weidmueller.com/disposal</a> . |  |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|

## 14. Specifications

| Interfaces                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethernet Ports              | 2 x RJ45 10/100BASE-T(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection                                                                                                                                                                                                                                                                                                                                                                                      |
| Serial Port                 | 1x DB9 connector (male) <ul style="list-style-type: none"><li>Interface Settings RS-232/422/485</li><li>Baud Rates 110 bps to 460800 bps</li><li>Data Bits 7, 8</li><li>Parity odd, even, none, mark, space</li><li>Stop Bits 1, 2</li><li>RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND</li><li>RS-422: Rx-, Rx+, Tx+, Tx-, GND</li><li>RS-485 4 wire: Rx-, Rx+, Tx+, Tx-, GND</li><li>RS-485 2 wire: Data-, Data+, GND</li><li>Flow Control XON/XOFF, RTS/CTS, DTR/DSR</li></ul> |
| LED Indicators              | PWR 1 / 2 (Power supply)<br>Eth 1 / 2 (Ethernet Port Link / Activity)<br>Tx / Rx (Serial Port Data Transmit / Receive)                                                                                                                                                                                                                                                                                                                                                              |
| DIP Switch                  | SW1: Sets Pull-Up resistor to 1 KΩ (ON) or 150 Ω (OFF)<br>SW2: Sets Pull-Down res. to 1 KΩ (ON) or 150 KΩ (OFF)<br>SW3: Enables (ON) / Disables (OFF) Line Termination                                                                                                                                                                                                                                                                                                              |
| Power supply                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Input Voltage               | 24 V DC (12 to 48 V DC), 2 redundant inputs                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Current Consumption         | 0.05 A – 0.1 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Connection                  | One removable 4-pin terminal block, Wiring cable 12-24AWG                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Overload Current Protection | Present                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reverse Polarity Protection | Present                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Physical Characteristics    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Housing                     | IP30 protection, metal                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Dimension (W x H x D)       | 26.1 x 110 x 75.2 mm (1.02 x 4.33 x 2.95 inch)                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Weight                      | 200 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Installation                | DIN-rail, Wall                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Environmental conditions    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Operating Temperature       | -40 to 70°C (-40 to 158°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Storage Temperature         | -40 to 85°C (-40 to 185°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ambient Relative Humidity   | 5 to 95% (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Altitude                    | up to 2000 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Regulatory Approvals        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Safety                      | UL 61010-1; UL 61010-2-201                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| EMC                         | EN 55032, EN 55024, FCC Part 15 Subpart B Class A, IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV, IEC 61000-4-3 RS: 80 MHz bis 1 Ghz: 3 V/m, IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV, IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV, IEC 61000-4-6 CS: 3 Vrms                                                                                                                                                                                                             |
| Shock                       | IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Free Fall                   | IEC 60068-2-31                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Vibration                   | IEC 60068-2-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| MTBF                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Time                        | 1.479.078 hrs                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Database                    | Telcordia SR332                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Warranty                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Time Period                 | 5 years                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### Contact Information

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