Eastron

Datasheet

DIN Rail Mounted/Three Phase Multi-function Energy Meter SEM3

- **Wi-Fi available (SEM3-WL only)**
- **Accuracy class B active energy**
- **Multi-parameter measurement**
- **RS485 Modbus RTU**
- **2 Measurement modes**
- **Easy connection solution**
- **Compact design**
- **Support 1x3p or 3x1p load measurements**
- **Package includes 3pcs current transformers**
- **Phase sequence error warning**

Eastron SEM3 is a new generation din rail mounted energy meter, equipped with Wi-Fi and RS485 communication. The meter measures and displays the characteristics of 1p2w, 3p4w and 3p3w supplies, including voltage, frequency, current, power, active and reactive energy, imported or exported, etc. SEM3 can be used for energy monitoring of various applications, such as PV energy management, smart building, industrial equipment, etc. PV mode is optional. The meter is designed in compact size with 1 modular width. To save installation and maintenance cost, all terminals of SEM3 adopt spring terminals or RJ terminals for easy connection.

Specification Table

Electrical characteristics	
Type of measurement	RMS including harmonics on three phase AC system (3P, 3P+N)
Power	±1% IEC 61557-12 Class 1
Active Energy	±1%
Reactive Energy	±2%
Frequency	±0.2%
Current	±0.5%(4A~120A) / ±1%(1A~4A) / ±3%(0.06A~1A)
Voltage	±0.5%
Power Factor	±0.1
Data Update Rate	Active power: 50mS(RS485), 100mS(WiFi)
Input-Voltage(Un)	3x230V(L-N) / 400V(L-L)
Working Voltage Range	90 to 300 Vac L-N / 156 to 520 Vac L-L
Frequency Range	50/60Hz

Mechanical Characteristics	
Weight	≈100g (SEM3)
IP Degree of Protection(IEC 60529)	IP51 front display / IP20 whole meter
Dimensions (WxHxD)	19mm x 68.5mm x 94.5mm
Mounting	DIN rail 35mm
Material of meter case	Self-extinguishing UL 94 V-0
Mechanical environment	M1

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

Communications	
Interfaces 1	RS485 port
Interface 1 protocol	Modbus RTU
Communication address	1-247
Transmission mode	Half duplex
Data type	Floating point
Transmission distance	1000m Maximum
Transmission speed	2400bps~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- 2.5 GHz
Max. RF Power	<20 dBm
Wi-Fi protocol	802.11 b/g/n
Wi-Fi Range	Up to 30 m / 100 ft indoors and 50 m / 160 ft outdoors (Depends on local conditions)

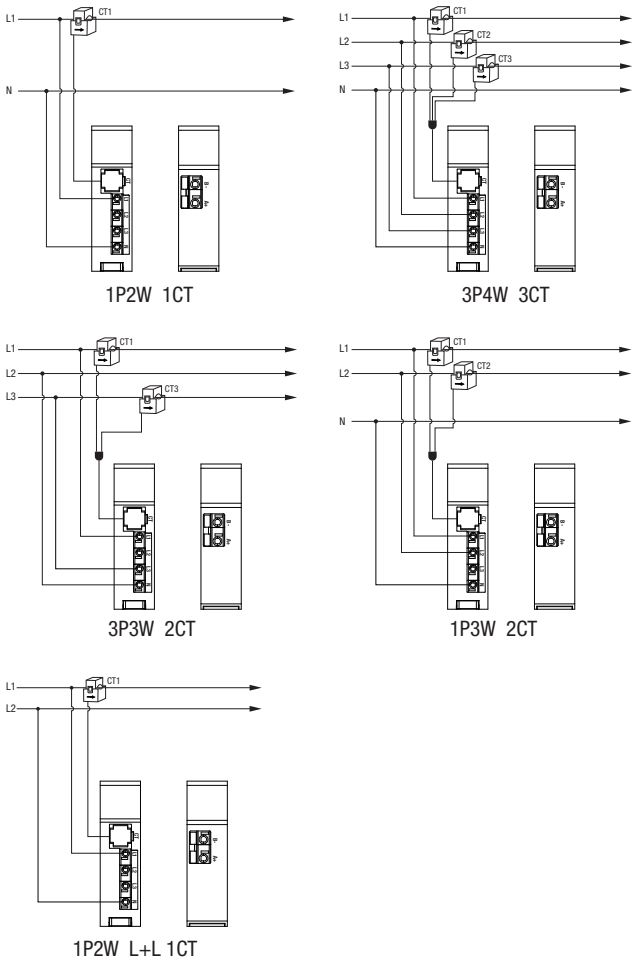
Safety	
Measurement Category	Per IEC61010-1 CAT III
Current Inputs	Require external Current Transformer for Insulation
Over voltage Category	CAT III
Protective Class	II

Differences in Tables

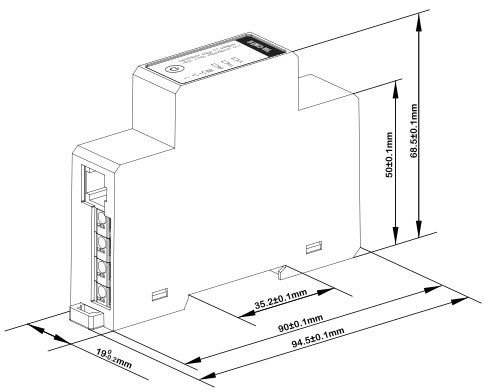
Note: "●"= included / "✱"= optional / "—"= excluded

Features	Models	
	SEM3-WL	SEM3-M
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 power	●	●
Maximum reactive power	—	—
Maximum 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		
Single phase 2 wires	●	●
Two phase 3 wires	●	●
Three phase 3 wires	●	●
Three phase 4 wires	●	●
CT programmable	●	●
Inputs and Outputs		
Alarms	●	●
Communications		
RS485	●	●
WIFI	●	—

Wiring Configuration



Dimension Drawing



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Accessory

Split Core Current Transformer

Datasheet

ESCT-RJ-3 Series

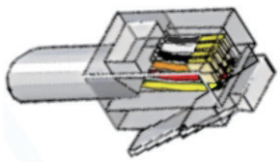
- Split Core,easy installation
- RJ12 socket for quick connection and to eliminate wiring error
- Secondary output: customizable, default: 40mA
- Safe operation
- Standard: IEC60044-1, EN60044-1, GB1208-2006

Specification	
Frequency	50Hz-60Hz
Rated current	5A to 600A loads
Rated output	333mV / 100mV / 100mA / 40mA (AC)...
Accuracy	Class 0.5 or 1 from 20% to 120% of rated current
Phase angle	less than 2 degrees at 50% of rated current
Insulation voltage	600V AC
Maximum primary voltage	660V AC (Insulated Conductor)
Dielectric strength	2.5KV / 1mA / 1min
Operating temperature	-15°C - +75°C
Operating humidity	<85%
Case material	PC / UL94-V0
Bobbin	PC
Core	Ferrite
Internal structure	Non epoxy
Leads	Twisted Pair, Combination 26AWG, bifurcate 24AWG

Model	Rated Amps (A)	Output	Accuracy
ESCT-RJ10-3	5	40mA	0.5
ESCT-RJ10-3	10	40mA	0.5
ESCT-RJ10-3	20	40mA	0.5
ESCT-RJ10-3	50	40mA	0.5
ESCT-RJ10-3	80	40mA	0.5
ESCT-RJ16-3	10	40mA	0.5
ESCT-RJ16-3	50	40mA	0.5
ESCT-RJ16-3	100	40mA	0.5
ESCT-RJ16-3	120	40mA	0.5
ESCT-RJ24-3	10	40mA	0.5
ESCT-RJ24-3	50	40mA	0.5
ESCT-RJ24-3	100	40mA	0.5
ESCT-RJ24-3	250	40mA	0.5
ESCT-RJ24-3	400	40mA	0.5
ESCT-RJ36-3	20	40mA	0.5
ESCT-RJ36-3	100	40mA	0.5
ESCT-RJ36-3	250	40mA	0.5
ESCT-RJ36-3	400	40mA	0.5
ESCT-RJ36-3	600	40mA	0.5

▶ Introduction:

The ESCT-RJ-3 series is three phase current transformer with 3 split core CTs, giving the unit wide range of primary current input and saving labor of installation. The S1 and S2 of each phase are integrated together in same wire leading to RJ12 port. The definition of the RJ12 port is



Yellow: I_C -
Red: I_C +
Orange: I_B -
Black: I_B +
White: I_A -
Brown: I_A +

▶ Dimensions (Unit:mm)