SDM630-DI

Smart Three Phase Energy Meter

USER MANUAL

2025 V1.01

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	2025-5-27	Initial issue
1.01	2025-7-11	Revised the wiring diagram of the DI port
1.02	2025-8-4	Revised the Contact type of the Digital input

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

SDM630-DI is Eastron's new-greneration three-phase smart energy meter.
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 etc. Energy is measured in terms of kWh, kVArh. Maximum demand current can be measured over preset periods of up to 60 minutes.

The meter supports Max. 100A direct connection and do not need external current transformers(CT). An RS485 communication port is available on the meters for remote data transmission.

1.2 Product Characteristics

- Bi-directional measurement IMP & EXP
- RS485 Modbus RTU
- Multi-parameters measurement
- 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:

- Modbus parameters
- Demand interval time
- Backlit time
- Supply system 1p2w, 3p3w,3p4w
- Clear Max. demand info & DI counts
- Password modification
- DI information
- CO2 rate

Chapter 2. Technical Parameters

2.1 Technical Parameters

Voltage AC (Un)	3*230/400V AC
Voltage Range	100 - 277V AC (L-N)
Voltage Between Phase	100 to 480V AC (L-L)
Current Input	0.3-10(100)A
Starting Current (Ist)	0.04A
Transition Current (Itr)	1A
Over Current Withstand	30Imax for 0.01S
Frequency Rating Value	50/60Hz
AC Voltage Withstand	4KV/1min
Impulse Voltage Withstand	6kV – 1.2/50μS waveform
Voltage Circuit Power Consumption	≤ 2W/10VA
Current Circuit Power Consumption	≤0.05VA
Display	LCD with white backlit
Max. reading	999999.99 kWh/kVArh

2.2 Mechanical Characteristics

Weight	≈325g
IP Degree of Protection (IEC 60529)	IP51 front display IP20 whole meter
Dimensions (DxHxW)	66*100*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

2.5 Safety

Over-voltage Category	CAT III
Installation Category	CAT III
Insulating Encased Meter of Protective Class	II

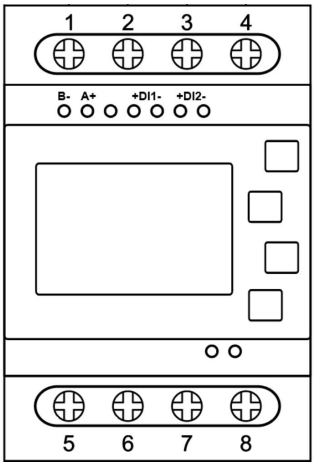
2.6 Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.1V
Current	±0.5%	0.001A
Frequency	±0.2%	0.01Hz
Power Factor	±0.01	0.001
Active Power	±1%	0.001kW
Reactive Power	±1%	0.001kVAr
Apparent Power	±1%	0.001kVA
Active Energy	Class 1 or 0.5 IEC62053-21 Class B or C EN50470-3:2022	0.01kWh
Reactive Energy	Class 2 IEC 62053-23	0.01kVArh

2.7 Digital inputs

SDM630-DI equips with 2 digital inputs.

Contact type	Wet Contact
Input resistance	10k Ω
Max.frequency	1kHz
Response time	10ms
Isolation	2.5KV ac for 1min



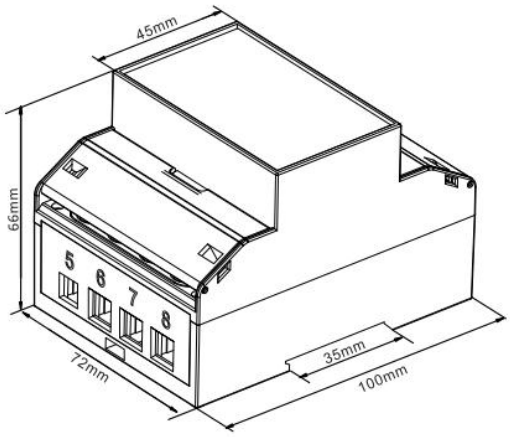
2.8 Outputs

2.7.1 RS485 Modbus RTU

For Modbus RTU, the following RS485 communication parameters can be configured from the Set-up menu:

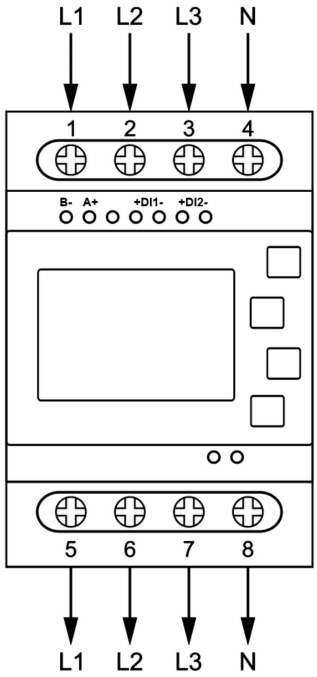
Bus Type	RS485
Communication Protocol	Modbus RTU
Baud Rate	2.4k/4.8k/9.6k(default)/19.2k /38.4k/115.2k bps
Address Range	001 to 247
Max. Bus Load	64 PCS
Communication Distance	1000m
Parity Bit	none(default)/ odd / even
Stop Bit	1 or 2
Data Bits	8

2.9 Dimensions

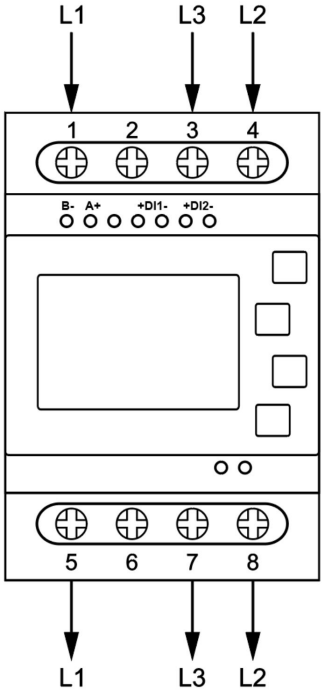


Height: 100mm
Width: 72mm
Depth: 66mm

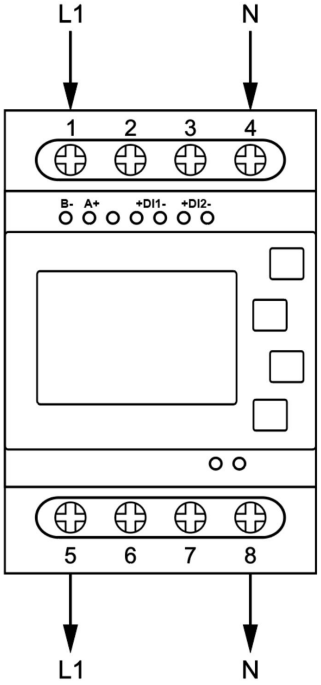
2.10 Wiring Diagram



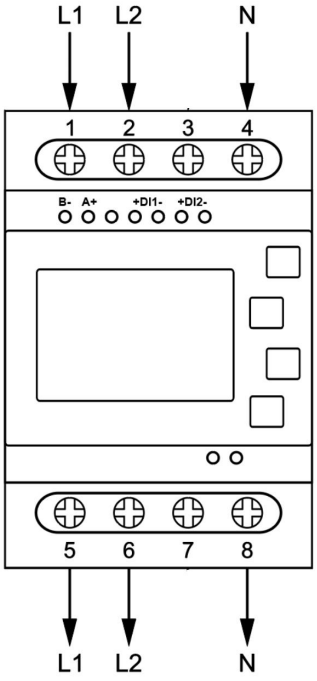
3P4W



3P3W

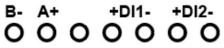


1P2W(L+N)



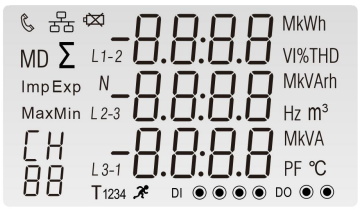
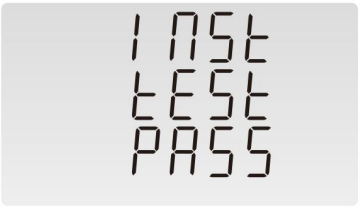
1P3W

Wiring Guide

Terminal ①~⑧	Measurement Connection	Screw Connection
	Strip Length	12-13mm
	Screw	M5
	Rigid/Supple	4-25mm² (11~4AWG)
	Tightening Torque	3.5Nm
	Model	PH2
Terminal 	Measurement Connection	Screw Connection
	Strip Length	5-6mm
	Rigid/Supple	0.5-1.5mm² (26 ~ 14AWG)
	Tightening Torque	0.4Nm
	Model	PH0

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 show software version.
	The third screen show program number.
	The interface performs a self-test and indicates the result if the test passes.

3.2 Button Functions

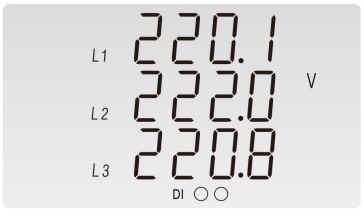
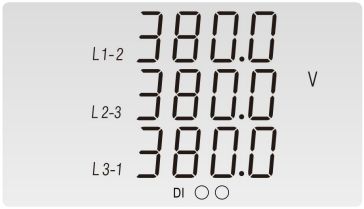
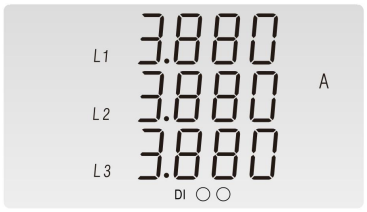
Button	Short click		Long press (3s)	
	Display mode	Setup mode	Display mode	Setup mode
	V1 V2 V3 V1-2 V2-3 V3-1 I1 I2 I3 IN V %THD I %THD	Return to previous menu		
	Hz PF PF1 PF2 PF3 MD of I1 I2 I3 MD of Power	Previous page or increase value	Address Baud rate Parity bit Stop bit CRC Software version All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

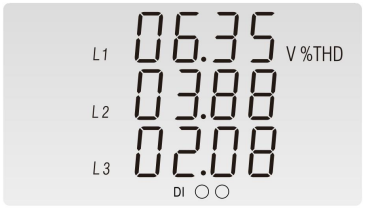
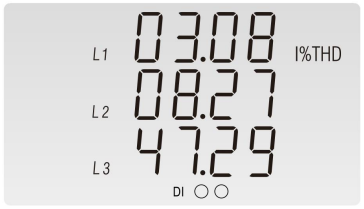
	P1 P2 P3 Q1 Q2 Q3 S1 S2 S3 P-t Q-t S-t	Next page or decrease value		
	Active E-t Reactive E-t Imp Active E Exp Active E Imp Reactive E Exp Reactive E CO2 DI1 counts DI2 counts	Move to right side	Enter setup mode	Confirm setting

3.3 Measurements

3.3.1 Voltage and current

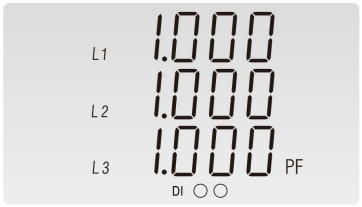
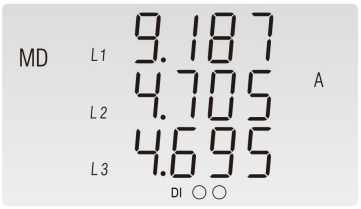
Each successive pressing of the  button selects a new range:

	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%

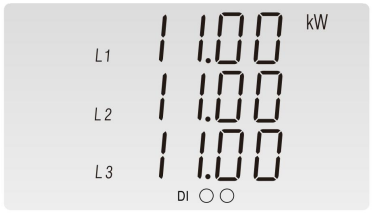
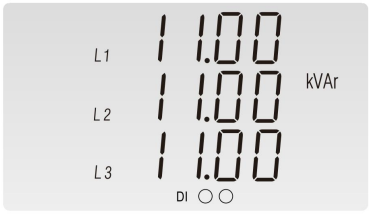
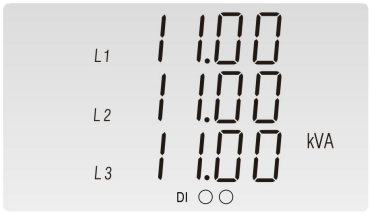
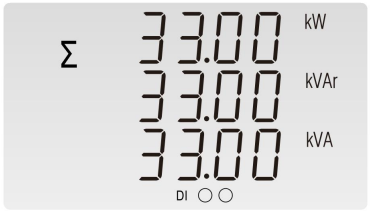
3.3.2 Frequency, Power factor and Demand

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

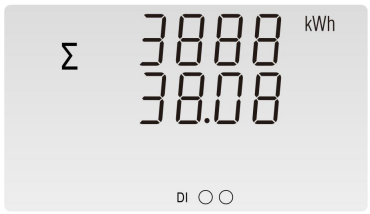
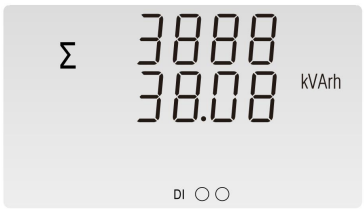
3.3.3 Power

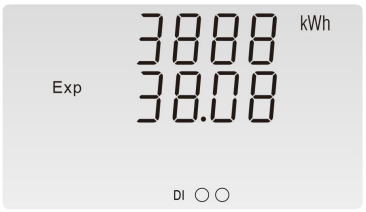
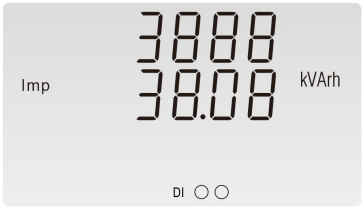
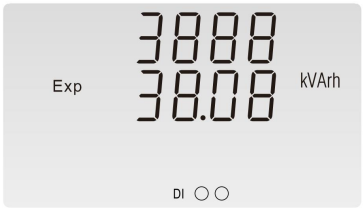
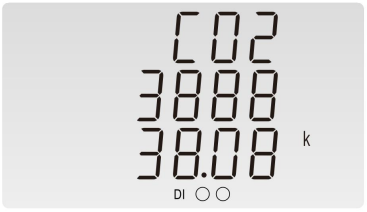
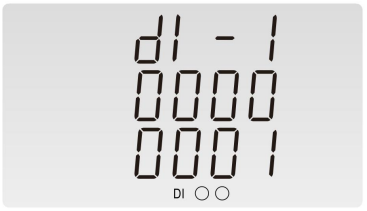
Each successive pressing of the  button select a new range:

	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 kW, kVAr, kVA

3.3.4 Energy

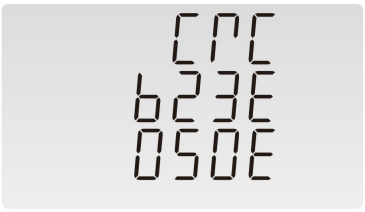
Each successive pressing of the  button shows following measurements:

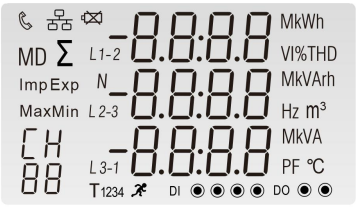
	Total active energy in kWh
	Total reactive energy in kVArh

	Imported active energy in kWh
	Exported active energy in kWh
	Imported reactive energy in kVArh
	Exported reactive energy in kVArh
	Carbon emissions (kg)
	DI1 counts
	DI2 counts

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:

	Address
	Baud rate
	Parity bit
	Stop bit
	CRC

	Software version
	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 ESC 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 ESC 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：

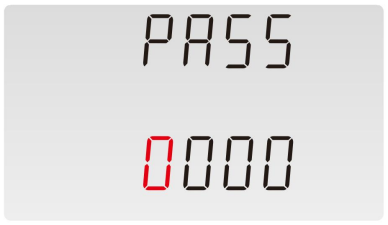
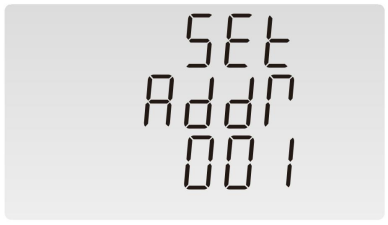
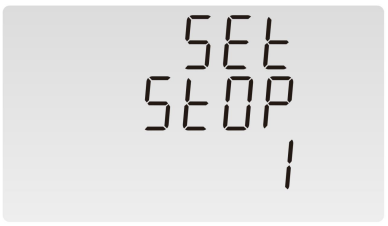
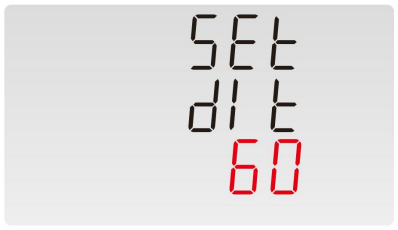
1.The current digit to be set flashes and is set using the M and P buttons.

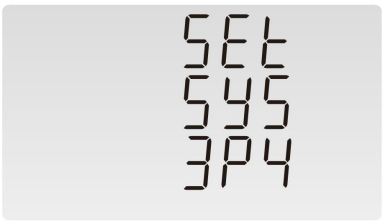
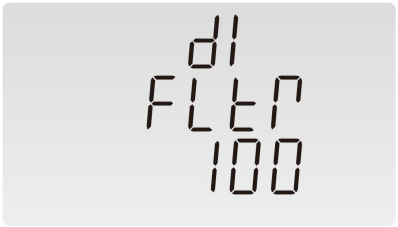
2.Short press E to confirm the digit setting and remove to the next.

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

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

Settings interface	Set status	Optional configuration

		**Password** Default: 1000
		**Address setting** Range: 001~247 Default: 001
		**Baud rate setting** Option: 2.4k, 4.8k, 9.6k, 19.2k, 38.4k, 115.2k bps Default: 9.6k bps
		**Parity bit setting** Option: EVEN, ODD, NONE Default: NONE
		**Stop bit setting** Option: 1, 2 Default: 1
		**Demand interval time setting** Option: 0, 5, 8, 10, 15, 20, 30, 60min Default: 60min
		**Backlit time setting** Option: on, off, 10, 30, 60, 120min Default: 60min

		**System type setting** Option: 3P4W, 3P3W, 1P2W Default: 3P4W
		**CLR** Option: Max. demand setting, DI counts
		**Password setting** Range: 0000~9999 Default: 1000
		**DI filter time setting** Range: 000~255 min Default: 100 min
		**DI count** Option: DI1 counts,DI2 counts Default: DI1 counts
		**DI state** Option: DI1 state, DI2 state Default: DI1 state *state: ON or OFF Default: OFF
		**CO2 rAte setting** Range: 00.0000~60.0000kg/kWh Default: 0.5703kg/kWh

Chapter 4. Communication Protocol

1.Summary

Modbus RTU is a protocol based on serial communication, its frame structure is compact and efficient. A complete Modbus RTU frame includes the following parts:

Field	Length	Explain
Device address	One byte	The address of the machine is 1 to 247, with 0 reserved for broadcast addresses.
Function code (1)	One byte	Indicates the type of operation requested by the master device (such as reading registers, writing coils, etc.).
Data fields	Variable	Contains specific data such as register addresses and register values that are requested or responded to.
CRC check	Two bytes	Used to verify the integrity of frames and ensure the reliability of data transmission.

(1): Common function codes:
01: Read Coils
02: Read Discrete Inputs
03: Read the Holding register
04: Read the Input register
05: Write to Single Coil
16: Write to Multiple register

2.Modbus Frame Format

(1)Request frame

First byte Last byte

From the machine device address	Function code	The starting address of the register (high byte)	The starting address of the register (lower byte)	Number of registers (high byte)	Number of registers (lower byte)	CRC check (low byte)	CRC check (high byte)

The meaning of each byte is as follows:

1. Device address (byte 1): The host device specifies which slave device to communicate with through this address.

2. Function code (byte 2): Defines the type of operation requested by the host device.

3. Register starting address (bytes 3 and 4): indicates the starting address of the register to be operated. Byte 3 is the high byte, and byte 4 is the low byte. For example, 00 01 indicates that the register address is 0x00 01 .

4. Register number (byte 5 and byte 6): indicates the number of registers to be read or written. Byte 5 is the high byte and byte 6 is the low byte. For example, 00 02 indicates that two registers are read.

5. CRC check (bytes 7 and 8): Used to verify the integrity of a frame. CRC check is based on all bytes in the frame (from the device address to the data field). Byte 7 is the low byte (the lowest valid bit), and byte 8 is the high byte (the highest valid bit).

(2)Normal response frame

First byte Last byte

From the machine device address	Function code	Number of bytes	First register data (high byte)	First register data (low byte)	Second register data (high byte)	Second register data (low byte)	CRC check (low byte)	CRC check (high byte)

The meaning of each byte is as follows:

1. Device address (byte 1): Consistent with the device address in the request frame, indicating the slave device address of the response.

2. Function code (byte 2): Consistent with the function code in the request frame, indicating the operation type.

3, number of bytes (bytes 3): indicates the number of bytes returned by the data. For example, if two registers are read and each register is 2 bytes, then the number of bytes is 4.

4. Data Fields (Bytes 4 to 7): These contain the register data returned by the slave device. Floating-point numbers (Float) are split into two 16-bit registers (4 bytes), with each register occupying 2 bytes. Eastron uses big-endian (Big-Endian) format, where Register 1 represents the high 16 bits (Bytes 1 and 2), and Register 2 represents the low 16 bits (Bytes 3 and 4). For example: the return data is 12 345678, where 12 34 indicates the value of the first register is 0x12 34 , and 56 78 indicates the value of the second register is 0x56 78 .

5. CRC check (bytes 8 and 9): Used to verify the integrity of the response frame. The CRC check is based on all bytes in the frame (from the device address to the data field).

(3)Abnormal response frame

First byte Last byte

From the machine device address	Abnormal function code (Feature code + 0x80)	Exception code	CRC check (low byte)	CRC check (high byte)

The meaning of each byte is as follows:
1. Device address (byte 1): Confirm whether the slave device address is consistent with the request frame.
2. Abnormal function code (byte 2): Check whether the highest bit of the function code is 1. Abnormal function code = normal function code + 0x80.
3. Exception code (byte 3): Illegal request.
4. CRC check (bytes 4 and 5): Used to verify the integrity of the response frame. CRC check is based on all bytes in the frame (from the device address to the data field).

4.1 Input Register

Function code	Description
04	Read Input Register

Address (Register)	Input Register Parameter				Modbus Protocol Start Address Hex		3 Ø 4 W	3 Ø 3 W	1 Ø 2 W
	Description	Length (bytes)	Data Format	Units	Hi Byte	Lo Byte			
30001	L1 line to neutral RMS volts	4	Float	V	00	00	√	X	√
30003	L2 line to neutral RMS volts	4	Float	V	00	02	√	X	X
30005	L3 line to neutral RMS volts	4	Float	V	00	04	√	X	X
30007	L1 RMS current	4	Float	A	00	06	√	√	√
30009	L2 RMS current	4	Float	A	00	08	√	√	X
30011	L3 RMS current	4	Float	A	00	0A	√	√	X
30013	L1 active power	4	Float	W	00	0C	√	X	√
30015	L2 active power	4	Float	W	00	0E	√	X	X
30017	L3 active power	4	Float	W	00	10	√	X	X
30019	L1 apparent power	4	Float	VA	00	12	√	X	√
30021	L2 apparent power	4	Float	VA	00	14	√	X	X
30023	L3 apparent power	4	Float	VA	00	16	√	X	X
30025	L1 reactive power	4	Float	VAr	00	18	√	X	√

30027	L2 reactive power	4	Float	VAr	00	1A	√	X	X
30029	L3 reactive power	4	Float	VAr	00	1C	√	X	X
30031	L1 power factor(1)	4	Float	None	00	1E	√	X	√
30033	L2 power factor(1)	4	Float	None	00	20	√	X	X
30035	L3 power factor(1)	4	Float	None	00	22	√	X	X
30037	L1 phase angle	4	Float	Degrees	00	24	√	X	√
30039	L2 phase angle	4	Float	Degrees	00	26	√	X	X
30041	L3 phase angle	4	Float	Degrees	00	28	√	X	X
30043	Average line to neutral RMS volts	4	Float	V	00	2A	√	X	X
30047	Average line RMS current	4	Float	A	00	2E	√	√	√
30049	Sum of line RMS currents	4	Float	A	00	30	√	√	√
30053	Total active power	4	Float	W	00	34	√	√	√
30057	Total apparent power	4	Float	VA	00	38	√	√	√
30061	Total reactive power	4	Float	VAr	00	3C	√	√	√
30063	Total power factor(1)	4	Float	None	00	3E	√	√	√
30067	Total system phase angle	4	Float	Degrees	00	42	√	√	√
30071	Frequency	4	Float	Hz	00	46	√	√	√
30073	Import active energy	4	Float	kWh	00	48	√	√	√
30075	Export active energy	4	Float	kWH	00	4A	√	√	√
30077	Import reactive energy	4	Float	kVArh	00	4C	√	√	√
30079	Export reactive energy	4	Float	kVArh	00	4E	√	√	√
30081	Apparent energy	4	Float	kVAh	00	50	√	√	√
30083	Ah	4	Float	Ah	00	52	√	√	√
30085	Total active power demand(2)	4	Float	W	00	54	√	√	√
30087	Max. total active power demand(2)	4	Float	W	00	56	√	√	√
30101	Apparent power demand	4	Float	VA	00	64	√	√	√
30103	Apparent power max. demand	4	Float	VA	00	66	√	√	√
30105	Neutral current demand	4	Float	Amps	00	68	√	X	X
30107	Max. neutral current demand	4	Float	Amps	00	6A	√	X	X
30109	Reactive power demand(2)	4	Float	VAr	00	6C	√	X	√
30111	Reactive power max. demand(2)	4	Float	VAr	00	6E	√	X	√
30201	L1 to L2 volts	4	Float	V	00	C8	√	√	X
30203	L2 to L3 volts	4	Float	V	00	CA	√	√	X
30205	L3 to L1 volts	4	Float	V	00	CC	√	√	X
30207	Average line to line volts	4	Float	V	00	CE	√	√	X
30225	Neutral current	4	Float	A	00	E0	√	X	X
30235	L1 L/N volts THD	4	Float	%	00	EA	√	X	√
30237	L2 L/N volts THD	4	Float	%	00	EC	√	X	X
30239	L3 L/N volts THD	4	Float	%	00	EE	√	X	X
30241	L1 Current THD	4	Float	%	00	F0	√	√	√
30243	L2 Current THD	4	Float	%	00	F2	√	X	X
30245	L3 Current THD	4	Float	%	00	F4	√	√	X
30249	Average line to neutral volts THD	4	Float	%	00	F8	√	X	√
30251	Average line current THD	4	Float	%	00	FA	√	√	√
30255	Total system power factor	4	Float	Degrees	00	FE	√	√	√
30259	L1 current demand	4	Float	A	01	02	√	√	√
30261	L2 current demand	4	Float	A	01	04	√	√	X

30263	L3 current demand	4	Float	A	01	06	√	√	X
30265	Maximum L1 current demand	4	Float	A	01	08	√	√	√
30267	Maximum L2 current demand	4	Float	A	01	0A	√	√	X
30269	Maximum L3 current demand	4	Float	A	01	0C	√	√	X
30335	L1 to L2 volts THD	4	Float	%	01	4E	X	√	X
30337	L2 to L3 volts THD	4	Float	%	01	50	X	√	X
30339	L3 to L1 volts THD	4	Float	%	01	52	X	√	X
30341	Average line to line volts THD	4	Float	%	01	54	X	√	X
30343	Total kWh(3)	4	Float	kWh	01	56	√	√	√
30345	Total kVarh(3)	4	Float	kVArh	01	58	√	√	√
30347	L1 import kWh	4	Float	kWh	01	5A	√	X	√
30349	L2 import kWh	4	Float	kWh	01	5C	√	X	X
30351	L3 import kWh	4	Float	kWh	01	5E	√	X	X
30353	L1 export kWh	4	Float	kWh	01	60	√	X	√
30355	L2 export kWh	4	Float	kWh	01	62	√	X	X
30357	L3 export kWh	4	Float	kWh	01	64	√	X	X
30359	L1 total kWh	4	Float	kWh	01	66	√	X	√
30361	L2 total kWh	4	Float	kWh	01	68	√	X	X
30363	L3 total kWh	4	Float	kWh	01	6A	√	X	X
30365	L1 import kVArh	4	Float	kVArh	01	6C	√	X	√
30367	L2 import kVArh	4	Float	kVArh	01	6E	√	X	X
30369	L3 import kVArh	4	Float	kVArh	01	70	√	X	X
30371	L1 export kVArh	4	Float	kVArh	01	72	√	X	√
30373	L2 export kVArh	4	Float	kVArh	01	74	√	X	X
30375	L3 export kVArh	4	Float	kVArh	01	76	√	X	X
30377	L1 total kVArh	4	Float	kVArh	01	78	√	X	√
30379	L2 total kVArh	4	Float	kVArh	01	7A	√	X	X
30381	L3 total kVArh	4	Float	kVArh	01	7C	√	X	X
310021	Total active Energy	8	Int64	Wh	27	24	√	√	√
310025	Total reactive Energy	8	Int64	VArh	27	28	√	√	√
310029	L1 import active Energy	8	Int64	Wh	27	2C	√	X	√
310033	L2 import active Energy	8	Int64	Wh	27	30	√	X	X
310037	L3 import active Energy	8	Int64	Wh	27	34	√	X	X
310041	L1 export active Energy	8	Int64	Wh	27	38	√	X	√
310045	L2 export active Energy	8	Int64	Wh	27	3C	√	X	X
310049	L3 export active Energy	8	Int64	Wh	27	40	√	X	X
310053	L1 total active Energy	8	Int64	Wh	27	44	√	X	√
310057	L2 total active Energy	8	Int64	Wh	27	48	√	X	X
310061	L3 total active Energy	8	Int64	Wh	27	4C	√	X	X
310065	L1 import reactive energy	8	Int64	VArh	27	50	√	X	√
310069	L2 import reactive energy	8	Int64	VArh	27	54	√	X	X
310073	L3 import reactive energy	8	Int64	VArh	27	58	√	X	X
310077	L1 export reactive energy	8	Int64	VArh	27	5C	√	X	√
310081	L2 export reactive energy	8	Int64	VArh	27	60	√	X	X
310085	L3 export reactive energy	8	Int64	VArh	27	64	√	X	X
310089	L1 total reactive energy	8	Int64	VArh	27	68	√	X	√
310093	L2 total reactive energy	8	Int64	VArh	27	6C	√	X	X
310097	L3 total reactive energy	8	Int64	VArh	27	70	√	X	X
310251	L1 line to neutral volts	4	Int32	0.1V	28	0A	√	X	√
310253	L2 line to neutral volts	4	Int32	0.1V	28	0C	√	X	X

310255	L3 line to neutral volts	4	Int32	0.1V	28	0E	√	X	X
310257	L1 current	4	Int32	0.001A	28	10	√	√	√
310259	L2 current	4	Int32	0.001A	28	12	√	√	X
310261	L3 current	4	Int32	0.001A	28	14	√	√	X
310263	L1 active power	4	Int32	0.1W	28	16	√	X	√
310265	L2 active power	4	Int32	0.1W	28	18	√	X	X
310267	L3 active power	4	Int32	0.1W	28	1A	√	X	X
310269	L1 apparent power	4	Int32	0.1VA	28	1C	√	X	√
310271	L2 apparent power	4	Int32	0.1VA	28	1E	√	X	X
310273	L3 apparent power	4	Int32	0.1VA	28	20	√	X	X
310275	L1 reactive power	4	Int32	0.1VAr	28	22	√	X	√
310277	L2 reactive power	4	Int32	0.1VAr	28	24	√	X	X
310279	L3 reactive power	4	Int32	0.1VAr	28	26	√	X	X
310281	L1 power factor	4	Int32	0.01	28	28	√	X	√
310283	L2 power factor	4	Int32	0.01	28	2A	√	X	X
310285	L3 power factor	4	Int32	0.01	28	2C	√	X	X
310287	L1 phase angle	4	Int32	0.01Degrees	28	2E	√	X	√
310289	L2 phase angle	4	Int32	0.01Degrees	28	30	√	X	X
310291	L3 phase angle	4	Int32	0.01Degrees	28	32	√	X	X
310293	Average line to neutral volts	4	Int32	0.1V	28	34	√	X	X
310295	Average line current	4	Int32	0.1A	28	36	√	√	√
310297	Sum of line currents	4	Int32	0.1A	28	38	√	√	√
310299	Total system power	4	Int32	0.1W	28	3A	√	√	√
310301	Total system volt amps	4	Int32	0.1VA	28	3C	√	√	√
310303	Total system VAr	4	Int32	0.1Ar	28	3E	√	√	√
310305	Total system power factor	4	Int32	0.01	28	40	√	√	√
310307	Total system phase angle	4	Int32	0.01Degrees	28	42	√	√	√
310309	Frequency of supply voltages	4	Int32	0.01Hz	28	44	√	√	√
310311	CO2	8	Int64	0.001Kg	28	46	√	√	√
310315	CO2	4	Float	Kg	28	4A	√	√	√

Notes:
1. The power factor has its sign adjusted to indicate the direction of the current. Positive refers to forward current, negative refers to reverse current.
2. The power sum demand calculation is for import – export.
3. Total kWh / kVarh equals to Import + export.

4.2 Holding Register

Function code	Description
10	Write parameter holding register
03	Read parameter holding register

Address Register	Parameter	Modbus Protocol Start Address Hex		Valid range	Mode (ro: read only wo: write only r/w: read/write)
		High Byte	Low Byte		
40001	Demand Time	00	00	Read minutes into first demand calculation. When the Demand Time reaches the Demand Period then the demand values are valid. Length: 4 bytes Data Format: Float	ro
40003	Demand Period	00	02	Demand Period time range: 0 to 60, 0 represents real-time update (demand updated every 1 second). Default: 60min Length : 4 bytes Data Format : Float	r/w
40011	System Type	00	0A	Write system type: 1 = 1P2W 2 = 3P3W 3 = 3P4W Default: 3P4W Length : 4 bytes Data Format : Float	r/w
40015	Key Parameter Programming Authorization (KPPA)	00	0E	Read: to get the status of the KPPA 0 = not authorized 1 = authorized Write the correct password to get KPPA, enable to program key parameters. Length: 4 bytes Data Format: Float	r/w
40019	Parity Stop	00	12	Write the network port parity/stop bits for MODBUS Protocol, where: 0 = One stop bit and no parity 1 = One stop bit and even parity 2 = One stop bit and odd parity 3 = Two stop bits and no parity Default: One stop bit and no parity Length: 4 bytes Data Format: Float	r/w
40021	Modbus Address	00	14	Address: 1 to 247 for MODBUS Protocol default : 1 Length : 4 bytes Data Format : Float	r/w

40025	Password	00	18	Set range 0000 ~ 9999 Default: 1000 Length: 4 bytes Data Format: Float	r/w
40029	Baud Rate	00	1C	Settable value: 0 = 2.4k bps 1 = 4.8k bps 2 = 9.6k bps 3 = 19.2k bps 4 = 38.4k bps 6 = 115.2k bps Default: 9.6k bps Length: 4 bytes Data Format: Float	r/w
40061	Backlight time	00	3C	Backlight time range: 0~121min 0 means always on, 121 means always off. Default: 60 min Length: 4 bytes Data Format: Float	r/w
40071	CO2 RATE	00	46	Carbon emissions per kWh of electricity range:00.0000~60.0000 kg Default:0.5703kg/kWh Length : 4 bytes Data Format : hex	r/w
40769	DI filter time	03	00	DI filter time (0ms: 0~255) , Default 100ms Length : 2 byte Data Format : unsigned int16	r/w
40770	DI-1 count	03	01	DI-1 count Length : 4 byte Data Format : unsigned int32 Write 0 to reset the count. No response if write other value.	r/w
40772	DI-2 count	03	03	DI-2 count Length : 4 byte Data Format : unsigned int32 Write 0 to reset the count. No response if write other value	r/w
461457	Reset	F0	10	00 00 = reset the Maximum demand 00 06 = reset DI counts Length : 2 bytes Data Format: Hex	wo
464513	Serial Number	FC	00	Serial number Length : 4 bytes Data Format : unsigned int32	ro

464515	Meter Code	FC	02	Read meter code Length : 2 bytes Data Format : hex	ro
464645	Software version	FC	84	Software version XX.YY XX = first byte YY = second byte Length : 2 bytes Data Format : Hex	ro
464647	Program Number	FC	86	Read program number Length : 2 bytes Data Format : Hex	ro

Example:

The host sends a request frame and reads the demand cycle (register: 40003):

field	Value (hexadecimal)	explain
Device address	0x01	The address of the machine is 1
Function code	0x03	Read the hold register
Start address high byte	0x00	The high byte of the starting address of the register
Start address low byte	0x02	The low byte of the starting address of the register
Register count high byte	0x00	Read the high byte of the register count
Register count low byte	0x02	Read the low byte of the register count
The CRC check the low byte	0x65	The CRC check the low byte
The CRC check the high byte	0xCB	The CRC check the high byte

After receiving the request, the machine returns the data in the register. Suppose the demand cycle stored in the register is 60 minutes:

field	Value (hexadecimal)	explain
Device address	0x01	The address of the machine is 1
Function code	0x03	Read the hold register
Number of bytes	0x04	Number of bytes of data returned (2 registers x 2 bytes)
Data high byte 1	0x42	The high byte of the first register
Data low byte 1	0x70	The low byte of the first register
Data high byte 2	0x00	The high byte of the second register
Data low byte 2	0x00	The low byte of the second register
The CRC check the low byte	0xEF	The CRC check the low byte
The CRC check the high byte	0x90	The CRC check the high byte

The host sends out a request frame and sets the demand cycle to 15 minutes (register: 40003):

field	Value (hexadecimal)	explain
Device address	0x01	The address of the machine is 1
Function code	0x10	Write to multiple registers
Start address high byte	0x00	The high byte of the starting address of the register
Start address low byte	0x02	The low byte of the starting address of the register
Register count high byte	0x00	Write the high byte of the number of registers
Register count low byte	0x02	Write the low byte of the number of registers
Number of bytes	0x04	Number of bytes written into data (2 registers x 2 bytes)
Data high byte 1	0x41	The high byte of the first register
Data low byte 1	0x70	The low byte of the first register
Data high byte 2	0x00	The high byte of the second register
Data low byte 2	0x00	The low byte of the second register
The CRC check the low byte	0x67	The CRC check the low byte
The CRC check the high byte	0x91	The CRC check the high byte

After receiving the request, the machine sets the demand cycle to 15 minutes and returns a response frame:

field	Value (hexadecimal)	explain
Device address	0x01	The address of the machine is 1
Function code	0x10	Write to multiple registers
Start address high byte	0x00	The high byte of the starting address of the register
Low byte of starting address	0x02	The low byte of the starting address of the register
Register count high byte	0x00	Write the high byte of the number of registers
Register count low byte	0x02	Write the low byte of the number of registers
The CRC check the low byte	0xE0	The CRC check the low byte
The CRC check the high byte	0x08	The CRC check the high byte

Chapter 5. 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 SDM630-DI 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 T12801.
Identification number of the Notified Body: 0598.

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

Eastron Electronic Co., Ltd.
No. 52, Dongjin Road, Nanhu, Jiaxing, Zhejiang, China
Tel: +86-573-83698881 Fax: +86-573-83698883
Email: sales@eastrongroup.com
www.eastrongroup.com