SDM630MCT M-bus Series

Smart Three Phase Energy Meter

USER MANUAL

2025 V1.00

Statements

Eastron reserves the right to amend the product specifications in this manual without prior notice. Before placing an order, please contact our company or local agent to get the latest specifications.

CONTENT

Version History

Version	Date	Changes
1.00	2025-2-28	Initial issue

Risk Information

Information for Your Own Safety

This manual does not contain all of the safety measures operating the equipment (module, device) for different conditions and requirements. However, it does contain information which you must know for your own safety and to avoid damages. These information are highlighted by a warning triangle indicating the degree of potential danger.

Warning

This means that failure to observe the instruction can result in death, serious injury or considerable material damage.

Caution

This means hazard of electric shock and failure to take the necessary safety precautions will result in death, serious injury or considerable material damage.

Qualified personnel

Operation of the equipment (module, device) described in this manual may only be performed by qualified personnel. Qualified personnel in this manual means person who are authorized to commission, start up, ground and label devices, systems and circuits according to safety and Regulatory standards.

Proper handling

The prerequisites for perfect, reliable operation of the product are proper transport, proper storage, installation and proper operation and maintenance. When operating electrical equipment, parts of this equipment automatically carry dangerous voltages. Improper handling can therefore result in serious injuries or material damage.

- ✧ Use only insulating tools.
- ✧ Do not connect while circuit is live (hot).
- ✧ Place the meter only in dry surroundings.
- ✧ Do not mount the meter in an explosive area or expose the meter to dust, mildew and insects.
- ✧ Make sure the wires are suitable for the maximum current of this meter.
- ✧ Make sure the AC wires are connected correctly before activating the current/voltage to the meter.
- ✧ Do not touch the meter connecting clamps directly with metal, blank wire and your bare hands as you may get electrical shock.
- ✧ Make sure the protection cover is placed after installation.
- ✧ Installation, maintenance and reparation should only be done by qualified personnel.
- ✧ Never break the seals and open the front cover as this might influence the function of the meter, and will cause no warranty.
- ✧ Do not drop, or allow strong physical impact on the meter as the high precisely components inside may be damaged.
- ✧ Designed to be mounted inside of switchboards or cabinet on DIN rail.
- ✧ This device must have a suitable sized Circuit Breaker feeding the Multi Function Energy Meter so it does

not exceed the maximum rated current.

- ✧ The supply wiring of this device shall be suitable sized cable to match the installed circuit breaker.
- ✧ A Disconnection Device (Circuit Breaker) should be installed close to the Multi Function Energy Meter.
- ✧ The Disconnection Device shall be marked as the Disconnection Device for the Multi Function Energy Meter.

Disclaimer

We have checked the contents of this publication and every effort has been made to ensure that the descriptions are as accurate as possible.

However, deviations from the description cannot be completely ruled out, so that no liability can be accepted for any errors contained in the information given. The data in this manual is checked regularly and the necessary corrections are included in subsequent editions. We are grateful for any improvements that you suggest.

Chapter 1. Introduction

1.1 Product Introduction

SDM630MCT Mbus Series including models, SDM630MCT-MB & SDM630MCT-2T-MB.
The meter measures and displays the characteristics of single phase two wire (1p2w), three phase three wire (3p3w) and three phase four wire (3p4w) supplies, including voltage, frequency, current, power, active and reactive energy, imported or exported. Energy is measured in terms of kWh, kVArh. Maximum demand current can be measured over preset periods of up to 60 minutes. In order to measure energy, the unit requires voltage and current inputs in addition to the supply required to power the product. The requisite current input(s) are obtained via current transformers(CT).

The meter can be configured to work with a wide range of CTs with 1A/5A output, giving the unit a wide range of operation.An M-Bus communication port is available on the meter for remote data transmission.
DM630MCT-2T-MB also offers a 2 tariff port for dual source power measurement.

This unit can be powered from a separate auxiliary AC power supply. Alternatively it can be powered from the monitored supply, where appropriate.

1.2 Product Characteristics

- Bi-directional measurement IMP & EXP
- M-Bus EN13757-3
- LCD with white backlit, adjustable backlit time

Measurements:

- Phase voltage: V1, V2, V3
- Line voltage: V1-2, V2-3, V3-1
- Current: I1, I2, I3,IN
- Active power: P1, P2, P3, P_total (total active power)
- Reactive power: Q1, Q2, Q3, Q_total (total reactive power)
- Apparent power: S1, S2, S3, S_Total (total apparent power)
- Frequency: Hz
- Power factor: PF
- Active energy: Ep_imp (import active energy), Ep_exp (export active energy), Ep_total (total active energy)
- Reactive energy: Eq_imp (import reactive energy), Eq_exp (export reactive energy), Eq_total (total reactive energy)
- THD-I and THD-U
- Maximum demand: MD

Setup:

- M-Bus EN13757-3
- Demand Interval Time
- Backlit time
- Supply system 1p2w, 3p3w,3p4w
- Reset
- Password modification

Chapter 2. Technical Parameters

2.1 Technical Parameters

Voltage AC (Un)	3*230/400VAC
Voltage range	100 - 277V AC(L-N)
Voltage between phase	100 to 480V AC (L-L)
Current input	0.05-5(6)A
Over current withstand	20Imax for 0.5S
Frequency rating value	50/60Hz
AC voltage withstand	4KV/1min
Impulse voltage withstand	6kV – 1.2/50μS waveform
Power consumption	≤ 2W/10VA
Display	LCD with white backlit
Max. reading	9999999.9 kWh/kVArh

2.2 Mechanical Characteristics

Weight	≈310g
IP Degree of Protection (IEC 60529)	IP51 Front Display IP20 Whole Meter
Dimensions (DxHxW)	65*94.5*72mm
Mounting	DIN Rail 35mm
Material of Meter Case	Self-extinguishing UL 94 V-0
Mechanical Environment	M1

2.3 Performance Criteria

Operation humidity	≤90% Non-condensing
Storage humidity	≤95% Non-condensing
Operating temperature	-40℃~+70℃
Storage temperature	-40℃~+80℃
Pollution Degree	2
Altitude	≤2000m
Vibration	10Hz to 50Hz, IEC 60068-2-6

2.4 Electromagnetic Compatibility

Electrostatic Discharge	IEC 61000-4-2
Immunity to Radiated Fields	IEC 61000-4-3
Immunity to Fast Transients	IEC 61000-4-4
Immunity to Impulse Waves	IEC 61000-4-5
Conducted Immunity	IEC 61000-4-6
Immunity to Magnetic Fields	IEC 61000-4-8
Immunity to Voltage Dips	IEC 61000-4-11
Radiated Emissions	EN55032 Class B
Conducted Emissions	EN55032 Class B

2.4 Safety

Over-voltage Category	CAT III
Installation category	CAT III
Current Inputs	Require External Current Transformer for Insulation
Insulating encased meter of protective class	II

2.5 Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.1V
Current	±0.5%	0.1A
Frequency	±0.2%	0.01Hz
Power factor	±1%	0.001
Active Power	±1%	0.01kW
Reactive power	±1%	0.01kVAr
Apparent power	±1%	0.01kVA
Active energy	Class 0.5S IEC62053-22 Class C EN50470-3:2022	0.1kWh
Reactive energy	Class 2 IEC 62053-23	0.1kVArh

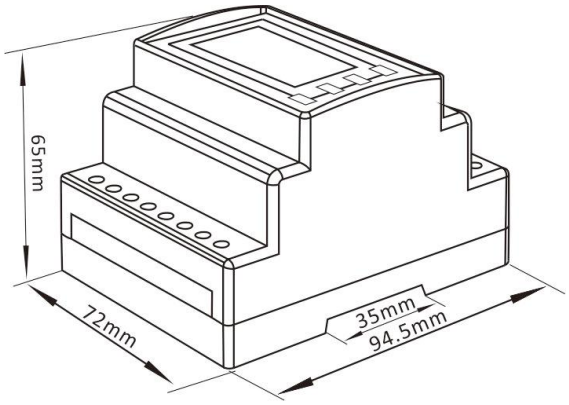
2.6 Communication

M-bus Communication

The meter provides an M-Bus port for remote communication. The protocol fully comply with EN13757-3.
The following communication parameters can be configured via M-bus communication:

Baud rate	600, 1200, 2400(default), 4800, 9600bps
Parity	NONE/ ODD / EVEN(default)
Stop bits	1 or 2
M-Bus network primary address	001 to 250
M-Bus network secondary address	00 00 00 00 to 99 99 99 99 (default: the last 8 digits of SN)

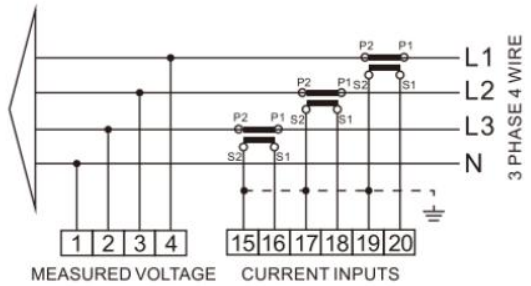
2.7 Dimensions



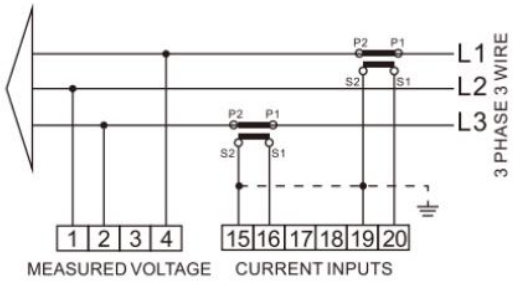
Height: 94.5 mm
Width: 72mm
Depth: 65mm

2.8 Wiring Diagram

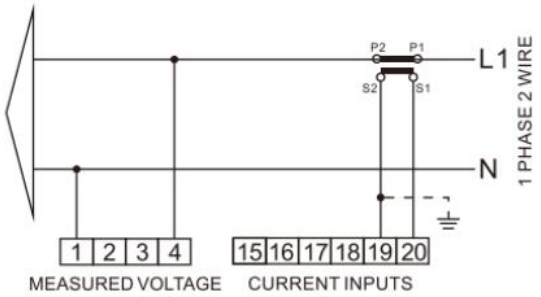
Current and Voltage Inputs



3P4W 3CTs

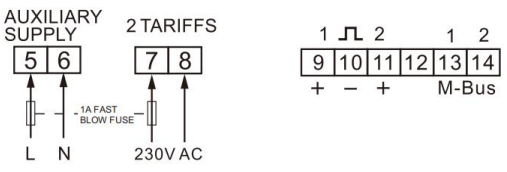


3P3W 2CTs

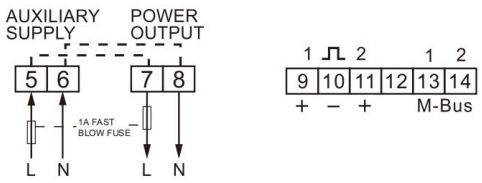


1P2W(L+N) 1CT

Definitions of Other Terminals



SDM630MCT-2T-MB



SDM630MCT-MB

Wiring Guide

Terminal ①~⑳	Measurement Connection	Screw Connection	Diameter 3.0mm*PH1 
	Strip Length	6-7mm	
	Screw	M3	
	Rigid/Supple	0.5-2.5mm² (30 ~ 14AWG)	
	Tightening Torque	0.2Nm	
	Model	PZ0	

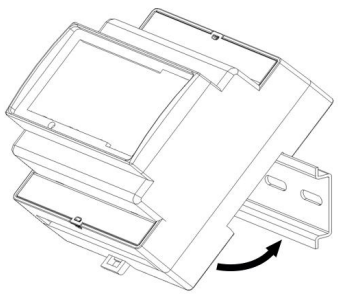
Installation

Step 1: Select a 35mm-wide DIN rail, Pull down the back-end clip on the meter to unlock the mounting mechanism.

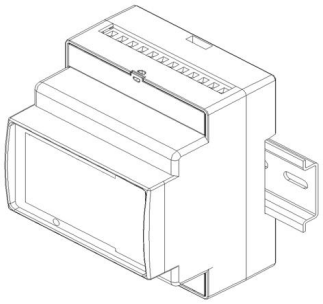
Step 2: Align Upper Slot with DIN Rail. Position the upper slot of the meter's DIN rail groove onto the DIN rail, ensuring full contact (see Figure 1).

Step 3: Following the direction indicated in Figure 1, engage the lower slot of the DIN rail groove onto the DIN rail until audibly seated (see Figure 2).

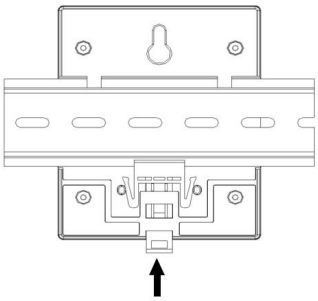
Step 4: Push up the back-end clip to lock the meter firmly onto the DIN rail (see Figure 3).



①



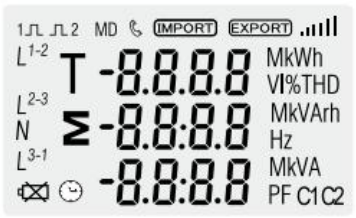
②



③

Chapter 3. Operation

3.1 Installation Display

	The first screen lights up all display segments and can be used as a display check.
	The second screen and the third screen indicates the firmware installed in the unit. Note： the actual display might be different with the left on here.
	
	The interface performs a self-test and indicates the result if the test passes.

3.2 Button Functions

Button	Short click		Long press (3s)	
	Display mode	Setup mode	Display mode	Setup mode
	V1 V2 V3 V1-2 V2-3 V3-1 I1 I2 I3 IN V %THD I %THD	Return to previous menu		
	Hz PF PF1 PF2 PF3 MD of I1 I2 I3 MD of Power	Previous page or increase value	Primary Address Second Address Baud Rate Parity Bit Stop Bit CRC All display segments	

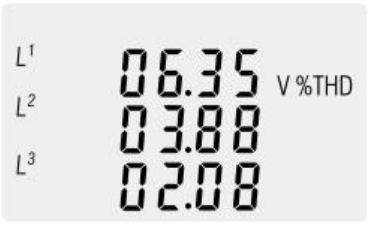
	P1 P2 P3 Q1 Q2 Q3 S1 S2 S3 P-t Q-t S-t	Next page or decrease value		
	Active E-t Reactive E-t Imp Active E Exp Active E Imp Reactive E Exp Reactive E	Move to right side	Enter Setup mode	Confirm setting
	Note: For tariff meters, the display is different. Please refer to the following content for detailed information.			

3.3 Measurements

3.3.1 Voltage and current

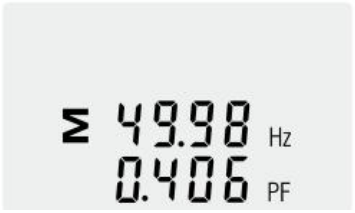
Each successive pressing of the  button selects a new range:

	Phase to neutral voltage (Not available under 3P3W)
	Phase to phase voltage (Not available under 1P2W)
	Current of each phase
	Neutral current (Not available under 3P3W &1P2W)

	Phase to neutral voltage THD% (Phase to phase voltage THD% under 3P3W)
	Phase current THD%

3.3.2 Frequency, Power factor and Demand

Each successive pressing of the  button selects a new range:

	Frequency and Power Factor (total)
	Power Factor of each phase (Not available under 3P3W &1P2W)
	Maximum current demand of each phase
	Maximum total power demand

3.3.3 Power

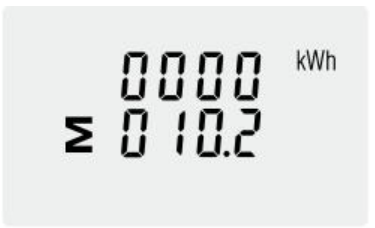
Each successive pressing of the P button select a new range:

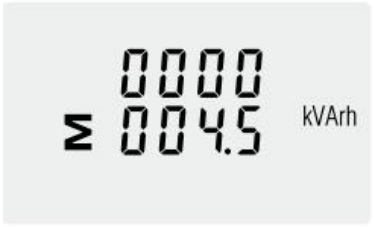
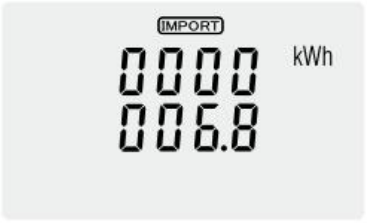
	Instantaneous Active Power in kW (Not available under 3P3W &1P2W)
	Instantaneous Reactive Power in kVAr (Not available under 3P3W &1P2W)
	Instantaneous Volt-amps in kVA (Not available under 3P3W &1P2W)
	Total W, VAr, VA

3.3.4 Energy

Each successive pressing of the E button shows following measurements:

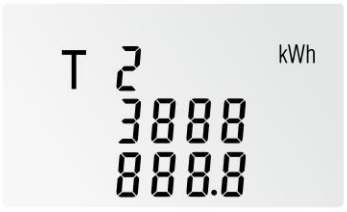
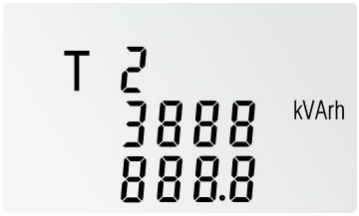
For SDM630MCT-MB:

	Total active energy in kWh

	Total reactive energy in kVArh
	Imported active energy in kWh
	Exported active energy in kWh
	Imported reactive energy in kVArh
	Exported reactive energy in kVArh

For SDM630MCT-2T-MB:

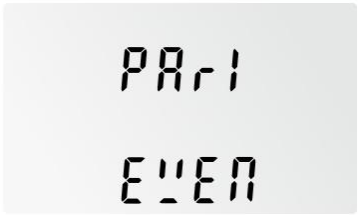
	Total active energy in kWh

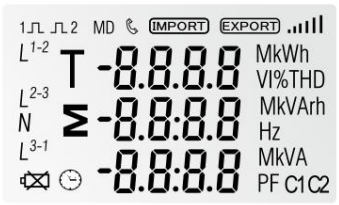
	Total reactive energy in kVArh
	T1 active energy in kWh (Run means under T1 calculation)
	T2 active energy in kWh
	T1 reactive energy in kVArh (Run means under T1 calculation)
	T2 reactive energy in kVArh

*SDM630MCT-2T show tariff kWh/kVArh instead of imported and exported kWh/kVArh

3.4 Auxiliary Mode

Each successive Long pressing of the M button enter the auxiliary and each successive pressing of the P button select a new range:

	Primary Address
	Second Address
	Baud Rate
	Parity Bit
	Stop Bit
	CRC

	All display segments

3.5 Setup Mode

The meter's settable parameters are password protected. Each successive Long pressing on the E button to enter setup mode. Some menu items, such as password and CT, require a four-digit number entry while others, such as supply system, require selection from a number of menu options.

3.5.1 Menu Option Selection

1.Use the M and P buttons to scroll through the different options of the set up menu.

2.Long press E to confirm your selection.

3.If an item flashes, then it can be adjusted by the M and P buttons.

4.Having selected an option from the current layer, long press E to confirm your selection.

5.Having completed a parameter setting, press U/I to return to a higher menu level.

You will be able to use the M and P buttons for further menu selection.

6.On completion of all setting-up, press U/I repeatedly until the measurement screen is restored.

3.5.2 Number Entry Procedure

When setting up the unit, some screens require the entering of a number. In particular,
on entry to the setting up section, a password must be entered. Digits are set individually, from left to right.

The procedure is as follows：

1.The current digit to be set flashes and is set using the M and P buttons.

2.Short press E to confirm the digit setting and remove to the next.

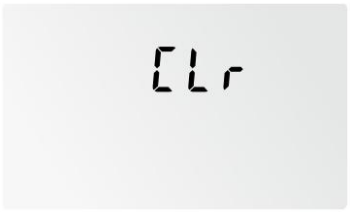
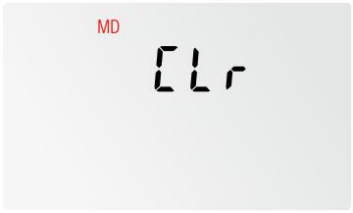
3.After setting the last digit, long press E to confirm the setting.

4.Press U/I to return to a higher menu level.

Settings interface	Set status	Optional configuration
		**Password** Default: 1000

		**Primary address setting (SDM630MCT-2T-MB)** Address range: 001~250 Default: 001
		**Primary address setting (SDM630MCT-MB)** Address range: 001~250 Default: 001
		**Secondary address setting (SDM630MCT-2T-MB)** 00000000 to 99999999
		**Secondary address setting (SDM630MCT-MB)** 00000000 to 99999999
		**Baud rate setting** Option: 600, 1200, 2400, 4800, 9600 bps Default: 2400bps
		**Parity bit setting** Option: EVEN, ODD, NONE Default:EVEN
		**Stop bit setting** Option: 1, 2 Default: 1

		**CT2 setting** Option: 1, 5A Default: 5A
		**CT1 setting** Rang: 0001~9999 Default: 0005
		**PT2 setting** Rang: 100~500V Default: 400V
		**PT1 setting** Rang: 0001~9999 Default: 400
		**Pulse output setting** Option: kWh or kVArh, import, export or total. Default: total KVArh
		**Pulse rate setting** Option: 0.01, 0.1, 1, 10, 100, 1000kWh/kVArh per imp Default: 100kWh/kVArh per imp
		**Pulse duration setting** Option: 200,100, 60 mS Default: 200mS

		**Demand interval time setting** Option: 0,5, 8, 10, 15, 20, 30, 60min Default: 60min
		**Backlit time setting** Option: ON, OFF, 5, 10, 30, 60, 120 min Default: 60min
		**System Type setting** Option: 3P4W, 3P3W, 1P2W Default: 3P4W
		**CLR max demand setting**
		**Password setting** Range: 0000~9999 Default: 1000
		**IA current direction setting** Option: Frd, Rev Default: Frd *Frd = Forward; Rev = Reverse *And so on for IB & IC operation.

Chapter 4. Declaration of Conformity (For MID meter only)

We, Zhejiang Eastron Electronic Co., Ltd. declares under our sole responsibility as the manufacturer that the three phase multi-function electrical energy meter SDM630MCT M-Bus series correspond to the production model described in the EU-type examination certificate and the requirements of the Directive 2014/32/EU.
Type examination certificate number 0120/SGS0703.
Identification number of the Notified Body: 0598.

If you have any question, please feel free to contact our sales team.

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