

LamaPLC: Eastron SDM 230 Communication



The Eastron SDM230-Modbus MID 1-phase kWh meter is ideal for the precise monitoring of, for example, a solar panel system, a charging station, a heat pump, or another 1-phase group of your choice. On the illuminated LCD screen, you can immediately see how many kWh the respective system consumes or produces, and it is used for official registration and billing of the measurement data. For example, if you want to bill a tenant for the electricity consumption of a specific room.

Key Features

- **Measurement:** Measures various parameters, including active energy (kWh), reactive energy (kVArh), power (kW, kVAr, kVA), voltage, current, frequency, and power factor.
- **Bi-directional Energy:** Supports bi-directional energy measurement (import and export), making it suitable for solar PV and battery storage applications.
- **Direct Connection:** Designed for a maximum 100A direct connection, eliminating the need for external current transformers (CTs).
- **Display:** **Features a blue-backlit LCD screen for easy reading of data. ***
Communication: Includes two pulse outputs and a communication port (RS485 Modbus or M-Bus, depending on the model) for remote monitoring and integration with building management systems (BMS) or SCADA systems. Some models also offer Wi-Fi or LoRaWAN communication options.
- **Certification:** Many variants are MID-certified (Class B EN50470-3), making them suitable for billing applications.
- **Design:** Compact design (two modules wide, 36mm) for DIN rail mounting.

Technical Specifications

According to Eastron Europe and Camax.co.uk, the general specifications are as follows:

Specification	Detail
Nominal Voltage (Un)	230V AC (range 176~276V AC)
Base Current (Ib)	10A
Max. Current (Imax)	100A
Frequency	50/60 Hz ($\pm 10\%$)
Accuracy	Active Energy: Class 1 (IEC62053-21) / Class B (EN50470-3)
Power Consumption	<2W/10VA
Operating Temperature	-25°C to +55°C
Mounting	35mm DIN rail
IP Rating	IP51 (indoor)

Modbus communication

RS485 communication interface, MODBUS RTU protocol:

- Baudrate: 9600 Baud (default, can be set)
- Parity: Even
- Databits: 8
- Stopbits: 1
- Default slave ID: 45
- Number of Drivers and Receivers: 32 Drivers, 32 Receivers (without repeater)
- Maximum Cable Length: 1200 m
- Maximum Data Rate: 10 Mbaud
- Maximum Common Mode Voltage: 12 V .. -7 V
- Minimum Driver Output Levels (Loaded): +/- 1.5 V
- Minimum Driver Output Levels (Unloaded): +/- 6 V
- Drive Load: Minimum 60 ohms
- Driver Output Short Circuit Current Limit: 150 mA to Gnd, 250 mA to 12 V, 250 mA to -7 V
- Minimum Receiver Input Resistance: 12 kΩ
- Receiver Sensitivity: +/- 200 mV

32 bit (2 words) input registers

The registers are read-only.

Float conversion: 32 bit float with big-endian

Code	Register Nr	Description	Type	Unit	Modbus reading
1st modbus block					
V1	30000	Line neutral volt	Float	V	Basis 0x00, words: 37
C1	30006	Current	Float	A	0x06
ACP1	30012	Active power	Float	W	0x0C
APP1	30018	Apparent power	Float	VA	0x12
RAP1	30024	Reactive power	Float	VAr	0x18
PF1	30030	Power factor	Float	-	0x1E
PA1	30036	Phase angle	Float	°	0x24
2nd modbus block					
FR1	30070	Frequency	Float	Hz	Basis 0x46, words: 25
IACE1	30072	Import active energy	Float	kWh	0x02
EACE1	30074	Export active energy	Float	kWh	0x04
IRAE1	30076	Import reactive energy	Float	kvarh	0x06
ERAEE1	30078	Export reactive energy	Float	kvarh	0x08
TP	30084	Total system power demand	Float	W	0x0E
-	30086	Maximum total system power demand	Float	W	0x10
-	30088	Current system positive power demand	Float	W	0x12
-	30090	Maximum system positive power demand	Float	W	0x14
-	30092	Current system reverse power demand	Float	W	0x16

Code	Register Nr	Description	Type	Unit	Modbus reading
-	30094	Maximum system reverse power demand	Float	W	0x18
3th modbus block					
-	30258	Current demand	Float	A	Basis 0x102, words: 7
-	30264	Maximum current demand	Float	A	0x06
4th modbus block					
TAE	30342	Total active energy	Float	kWh	Basis 0x342, words: 7
TRE	30344	Total reactive energy	Float	kvarh	
-	30384	Current resettable total active energy	Float	kWh	
-	30386	Current resettable total reactive energy	Float	kvarh	
MA	40020	Modbus node address RW, default 45	Float	-	
MBR	40028	Modbus baud rate RW, 0 = 2400 bps default 1 = 4800 bps 2 = 9600 bps 5=1200 bps	Float	-	

[modbus](#), [modbus rtu](#), [eastron](#), [modbus map](#), [MID](#), [SDM 230](#), [SDM](#)

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