



Annex I

P1MB – Modbus Mapping

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History of changes

VERSION	DATE	DESCRIPTION
1.0	8/07/2025	Modbus Map Easton and Xemex variant added
1.1	1/10/2025	Xemex Layout
1.2	05/01/2026	Clear Distinction Holding and Input Registers



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1.Xemex variant

The registers are accessible by the Modbus function code 03 – *Read Holding Register*. The registers marked in green can also be written by the Modbus function 06 – *Write Single Register*.

Reg address	Register length (# of u16)	Contents	P1 msg source	Data type
0	8	LDN	N.A.	HEX
8	3	Manufacturer	N.A.	HEX
11	8	FW version	N.A.	HEX
19	1	Modbus device address	N.A.	UINT16
20	48	P1 msg header	P1 msg header	HEX
68	2	Version information for P1 output ⁽²⁾	1-3:0.2.8	HEX
70	7	P1 msg timestamp	0-0:1.0.0	HEX
77	1	RFU	N.A.	N.A.
78	48	Equipment ID	0-0:96.1.1	HEX
126	2	E-forward T1 - Value	1-0:1.8.1	UINT32
128	2	E-forward T2 - Value	1-0:1.8.2	UINT32
130	2	E-reverse T1 - Value	1-0:2.8.1	UINT32
132	2	E-reverse T2 - Value	1-0:2.8.2	UINT32
134	2	Tariff indicator	0-0:96.14.0	HEX
136	2	P-forward - Value	1-0:1.7.0	UINT32
138	2	P-reverse - Value	1-0:2.7.0	UINT32
140	2	Number of power failures in any phase	0-0:96.7.21	UINT32
142	2	Number of long power failures in any phase	0-0:96.7.9	UINT32
144	2	Power Failure Event Log – Nb of entries	1-0:99.97.0	UINT32
146	7	Power Failure Event Log – timestamp[0]	1-0:99.97.0	HEX
153	2	Power Failure Event Log – duration[0]	1-0:99.97.0	UINT32
155	7	Power Failure Event Log – timestamp[1]	1-0:99.97.0	HEX
162	2	Power Failure Event Log – duration[1]	1-0:99.97.0	UINT32
164	7	Power Failure Event Log – timestamp[2]	1-0:99.97.0	HEX
171	2	Power Failure Event Log – duration[2]	1-0:99.97.0	UINT32
173	7	Power Failure Event Log – timestamp[3]	1-0:99.97.0	HEX

180	2	Power Failure Event Log – duration[3]	1-0:99.97.0	UINT32
182	7	Power Failure Event Log – timestamp[4]	1-0:99.97.0	HEX
189	2	Power Failure Event Log – duration[4]	1-0:99.97.0	UINT32
191	7	Power Failure Event Log – timestamp[5]	1-0:99.97.0	HEX
198	2	Power Failure Event Log – duration[5]	1-0:99.97.0	UINT32
200	7	Power Failure Event Log – timestamp[6]	1-0:99.97.0	HEX
207	2	Power Failure Event Log – duration[6]	1-0:99.97.0	UINT32
209	7	Power Failure Event Log – timestamp[7]	1-0:99.97.0	HEX
216	2	Power Failure Event Log – duration[7]	1-0:99.97.0	UINT32
218	7	Power Failure Event Log – timestamp[8]	1-0:99.97.0	HEX
225	2	Power Failure Event Log – duration[8]	1-0:99.97.0	UINT32
227	7	Power Failure Event Log – timestamp[9]	1-0:99.97.0	HEX
234	2	Power Failure Event Log – duration[9]	1-0:99.97.0	UINT32
236	2	Number of voltage sags in phase L1	1-0:32.32.0	UINT32
238	2	Number of voltage sags in phase L2	1-0:52.32.0	UINT33
240	2	Number of voltage sags in phase L3	1-0:72.32.0	UINT32
242	2	Number of voltage swells in phase L1	1-0:32.36.0	UINT32
244	2	Number of voltage swells in phase L2	1-0:52.36.0	UINT32
246	2	Number of voltage swells in phase L3	1-0:72.36.0	UINT32
248	1	Text Message Length	0-0:96.13.0	UINT16
249	512	Text message	0-0:96.13.0	HEX
761	2	Instantaneous voltage L1 – Value <i>Only from DSMR 5.0 and higher</i>	1-0:32.7.0	UINT32
763	2	Instantaneous voltage L2 – Value <i>Only from DSMR 5.0 and higher</i>	1-0:52.7.0	UINT32
765	2	Instantaneous voltage L3 – Value <i>Only from DSMR 5.0 and higher</i>	1-0:72.7.0	UINT32
767	1	Instantaneous current L1 – Value	1-0:31.7.0	UINT16
769	1	Instantaneous current L2 – Value	1-0:51.7.0	UINT16
771	1	Instantaneous current L3 - Value	1-0:71.7.0	UINT16
773	2	Instantaneous active power (+P) L1 - Value	1-0:21.7.0	UINT32
775	2	Instantaneous active power (+P) L2 - Value	1-0:41.7.0	UINT32
777	2	Instantaneous active power (+P) L3 - Value	1-0:61.7.0	UINT32
779	2	Instantaneous active power (-P) L1 - Value	1-0:22.7.0	UINT32

781	2	Instantaneous active power (-P) L2 - Value	1-0:42.7.0	UINT32
783	2	Instantaneous active power (-P) L3 - Value	1-0:62.7.0	UINT32
785	1	Device Type – M bus channel 1	0-1:24.1.0	UINT16
786	1	Device Type – M bus channel 2	0-2:24.1.0	UINT16
787	1	Device Type – M bus channel 3	0-3:24.1.0	UINT16
788	1	Device Type – M bus channel 4	0-4:24.1.0	UINT16
789	48	Equipment ID – M bus channel 1	0-1:96.1.0	HEX
837	48	Equipment ID – M bus channel 2	0-2:96.1.0	HEX
885	48	Equipment ID – M bus channel 3	0-3:96.1.0	HEX
933	48	Equipment ID – M bus channel 4	0-4:96.1.0	HEX
981	7	Last 5 min reading – timestamp – M bus channel 1	0-1:24.2.1	HEX
988	2	Last 5 min reading – value – M bus channel 1	0-1:24.2.1	UINT32
990	7	Last 5 min reading – timestamp – M bus channel 2	0-2:24.2.1	HEX
997	2	Last 5 min reading – value – M bus channel 2	0-2:24.2.1	UINT32
999	7	Last 5 min reading – timestamp – M bus channel 3	0-3:24.2.1	HEX
1006	2	Last 5 min reading – value – M bus channel 3	0-3:24.2.1	UINT32
1008	7	Last 5 min reading – timestamp – M bus channel 4	0-4:24.2.1	HEX
1015	2	Last 5 min reading – value – M bus channel 4	0-4:24.2.1	UINT32
1017	2	E-FORWARD total value ⁽¹⁾	1-0:1.8.1	UINT32
			1-0:1.8.2	
1019	2	E-REVERSE total value ⁽¹⁾	1-0:2.8.1	UINT32
			1-0:2.8.2	
1021	4	P1 Version Info ⁽²⁾	0-0:96.1.4	HEX
1025	1	E-Breaker State	0-0:96.3.10	HEX
1026	2	E-Limiter Threshold	0-0:17.0.0	UINT32
1028	1	Fuse Supervision Threshold	1-0:34.4.0	UINT16
1029	1	M-Bus Valve State Channel 1	0-1:24.4.0	UINT16
1030	1	M-Bus Valve State Channel 2	0-2:24.4.0	UINT16
1031	1	M-Bus Valve State Channel 3	0-3:24.4.0	UINT16
1032	1	M-Bus Valve State Channel 4	0-4:24.4.0	UINT16

⁽¹⁾ Value is sum of P1 msg source

⁽²⁾ There is a different P1 version object for DSMR (NL) and eMUCS (BE)

2.Eastron SDM630

Implemented modbus memory map based on Eastron SDM630. Only values of P1 objects are stored into the Modbus register map. Input Registers specified in the Eastron SDM630 specification that are not specified in this P1MB register map do NOT return a modbus error, but 0x0000 (0).

The registers are accessible by the Modbus function code 03 – *Read Holding Register* and Modbus function code 04 – *Read input Registers*. The registers marked in green can also be written by the Modbus function 10 – *Write Multiple Register*. Updated settings become active after rebooting the device by writing the Reboot register. Unavailable registers (P1 data not available) will be readout as 0x0000 (0).

Reg address	Reg length (# U16)	Contents	P1 msg source	Data type	Unit / (fixed value)
Holding Registers (Function Code 0x03)					
0x3000	8	LDN (= number on label)	N.A.	HEX	
0x3008	48	P1 msg header ⁽⁷⁾	P1 msg header	HEX	
0x3038	7	P1 msg timestamp	0-0:1.0.0	HEX	
0x303F	48	Equipment ID ⁽⁷⁾	0-0:96.1.1	HEX	
0x306F	1	Enable/disable line (0/1) termination (default disabled=0)		UNIT16	
0x0014	2	Modbus address	1-124 (Default: 2)	FLOAT	
0x001C	2	Baud rate	0:2400; 3:19200; 1:4800; 4:38400 2:9600 (D);	FLOAT	
0x0012	2	Parity	0: no (D); 1:odd; 2:even	FLOAT	
0xFFFF	1	Reboot	N.A.	UINT16	OK
Input Registers (Function Code 0x04)					
0x0000	2	L1-N voltage	1-0:32.7.0	FLOAT	V
0x0002	2	L2-N voltage	1-0:52.7.0	FLOAT	V
0x0004	2	L3-N voltage	1-0:72.7.0	FLOAT	V
0x0006	2	Phase 1 Current Ia	1-0:31.7.0	FLOAT	A

0x0008	2	Phase 2 Current Ib	1-0:51.7.0	FLOAT	A
0x000A	2	Phase 3 Current Ic	1-0:71.7.0	FLOAT	A
0x000C	2	Phase 1 Active Power (Pa)	1-0:21.7.0 & 1-0:22.7.0	FLOAT	W
0x000E	2	Phase 2 Active Power (Pb)	1-0:41.7.0 & 1-0:42.7.0	FLOAT	W
0x0010	2	Phase 3 Active Power (Pc)	1-0:61.7.0 & 1-0:62.7.0	FLOAT	W
0x0012	2	Phase 1 Apparent Power (VA)	1-0:21.7.0 & 1-0:22.7.0	FLOAT	VA
0x0014	2	Phase 2 Apparent Power (VA)	1-0:41.7.0 & 1-0:42.7.0	FLOAT	VA
0x0016	2	Phase 3 Apparent Power (VA)	1-0:61.7.0 & 1-0:62.7.0	FLOAT	VA
0x0018	2	Phase 1 Reactive Power		FLOAT	0 VAR
0x001A	2	Phase 2 Reactive Power		FLOAT	0 VAR
0x001C	2	Phase 3 Reactive Power		FLOAT	0 VAR
0x001E	2	Phase 1 Power Factor	"1" or "-1" depending on sign active power	FLOAT	1/-1
0x0020	2	Phase 2 Power Factor	"1" or "-1" depending on sign active power	FLOAT	1/-1
0x0022	2	Phase 3 Power Factor	"1" or "-1" depending on sign active power	FLOAT	1/-1
0x0034	2	Total system active power	1-0:1.7.0 & 1-0:2.7.0 => signed	FLOAT	W
0x0038	2	Total system apparent power (Stot)		FLOAT	VA
0x003C	2	Total system Reactive power (Qtot)		FLOAT	VAR
0x003E	2	Total Power Factor		FLOAT	1/-1
0x0046	2	Frequency	50	FLOAT	50 Hz
0x0050	2	kVAh since last reset.	0	FLOAT	0 kVAh
0x0156	2	Total active energy ⁽¹⁾	1-0:1.8.1	FLOAT	Kwh
			1-0:1.8.2		
			1-0:2.8.1		
			1-0:2.8.2		
0x0158	2	Total reactive energy	0	FLOAT	0 kVArh
0xFC00	2	Serial Number	N.A.	HEX	

(1) Total = import – export (= signed value)

3. Inepro PRO380

Implemented modbus memory map based on Inepro PRO380. Only values of P1 objects are stored into the Modbus register map. Input Registers specified in the Inepro PRO380 specification that are not specified in this P1MB register map do NOT return a modbus error, but 0x0000 (0).

The registers are accessible by the Modbus function code 03 – *Read Holding Register*. The registers marked in green can also be written by the Modbus function 06 – *Write Single Register*. Updated settings become active after rebooting the device by writing the Reboot register. Unavailable registers (P1 data not available) will be readout as 0xFF.

Reg address	Register length (# of u16)	Contents	P1 msg source	Data type	Unit / (fixed value)
0x3000	8	LDN	N.A.	HEX	
0x3008	48	P1 msg header	P1 msg header	HEX	
0x3038	7	P1 msg timestamp	0-0:1.0.0	HEX	
0x303F	48	Equipment ID	0-0:96.1.1	HEX	
0x4000	2	Serial number (last 8 digit of LDN)	N.A	HEX	
0x4002	1	Device Code (cfr. CSMB)	N.A	HEX	(0x5343)
0x4003	1	Modbus address (default 1)	N.A	UINT16	
0x4004	1	RS485 baudrate ⁽⁴⁾ (default 9600)	N.A	UINT16	
0x4005	2	Version information for P1 output ⁽²⁾	1-3:0.2.8 0-0:96.1.4	Float ABCD	(5.0)
0x4007	2	SW version	N.A	Float ABCD	(4.0)
0x4009	2	HW version	N.A	Float ABCD	(1.2)
0x400D	1	RS485 line settings ⁽⁵⁾ (default 8E1)	N.A	UINT16	
0x400E	1	Enable/disable line termination (default disabled=0)	N.A	UINT16	
0x4016	1	Number of power failures in any phase	0-0:96.7.21	UINT16	
0x5000	2	Voltage	N.A	Float ABCD	(0xFFFF)
0x5002	2	Instantaneous voltage L1 - Value	1-0:32.7.0	Float ABCD	V
0x5004	2	Instantaneous voltage L2 - Value	1-0:52.7.0	Float ABCD	V
0x5006	2	Instantaneous voltage L3 - Value	1-0:72.7.0	Float ABCD	V
0x500C	2	Instantaneous current L1 – Value	1-0:31.7.0	Float ABCD	A

0x500E	2	Instantaneous current L2 – Value	1-0:51.7.0	Float ABCD	A
0x5010	2	Instantaneous current L3 - Value	1-0:71.7.0	Float ABCD	A
0x5012	2	Total active power ⁽³⁾	1-0:1.7.0	Float ABCD	kW
			1-0:2.7.0		
0x5014	2	L1 – Active Power ⁽³⁾	1-0:21.7.0	Float ABCD	kW
			1-0:22.7.0		
0x5016	2	L2 – Active Power ⁽³⁾	1-0:41.7.0	Float ABCD	kW
			1-0:42.7.0		
0x5018	2	L3 – Active Power ⁽³⁾	1-0:61.7.0	Float ABCD	kW
			1-0:62.7.0		
0x6000	2	Total active energy ⁽³⁾	1-0:1.8.1	Float ABCD	kWh
			1-0:1.8.2		
			1-0:2.8.1		
			1-0:2.8.2		
0x6002	2	T1 total active energy ⁽³⁾	1-0:1.8.1	Float ABCD	kWh
			1-0:2.8.1		
0x6004	2	T2 total active energy ⁽³⁾	1-0:1.8.2	Float ABCD	kWh
			1-0:2.8.2		
0x600C	2	Forward active energy value ⁽¹⁾	1-0:1.8.1	Float ABCD	kWh
			1-0:1.8.2		
0x600E	2	T1 forward active energy	1-0:1.8.1	Float ABCD	kWh
0x6010	2	T2 forward active energy	1-0:1.8.2	Float ABCD	kWh
0x6018	2	Reverse active energy value ⁽¹⁾	1-0:2.8.1	Float ABCD	kWh
			1-0:2.8.2		
0x601A	2	T1 reverse active energy	1-0:2.8.1	Float ABCD	kWh
0x601C	2	T2 reverse active energy	1-0:2.8.2	Float ABCD	kWh
0x6048	1	Tariff indicator	0-0:96.14.0	UINT16	
0xFFFF	1	Reboot	N.A.	UINT16	

(1) Value is sum of P1 msg source

(2) There is a different P1 version object for DSMR (NL) and eMUCS (BE). For eMUCS only the P1 DSMR version number will be used (e.g. 5.0)

(3) Total = import – export (= signed value)

(4) Possible baudrate values = 300;1200;2400;9600;19.2k;38.4k;57.6k

(5) Same format as used in CSMB = 0x0024 for 8E1 / 0x0004 for 8N1

4.Acrel ACR10RH

Implemented modbus memory map based on Acrel ACR10RH. Only values of P1 objects are stored into the Modbus register map. Input Registers specified in the Acrel ACR10RH specification that are not specified in this P1MB register map do NOT return a modbus error, but 0x0000 (0).

The registers are accessible by the Modbus function code 03 – *Read Holding Register*. The registers marked in green can also be written by the Modbus function 06 – *Write Single Register*. Updated settings become active after rebooting the device by writing the Reboot register. Unavailable registers (P1 data not available) will be readout as 0xFF.

Reg address	Reg length (# U16)	Contents	P1 msg source	Data type	Unit / (fixed value)
0x3000	8	LDN (= number on label)	N.A.	HEX	
0x3008	48	P1 msg header ⁽¹⁾	P1 msg header	HEX	
0x3038	7	P1 msg timestamp	0-0:1.0.0	HEX	
0x303F	48	Equipment ID ⁽¹⁾	0-0:96.1.1	HEX	
0x306F	1	Enable/disable line (0/1) termination (default disabled=0)		UNIT16	
0	1	Modbus address (0-127)		UINT16	
1	1	Baud rate	0:4800; 3:38400 (D); 1:9600; 2:19200; 4:2400; 5:1200	UINT16	
2	1	Parity	0: no (D); 1:odd; 2:even	UINT16	
3	1	Wiring mode	3 phase 4-wire = 4	UINT16	(4)
4	1	Secondary side rated voltage Ue	400V = 1	UINT16	(1)
5	1	Secondary side rated current value Ie	1A = 0	UINT16	(0)
6	1	Primary side rated voltage PU	PU = 40 (=0.4V)	UINT16	(40)
7	1	Primary side rated current value PI	PI = 120 (=120A)	UINT16	(120)
243	1	Phase Voltage Uan	(1-0:32.7.0) / PU*Ue	UINT16	0.1V
244	1	Phase Voltage Ubn	(1-0:52.7.0) / PU*Ue	UINT16	0.1V
245	1	Phase Voltage Ucn	(1-0:72.7.0) / PU*Ue	UINT16	0.1V
246	1	Line Voltage Uab	(1-0:32.7.0)*SQRT(3) / PU*Ue	UINT16	0.1V

247	1	Line Voltage Ubc	$(1-0:52.7.0) \cdot \text{SQRT}(3) / \text{PU} \cdot \text{Ue}$	UINT16	0.1V
248	1	Line Voltage Uca	$(1-0:72.7.0) \cdot \text{SQRT}(3) / \text{PU} \cdot \text{Ue}$	UINT16	0.1V
249	1	Phase Current Ia	$(1-0:31.7.0) / \text{PI} \cdot 1000$	UINT16	0.001A
250	1	Phase Current Ib	$(1-0:51.7.0) / \text{PI} \cdot 1000$	UINT16	0.001A
251	1	Phase Current Ic	$(1-0:71.7.0) / \text{PI} \cdot 1000$	UINT16	0.001A
252	1	Frequency		UINT16	(5000)
253	2	Active Power Phase A (Pa)	1-0:21.7.0 & 1-0:22.7.0 => signed	INT32	0.01W
255	2	Active Power Phase B (Pb)	1-0:41.7.0 & 1-0:42.7.0 => signed	INT32	0.01W
257	2	Active Power Phase C (Pc)	1-0:61.7.0 & 1-0:62.7.0 => signed	INT32	0.01W
259	2	Total active power	1-0:1.7.0 & 1-0:2.7.0 => signed	INT32	0.01W
261	2	Reactive power Phase A (Qa)	In Var	INT32	(0)
263	2	Reactive power Phase B (Qb)	In Var	INT32	(0)
265	2	Reactive power Phase C (Qc)	In Var	INT32	(0)
267	2	Total Reactive power (Qtot)	In Var	INT32	(0)
269	2	Apparent power Phase A (Sa)	1-0:21.7.0 & 1-0:22.7.0	UINT32	0.01VA
271	2	Apparent power Phase B (Sb)	1-0:41.7.0 & 1-0:42.7.0	UINT32	0.01VA
273	2	Apparent power Phase C (Sc)	1-0:61.7.0 & 1-0:62.7.0	UINT32	0.01VA
275	2	Total apparent power (Stot)	1-0:1.7.0 & 1-0:2.7.0 => signed	UINT32	0.01VA
277	1	Power factor Phase A	"1" or "-1" depending on sign active power	INT16	(1000) or (-1000)
278	1	Power factor Phase B	"1" or "-1" depending on sign active power	INT16	(1000) or (-1000)
279	1	Power factor Phase C	"1" or "-1" depending on sign active power	INT16	(1000) or (-1000)
280	1	Total power factor	"1" or "-1" depending on sign active power	INT16	(1000) or (-1000)
365	2	Forward active energy	1-0:1.8.1 & 1-0:1.8.2	UINT32	0.01kWh
367	2	Reverse active energy	1-0:2.8.1 & 1-0:2.8.2	UINT32	0.01kWh
0xFFFF	1	Reboot	N.A.	UINT16	OK

(1) Values are padded with 0's if shorter than Reg Length