LamaPLC: Eastron SDM 630 Communication

Eastron measuring units are typically 1- or 3-phase measuring units that can be purchased at extremely favorable prices (e.g. on Amazon, Aliexpress). They are usually not MID compliant. Typically, they can be used for building automation and smaller equipment.

A surprisingly large number of measurements are performed, the status of which can either be viewed on the display or queried via remote access using the Modbus RTU protocol. Not all Modbus parameters are available with all Eastron devices.

RS485 communication interface, MODBUS RTU protocol:

- Baudrate: 9600 Baud (default, can set)
- Parity: Even
- Databits: 8
- Stopbits: 1
- Default slave ID: 1 (SMD72D), 45 (SDM72CTM)
- 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.

Register Nr	32 bit address	Description	Unit
30001	1	Phase 1 line to neutral volts	Volts
30003	2	Phase 2 line to neutral volts	Volts
30005	3	Phase 3 line to neutral volts	Volts
30007	4	Phase 1 current	Amps

Register Nr	32 bit address	Description	Unit
30009	5	Phase 2 current	Amps
30011	6	Phase 3 current	Amps
30013	7	Phase 1 power	Watts
30015	8	Phase 2 power	Watts
30017	9	Phase 3 power	Watts
30019	10	Phase 1 volt amps	VA
30021	11	Phase 2 volt amps	VA
30023	12	Phase 3 volt amps	VA
30025	13	Phase 1 volt amps reactive	VAr
30027	14	Phase 2 volt amps reactive	VAr
30029	15	Phase 3 volt amps reactive	VAr
30031	16	Phase 1 power factor (1)	VAr
30033	17	Phase 2 power factor (1)	VAr
30035	18	Phase 3 power factor (1)	VAr
30037	19	Phase 1 phase angle	Degrees
30039	20	Phase 2 phase angle	Degrees
30041	21	Phase 3 phase angle	Degrees
30043	22	Average line to neutral volts	Volts
30047	24	Average line current	Amps
30049	25	Sum of line currents	Amps
30053	27	Total system power	Watts
30057	29	Total system volt amps	VA
30061	31	Total system VAr	VAr
30063	32	Total system power factor (1)	-
30067	34	Total system phase angle	Degrees
30071	36	Frequency of supply voltages	Hz
30073	37	Total Import kWh	kWh
30075	38	Total Export kWh	kWh
30077	39	Total Import kVArh	kVArh
30079	40	Total Export kVArh	kVArh
30081	41	Total VAh	kVAh
30083	42	Ah	Ah
30085	43	Total system power demand (2)	W
30087	44	Maximum total system power demand (2)	VA
30101	51	Total system VA demand	VA
30103	52	Maximum total system VA demand	VA
30105	53	Neutral current demand	Amps
30107	54	Maximum neutral current demand	Amps
30201	101	Line 1 to Line 2 volts	Volts
30203	102	Line 2 to Line 3 volts	Volts
30205	103	Line 3 to Line 1 volts	Volts
30207	104	Average line to line volts	Volts
30225	113	Neutral current	Amps
30235	118	Phase 1 L/N volts THD	%
30237	119	Phase 2 L/N volts THD	%

Register Nr	32 bit address	Description	Unit
30239	120	Phase 3 L/N volts THD	%
30241	121	Phase 1 Current THD	%
30243	122	Phase 2 Current THD	%
30245	123	Phase 3 Current THD	%
30249	125	Average line to neutral volts THD	%
30251	126	Average line current THD	%
30255	128	Total system power factor (5)	Degrees
30259	130	Phase 1 current demand	Amps
30261	131	Phase 2 current demand	Amps
30263	132	Phase 3 current demand	Amps
30265	133	Maximum phase 1 current demand	Amps
30267	134	Maximum phase 2 current demand	Amps
30269	135	Maximum phase 3 current demand	Amps
30335	168	Line 1 to line 2 volts THD	%
30337	169	Line 2 to line 3 volts THD	%
30339	170	Line 3 to line 1 volts THD	%
30341	171	Average line to line volts THD	%
30343	172	Total kwh	kwh
30345	173	Total kvarh	kvarh
30347	174	L1 import kwh	kwh
30349	175	L2 import kwh	kwh
30351	176	L3 import kwh	kwh
30353	177	L1 export kwh	kwh
30355	178	L2 export kwh	kwh
30357	179	L3 export kwh	kwh
30359	180	L1 total kwh	kwh
30361	181	L2 total kwh	kwh
30363	182	L3 total kwh	kwh
30365	183	L1 import kvarh	kvarh
30367	184	L2 import kvarh	kvarh
30369	185	L3 import kvarh	kvarh
30371	186	L1 export kvarh	kvarh
30373	187	L2 export kvarh	kvarh
30375	188	L3 export kvarh	kvarh
30377	189	L1 total kvarh	kvarh
30379	190	L2 total kvarh	kvarh
30381	191	L3 total kvarh	kvarh

32 bit (2 words) holding registers

The registers are read / write.

Address register	Parameter number	Parameter	Valid range	type	mode
40003	2	Demand period	Write demand period: 0, 5,8, 10, 15, 20, 30 or 60 minutes, default 60. Setting the period to 0 will cause the demand to show the current parameter value, and demand max to show the maximum parameter value since last demand reset.	Length : 4 byte, Data Format : Float	rw
40011	6	System type	Write system type: 3p4w = 3, 3p3w = 2 & 1p2w= 1 Requires password, see parameter 13	Length : 4 byte, Data Format : Float	rw
40013	7	Pulse 1 width	Write pulse1 on period in milliseconds: 60, 100 or 200, default 100.	Length : 4 byte, Data Format : Float	r
40015	8	Password lock	Write any value to password lock protected registers. Read password lock status: 0 = locked. 1 = unlocked. Reading will also reset the password timeout back to one minute.	Length : 4 byte, Data Format : Float	r
40019	10	Network Parity Stop	Write the network port parity/stop bits for MODBUS Protocol, where: 0 = One stop bit and no parity, default. 1 = One stop bit and even parity. 2 = One stop bit and odd parity.3 = Two stop bits and no parity.Requires a restart to become effective.	Length : 4 byte, Data Format : Float	rw
40021	11	Network Node	Write the network port node address: 1 to 247 for MODBUS Protocol, default 1. Requires a restart to become effective.	Length : 4 byte, Data Format : Float	rw
40023	12	Pulse1 Divisor1	Write pulse divisor index: n = 0 to 5 0: 0.0025 kWh(kVArh)/imp 1: 0.01 kWh(kVArh)/imp 2: 0.1 kWh(kVArh)/imp 3: 1 kWh(kVArh)/imp 4: 10 kWh(kVArh)/imp 5: 100 kWh(kVArh)/imp	Length : 4 byte, Data Format : Float	rw
40025	13	Password	Write password for access to protected registers. Default: 0000	Length : 4 byte, Data Format : Float	rw
40029	15	Network Baud Rate	Write the network port baud rate for MODBUS Protocol, where: 0: 2400 baud 1: 4800 baud 2: 9600 baud, default 3: 19200 baud 4: 38400 baud Requires a restart to become effective	Length : 4 byte, Data Format : Float	rw

Address register	Parameter number	Parameter	Valid range	type	mode
40087	44	Pulse 1 Energy Type	Write MODBUS Protocol input parameter for pulse output 1: 1: import active energy 2: total active energy 4: export active energy, default 5: import reactive energy 6: total reactive energy 8: export reactive energy	Length : 4 byte, Data Format : Float	rw
461457	30729	reset	00 00 reset the Maximum demand	Length : 2 byte, Data Format : Hex	w

readable blocks in Modbus

Nr. of block	Start address	number of registers
1	3000	100
2	3100	8
3	3200	70
4	3300	82
5	4000	100

modbus, modbus rtu, eastron, modbus map, MID

This page has been accessed for: Today: 3, Until now: 45