Eastron SDM630-MODBUS-MID V3

Eastron SDM630Modbus-V3 Three-phase Digital Electricity Meter User Manual

Model: SDM630-MODBUS-MID V3

1. Introduction

The Eastron SDM630Modbus-V3 is a versatile three-phase digital electricity meter designed for accurate measurement of active and reactive power in 1-phase AC (1p2w) as well as 3-phase (3p3w, 3p4w) networks. Its compact design, suitable for 35mm DIN rail mounting, and a wide load range up to 80A make it an ideal solution for various applications, including photovoltaics and e-mobility. This manual provides essential information for the proper installation, operation, and maintenance of your device.

Figure 1: Eastron SDM630Modbus-V3 Digital Electricity Meter

This image displays the front view of the Eastron SDM630Modbus-V3 meter, showing its LCD display, control buttons, and branding. The display indicates current readings and units.

2. Setup and Installation

The SDM630Modbus-V3 is designed for easy snap-on mounting on a standard 35mm DIN rail. Ensure all power is disconnected before beginning installation.

2.1 Mounting

The meter has a width of 4HP (72mm) and is designed for secure attachment to a 35mm DIN rail. Simply align the meter with the rail and press firmly until it clicks into place.

Figure 2: Key Features and DIN Rail Mounting

This image highlights various features of the meter, including the pulse LED, backlit LCD display, simple touch operation, 4-module width, sealing opening for security, and 35mm DIN rail mounting capability.

2.2 Wiring Connections

The meter supports various input configurations:

- 3-phase 4-wire
- 3-phase 3-wire
- 1-phase 2-wire

Refer to the wiring diagram provided with the product for specific connection points. Ensure all connections are secure and comply with local electrical codes. The meter can handle measurements from 20mA up to a maximum of 80A continuous load.

Figure 3: Meter for DIN Rails - Key Capabilities

This image illustrates the meter's capabilities, including its function as a three-phase multi-function network analyzer, 100A direct load, compatibility with 3P4W/3P3W/1P2W systems, 4-module width, measurement of various parameters (kWh, kVArh, W, Var, VA, PF, Hz, dmd, V, A, THD), bi-directional measurement for kW and kWh, RS485 Modbus RTU, and two pulsed outputs.

3. Operating Instructions

The SDM630Modbus-V3 features a clear, illuminated display and simple direct operation for viewing various measurement parameters.

3.1 Display and Navigation

The LCD display shows real-time energy consumption and other measured values. Use the navigation buttons (typically 'M' for Menu, 'P' for Page, and arrow keys) to cycle through different display screens and access settings.

3.2 Measurement Options

The meter provides a wide range of measurement data, including:

- Total Active Energy (kWh)
- Total Reactive Energy (kVArh)
- Active Power (kW)
- Reactive Power (kVArh)
- Apparent Power (kVA)
- Power Factor
- Voltage (V)
- Current (A)
- Frequency (Hz)

Active power (kWh) and reactive power (kVArh) are calculated on a net basis, displaying both total counter readings and separate import/export values.

3.3 Communication Interfaces

The meter is equipped with:

- **RS485 Modbus-RTU Interface:** For remote reading and integration into energy management systems. Supports communication up to 19.2bps.
- **2 Pulse Outputs (S0):** For import and/or export, useful for connecting to external data loggers or control systems. P1 is fixed at 400 imp/kWh, while P2 is adjustable.

4. Maintenance

The Eastron SDM630Modbus-V3 is designed for long-term, reliable operation with minimal maintenance. Regular inspection of connections and the meter's physical condition is recommended.

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the meter. Do not use abrasive cleaners or solvents.
- **Connections:** Periodically check all wiring connections to ensure they remain tight and free from corrosion.
- **Sealing:** The meter includes a sealing opening for security after installation, protecting against tampering. Ensure this seal remains intact if required for billing or regulatory purposes.

No user-serviceable parts are inside the meter. Refer all internal servicing to qualified personnel.

5. Troubleshooting

If you encounter issues with your Eastron SDM630Modbus-V3 meter, consider the following common problems and solutions:

- **No Display/Power:**

- Check all power connections to ensure they are secure and correctly wired.
- Verify that the input voltage is within the specified range (100~280V AC L-N, 100~480V AC L-L).

- **Incorrect Readings:**
  - Confirm that the wiring configuration (1-phase, 3-phase 3-wire, 3-phase 4-wire) matches your electrical system.
  - Ensure current transformers (CTs), if used with a different model, are correctly installed and ratio is configured. (Note: This model is direct measuring up to 80A).
  - Check for any external interference or magnetic fields near the meter.
- **Communication Issues (RS485):**
  - Verify the RS485 wiring polarity (A/B).
  - Check Modbus address and baud rate settings on both the meter and the master device.
  - Ensure proper termination resistors are used on the Modbus network if necessary.
- **Pulse Output Not Working:**
  - Confirm the pulse output settings (P1 fixed, P2 adjustable) are correct.
  - Check the connection to the receiving device.

If problems persist after attempting these solutions, please contact Eastron technical support or your local distributor for assistance.
For more detailed information on Modbus communication and specific error codes, refer to the comprehensive technical manual available from Eastron.

6. Specifications

The following table outlines the technical specifications of the Eastron SDM630Modbus-V3 digital electricity meter:

Figure 4: Detailed Specification Table

This image provides a comprehensive table detailing the electrical, performance, and communication specifications of the Eastron SDM630Modbus-V3 meter, including input voltage, frequency, current range, pulse outputs, Modbus parameters, and environmental conditions.

Eastron SDM630Modbus-V3 Technical Data

Parameter	Value
Input Voltage (L-N)	100~280V AC
Input Voltage (L-L)	100~480V AC
Frequency Range	45~66Hz
Current Measurement Range	20mA to max. 80A continuous load
S0 Pulse Outputs	2
S0 Pulse Rate (P1)	Fixed at 400 imp/kWh
Serial Communication	RS485 MODBUS RTU

Parameter	Value
Baud Rate	Up to 19.2kbps
Dimensions (L x W x H)	10 x 7.2 x 6.6 cm
Weight	380 g
Mounting	35mm DIN rail (4HP width)
Operating Temperature	-25°C to +55°C

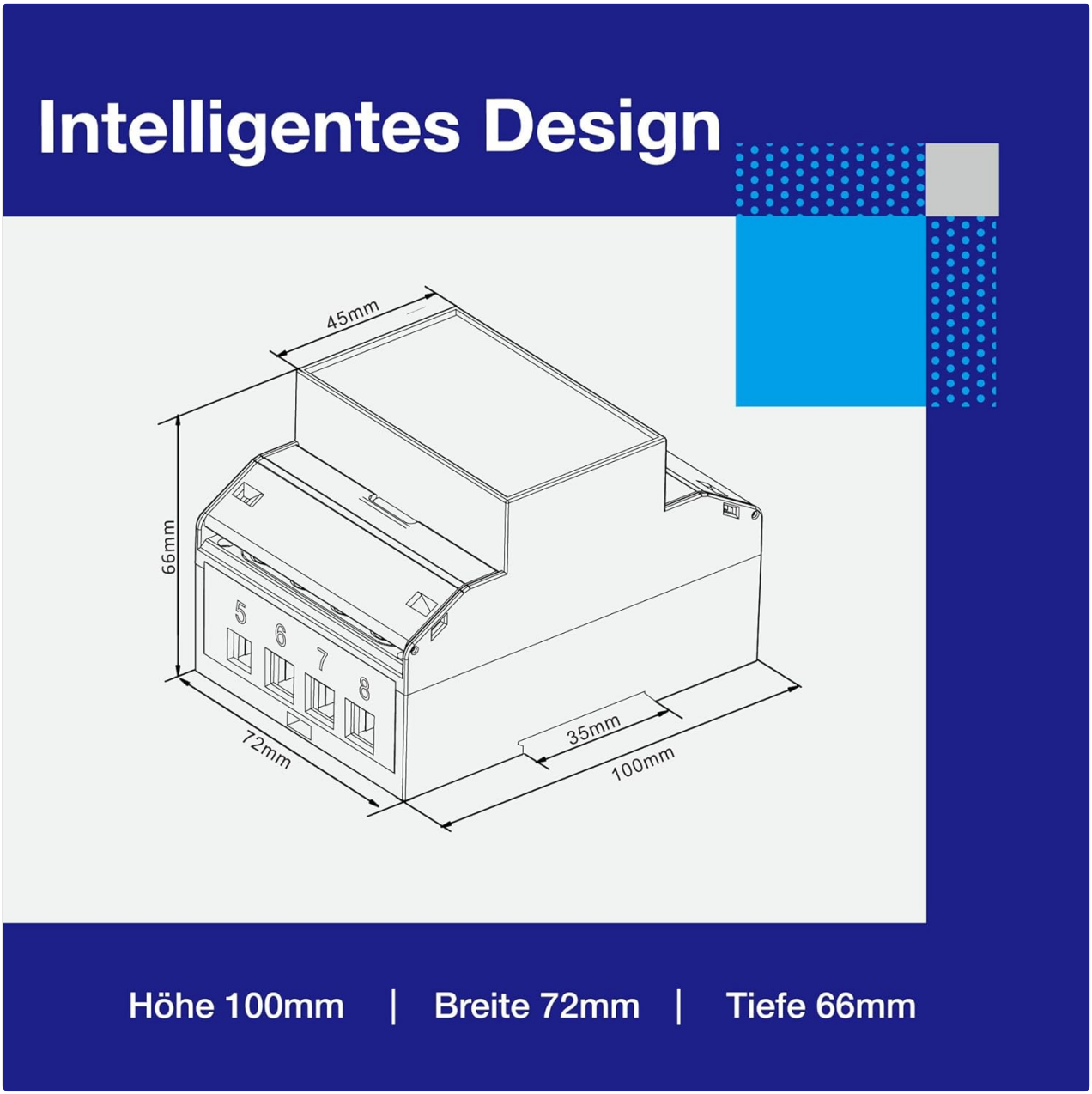

Figure 5: Product Dimensions

This image provides a technical drawing of the meter with its dimensions: Height 100mm, Width 72mm, Depth 66mm, and DIN rail depth 35mm.

7. Warranty and Support

Eastron products are manufactured to high quality standards. For information regarding warranty coverage, please refer to the warranty card included with your product or visit the official Eastron website. In case of technical issues or inquiries not covered in this manual, please contact Eastron customer support or your authorized dealer. When contacting support, please have your product model number (SDM630-MODBUS-MID V3) and serial number ready.