Lewiz

Installation Manual

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Document info

Version:	1.0
Status:	Initial Version
Version date:	9/12/2024
Filename:	Lewiz_installation_manual_EN_V1.0
Author:	Noor Verbeke
Number of pages:	14

History of changes

VERSIE	DATUM	OMSCHRIJVING
V1.0	9/12/2024	Initial Version

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1. Introduction

1.1 Scope

This manual is applicable to Lewiz, an electronic device which is used for Energy Monitoring and Energy Management applications. It describes the specifications, installation and operation of the product. Please read this document carefully before installation and operating.

1.2 Target group

The installation and the operation of this device and any maintenance must be carried out by a qualified person in accordance with specific local standards and safety regulations.

1.4 Used symbols

Following symbols are used in this document and/or are marked on the product:

	Alternating current
	Three-phase alternating current
	Equipment protected throughout by DOUBLE INSULATION or REINFORCED INSULATION
	Caution, possibility of electric shock
	Caution
	Earth (ground) terminal

1.5 Safety precautions



DANGER — HAZARDOUS VOLTAGES
WARNING - These installation/servicing instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Always adhere to the following checklist:

1. Only qualified personnel or licensed electricians should install Lewiz.
2. Follow all applicable local and national electrical and safety codes.
3. Install Lewiz in an electrical enclosure (panel or junction box) or in a limited access electrical room.
4. Verify that circuit voltages and currents are within the proper range for the meter model.
5. Equipment must be disconnected from the HAZARDOUS LIVE voltages before access.
6. Before applying power, check that all the wires are securely installed by tugging on each wire.
7. Do not install Lewiz where it may be exposed to temperatures below –10°C or above 55°C, excessive moisture, dust, salt spray, or other contamination. Lewiz requires an environment no worse than pollution degree 2 (normally only non-conductive pollution; occasionally, a temporary conductivity caused by condensation must be expected).
8. Do not drill mounting holes in the device. Click the module on a DIN Rail instead.
9. If Lewiz is installed incorrectly, the safety protections may be impaired.

1.6 Exclusion of liability

We have carefully reviewed the contents of this publication and have made every effort to ensure the accuracy of the information provided. However, deviations from the descriptions cannot be completely ruled out. Therefore, we cannot accept liability for any errors or omissions.

This manual is regularly reviewed, and necessary corrections will be incorporated into future editions. If you have any suggestions or feedback, please do not hesitate to contact us at support@xemex.eu.

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2. Technical description

2.1 Lewiz Energy Management System Overview

Lewiz is an advanced Energy Management System designed to optimize energy consumption and costs for residential users. It consists of a software platform and a DIN rail-mounted hardware unit, equipped with various interfaces to seamlessly integrate with home installation devices. By monitoring and intelligently controlling connected devices, Lewiz ensures efficient energy usage tailored to the resident's needs.

2.1.2 Key Features

Comprehensive Device Integration

Lewiz supports multiple interfaces for connecting with devices in the home installation, including:

- RS485
- LAN
- P1 input
- Pulse input
- I/O interfaces
- Mbus via extension
- Modbus TCP

Cloud Integration

Lewiz is linked to a cloud-based energy management platform. Through the platform:

- Residents gain real-time insights into energy flows via the Lewiz app.
- All features of the PV monitoring system become accessible, including alarms, production testing, and Central Smart PV System (CSPS) functionalities.
- Software updates and new applications for supporting additional devices or optimization algorithms are seamlessly managed.

Flexible Connectivity

The built-in 4G communication modem ensures a reliable connection to the cloud-based platform. Alternatively, Lewiz can connect via LAN to the home’s internet router, enabling real-time energy flow tracking.

Customizable Configuration

During installation, the system is configured by the installer to suit the specific devices in the home. Parameters are dynamically updated from the platform based on various factors, such as:

- Environmental data (e.g., weather forecasts).
- Resident preferences set via the Lewiz app (e.g., charging an electric car slowly or quickly).
- Settings managed by the installation manager.

Energy Optimization

Once configured, Lewiz autonomously manages energy flows using data-driven algorithms and the inputs from the platform and the resident's preferences. This intelligent control helps minimize energy consumption and costs while maintaining convenience for the resident.

2.1.3 Benefits

Lewiz empowers residents to take control of their energy usage while offering the flexibility and intelligence needed for modern home energy management.

- ✓ Enhanced Energy Efficiency: By intelligently controlling energy usage, Lewiz reduces unnecessary consumption.
- ✓ Cost Savings: Optimized energy flows lead to lower utility bills.
- ✓ User-Friendly Monitoring: The Lewiz app provides clear insights into energy usage and system performance.
- ✓ Future-Proof: Regular updates from the cloud-based platform ensure compatibility with new devices and algorithms.

2.2 Technical specifications

Specifications		
Physical properties	Housing	DIN43880, 9 units
	Weight	280 grams
	Dimensions	160 x 90 x 58 mm
Environment	Protection Class	Class II
	Ambient temperature	-10°C ~ 55°C
	Storage Temperature	-20°C ~ 80° C
	Operating relative humidity	10%-95%RH (Non-Condensing)
	Storage relative humidity	5%-95%RH (Non-Condensing)

	Pollution degree	2
	Altitude	< 2000m
	Scope	Residential, indoors in suitable DIN-rail cabinet
Interfaces		
Power	Power Supply	230V AC, mains operated, < 30W self-consumption
	Connector	2 screw terminals
LEDS	LEDs	4 x green, 1 x red
WAN	Modem	LTE CAT-M, ML865G1-WW
	SIM	Internal
	Antenna	External via SMA connector
LAN-1 & LAN-2	Ethernet	10 / 100 Mb interface.
	Max cable length	100 m
	Connector	RJ45
P1 input	Protocol	Receiver for SMR5.x / DSMR4.x P1 messages
	Max cable length	2 m
	Connector	RJ11, 6 PIN
RS485-1 & RS485-2	Protocol	Modbus RTU / Modbus TCP
	Max cable length	100 m
	Connector	3 screw terminals (A, B, Shield)
Pulse input	Protocol	S0 input (62053-31)
	Max cable length	30 m
	Connector	2 screw terminals
USB Host	Number of ports	2 internal + 2 external Connector USB A, female
	Connector	USB A, female
Extension board	Connector	6 screw terminals
Certification RED (2014/53/EU)	Health	EN 62311
	Safety	IEC62368-1:2014 EN62368-1/A11:2020
	EMC	EN-IEC 61000 EN 61000-3-2:2024 inclA1 EN 61000-3-3:2013 incl A1 EN 61000-6-2:2013 EN 61000-6-3:2013

	RF	EN 301 489-1 EN 301 489-52 EN 301 908-1 EN 301 908-13

2.2.1 Lewiz LED Behavior

Lewiz has five LED indicators that show different statuses and error messages. Below is the explanation for each LED:

WAN LED

- OFF: The modem is not registered on the network.
- BLINKING: The modem is registered on the network.
- ON: The PPP link is active, and the network interface is ready (an IP address has been assigned).

LAN LED

- OFF: The LAN or WLAN interface is not active.
- BLINKING: The LAN or WLAN interface has received an IP address from the DHCP server.
- ON: The VPN link is active, and the network interface is ready (an IP address has been assigned).

MB LED (Modbus)

- OFF: No Modbus devices are being read (the data logger configuration is empty).
- BLINKING: Modbus devices are being read, but not all devices respond.
- ON: All Modbus devices being read respond.

P1 LED

- OFF: No bytes have been received on the P1 interface within the last 10 seconds.
- BLINKING: Bytes have been received on the P1 interface within the last 10 seconds, but there is no valid P1 message.
- ON: A valid P1 message (with correct CRC) has been received within the last 10 seconds.

ERR LED

- OFF: No errors detected.

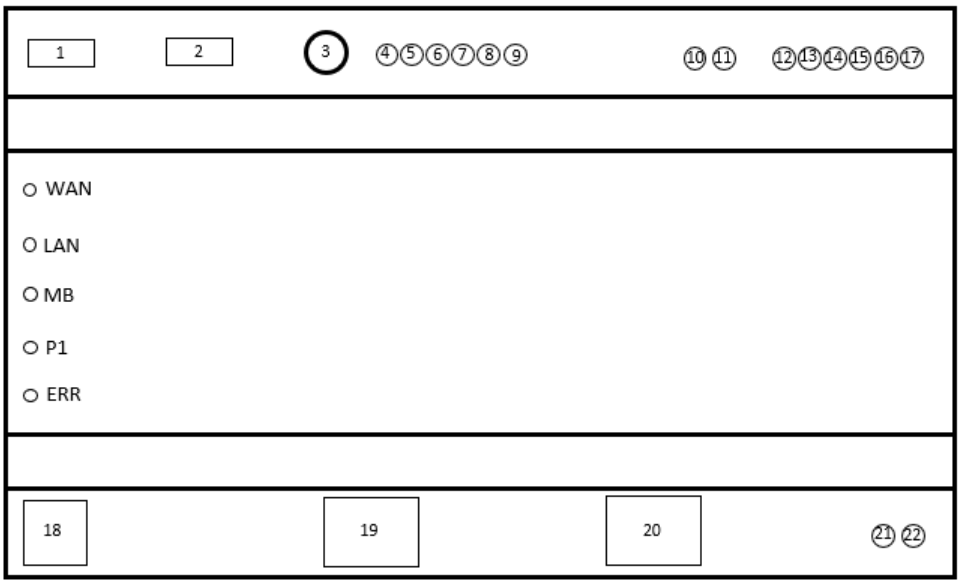
- ON: An error occurred.

3. Installation Instructions

GUIDELINES FOR SAFETY AND INSTALLATION
WARNING - installation guide must be consulted in all cases when manipulating parts which are marked with the Caution symbol. The installation and the operation of this device and any maintenance must be carried out by a qualified person in accordance with specific local standards and safety regulations.

Electrical wiring

4.2.1 Terminal locations and description



Terminal	Description	Usage
1	External USB1	Reserved for later expansions
2	External USB2	Reserved for later expansions
3	Antenna connector	4G WAN connection with cloud-based platform
4	RS485-1, shield	Modbus Slave, virtual grid meter, Shield
5	RS485-1, A+	Modbus Slave, virtual grid meter, A+
6	RS485-1, B-	Modbus Slave, virtual grid meter, B-
7	RS485-2, shield	Modbus Master, Monitoring & control modbus RTU devices, Shield
8	RS485-2, A+	Modbus Master, Monitoring & control modbus RTU devices, A+
9	RS485-2, B-	Modbus Master, Monitoring & control modbus RTU devices, B-

10	Pulse input	Pulse input for PV meter with pulse output
11	Pulse input	Relay contact for heat pump controlPulse input for PV meter with pulse output
12-17	Connection with extension board	Relay contact for heat pump control
18	P1 input	Grid connection monitoring via Smart Meter
19	LAN-1	Modbus Master, monitoring and control modbus TCP devices
20	LAN-2	WAN connection to SIMPL via LAN and home router
21	230V AC - N	Power supply Lewiz
22	230V AC – L1	Power supply Lewiz

4.2.2 Installation Guide

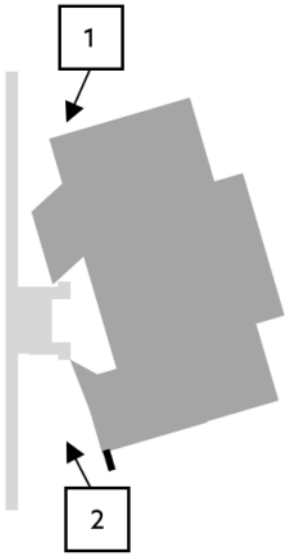
Follow the steps below to install Lewiz correctly

Preparation

Ensure the device is powered off before starting. Verify that you have all the necessary tools and cables ready. Read the specifications and safety requirements in the device manual.

Mounting

Mount the device in a DIN rail cabinet. Position the top clip of the module onto the DIN rail. Press the meter down until it clicks into place. Ensure the locking mechanism is engaged.



Power Supply (21 & 22)

For the AC connections, use stranded wires with a section of 2.5 mm^2.

- 230V AC - N (21): Connect to the neutral wire (N).
- 230V AC - L1 (22): Connect to the live wire (L1).

Verification: Ensure the connection complies with local electrical regulations. Don't power the device until the installation is finished!

Antenna Connector (3)

Connect the antenna for better 4G WAN connection to the cloud platform. Screw the antenna securely onto the connector. Attach the adhesive antenna to the outside of the cabinet.

Connection of external devices for monitoring / management

This manual does not cover the integration of external devices such as smart meters, heat pumps, inverters, or charging stations from third-party manufacturers. For detailed instructions on connecting these devices, please refer to their specific manuals. You can obtain these manuals by contacting support at support@xemex.eu.

4.2.2 Lewiz installation requirements

This section outlines the mandatory requirements for safely installing the LEWIZ unit. Compliance with these requirements ensures safe and effective operation of the system.

Branch circuit requirements

The LEWIZ unit is specified for permanent connection to an ≤ 16A IEC branch circuit, meaning that Lewiz must be connected to a branch of the electrical network (branch circuit) designed for a maximum current of 16 amperes, according to IEC standards (international electrotechnical standards).

As a result, it is **mandatory** to use a double-pole external circuit breaker / overcurrent protection in the installation. This circuit breaker / overcurrent protection must be suitably located and easily reached. Furthermore, it must be marked as the disconnection device for Lewiz only.
The overcurrent protection should have following ratings:

- 230/400 VAC
- 16 A
- Double-pole

Residual Current Device (RCD)

Install an appropriate residual current device (RCD) as part of the main connection to ensure additional protection against electrical faults.

Voltage Tolerance

The LEWIZ unit operates within a voltage tolerance of ±10%. Ensure that the supply voltage remains within this range to prevent potential operational issues.

End of document.