SEM5

Multi-function 3-phase energy meter

- Multi-parameter measurements
- Accuracy Class 1 active energy
- Wi-Fi available
- RS485 Modbus RTU(SEM5-5)
- Modbus TCP(SEM5-5)
- 2 Measurement modes
- Easy connection solution
- Compact design
- Support 1x3p or 3x1p load measurements

User Manual
V1.01

 www.eastrongroup.com

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.

目录

Version History

Version	Date	Changes
1.00	2025-06-09	Initial issue
1.01	2025-06-23	Modify the side laser

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, b1lank 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 Introduction

The SEM5 series is the new generation of intelligent DIN rail mounted meters by Eastron, Which includes two models: SEM5-1 and SEM5-5. The product integrates WIFI, Lora, and RS485 Modbus communication. In addition, the SEM5-5 also supports Ethernet Modbus TCP communication. With multi parameters measurement, SEM5 series can be used for energy monitoring of various applications, such as PV energy management, smart building, industrial equipment, etc. The meter can be used as 1x 3phase energy meter or 3x single phase energy meter.

Eastron SEM5 series measures the characteristics of 1P2W, 3P4W and 3P3W supplies, including voltage, frequency, current, power and active and reactive energy, imported or exported, power factor, Max. demand etc. Energy is measured in terms of kWh, kVArh and kVAh.

Eastron SEM5 series is designed in compact size. To save installation and maintenance cost, all terminals of SEM5 adopt spring terminals or RJ terminals for easy connection.

Eastron SEM5 series provides two measurement modes: Total mode and PV mode. In total mode, import and export energy will be measured separately. In PV mode, import and export energy will be balanced first, and the balanced value will be counted in import or export energy.

Chapter 2. Technical Parameters

2.1 Specifications

Table 1

Electrical Characteristics		
Type of Measurement		RMS Including Harmonics on Three Phase AC System (3P, 3P+N)
Measurement Accuracy	Power	± 1% IEC 61557-12 Class 1
	Active Energy	± 1%
	Reactive Energy	± 2%
	Frequency	± 0.2%
	Current	± 0.5% (4A to 120A) ± 1% (1A to 4A) ± 3% (0.06A to 1A)
	Voltage	± 0.5%
	Power Factor	± 0.01
Data Update Rate		Active Power:50mS(RS485), 100mS(Wi-Fi)
Input-Voltage	Un	3*230V(L-N)/400V(L-L)
	Working Voltage Range	100 to 277 V ac L-N 208 to 480 V ac L-L
	Frequency Range	50/60Hz
Mechanical Characteristics		
Weight		≈105g
IP Degree of Protection (IEC 60529)		IP51 Front Display IP20 Whole Meter
Dimensions (DxHxW)		69.7*94.7*35.8mm
Mounting		DIN Rail 35mm
Material of Meter Case		Self-extinguishing UL 94 V-0
Mechanical Environment		M1
Environmental Characteristics		
Operating Temperature		-25 °C to +55°C
Storage Temperature		-40 °C to +80°C
Humidity Rating		≤95% RH , non-condensing
Pollution Degree		2
Altitude		Up to 2000m
Vibration		10Hz to 50Hz, IEC 60068-2-6
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
Safety		
Measurement Category		Per IEC61010-1 CAT III
Current Inputs		Require External Current Transformer for Insulation

Over-voltage Category	CAT III
Protective Class	II
Communications	
Interface 1	RS485 Port
Interface 1 Protocol	MODBUS RTU
Communication Address	1 to 247
Transmission Mode	Half Duplex
Data Type	Floating Point
Transmission Distance	1000m Maximum
Transmission Speed	2400/4800/9600/19200/38400/115200bps
Parity	NONE(Default)/ ODD / EVEN
Stop Bits	1 or 2
Response Time	<50 ms
Interface 2	Wi-Fi
Interface 2 Protocol	MODBUS TCP
Data Type	Floating Point
RF Band	2.4 GHz to 2.5 GHz
Max. RF Power	<20 dBm
Wi-Fi Protocol	802.11 b/g/n
Wi-Fi Range	Up to 30m / 100ft indoors and 50m / 160ft outdoors (Depends on local conditions)
Interface 3	LoRa
Frequency	EU868/AS923...(customizable)
Communication Distance	3000M in an open area
Interface 3	Ethernet
Protocol	Modbus-TCP
Modbus Address Range	1-247
IP	192.168.1.200 (default)
Port	502
Mask	255.255.255.0
Gateway	192.168.1.1
DHCP	OFF (default)

Table 2

Note: ● = included
— = excluded

Features	Models	
	SEM5-1	SEM5-5
Instantaneous Measurements		
Current	●	●
Voltage L-N	●	●
Voltage L-L	●	●
Frequency	●	●
Active Power	●	●
Reactive Power	●	●
Apparent Power	●	●
Power Factor	●	●
Energy Values		
Active Energy	●	●

Reactive Energy	●	●
Apparent Energy	●	●
Demand Values		
Current	●	●
Active, Reactive, Apparent Power	●	●
Maximum Demand Values		
Maximum Current	●	●
Maximum Active, Reactive, Apparent Power	●	●
Min. and Max. Value		
Active Power Per Phase and Total	—	—
Reactive Power Per Phase and Total	—	—
Apparent Power Per Phase and Total	—	—
PF Per Phase and Total	—	—
Current Per Phase and Average	—	—
THDi Per Phase	—	—
THDu L-L and L-N	—	—
Power-Quality Values		
Total Harmonic Distortion	●	●
Individual Harmonic Distortion	—	—
Running Hour	—	—
Network		
1 Phase 2 Wires	●	●
2 Phase 3 Wires	●	●
3 Phase 3 Wires	●	●
3 Phase 4 Wires	●	●
Inputs and Outputs		
Alarms	—	—
Communications		
RS485	—	●
Ethernet	—	●
LoRa	●	●
WIFI	●	●

Technical Standards:

[1] EN IEC61326-1: 2021 Electromagnetic Compatibility Directive - Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

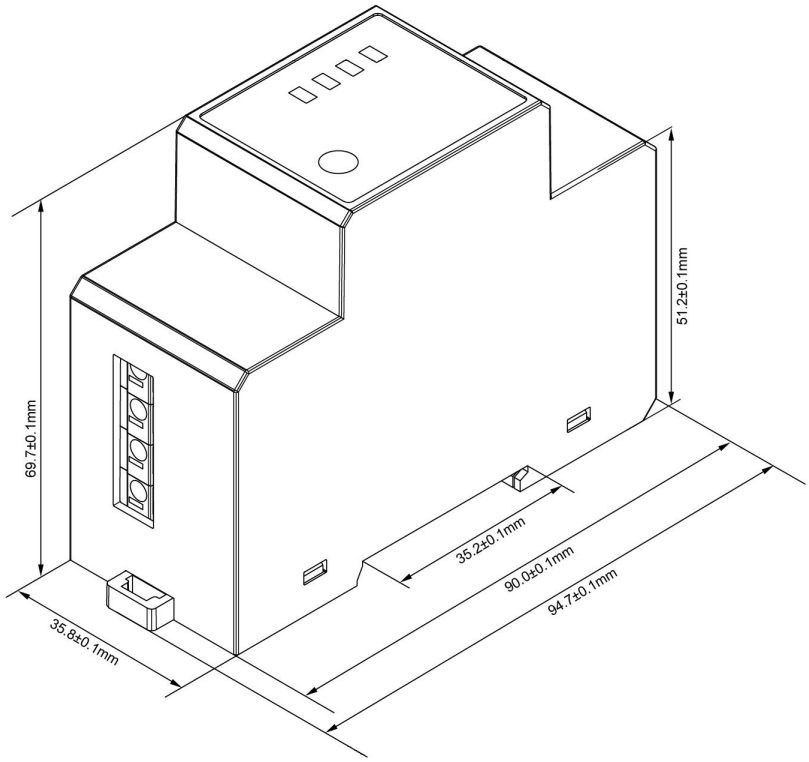
[2] EN IEC 61326-2-3: 2021 Electromagnetic Compatibility Directive

[3] EN61010-1:2010+A1:2019 Low Voltage Directive 2014/35/EU - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

[4] EN61010-2-030:2010 Low Voltage Directive 2014/35/EU - Particular requirements for testing and measuring circuits

[5] EN 50470-3:2022 Electricity metering equipment - Part 3: Particular requirements - Static meters for AC active energy (class indexes A, B and C)

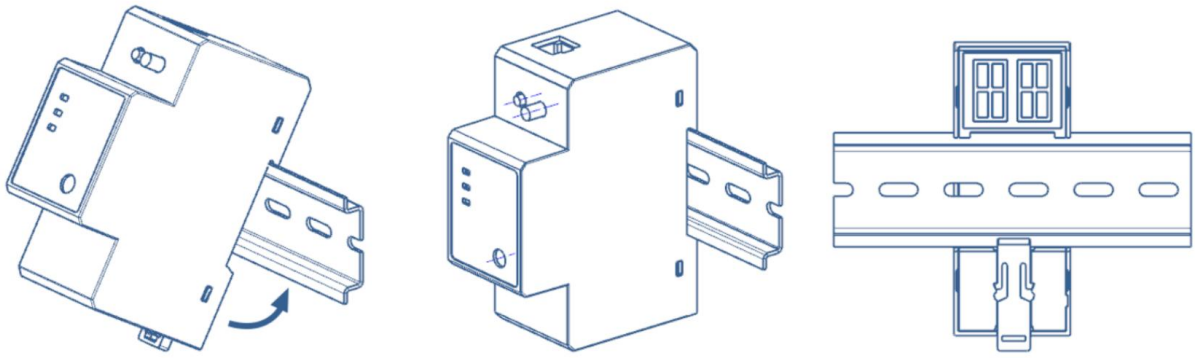
2.2 Dimensions



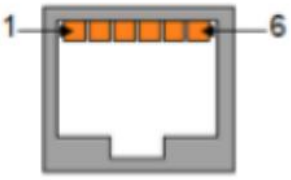
Depth: 69.7mm
Height: 94.7mm
Width: 35.8mm

2.3 Mounting

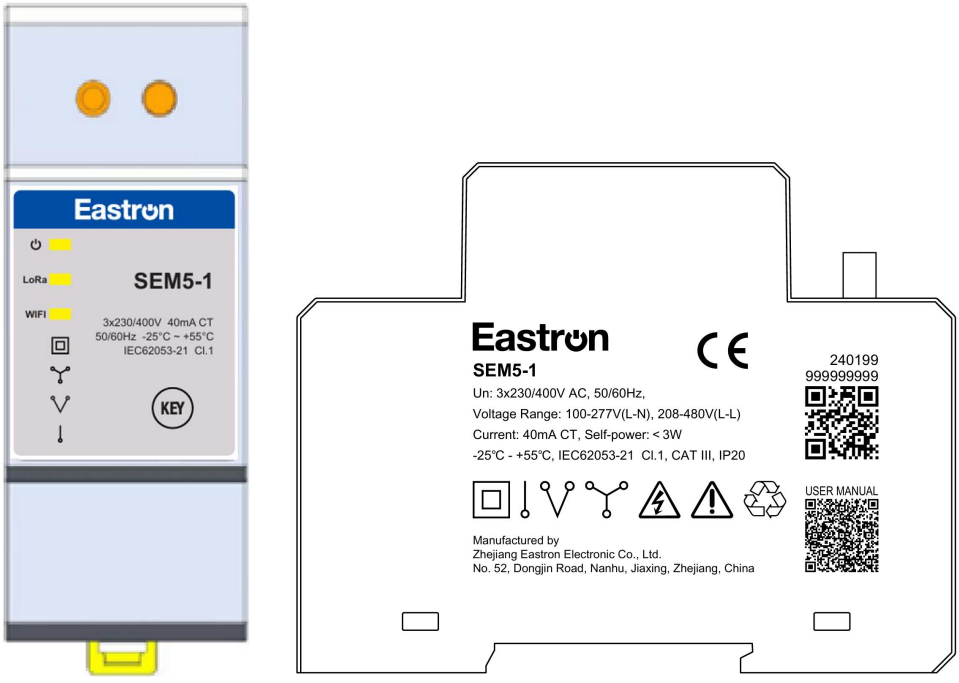
Step 1: Select a 35mm-wide DIN rail, Pull down the back-end clip on the meter to unlock the mounting mechanism.
Step 2: Align Upper Slot with DIN Rail. Position the upper slot of the meter's DIN rail groove onto the DIN rail, ensuring full contact (see Figure 1).
Step 3: Following the direction indicated 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).



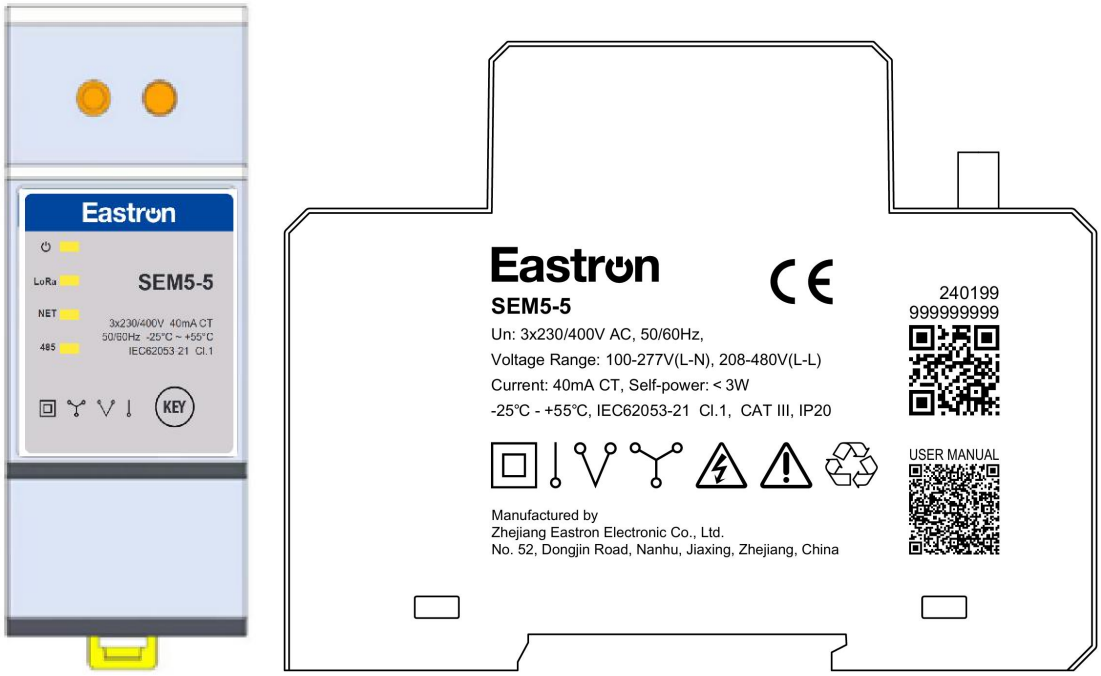
2.4 RJ12 Terminal Definition

Interface	Definition
	1.Brown:I_A+
	2.White:I_A-
	3.Black:I_B+
	4.Orange:I_B-
	5.Red:I_C+
	6.Yellow:I_C-

2.5 Marking



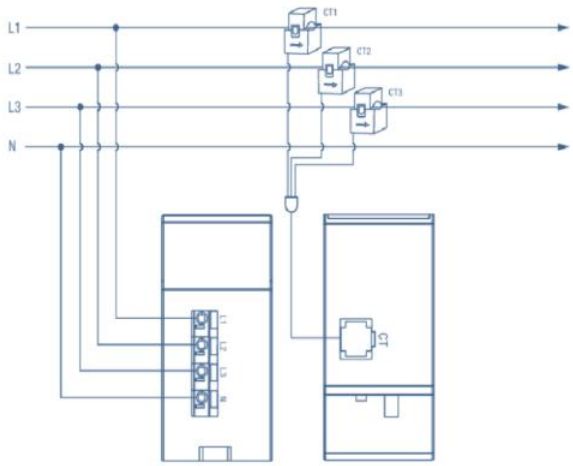
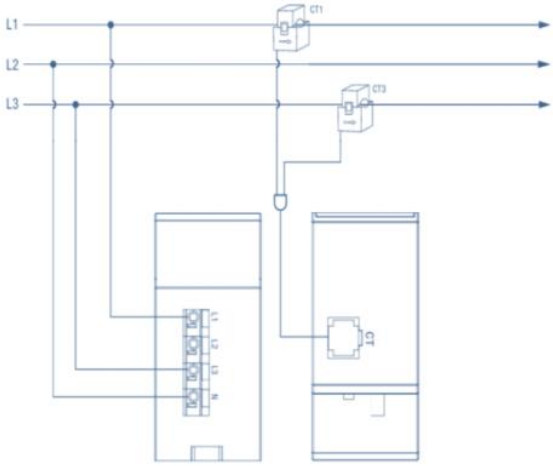
(SEM5-1 nameplate and laser printing)

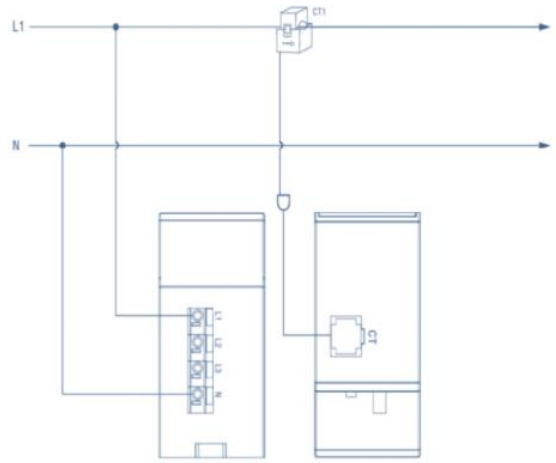


(SEM5-5 nameplate and laser printing)

2.6 Wiring Diagram

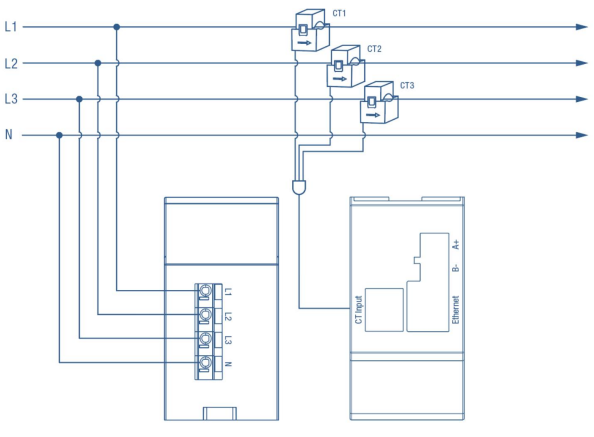
2.6.1 SEM5-1

	
3P4W 3CTs	3P3W 2CTs

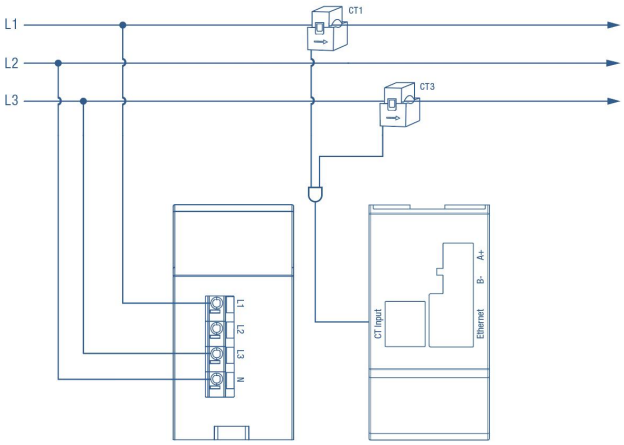


1P2W(L+N) 1CT

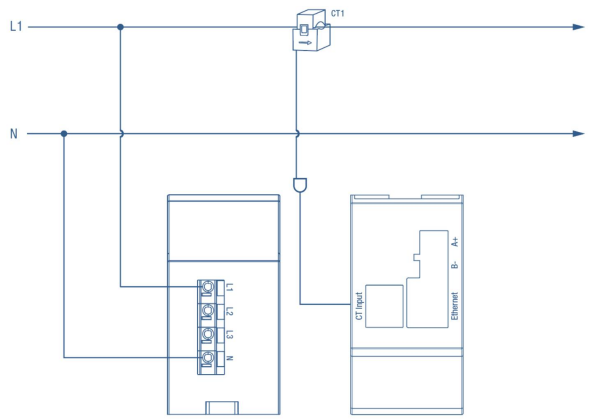
2.6.2 SEM5-5



3P4W 3CTs



3P3W 2CTs



1P2W(L+N) 1CT

Chapter 3. Execution operation

3.1 Communication operations

3.1.1 Communication operation

(1) When the button is short-pressed, the meter enters pairing mode, and the pairing time can last up to 60 seconds.
(2)When the meter is in pairing mode, the LORA status light flashes at intervals of 1 second. After successful pairing, it remains lit steadily.
(3)Once successfully paired, it exits the pairing mode; if the pairing is unsuccessful, a short press of the but on can also exit the pairing mode prematurely.
(4)Long press the button for 5 seconds to reset the pairing status and unbind the paired devices. At this time, both the LORA and WiFi status lights will flash at intervals of 500 milliseconds. After the reset is complete, the LORA status light will turn off.

3.1.2 Pairing Process

When the device is in the pairing state, short press the button on the meter to make the meter enter the pairing mode.

Observe the status of the meters LORA light. After pressing the button, if the light flashes at intervals of 1 se cond, it indicates that the meter is in the pairing state. When the light changes from flashing to staying const antly on, it means the pairing is completed and normal communication is established.

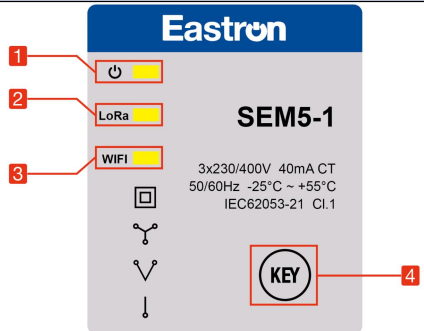
3.1.3 Unbinding process

After the device is unbound, the meter’ s LORA light will flash at intervals of 1 second.
Press and hold the meters button for 5 seconds, wait until the LORA and WiFi status lights start to flash at int ervals of 500 milliseconds, then release the button. Wait until the LORA light stops flashing and turns off, wh ich indicates that the unbinding is completed.

Note: After the device is unbound, the meter side also needs to perform an unbinding operation and then re -pair to establish normal communication.

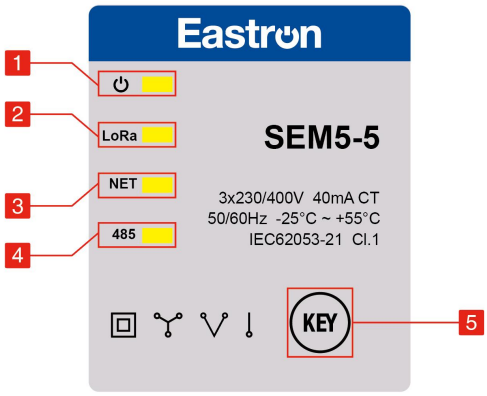
3.2 Definition of button and LEDs

3.2.1 SEM5-1

Interface	Definition	Introduction
	1.Power LED (Red)	1.Stay on: Light up when the meter is powered on with no load. 2.Flashing: Blinks when a load is connected.
	2.LoRa LED (Green)	For LoRa pairing as well as connectivity. 1.Stay on: Successful pairing, LoRa green light is always on. 2.Flashing: LoRa green light blinks for 1S during pairing. 3.Off: LoRa green light off when not paired

	3.Wi-Fi LED (Blue)	For Wi-Fi Distribution Network Connection Status. 1.Stay on: normal connection router and server blue light 2.Flashing: Connected to the router but not connected to the server blue light 1S blinking. 3.Off: Not connected to the router blue light off.
	4. Key	Short press : meter for LoRa pairing. Long press : unbind LoRa device.

3.2.2 SEM5-5

Interface	Definition	Introduction
	1.Power LED (Red)	1.Stay on: Light up when the meter is powered on with no load. 2.Flashing: Blinks when a load is connected.
	2.LoRa LED (Green)	For LoRa pairing as well as connectivity. 1.Stay on: Successful pairing, LoRa green light is always on. 2.Flashing: LoRa green light blinks for 1S during pairing. 3.Off: LoRa green light off when not paired
	3.NET LED (Blue)	For Wi-Fi Distribution Network Connection Status. 1.Stay on: normal connection router and server blue light 2.Flashing: Connected to the router but not connected to the server blue light 1S blinking. 3.Off: Not connected to the router blue light off.
	4.RS485 LED (Green)	1.Stay on: During the OTA upgrading. 2.Flashing: Blinks when the meter is communicating normally.
	5. Key	Short press : meter for LoRa pairing. Long press : unbind LoRa device.

3.3 Maintenance

In normal use, little maintenance is required. As appropriate for service conditions, isolate electrical power, inspect the unit and remove any dust or other foreign material present. Periodically check all connections for freedom from corrosion, particularly if vibration is present.

The front of the case should be wiped with a dry cloth only. Use minimal pressure, especially over the viewing window area. If necessary, wipe the case with a dry cloth. Water should not be used. If the case exterior or terminals should be contaminated accidentally with water, the unit must be thoroughly dried

before further use. Should it be suspected that water might have entered the unit, factory inspection and refurbishment is recommended.

In the unlikely event of a repair being necessary, it is recommended that the unit be returned to the factory or nearest Eastron distributor.

Chapter 4. Communication Protocol

4.1 Input Register

Function code	Description
04	Read Input Register

Address (Register)	Input Register Parameter				Modbus Protocol Start Address Hex		3 Ø	3 Ø	1 Ø
	Description	Length (bytess)	Data Format	Uint	H bytes	Lo bytes	4 W	3 W	2 W
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	4	Float	None	00	1E	√	X	√
30033	L2 power factor	4	Float	None	00	20	√	X	X
30035	L3 power factor	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	√
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	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	4	Float	W	00	54	√	√	√
30087	Maximum total active power demand	4	Float	W	00	56	√	√	√
30101	Apparent power demand	4	Float	VA	00	64	√	√	√
30103	Apparent power max. demand	4	Float	VA	00	66	√	√	√
30109	Reactive power demand	4	Float	VAr	00	6C	√	√	√
30111	Reactive power max. demand	4	Float	VAr	00	6E	√	√	√
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	√	√	√

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	X
30341	Average line to line volts THD	4	Float	%	01	54	X	√	X
30343	Total kWh	4	Float	kWh	01	56	√	√	√
30345	Total kVarh	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
310001	Total import active energy	8	Int64	Wh	27	10	√	√	√
310005	Total export active energy	8	Int64	Wh	27	14	√	√	√
310009	Total import reactive energy	8	Int64	VArh	27	18	√	√	√

310013	Total export reactive energy	8	Int64	VArh	27	1C	√	√	√
310017	Total apparent energy	8	Int64	VAh	27	20	√	√	√
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	A	√	X	√
310253	L2 line to neutral volts	4	Int32	0.1V	28	C	√	X	X
310255	L3 line to neutral volts	4	Int32	0.1V	28	E	√	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	√
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	0.1VAr	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	√	√	√
310315	Total active Energy-pv	8	Int64	Wh	28	4A	√	X	X
310319	Total reactive Energy-pv	8	Int64	VArh	28	4E	√	X	X
310323	Import wh-PV	8	Int64	Wh	28	52	√	X	X
310327	export wh-PV	8	Int64	Wh	28	56	√	X	X
310331	Import Varh-PV	8	Int64	Varh	28	5A	√	X	X
310335	Import Varh-PV	8	Int64	Varh	28	5E	√	X	X
315001	Total kWh - PV	4	Float	kWh	3A	98	√	X	X
315003	Total kVarh - PV	4	Float	kVarh	3A	9A	√	X	X
315005	Import kwh-PV	4	Float	kWh	3A	9C	√	X	X
315007	Export kwh-PV	4	Float	kWh	3A	9E	√	X	X
315009	Import kVArh-PV	4	Float	kVarh	3A	A0	√	X	X
315011	export kVArh-PV	4	Float	kVarh	3A	A2	√	X	X

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 bytes	Low bytes		
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, default 60, unit min. Range: 0 to 60, 0 represents real-time update (demand updated every 1 second). Length : 4 bytes Data Format : Float	r/w
40011	System Type	00	0A	Write system type: 1 = 1p2w 2 = 3p3w_2ct 3 = 3p4w 4 = 1p3w 10 = 1p2w_3ct 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 and Stop Bit	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: 0 = One stop bit and no parity Length: 4 bytes Data Format: Float	r/w

40021	Modbus Address	00	14	Write the Modbus Address 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	Write the baud rate for MODBUS Protocol, where: 0 = 2400 baud 1 = 4800 baud 2 = 9600 baud 3 = 19200 baud 4 = 38400 baud 5 = 1200 baud 6 = 115200 baud Default:2 = 9600 baud Length : 4 bytes Data Format : Float	r/w
40057	Current Reverse Setting (Used when the transformer is reversed)	00	38	Set current reverse 0 = A import,B import,C import 1 = A export,B import,C import 2 = A import,B export,C import 3 = A export,B export,C import 4 = A import,B import,C export 5 = A export,B import,C export 6 = A import,B export,C export 7 = A export,B export,C export Default: 0 = A import,B import,C import (3p3w mode: only 0 and 7 available) Length : 4 bytes Data Format :Float	r/w
461457	Reset	F0	10	00 00: reset the Maximum demand 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	Meter Code = 11 08 Length: 2 bytes Data Format: Hex	ro

464545	LED Control	FC	20	Set the LED light status: xx yy zz ww xx: LED number: 1 to 255; LoRa green light number: 2 Wi-Fi blue light number: 3 RS485 green light number: 4 yy: LED status: 1 = flashing 2 = stay on 3 = light off Flashing time interval setting: zz: light on duration: 1 = 500mS 2 = 1S 3 = 1.5S 4 = 2S ww: light off duration: 1 = 500mS 2 = 1S 3 = 1.5S 4 = 2S Length : 4 bytes Data Format: Hex	wo

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

Eastron Electronic Co., Ltd.
No.52, DongJin Rd. Jiaxing, Zhejiang, 314001, China
Tel: +86-573-83698881 Fax: +86-573-83698883
Email: sales@eastrongroup.com
www.eastrongroup.com