

WM-E8S® modem - Quick Reference Guide

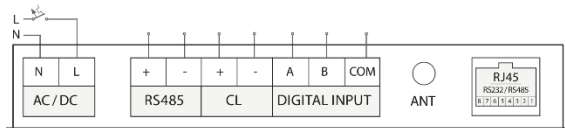
COMMUNICATION PROPERTIES

- The **WM-E8S®** external universal modem is a transparent AMR communication equipment with 4G LTE / 2G or LTE Cat.M / Cat.NB / 2G capabilities (up to the cellular module version) for automated remote reading of electricity meters. The modem can be connected to any meter type.
- Cellular module: according to the chosen internet module type (see Datasheet)
- SIM-card holder (replaceable push-insert SIM, 2FF type)
- External antenna connector interface: SMA-M (50 Ohm)

CONNECTORS

- AC/DC power connector: terminal block
- RS232 and RS485 port (RJ45 connector, wiring can be requested as 2- or 4-wire)
- CL (current loop (CL0), IEC1107 Mode C) – terminal block connector
- DI (2 digital inputs / logical inputs) – terminal block connector
- Order options:
 - RS485 alternative port (2-wire) – terminal block connector
 - M-Bus interface (terminal block connector, M-Bus blocks) for up to 4 slave

RS232 PORT	RS485 PORT	TERMINAL BLOCKS
RJ45 CON. (Device side)	RJ45 CONNECTION (Device side)	RS485 - RS485 port (2-wire)
PIN #1: GND	PIN #5: RX/TX N (-) - for 2- / 4-wire connection	CL - Current Loop
PIN #2: RxD	PIN #6: RX/TX P (+) - for 2- / 4-wire connection	DIGITAL INPUT (dry contact inputs)
PIN #3: TxD	PIN #7: TX N (-) - for 4-wire connection only	
PIN #4: DCD	PIN #8: TX P (+) - for 4-wire connection only	
		AC/DC
		-85...300VAC or 100...385VDC power input



WM-E8S

*Instead of the optional, alternative RS485 terminal connector (left) shown in the picture, the modem can be ordered with an M-Bus interface with different pinout.

CURRENT, POWER CONSUMPTION

- The modem can be powered from the AC/DC power input connector
- Power supply: ~85...300VAC, 50-60Hz ±5% / 120...385VDC
- Current: Stand-by: 10-12mA @ 230VAC / Average: 26-28mA @ 230VAC / Max: 35-44mA @ 230VAC
- Power consumption: Stand-by: 1.15 - 1.7W @ 230VAC (2.3 - 2.4VA) / Average: 3.0 - 3.6W @ 230VAC (6.0 - 7.2VA) / Max: 4.4 - 5W @ 230VAC (8.8 - 10VA)
- Surge protection (up to 4kV)

DESIGN & CONSTRUCTION

- Universal external modem
- IP52 plastic enclosure with transparent terminal block cover (protect the ports)
- 6 operation LEDs
- Operation: from -30°C to +70°C, at 5 - 90% rel. hum. / Storage: from -40°C to +80°C, at 5 - 90% rel. hum.
- Dimensions (W x L x H) / Weight: 175 x 104 x 60 mm / Weight: 400gr

OPERATION

- Transparent communication
- Remote & safe firmware updates
- Configuration: WM-E Term software
- Device Manager® software (order option)

RJ45 INTERFACE CONNECTION

Use the RJ45 connector for meter connection (RS232 or RS485) and for configuration in a PC.

Serial RS232 connection:

Make serial connection from the modem to a PC or a meter by wiring RJ45 connector's Pin #1, Pin 2, and Pin #3 – optionally pin nr. #4.

- PIN #1: GND
- PIN #2: RxD (receiving data)
- PIN #3: TxD (transmitting data)
- PIN #4: DCD

RS485 2- or 4-wire connection:

Configure the modem for RS485 meter connection – 2-wire or 4-wire mode:

- PIN #5: RX/TX N (-) – for 2-wire and 4-wire connection
- PIN #6: RX/TX P (+) – for 2-wire and 4-wire connection
- PIN #7: TX N (-) – for 4-wire connection only
- PIN #8: TX P (+) – for 4-wire connection only

INSTALLATION STEPS

- Step #1: In powered off status, ensure that the plastic terminal cover (marked by „I“) is placed on the device enclosure („II“) before continue!
- Step #2: An active SIM card (2FF type) must be inserted to the modem's SIM holder. Take care to the direction of insertion (follow the hints of the next photo). The proper orientation / direction of the SIM can be seen on the product sticker.
- Step #3: Use the RJ45 connector for meter connection (for RS232 or RS485 connection) or serial connection (in RS232 mode) to configure the modem with a PC.
- Step #4: Attach an external LTE antenna (800-2600MHz) to the SMA antenna connector.
- Step #5: Add ~85-300VAC or 120-385VDC power voltage to the AC/DC titled connector and the device will start its operation immediately.



CAUTION! Please consider the following, ~85-300VAC / 120-385VDC electric shock hazard inside the enclosure! **DO NOT** open the enclosure and **DO NOT** touch the PCB or its electrical parts!
The device must be used and operated according the related user manual. The installation can be carrying out only by a responsible, instructed and skilled person, who has enough experience and knowledge about carrying out the wiring and installing the modem device. Its prohibited to touch or modify the wiring or the installation by the user. It is prohibited to open the device enclosure during its operation or under power connection.
IMPORTANT! Instead of the alternative RS485 terminal connector shown in the picture, the modem can be ordered with an M-Bus interface.



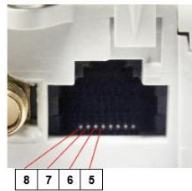
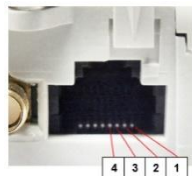
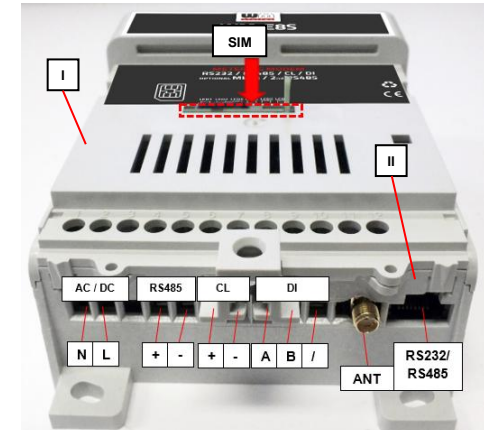
STATUS LED SIGNALS (from left-to-right)

- LED 1:** Mobile network status (if the mobile network registration was successful, it will be flashing faster)
- LED 2:** PIN status (if it is lighting, then PIN status is okay)
- LED 3:** E-meter communication (only active with DLMS)
- LED 4:** E-meter relay status (inactive) - only works in case of M-Bus
- LED 5:** M-Bus status
- LED 6:** Firmware status

CONFIGURATION

The modem has a pre-installed system (firmware). Operation parameters can be configured with WM-E Term® software (through its RJ45 connector in RS232 or RS485 mode).

- Step #1: Download the WM-E TERM® configuration software from here: https://m2mserver.com/m2m-downloads/WM_ETerm_v1_4.zip
- Step #2: Unpack the .zip file into a directory and execute the **WM-ETerm.exe** file. (The Microsoft® .Net Framework v4 is required).
- Step #3: Login to software with the following credentials:
 Username: **Admin** / Password: **12345678**
 Push to the **[Login]** button to enter into the software.
- Step #4: Choose the **WM-E8S** tile and push to the **[Select]** button.
- Step #5: On the left-side of the screen, click on **Connection type** tab, choose **Serial** interface.
- Step #6: **Add** a name for profile at **New connection**. Push to **Create**.
- Step #7: In the next window the connection settings will appear, where you have to define the connection profile parameters. Add the real **COM** port of the device connection according to the available serial port(s), the **Baud rate** should be **9 600 bps**, the **Data format** should be **8,N,1** and click on **[Save]** button to save the connection profile.
- Step #8: Choose the saved **Serial** connection profile at the bottom of the screen to connect to the modem before readout or configuration!
- Step #9: Click on the **Parameters Read** icon in the menu to readout the data from the modem. All parameter values will then be read out and visible by selecting a parameter group. The progress will be signed by the indicator bar at the bottom of the screen. At the end of the readout push to the **[OK]** button.
- Step #10: Choose the **APN** parameter group, and push the **[Edit values]** button. Add the **APN Name** value, if necessary give the **APN Username** and **APN Password** values and push to the **[OK]** button.
- Step #11: Then choose the **M2M** parameter group, and push the **[Edit values]** button. At the **Utility Communication Port (Primary meter readout, config.)** field give the port number, by which you try to readout the meter. Define the **Customer Communication Port** field also, which you want to use for remote parameterization of the modem / for firmware exchange. Then push to the **[OK]** button.
- Step #12: If the SIM uses a PIN code, then choose the **Mobile network technology** parameter group push to the **[Edit values]** and add the **SIM PIN** value there. Here you can change the **Mobile network technology to LTE only** or **LTE with fallback to 2G** (for fallback feature) or Cat.M, etc. You can also select here a dedicated mobile network provider (auto or manual). Then push to the **[OK]** button.
- Step #13: For configuring the **RS232 serial port** and transparent settings, open the **Trans. / NTA** parameter group. Basic device settings are the **Multi utility mode: transparent mode, Meter port baud rate:** from 300 to 115 200 baud (or use the default 9600 baud), at **Data format for meters** choose the proper format mode (e.g. 8N1). Then confirm the settings with the **[OK]** button.
- Step #14: For configuring **RS485 Meter Interface** – after the performing the settings push to the **[OK]** button.
 - Open the **RS485 meter interface** parameter group. Configure the **RS485 mode** to the proper value according the used cable version (for 2-wire or the recommended **4-wire**).
 - In case of using the **RS485 terminal block** connector, the setting must be **2-wire!** (Otherwise it will be not working.)
 - The operation of the RJ45 port's RS485 interface and the terminal block RS485 interface are parallelised!**
 - In case of using RS232 mode only** let „*disable*“ the RS485 port here.
- Push to the **[OK]** button.
- Step #15: Choose the **Secondary Transparent parameter** group to configure secondary RS485 port (2-wire terminal block). After the settings push to the **[OK]** button. Configure the following parameters here:
 - Secondary Transparent baud rate** field value is **2400 bps** (by default)
 - Secondary Transparent port number** is **9002** You can use a different port, if you want.
 - To configure **Current Loop settings** setup **CL0 Transparent Baudrate** (speed rate between 300 – 19 200 baud) and **CL0 Transparent Mode** parameters as well (BN1) or other setting by the request). Then push the **[OK]** button.
- Step #16: When you've finished, choose **Parameter write** icon to send the changed settings to the modem. The status of the configuration process can be seen at the bottom of the screen. At the end of the upload, the modem will be restarted and operating according to the new settings.
- Step #17: After the successful configuration, disconnect the RS232-USB adapter from your PC. Then use the E-Meter RS485 cable (2-wire) and connect to the RJ45 port and the other side of the cable to the E-Meter.



FURTHER OPTIONAL SETTINGS

- To refine the modem handling choose the **Watchdog** parameter group.
- Save current last good configuration** at **File/Save** menu. Later you can distribute this setting (file) to another modem device by one click.
- Firmware refresh:** choose the **Tools / Single Firmware update** menu by choosing the appropriate firmware file (with .dwl file extension).
- You can change the configuration password of the modem anytime by choosing the **key** icon from the menu.
- Any further settings can be performed by hints of WM-E Term User Manual: https://m2mserver.com/m2m-downloads/WM-E-TERM_User_Manual_V1_97.pdf

The product documentation can be found on the product's website: <https://www.m2mserver.com/en/product/wm-e8s/>

CERTIFICATIONS

The product has CE / ReD certification and compatible with the related international standards
 This product assigned with CE symbol according to the European regulations.

