Modbus RTU communication protocol for EMS-96 series

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Modbus RTU protocol

Modbus is a master-slave communication protocol able to support up to 247 slaves organized as a bus or as a star network. The physical link layer can be RS232 for a point to point connection or RS485 for a network.

The communication is half-duplex. The network messages can be Query-Response or Broadcast type.

The Query-Response command is transmitted from the Master to an established Slave and generally it is followed by an answering message.

The Broadcast command is transmitted from the Master to all Slaves and is never followed by an answer.

GENERIC MESSAGE STRUCTURE:

Start of frame	Address field	Function code	Data field	Error check	End of frame

START OF FRAME = Starting message marker

ADDRESS FIELD = Includes device address in which you need to communicate in Query-Response mode. In case the message is a Broadcast type it includes 00.

FUNCTION CODE = Includes the operation code that you need to perform.

DATA FIELD = Includes the data field.

ERROR CHECK = Field for the error correction code.

END OF FRAME = End message marker.

Mode RTU communication frame structure:

START OF FRAME = silence on line for time >=4 characters

ADDRES FIELD = 1 character

FUNCTION CODE = 1 character

DATA FIELD = N characters

ERROR CHECK = 16 bit CRC

END OF FRAME = silence on line for time >=4 characters

Wait time for response:

Request length	16 Register (64 bytes)	64 Register (128 bytes)
Typical	15 mSec	15 mSec
Worst case	30 mSec	50 mSec
Scan rate maximum recommended: 200 mSec		

Reading multiple registers [function code 03h]
Reads the binary contents of holding registers (2X references) in the slave.
Broadcast is not supported.
The Query message specified the starting register and quantity of register to be read.

QUERY:

	0° Byte	1° Byte	2-3° Byte	4-5° Byte	6-7° Byte	
Start of Frame	Address Field	Function Code	Start Address	Number of Registers	Check Sum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1 byte).
FUNCTION CODE = Operation code (0x03) (1 byte).
START ADDRESS = First register address to be read (2 byte).
No. OF REGISTERS = Number of registers (max 64 bytes) to read (4 bytes [1 long] for 1 measure value).
CHECK SUM = Check sum.
END OF FRAME = End message marker.

WARNING:
It is possible to read more than one variable at the same time **(max 64 bytes)** only if their addresses are consecutive and the variables on the same line cannot be divided.
The register data in the response message are packet as two bytes per register, with the binary contents right justified within each byte.
For each register, the first byte contains the high order bits and the second contains the low order bits.

RESPONSE:

	0° Byte	1° Byte	2° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	Address Field	Function Code	Number of Bytes	Data	Check Sum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1byte).
FUNCTION CODE = Operation code (0x03) (1 Byte).
No. OF SEND BYTES = Number of data bytes (0x00...??) (1 byte). 1 register requires 2 data bytes.
D0, D1, .., Dn = data bytes (0x00...??) (Nr. of register x 2 = n. byte).
CHECK SUM = Check sum.
END OF FRAME = End message marker.

See the TABLE OF EMS REGISTERS and the EXAMPLE.

Write multiple registers [function code 10h]
Write values into a sequence of holding registers (2X references).

WARNING: It is possible to write more than one variable at the same time only if their addresses are consecutive and the variables on the same line cannot be divided. (max 64 bytes).

QUERY:

	0° Byte	1° Byte	2-3° Byte	4-5° Byte	6° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	Address Field	Function Code	Start Address	Number of Registers	Number of Bytes	Data	Check Sum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1 byte).
FUNCTION CODE = Operation code (0x10) (1 byte).
START ADDRESS = First register address to be written (2 byte).
No. OF REGISTER = Number of registers to be written (1 to 4,...) (2 byte).
No. OF BYTES = Number of data bytes (HEX) (1 byte): 1register requires 2 data bytes.
D0,D1,..,Dn = Data bytes (0x00...?) (1 byte) (Nr. of register x 2 = n. byte).
CHECK SUM = Check sum.
END OF FRAME = End message marker.

The normal response returns the slave address, function code, starting address and quantity of register preset.

RESPONSE:

	0° Byte	1° Byte	2-3° Byte	4-5° Byte	6-7° Byte	
Start of Frame	Address Field	Function Code	Start Address	Number of Registers	Check Sum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1 byte).
FUNCTION CODE = Operation code (0x10) (1 byte).
START ADDRESS = First register address to be written (2 byte).
No. OF REGISTER = Number of registers to be written (2 byte).
ERROR CHECK = Check sum.
END OF FRAME = End message marker.

See the TABLE OF EMS REGISTERS and the EXAMPLE.

BROADCAST COMMAND:
It is possible to send a broadcast command (Address Field equal 0x00) for all write command.

QUERY:

	0° Byte	1° Byte	2-3° Byte	4-5° Byte	6° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	0x00	Function Code	Start Address	Number of Registers	Number of Bytes	Data	Check Sum	End of Frame

RESPONSE: *No Response.*

Diagnostic [function code 08h]

This function provides a test for checking the communication system.

Broadcast is not supported.

The instrument's protocol has only the sub-function 0 of the diagnostics sub-functions set of the standard modbus protocol.

The Query and the Response messages are the following:

QUERY:

	0° Byte	1° Byte	2-3° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	**Address Field**	**Function Code**	**Sub Function**	**Data**	**Check Sum**	**End of Frame**

START OF FRAME = *Starting message marker.*
ADDRESS FIELD = *EMS device address (0x01...0xF7)* *(1 byte).*
FUNCTION CODE = *Operation code (0x08 HEX)* *(1 byte).*
SUB FUNCTION = *Sub-function 0 (0x00 0x00)* *(2 byte).*
DATA = *Max 10 data bytes.*
CHECK SUM = *Check sum.*
END OF FRAME = *End message marker.*

RESPONSE:

The response must be the loopback of the same data.

	0° Byte	1° Byte	2-3° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	**Address Field**	**Function Code**	**Sub Function**	**Data**	**Check Sum**	**End of Frame**

START OF FRAME = *Starting message marker.*
ADDRESS FIELD = *EMS device address (0x01... 0xF7)* *(1 byte).*
FUNCTION CODE = *Operation code (0x08 HEX)* *(1 byte).*
SUB FUNCTION = *Sub-function 0 (0x00 0x00)* *(2 byte).*
DATA = *Data bytes.*
CHECK SUM = *Check sum.*
END OF FRAME = *End message marker.*

DIAGNOSTIC EXAMPLE:

QUERY

Field Name	Example (Hex)
Slave Address	0x01
Function Code	0x08
Sub-function Hi	0x00
Sub-function Lo	0x00
Data Hi	0xF1
Data Lo	0xA7
Error Check (CRC)	0x??
	0x??

RESPONSE

Field Name	Example (Hex)
Slave Address	0x01
Function Code	0x08
Sub-function Hi	0x00
Sub-function Lo	0x00
Data Hi	0xF1
Data Lo	0xA7
Error Check (CRC)	0x??
	0x??

Report slave ID [function code 11h]
This function returns the type of the instrument and the current status of the slave run indicator.
Broadcast is not supported.
The Query and the Response messages are the following:

QUERY:

	0° Byte	1° Byte	2 - 3° Byte	
Start of Frame	Address Field	Function Code	Check Sum	End of Frame

START OF FRAME = *Starting message marker.*
ADDRESS FIELD = *EMS device address (0x01... 0xF7)* *(1 byte).*
FUNCTION CODE = *Operation code (0x11)* *(1 byte).*
CHECK SUM = *Check sum.*
END OF FRAME = *End message marker.*

RESPONSE:

	0° Byte	1° Byte	2° Byte	3° Byte	4° Byte	5° - 6° Byte	
Start of Frame	Address Field	Function Code	Byte Count	Slave ID	Run Indicator Status	Check Sum	End of Frame

START OF FRAME = *Starting message marker.*
ADDRESS FIELD = *EMS device address (0x01... 0xF7)* *(1 byte).*
FUNCTION CODE = *Operation code (0x11)* *(1 byte).*
BYTE COUNT = *Number of data bytes (0x02)* *(1 byte).*
SLAVE ID = *Slave ID identifier (**0x5B**)* *(1 byte).*
RUN INDICATOR STATUS = *Run indicator status (**0xFF**)* *(1 byte).*
DATA = *Data bytes*
CHECK SUM = *Check sum.*
END OF FRAME = *End message marker.*

The normal response has the slave ID identifier (**0x5B**) and the run indicator Status (**0xFF**).

REPORT SLAVE ID EXAMPLE:

QUERY

Field Name	Example (Hex)
Slave Address	0xXX
Function Code	0x11
Error Check (CRC)	0x??
	0x??

RESPONSE

Field Name	Example (Hex)
Slave Address	0x01
Function Code	0x11
Byte count	0x02
Slave ID	0x5B
Run indicator status	0xFF
Error Check (CRC)	0x??
	0x??

Error message from slave to master

When a slave device receives a not valid query, it does transmit an error message.

RESPONSE:

	0° Byte	1° Byte	2° Byte	3 - 4° Byte	
Start of Frame	**Address Field**	**Function Code**	**Error Code**	**Check Sum**	**End of Frame**

START OF FRAME = *Starting message marker.*
ADDRESS FIELD = *EMS device address (0x01... 0xF7)* *(1 byte).*
FUNCTION CODE = *Operation code with bit 7 high* *(1 byte).*
ERROR CODE = *Message containing communication failure* *(1 byte).*
CHECK SUM = *Check sum.*
END OF FRAME = *End message marker.*

ERROR EXAMPLE:

QUERY

Field Name	Example (Hex)
Slave Address	0x01
Function Code	0x03
Starting Address Hi	0x00
Starting Address Lo	0x00
Number of Word Hi	0x00
Number of Word Lo	0x05
Error Check (CRC)	0x??
	0x??

RESPONSE

Field Name	Example (Hex)	
Slave Address	0x 01	
Function Code	0x83	(1)
Error Code	0x02	(2)
Error Check (CRC)	0x??	
	0x??	

(1): Function Code transmitted by master with bit 7 high.
(2): Error type:
0x01 = Illegal Function
0x02 = Illegal data address
0x03 = Illegal data value
0x0F = Communication Protection Enabled
(password enabled)
Write PASSWORD parameter before retry.

Read/Write multiple registers [function code 17h]
Write values into a sequence of holding registers (2X references).

WARNING WRITE PART:
It is possible to write more than one variable at the same time only if their addresses are consecutive and the variables on the same line cannot be divided. **(max 64 bytes)**

QUERY:

	0° Byte	1° Byte	2-3° Byte	4-5° Byte	6-7° Byte	8-9° Byte	6° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	Address Field	Function Code	Start Read Address	Number of Read Registers	Start Write Address	Number of Write Registers	Number of Write Bytes	Data	Checksum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1 byte).
FUNCTION CODE = Operation code (0x17) (1 byte).
START READ ADDRESS = First register address to be read (2 byte).
No. OF READ REGISTERS = Number of registers (max 64 bytes) to read (4 bytes [1 long] for 1 measure value).
START WRITE ADDRESS = First register address to be written (2 byte).
No. OF WRITE REGISTERS = Number of registers to be written (1 to 4,...) (2 byte).
No. OF BYTES = Number of data bytes (HEX) (1 byte): 1 register requires 2 data bytes.
D0,D1,..,Dn = Data bytes (0x00...?) (1 byte) (Nr. of register x 2 = n. byte).
CHECK SUM = Check sum.
END OF FRAME = End message marker.

WARNING READ PART:
It is possible to read more than one variable at the same time **(max 64 bytes)** only if their addresses are consecutive and the variables on the same line cannot be divided.
The register data in the response message are packet as two bytes per register, with the binary contents right justified within each byte.
For each register, the first byte contains the high order bits and the second contains the low order bits.

RESPONSE:

	0° Byte	1° Byte	2° Byte	n° Byte	n+1 - n+2° Byte	
Start of Frame	Address Field	Function Code	Number of Bytes	Data	Check Sum	End of Frame

START OF FRAME = Starting message marker.
ADDRESS FIELD = EMS device address (0x01... 0xF7) (1byte).
FUNCTION CODE = Operation code (0x17) (1 Byte).
No. OF SEND BYTES = Number of data bytes (0x00...??) (1 byte). 1 register requires 2 data bytes.
D0, D1, .., Dn = data bytes (0x00...??) (Nr. of register x 2 = n. byte).
CHECK SUM = Check sum.
END OF FRAME = End message marker .

See the TABLE OF EMS REGISTERS and the EXAMPLE.

EMS registers

The following tables shown all the EMS registers.

Instantaneous measures

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1000	4096	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
1002	4098	2	PHASE VOLTAGE L_{1-N}	R	mV	mV	V	Unsigned
1004	4100	2	PHASE VOLTAGE L_{2-N}	R	mV	mV	V	Unsigned
1006	4102	2	PHASE VOLTAGE L_{3-N}	R	mV	mV	V	Unsigned
1008	4104	2	LINE TO LINE VOLTAGE L_{1-2}	R	mV	mV	V	Unsigned
100A	4106	2	LINE TO LINE VOLTAGE L_{2-3}	R	mV	mV	V	Unsigned
100C	4108	2	LINE TO LINE VOLTAGE L_{3-1}	R	mV	mV	V	Unsigned
100E	4110	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
1010	4112	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
1012	4114	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
1014	4116	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
1016	4118	2	SYSTEM POWER FACTOR (*2*)	R	±1000	±1000	±1000	Signed
1018	4120	2	POWER FACTOR L_1 (*2*)	R	±1000	±1000	±1000	Signed
101A	4122	2	POWER FACTOR L_2 (*2*)	R	±1000	±1000	±1000	Signed
101C	4124	2	POWER FACTOR L_3 (*2*)	R	±1000	±1000	±1000	Signed
101E	4126	2	SYSTEM COS ϕ (*2*)	R	±1000	±1000	±1000	Signed
1020	4128	2	PHASE COS ϕ_1 (*2*)	R	±1000	±1000	±1000	Signed
1022	4130	2	PHASE COS ϕ_2 (*2*)	R	±1000	±1000	±1000	Signed
1024	4132	2	PHASE COS ϕ_3 (*2*)	R	±1000	±1000	±1000	Signed
1026	4134	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
1028	4136	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
102A	4138	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
102C	4140	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
102E	4142	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
1030	4144	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
1032	4146	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
1034	4148	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
1036	4150	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
1038	4152	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
103A	4154	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
103C	4156	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
103E	4158	2	NEUTRAL CURRENT(*1*)	R	mA	mA	A	Signed
1040	4160	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
1042	4162	2	TEMPERATURE	R	d °C	d °C	d °C	Signed
1044	4164	2	THD VOLTAGE L_1 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
1046	4166	2	THD VOLTAGE L_2 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
1048	4168	2	THD VOLTAGE L_3 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
104A	4170	2	THD CURRENT L_1 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
104C	4172	2	THD CURRENT L_2 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
104E	4174	2	THD CURRENT L_3 (*3*)	R	% * 100	% * 100	% * 100	Unsigned
1050	4176	2	ANGLE$_{1-2}$ (*4*)	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
1052	4178	2	ANGLE$_{2-3}$ (*4*)	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
1054	4180	2	ANGLE$_{3-1}$ (*4*)	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
1056	4182	2	SYSTEM TANGENT ϕ (*2*))	R	±100000	±100000	±100000	Signed
1058	4184	2	PHASE TANGENT ϕ_1 (*2*)	R	±100000	±100000	±100000	Signed
105A	4186	2	PHASE TANGENT ϕ_2 (*2*)	R	±100000	±100000	±100000	Signed
105C	4188	2	PHASE TANGENT ϕ_3 (*2*)	R	±100000	±100000	±100000	Signed
105E	4190	2	EXPECTED SYSTEM ACTIVE POWER (mobile or fixed prevision)	R	mW	W	kW	Signed
1060	4192	2	EXPECTED ACTIVE POWER L1(mobile or fixed prevision)	R	mW	W	kW	Signed
1062	4194	2	EXPECTED ACTIVE POWER L2(mobile or fixed prevision)	R	mW	W	kW	Signed
1064	4196	2	EXPECTED ACTIVE POWER L3(mobile or fixed prevision)	R	mW	W	kW	Signed
1066	4198	2	INSULATION (if option is present)	R	kΩ	kΩ	kΩ	Unsigned
1068	4200	2	TEMPERATURE PT100 (if option is present)	R	d°C	d°C	d°C	Unsigned
106A	4202	2	DIFFERENTIAL CURRENT ($I_{3PH} - I_N$) (*5*)	R	mA	mA	A	Signed

(*1*): calculated or measured, according with EMS version and command NEUTRAL CURRENT USED

(*2*): Examples: +1000 is equal to +1.000 and -200 is equal to -0.200

(*3*): Examples: 100'00 equal to 100,00% and 50'00 equal to 50,00%

(*4*): Example: 1200 equal to 120,0°

(*5*): Only if present neutral current input.

Sag detection log (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
1100	4352	4	SAG DETECTED 1st (*2*)	R	---	Unsigned
1104	4356	4	SAG DETECTED 2nd (*2*)	R	---	Unsigned
---	---	---	---	---	---	---
1120	4384	4	SAG DETECTED 9th (*2*)	R	---	Unsigned
1124	4388	4	SAG DETECTED 10th (*2*)	R	---	Unsigned

(*2*): byte order: Empty, Hour, Minute, Second, Day, Month, Year, Year. Line monitored: see setting frequency monitor command

Harmonics (option)

Harmonics voltage L1 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
1200	4608	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
1202	4610	2	2ND HARMONIC	R	% * 100	Unsigned
1204	4612	2	3RD HARMONIC	R	% * 100	Unsigned
1206	4614	2	4TH HARMONIC	R	% * 100	Unsigned
1208	4616	2	5TH HARMONIC	R	% * 100	Unsigned
120A	4618	2	6TH HARMONIC	R	% * 100	Unsigned
120C	4620	2	7TH HARMONIC	R	% * 100	Unsigned
120E	4622	2	8TH HARMONIC	R	% * 100	Unsigned
1210	4624	2	9TH HARMONIC	R	% * 100	Unsigned
1212	4626	2	10TH HARMONIC	R	% * 100	Unsigned
1214	4628	2	11TH HARMONIC	R	% * 100	Unsigned
1216	4630	2	12TH HARMONIC	R	% * 100	Unsigned
1218	4632	2	13TH HARMONIC	R	% * 100	Unsigned
121A	4634	2	14TH HARMONIC	R	% * 100	Unsigned
121C	4636	2	15TH HARMONIC	R	% * 100	Unsigned
121E	4638	2	16TH HARMONIC	R	% * 100	Unsigned
1220	4640	2	17TH HARMONIC	R	% * 100	Unsigned
1222	4642	2	18TH HARMONIC	R	% * 100	Unsigned
1224	4644	2	19TH HARMONIC	R	% * 100	Unsigned
1226	4646	2	20TH HARMONIC	R	% * 100	Unsigned

Harmonics voltage L2 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
1250	4688	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
---	---	---	---	---	---	---
1276	4726	2	20TH HARMONIC	R	% * 100	Unsigned

Harmonics voltage L3 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
12°0	4768	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
---	---	---	---	---	---	---
12C6	4806	2	20TH HARMONIC	R	% * 100	Unsigned

Harmonics current L1 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
12F0	4848	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
---	---	---	---	---	---	---
1316	4886	2	20TH HARMONIC	R	% * 100	Unsigned

Harmonics current L2 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
1340	4928	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
---	---	---	---	---	---	---
1366	4966	2	20TH HARMONIC	R	% * 100	Unsigned

Harmonics current L3 (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
1390	5008	2	1ST HARMONIC *(Fundamental)*	R	% * 100	Unsigned
---	---	---	---	---	---	---
13B6	5046	2	20TH HARMONIC	R	% * 100	Unsigned

Warning: All Harmonics are update every 60 Sec. [Read Examples: 10000 equal to 100,00% - 5000 equal to 50,00%].
Note: fundamental harmonic is ALWAYS considered AT 100.00%.

Energies

Total energies

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1400	5120	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
1402	5122	2	SYSTEM ACTIVE ENERGY OUT	R	100*mWh	100*Wh	100*kWh	Unsigned
1404	5124	2	SYSTEM REACTIVE ENERGY IN	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1406	5126	2	SYSTEM REACTIVE ENERGY OUT	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1408	5128	2	SYSTEM APPARENT ENERGY	R	100*mVAh	100*VAh	100*kVAh	Unsigned
140A	5130	2	ACTIVE ENERGY IN L_1	R	100*mWh	100*Wh	100*kWh	Unsigned
140C	5132	2	ACTIVE ENERGY OUT L_1	R	100*mWh	100*Wh	100*kWh	Unsigned
140E	5134	2	REACTIVE ENERGY IN L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1410	5136	2	REACTIVE ENERGY OUT L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1412	5138	2	APPARENT ENERGY L_1	R	100*mVAh	100*VAh	100*kVAh	Unsigned
1414	5140	2	ACTIVE ENERGY IN L_2	R	100*mWh	100*Wh	100*kWh	Unsigned
1416	5142	2	ACTIVE ENERGY OUT L_2	R	100*mWh	100*Wh	100*kWh	Unsigned
1418	5144	2	REACTIVE ENERGY IN L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
141°	5146	2	REACTIVE ENERGY OUT L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
141C	5148	2	APPARENT ENERGY L_2	R	100*mVah	100*Vah	100*kVah	Unsigned
141E	5150	2	ACTIVE ENERGY IN L_3	R	100*mWh	100*Wh	100*kWh	Unsigned
1420	5152	2	ACTIVE ENERGY OUT L_3	R	100*mWh	100*Wh	100*kWh	Unsigned
1422	5154	2	REACTIVE ENERGY IN L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1424	5156	2	REACTIVE ENERGY OUT L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1426	5158	2	APPARENT ENERGY L_3	R	100*mVAh	100*VAh	100*kVAh	Unsigned
1428	5160	2	SYSTEM REACTIVE ENERGY Q1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
142A	5162	2	SYSTEM REACTIVE ENERGY Q2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
142C	5164	2	SYSTEM REACTIVE ENERGY Q3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
142E	5166	2	SYSTEM REACTIVE ENERGY Q4	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1430	5168	2	REACTIVE ENERGY Q1 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1432	5170	2	REACTIVE ENERGY Q2 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1434	5172	2	REACTIVE ENERGY Q3 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1436	5174	2	REACTIVE ENERGY Q4 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1438	5176	2	REACTIVE ENERGY Q1 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
143A	5178	2	REACTIVE ENERGY Q2 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
143C	5180	2	REACTIVE ENERGY Q3 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
143E	5182	2	REACTIVE ENERGY Q4 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1440	5184	2	REACTIVE ENERGY Q1 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1442	5186	2	REACTIVE ENERGY Q2 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1444	5188	2	REACTIVE ENERGY Q3 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1446	5190	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Warning: All the energy values restart from 0 after the 100'000'000 kWh [1'000'000'000 * 100*Wh]

Timeband 1 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1450	5200	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
1452	5202	2	SYSTEM ACTIVE ENERGY OUT	R	100*mWh	100*Wh	100*kWh	Unsigned
1454	5204	2	SYSTEM REACTIVE ENERGY IN	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1456	5206	2	SYSTEM REACTIVE ENERGY OUT	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1458	5208	2	SYSTEM APPARENT ENERGY	R	100*mVAh	100*VAh	100*kVAh	Unsigned
145A	5210	2	ACTIVE ENERGY IN L_1	R	100*mWh	100*Wh	100*kWh	Unsigned
145C	5212	2	ACTIVE ENERGY OUT L_1	R	100*mWh	100*Wh	100*kWh	Unsigned
145E	5214	2	REACTIVE ENERGY IN L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1460	5216	2	REACTIVE ENERGY OUT L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1462	5218	2	APPARENT ENERGY L_1	R	100*mVAh	100*VAh	100*kVAh	Unsigned
1464	5220	2	ACTIVE ENERGY IN L_2	R	100*mWh	100*Wh	100*kWh	Unsigned
1466	5222	2	ACTIVE ENERGY OUT L_2	R	100*mWh	100*Wh	100*kWh	Unsigned
1468	5224	2	REACTIVE ENERGY IN L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
146A	5226	2	REACTIVE ENERGY OUT L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
146C	5228	2	APPARENT ENERGY L_2	R	100*mVah	100*Vah	100*kVah	Unsigned
146E	5230	2	ACTIVE ENERGY IN L_3	R	100*mWh	100*Wh	100*kWh	Unsigned
1470	5232	2	ACTIVE ENERGY OUT L_3	R	100*mWh	100*Wh	100*kWh	Unsigned
1472	5234	2	REACTIVE ENERGY IN L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1474	5236	2	REACTIVE ENERGY OUT L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1476	5238	2	APPARENT ENERGY L_3	R	100*mVAh	100*VAh	100*kVAh	Unsigned
1478	5240	2	SYSTEM REACTIVE ENERGY Q1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
147A	5242	2	SYSTEM REACTIVE ENERGY Q2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
147C	5244	2	SYSTEM REACTIVE ENERGY Q3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
147E	5246	2	SYSTEM REACTIVE ENERGY Q4	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1480	5248	2	REACTIVE ENERGY Q1 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1482	5250	2	REACTIVE ENERGY Q2 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1484	5252	2	REACTIVE ENERGY Q3 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1486	5254	2	REACTIVE ENERGY Q4 L_1	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1488	5256	2	REACTIVE ENERGY Q1 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
148A	5258	2	REACTIVE ENERGY Q2 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
148C	5260	2	REACTIVE ENERGY Q3 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
148E	5262	2	REACTIVE ENERGY Q4 L_2	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1490	5264	2	REACTIVE ENERGY Q1 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1492	5266	2	REACTIVE ENERGY Q2 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1494	5268	2	REACTIVE ENERGY Q3 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned
1496	5270	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Warning: All the energy values restart from 0 after the 100'000'000 kWh [1'000'000'000 * 100*Wh]

Timeband 2 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
14A0	5280	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
14E6	5350	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 3 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
14F0	5360	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1536	5430	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 4 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1540	5440	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1586	5510	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 5 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1590	5520	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
15D6	5590	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 6 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
15E0	5600	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1626	5670	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 7 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1630	5680	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1676	5750	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 8 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1680	5760	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
16C6	5830	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 9 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
16D0	5840	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1716	5910	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 10 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1720	5920	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1766	5990	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 11 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1770	6000	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
17B6	6070	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 12 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
17C0	6080	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1806	6150	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 13 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1810	6160	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1856	6230	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 14 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1860	6240	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
18A6	6310	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 15 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
18B0	6320	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
18F6	6390	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Timeband 16 – energies (option)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1900	6400	2	SYSTEM ACTIVE ENERGY IN	R	100*mWh	100*Wh	100*kWh	Unsigned
---	---	---	---	---	---	---	----	---
1946	6470	2	REACTIVE ENERGY Q4 L_3	R	100*mVARh	100*VARh	100*kVARh	Unsigned

Warning: All the energy values restart from 0 after the 100'000'000 kWh [1'000'000'000 * 100*Wh]

Max Demand

Total – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1A00	6656	2	TIME*	R	---	---	---	Unsigned
1A02	6658	2	DATE**	R	---	---	---	Unsigned
1A04	6660	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
1A06	6662	2	TIME*	R	---	---	---	Unsigned
1A08	6664	2	DATE**	R	---	---	---	Unsigned
1A0A	6666	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
1A0C	6668	2	TIME*	R	---	---	---	Unsigned
1A0E	6670	2	DATE**	R	---	---	---	Unsigned
1A10	6672	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
1A12	6674	2	TIME*	R	---	---	---	Unsigned
1A14	6676	2	DATE**	R	---	---	---	Unsigned
1A16	6678	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
1A18	6680	2	TIME*	R	---	---	---	Unsigned
1A1A	6682	2	DATE**	R	---	---	---	Unsigned
1A1C	6684	2	SYSTEM REACTIVE POWER	R	mVAr	VAr	kVAr	Signed
1A1E	6686	2	TIME*	R	---	---	---	Unsigned
1A20	6688	2	DATE**	R	---	---	---	Unsigned
1A22	6690	2	REACTIVE POWER L_1	R	mVAr	VAr	kVAr	Signed
1A24	6692	2	TIME*	R	---	---	---	Unsigned
1A26	6694	2	DATE**	R	---	---	---	Unsigned
1A28	6696	2	REACTIVE POWER L_2	R	mVAr	VAr	kVAr	Signed
1A2A	6698	2	TIME*	R	---	---	---	Unsigned
1A2C	6700	2	DATE**	R	---	---	---	Unsigned
1A2E	6702	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

*: byte order/meaning: EMPTY, HOUR, MINUTE, SECOND

**: byte order/meaning: DAY, MONTH, YEAR, YEAR

Timeband 1 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1A50	6736	2	TIME*	R	---	---	---	Unsigned
1A52	6738	2	DATE**	R	---	---	---	Unsigned
1A54	6740	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1A7A	6778	2	TIME*	R	---	---	---	Unsigned
1A7C	6780	2	DATE**	R	---	---	---	Unsigned
1A7E	6782	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 2 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1AA0	6816	2	TIME*	R	---	---	---	Unsigned
1AA2	6818	2	DATE**	R	---	---	---	Unsigned
1AA4	6820	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1ACA	6878	2	TIME*	R	---	---	---	Unsigned
1ACC	6860	2	DATE**	R	---	---	---	Unsigned
1ACE	6862	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 3 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1AF0	6896	2	TIME*	R	---	---	---	Unsigned
1AF2	6898	2	DATE**	R	---	---	---	Unsigned
1AF4	6900	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1B1A	6938	2	TIME*	R	---	---	---	Unsigned
1B1C	6940	2	DATE**	R	---	---	---	Unsigned
1B1E	6942	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 4 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1B40	6976	2	TIME*	R	---	---	---	Unsigned
1B42	6978	2	DATE**	R	---	---	---	Unsigned
1B44	6980	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1B6A	7018	2	TIME*	R	---	---	---	Unsigned
1B6C	7020	2	DATE**	R	---	---	---	Unsigned
1B6E	7022	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 5 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1B90	7056	2	TIME*	R	---	---	---	Unsigned
1B92	7058	2	DATE**	R	---	---	---	Unsigned
1B94	7060	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1BBA	6998	2	TIME*	R	---	---	---	Unsigned
1BBC	7100	2	DATE**	R	---	---	---	Unsigned
1BBE	7102	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 6 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1BE0	7136	2	TIME*	R	---	---	---	Unsigned
1BE2	7138	2	DATE**	R	---	---	---	Unsigned
1BE4	7140	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1C0A	7178	2	TIME*	R	---	---	---	Unsigned
1C0C	7180	2	DATE**	R	---	---	---	Unsigned
1C0E	7182	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 7 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1C30	7216	2	TIME*	R	---	---	---	Unsigned
1C32	7218	2	DATE**	R	---	---	---	Unsigned
1C34	7220	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1C5A	7258	2	TIME*	R	---	---	---	Unsigned
1C5C	7260	2	DATE**	R	---	---	---	Unsigned
1C5E	7262	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 8 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1C80	7296	2	TIME*	R	---	---	---	Unsigned
1C82	7298	2	DATE**	R	---	---	---	Unsigned
1C84	7300	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1CAA	7338	2	TIME*	R	---	---	---	Unsigned
1CAC	7340	2	DATE**	R	---	---	---	Unsigned
1CAE	7342	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 9 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1CD0	7376	2	TIME*	R	---	---	---	Unsigned
1CD2	7378	2	DATE**	R	---	---	---	Unsigned
1CD4	7380	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1CFA	7418	2	TIME*	R	---	---	---	Unsigned
1CFC	7420	2	DATE**	R	---	---	---	Unsigned
1CFE	7422	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 10 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1D20	7456	2	TIME*	R	---	---	---	Unsigned
1D22	7458	2	DATE**	R	---	---	---	Unsigned
1D24	7460	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1D2A	7466	2	TIME*	R	---	---	---	Unsigned
1D2C	7468	2	DATE**	R	---	---	---	Unsigned
1D2E	7470	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 11 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1D70	7536	2	TIME*	R	---	---	---	Unsigned
1D72	7538	2	DATE**	R	---	---	---	Unsigned
1D74	7540	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1D9A	7578	2	TIME*	R	---	---	---	Unsigned
1D9C	7580	2	DATE**	R	---	---	---	Unsigned
1D9E	7582	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 12 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1DC0	7816	2	TIME*	R	---	---	---	Unsigned
1DC2	7818	2	DATE**	R	---	---	---	Unsigned
1DC4	7820	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1DEA	7658	2	TIME*	R	---	---	---	Unsigned
1DEC	7660	2	DATE**	R	---	---	---	Unsigned
1DEE	7662	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 13 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1E10	7696	2	TIME*	R	---	---	---	Unsigned
1E12	7698	2	DATE**	R	---	---	---	Unsigned
1E14	7700	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1E3A	7738	2	TIME*	R	---	---	---	Unsigned
1E3C	7740	2	DATE**	R	---	---	---	Unsigned
1E3E	7742	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 14 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1E60	7776	2	TIME*	R	---	---	---	Unsigned
1E62	7778	2	DATE**	R	---	---	---	Unsigned
1E64	7780	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1E8A	7818	2	TIME*	R	---	---	---	Unsigned
1E8C	7820	2	DATE**	R	---	---	---	Unsigned
1E8E	7822	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 15 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1EB0	7856	2	TIME*	R	---	---	---	Unsigned
1EB2	7858	2	DATE**	R	---	---	---	Unsigned
1EB4	7860	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1EDA	7898	2	TIME*	R	---	---	---	Unsigned
1EDC	7900	2	DATE**	R	---	---	---	Unsigned
1EDE	7902	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

Timeband 16 – Power Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
1F00	7936	2	TIME*	R	---	---	---	Unsigned
1F02	7938	2	DATE**	R	---	---	---	Unsigned
1F04	7940	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	---	---	---	---	---	---
1F2A	7978	2	TIME*	R	---	---	---	Unsigned
1F2C	7980	2	DATE**	R	---	---	---	Unsigned
1F2E	7982	2	REACTIVE POWER L_3	R	mVAr	VAr	kVAr	Signed

*: byte order/meaning: EMPTY, HOUR, MINUTE, SECOND

**: byte order/meaning: DAY, MONTH, YEAR, YEAR

Input counters (option)

Total input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2000	8192	2	INPUT COUNTER 1	R	---	Unsigned
2002	8194	2	INPUT COUNTER 2	R	---	Unsigned
2004	8196	2	INPUT COUNTER 3	R	---	Unsigned
2006	8198	2	INPUT COUNTER 4	R	---	Unsigned

Ton_{min} Input Signal: 30 mS
$Toff_{min}$ Input Signal: 30 mS

Timeband 1 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2020	8224	2	INPUT COUNTER 1	R	---	Unsigned
2022	8226	2	INPUT COUNTER 2	R	---	Unsigned
2024	8228	2	INPUT COUNTER 3	R	---	Unsigned
2026	8230	2	INPUT COUNTER 4	R	---	Unsigned

Ton_{min} Input Signal: 30 mS
$Toff_{min}$ Input Signal: 30 mS

Timeband 2 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2040	8256	2	INPUT COUNTER 1	R	---	Unsigned
2042	8258	2	INPUT COUNTER 2	R	---	Unsigned
2044	8260	2	INPUT COUNTER 3	R	---	Unsigned
2046	8262	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 3 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2060	8288	2	INPUT COUNTER 1	R	---	Unsigned
2062	8290	2	INPUT COUNTER 2	R	---	Unsigned
2064	8292	2	INPUT COUNTER 3	R	---	Unsigned
2066	8294	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 4 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2080	8320	2	INPUT COUNTER 1	R	---	Unsigned
2082	8322	2	INPUT COUNTER 2	R	---	Unsigned
2084	8324	2	INPUT COUNTER 3	R	---	Unsigned
2086	8326	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 5 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
20A0	8352	2	INPUT COUNTER 1	R	---	Unsigned
20A2	8354	2	INPUT COUNTER 2	R	---	Unsigned
20A4	8356	2	INPUT COUNTER 3	R	---	Unsigned
20A6	8358	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 6 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
20C0	8384	2	INPUT COUNTER 1	R	---	Unsigned
20C2	8386	2	INPUT COUNTER 2	R	---	Unsigned
20C4	8388	2	INPUT COUNTER 3	R	---	Unsigned
20C6	8390	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 7 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
20E0	8416	2	INPUT COUNTER 1	R	---	Unsigned
20E2	8418	2	INPUT COUNTER 2	R	---	Unsigned
20E4	8420	2	INPUT COUNTER 3	R	---	Unsigned
20E6	8422	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 8 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2100	8448	2	INPUT COUNTER 1	R	---	Unsigned
2102	8450	2	INPUT COUNTER 2	R	---	Unsigned
2104	8452	2	INPUT COUNTER 3	R	---	Unsigned
2106	8454	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 9 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2120	8480	2	INPUT COUNTER 1	R	---	Unsigned
2122	8482	2	INPUT COUNTER 2	R	---	Unsigned
2124	8484	2	INPUT COUNTER 3	R	---	Unsigned
2126	8486	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 10 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2140	8512	2	INPUT COUNTER 1	R	---	Unsigned
2142	8514	2	INPUT COUNTER 2	R	---	Unsigned
2144	8516	2	INPUT COUNTER 3	R	---	Unsigned
2146	8518	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 11 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2160	8544	2	INPUT COUNTER 1	R	---	Unsigned
2162	8546	2	INPUT COUNTER 2	R	---	Unsigned
2164	8548	2	INPUT COUNTER 3	R	---	Unsigned
2166	8550	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 12 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2180	8576	2	INPUT COUNTER 1	R	---	Unsigned
2182	8578	2	INPUT COUNTER 2	R	---	Unsigned
2184	8580	2	INPUT COUNTER 3	R	---	Unsigned
2186	8582	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 13 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
21A0	8608	2	INPUT COUNTER 1	R	---	Unsigned
21A2	8610	2	INPUT COUNTER 2	R	---	Unsigned
21A4	8612	2	INPUT COUNTER 3	R	---	Unsigned
21A6	8614	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 14 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
21C0	8624	2	INPUT COUNTER 1	R	---	Unsigned
21C2	8626	2	INPUT COUNTER 2	R	---	Unsigned
21C4	8628	2	INPUT COUNTER 3	R	---	Unsigned
21C6	8630	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 15 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
21E0	8672	2	INPUT COUNTER 1	R	---	Unsigned
21E2	8674	2	INPUT COUNTER 2	R	---	Unsigned
21E4	8676	2	INPUT COUNTER 3	R	---	Unsigned
21E6	8678	2	INPUT COUNTER 4	R	---	Unsigned

Timeband 16 - input counters (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
2200	8704	2	INPUT COUNTER 1	R	---	Unsigned
2202	8706	2	INPUT COUNTER 2	R	---	Unsigned
2204	8708	2	INPUT COUNTER 3	R	---	Unsigned
2206	8710	2	INPUT COUNTER 4	R	---	Unsigned

Relative minimums

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3000	12288	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3002	12290	2	PHASE VOLTAGE L_1	R	mV	mV	V	Unsigned
3004	12292	2	PHASE VOLTAGE L_2	R	mV	mV	V	Unsigned
3006	12294	2	PHASE VOLTAGE L_3	R	mV	mV	V	Unsigned
3008	12296	2	LINE TO LINE VOLTAGE L_{1-2}	R	mV	mV	V	Signed
300A	12298	2	LINE TO LINE VOLTAGE L_{2-3}	R	mV	mV	V	Signed
300C	12300	2	LINE TO LINE VOLTAGE L_{3-1}	R	mV	mV	V	Signed
300E	12302	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
3010	12304	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
3012	12306	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
3014	12308	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
3016	12310	2	SYSTEM POWER FACTOR *[max negative value]*	R	±1000	±1000	±1000	Signed
3018	12312	2	POWER FACTOR L_1 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
301A	12314	2	POWER FACTOR L_2 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
301C	12316	2	POWER FACTOR L_3 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
301E	12318	2	SYSTEM COS ϕ *[maximum negative value]*	R	±1000	±1000	±1000	Signed
3020	12320	2	PHASE COS ϕ_1 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
3022	12322	2	PHASE COS ϕ_2 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
3024	12324	2	PHASE COS ϕ_3 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
3026	12326	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
3028	12328	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
302A	12330	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
302C	12332	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
302E	12334	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
3030	12336	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
3032	12338	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
3034	12340	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
3036	12342	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
3038	12344	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
303A	12346	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
303C	12348	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
303E	12350	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
3040	12352	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
3042	12354	2	TEMPERATURE	R	d°C	d°C	d°C	Signed
3044	12356	2	THD VOLTAGE L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3046	12358	2	THD VOLTAGE L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3048	12360	2	THD VOLTAGE L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
304A	12362	2	THD CURRENT L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
304C	12364	2	THD CURRENT L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
304E	12366	2	THD CURRENT L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3050	12368	2	$ANGLE_{1-2}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3052	12370	2	$ANGLE_{2-3}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3054	12372	2	$ANGLE_{3-1}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3056	12374	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
3058	12376	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
305A	12378	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
305C	12380	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

Relative maximums

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3100	12544	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3102	12546	2	PHASE VOLTAGE L_1	R	mV	mV	V	Unsigned
3104	12548	2	PHASE VOLTAGE L_2	R	mV	mV	V	Unsigned
3106	12550	2	PHASE VOLTAGE L_3	R	mV	mV	V	Unsigned
3108	12552	2	LINE TO LINE VOLTAGE L_{1-2}	R	mV	mV	V	Signed
310A	12554	2	LINE TO LINE VOLTAGE L_{2-3}	R	mV	mV	V	Signed
310C	12556	2	LINE TO LINE VOLTAGE L_{3-1}	R	mV	mV	V	Signed
310E	12558	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
3110	12560	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
3112	12562	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
3114	12564	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
3116	12566	2	SYSTEM POWER FACTOR *[max positive value]*	R	±1000	±1000	±1000	Signed
3118	12568	2	POWER FACTOR L_1 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
311A	12570	2	POWER FACTOR L_2 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
311C	12572	2	POWER FACTOR L_3 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
311E	12574	2	SYSTEM COS ϕ *[maximum positive value]*	R	±1000	±1000	±1000	Signed
3120	12576	2	PHASE COS ϕ_1 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
3122	12578	2	PHASE COS ϕ_2 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
3124	12580	2	PHASE COS ϕ_3 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
3126	12582	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
3128	12584	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
312A	12586	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
312C	12588	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
312E	12590	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
3130	12592	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
3132	12594	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
3134	12596	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
3136	12598	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
3138	12600	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
313A	12602	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
313C	12604	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
313E	12608	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
3140	12610	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
3142	12612	2	TEMPERATURE	R	d°C	d°C	d°C	Signed
3144	12614	2	THD VOLTAGE L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3146	12616	2	THD VOLTAGE L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3148	12618	2	THD VOLTAGE L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
314A	12620	2	THD CURRENT L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
314C	12622	2	THD CURRENT L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
314E	12624	2	THD CURRENT L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
3150	12626	2	$ANGLE_{1-2}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3152	12628	2	$ANGLE_{2-3}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3154	12630	2	$ANGLE_{3-1}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
3156	12632	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
3158	12634	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
315A	12636	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
315C	12638	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

Absolute minimums

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3200	12800	2	TIME*	R	---	---	---	Unsigned
3202	12802	2	DATE**	R	---	---	---	Unsigned
3204	12804	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3206	12806	2	TIME*	R	---	---	---	Unsigned
3208	12808	2	DATE**	R	---	---	---	Unsigned
320A	12810	2	PHASE VOLTAGE L_1	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3210	12816	2	PHASE VOLTAGE L_2	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3216	12822	2	PHASE VOLTAGE L_3	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
321C	12828	2	LINE TO LINE VOLTAGE L_{1-2}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3222	12834	2	LINE TO LINE VOLTAGE L_{2-3}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3228	12840	2	LINE TO LINE VOLTAGE L_{3-1}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
322E	12846	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3234	12852	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
323A	12858	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3240	12864	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3246	12870	2	SYSTEM POWER FACTOR *[max negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
324C	12876	2	POWER FACTOR L_1 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3252	12882	2	POWER FACTOR L_2 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3258	12888	2	POWER FACTOR L_3 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
325E	12894	2	SYSTEM COS ϕ *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3264	12900	2	PHASE COS ϕ_1 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
326A	12906	2	PHASE COS ϕ_2 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3270	12912	2	PHASE COS ϕ_3 *[maximum negative value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3276	12918	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
327C	12924	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3282	12930	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3288	12936	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
328E	12942	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3294	12948	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
329A	12954	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32A0	12960	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32A6	12966	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32AC	12972	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32B2	12978	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32B8	12984	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
32BE	12990	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32C4	12996	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32CA	13002	2	TEMPERATURE	R	d °C	d °C	d °C	Signed
---	---	---	TIME - DATE	---	---	---	---	---

32D0	13008	2	THD VOLTAGE L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32D6	13014	2	THD VOLTAGE L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32DC	13020	2	THD VOLTAGE L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32E2	13026	2	THD CURRENT L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32E8	13032	2	THD CURRENT L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32EE	13038	2	THD CURRENT L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32F4	13044	2	$ANGLE_{1-2}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
32FA	13050	2	$ANGLE_{2-3}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3300	13056	2	$ANGLE_{3-1}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3306	13062	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
330C	13068	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3312	13074	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3318	13080	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

*: byte order/meaning: EMPTY, HOUR, MINUTE, SECOND

**: byte order/meaning: DAY, MONTH, YEAR, YEAR

Absolute maximums

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3400	13312	2	TIME*	R	---	---	---	Unsigned
3402	13314	2	DATE**	R	---	---	---	Unsigned
3404	13316	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3406	13318	2	TIME*	R	---	---	---	Unsigned
3408	13320	2	DATE**	R	---	---	---	Unsigned
340A	13322	2	PHASE VOLTAGE L_1	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3410	13328	2	PHASE VOLTAGE L_2	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3416	13334	2	PHASE VOLTAGE L_3	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
341C	13340	2	LINE TO LINE VOLTAGE L_{1-2}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3422	13346	2	LINE TO LINE VOLTAGE L_{2-3}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3428	13352	2	LINE TO LINE VOLTAGE L_{3-1}	R	mV	mV	V	Signed
---	---	---	TIME - DATE	---	---	---	---	---
342E	13358	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3434	13364	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
343A	13370	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3440	13376	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3446	13382	2	SYSTEM POWER FACTOR *[max positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
344C	13388	2	POWER FACTOR L_1 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3452	13394	2	POWER FACTOR L_2 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3458	13400	2	POWER FACTOR L_3 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
345E	13406	2	SYSTEM COS ϕ *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3464	13412	2	PHASE COS ϕ_1 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
346A	13418	2	PHASE COS ϕ_2 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3470	13424	2	PHASE COS ϕ_3 *[maximum positive value]*	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3476	13430	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
347C	13436	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3482	13442	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3488	13448	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
348E	13454	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3494	13460	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
349A	13466	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34A0	13472	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34A6	13478	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34AC	13484	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34B2	13490	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34B8	13496	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
34BE	13502	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34C4	13508	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34CA	13514	2	TEMPERATURE	R	d °C	d °C	d °C	Signed
---	---	---	TIME - DATE	---	---	---	---	---

34D0	13520	2	THD VOLTAGE L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34D6	13526	2	THD VOLTAGE L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34DC	13532	2	THD VOLTAGE L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34E2	13538	2	THD CURRENT L_1	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34E8	13542	2	THD CURRENT L_2	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34EE	13548	2	THD CURRENT L_3	R	0 ÷ 10000	0 ÷ 10000	0 ÷ 10000	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34F4	13554	2	$ANGLE_{1-2}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
34FA	13560	2	$ANGLE_{2-3}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3500	13568	2	$ANGLE_{3-1}$	R	0 - 3600	0 - 3600	0 - 3600	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3506	13574	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
350C	13580	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3512	13586	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3518	13592	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

*: byte order/meaning: EMPTY, HOUR, MINUTE, SECOND

**: byte order/meaning: DAY, MONYH, YEAR, YEAR

Last average (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3600	13824	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3602	13826	2	PHASE VOLTAGE L_{1-N}	R	mV	mV	V	Unsigned
3604	13828	2	PHASE VOLTAGE L_{2-N}	R	mV	mV	V	Unsigned
3606	13830	2	PHASE VOLTAGE L_{3-N}	R	mV	mV	V	Unsigned
3608	13832	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
360A	13834	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
360C	13836	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
360E	13838	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
3610	13840	2	SYSTEM POWER FACTOR	R	±1000	±1000	±1000	Signed
3612	13842	2	POWER FACTOR L_1	R	±1000	±1000	±1000	Signed
3614	13844	2	POWER FACTOR L_2	R	±1000	±1000	±1000	Signed
3616	13846	2	POWER FACTOR L_3	R	±1000	±1000	±1000	Signed
3618	13848	2	SYSTEM COS ϕ	R	±1000	±1000	±1000	Signed
361A	13850	2	PHASE COS ϕ_1	R	±1000	±1000	±1000	Signed
361C	13852	2	PHASE COS ϕ_2	R	±1000	±1000	±1000	Signed
361E	13854	2	PHASE COS ϕ_3	R	±1000	±1000	±1000	Signed
3620	13856	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
3622	13858	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
3624	13860	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
3626	13862	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
3628	13864	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
362A	13866	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
362C	13868	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
362E	13870	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
3630	13872	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	kVAR	Signed
3632	13874	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
3634	13876	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
3636	13878	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
3638	13880	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
363A	13882	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
363C	13884	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
363E	13886	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
3640	13888	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
3642	13890	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

Max demand (mobile or fixed window)

Register HEX	Register DEC	Word	Description	R/W	M.U. LMH = 0	M.U. LMH = 1	M.U. LMH = 2	Type
3700	14080	2	TIME*	R	---	---	---	Unsigned
3702	14082	2	DATE**	R	---	---	---	Unsigned
3704	14084	2	SYSTEM VOLTAGE	R	mV	mV	V	Unsigned
3706	14086	2	TIME*	R	---	---	---	Unsigned
3708	14088	2	DATE**	R	---	---	---	Unsigned
370A	14090	2	PHASE VOLTAGE L_{1-N}	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3710	14096	2	PHASE VOLTAGE L_{2-N}	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3716	14102	2	PHASE VOLTAGE L_{3-N}	R	mV	mV	V	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
371C	14108	2	SYSTEM CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3722	14114	2	LINE CURRENT L_1	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3728	14120	2	LINE CURRENT L_2	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
372E	14126	2	LINE CURRENT L_3	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3734	14132	2	SYSTEM POWER FACTOR	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
373A	14138	2	POWER FACTOR L_1	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3740	14144	2	POWER FACTOR L_2	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3746	14150	2	POWER FACTOR L_3	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
374C	14156	2	SYSTEM COS ϕ	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3752	14162	2	PHASE COS ϕ_1	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3758	14168	2	PHASE COS ϕ_2	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
375E	14174	2	PHASE COS ϕ_3	R	±1000	±1000	±1000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3764	14180	2	SYSTEM APPARENT POWER	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
376A	14186	2	APPARENT POWER L_1	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3770	14192	2	APPARENT POWER L_2	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
3776	14198	2	APPARENT POWER L_3	R	mVA	VA	kVA	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
377C	14204	2	SYSTEM ACTIVE POWER	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3782	14210	2	ACTIVE POWER L_1	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3788	14216	2	ACTIVE POWER L_2	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
378E	12422	2	ACTIVE POWER L_3	R	mW	W	kW	Signed
---	---	---	TIME - DATE	---	---	---	---	---
3794	14228	2	SYSTEM REACTIVE POWER	R	mVAR	VAR	VAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
379A	14234	2	REACTIVE POWER L_1	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37A0	14240	2	REACTIVE POWER L_2	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37A6	14246	2	REACTIVE POWER L_3	R	mVAR	VAR	kVAR	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37AC	14252	2	NEUTRAL CURRENT	R	mA	mA	A	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
37B2	14258	2	FREQUENCY	R	mHz	mHz	mHz	Unsigned
---	---	---	TIME - DATE	---	---	---	---	---
37B8	14264	2	SYSTEM TANGENT ϕ	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37BE	14270	2	PHASE TANGENT ϕ_1	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37C4	14276	2	PHASE TANGENT ϕ_2	R	±100000	±100000	±100000	Signed
---	---	---	TIME - DATE	---	---	---	---	---
37CA	14282	2	PHASE TANGENT ϕ_3	R	±100000	±100000	±100000	Signed

*: byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
**: byte order/meaning: DAY, MONYH, YEAR, YEAR

Device info

Register HEX	Register DEC	Word	Description	R/W	Note:
4000	16384	5	SERIAL NUMBER	R	Expressed in ASCII Code 1°-2°-3° Bytes: Product Model 8°-9° Bytes: Progressive Number 4°-5° Bytes: Product Year 10° Bytes: Not Used 6°-7° Bytes: Product Week
4005	16389	4	HW REVISION	R	Expressed in ASCII Code
4009	16393	4	HW CUSTOMIZATION	R	Expressed in ASCII Code
400D	16397	32	CONFIGURATION	R	Expressed in ASCII Code *(see below tables)*

Boot version

Register HEX	Register DEC	Word	Description	R/W	Note:
4060	16480	1	BOOT VERSION	R	

Firmware version

Register HEX	Register DEC	Word	Description	R/W	Note:
4070	16496	1	FIRMWARE VERSION	R	

Core version

Register HEX	Register DEC	Word	Description	R/W	Note:
4080	16512	1	CORE VERSION	R	

Device state

Register HEX	Register DEC	Word	Description	R/W	Note:
4100	16640	2	STATE	R	Bit00:calibrationcorrupted[B] Bit08:--- Bit01:calibrationcorrupted[A] Bit09:Warningvoltageconnection* Bit02:calibrationcorrupted[P] Bit10:Warningcurrentconnection** Bit03:--- Bit11:WarningCT1inversion*** Bit04:--- Bit12:WarningCT2inversion*** Bit05:--- Bit13:WarningCT3inversion*** Bit06:alarmtemperature Bit14:NoVoltagesApply Bit07:--- Bit15:NoCurrentsApply

* : The order of voltage connections not be correct (don't respect 120° between the phases) in the following insertion:
- Three phase
- Three phase balanced
- Three phase multi load balanced
- Single phase multi load
- Multi single phase

Must be apply all voltage inputs.

**: The order of current connections not be correct in the following insertion:
- Three phase
- Three phase balanced
- Three phase multi load balanced
- Single phase multi load
- Multi single phase

Must be apply all current and all voltage inputs and the loads to be balanced.

***: The current in the CT has the opposite sign respect others two phase.
Must be apply all current and all voltage inputs.

Switch On/Off Events

Register HEX	Register DEC	Word	Description	R/W	Note:
4120	16672	2	TIME	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
4122	16674	2	DATE	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
4124	16676	2	1st SWITCH ON/OFF DETECTED	R	1: Instrument switched on 0: Instrument switched off
4126	16678	2	TIME*	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
4128	16680	2	DATE**	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
412A	16682	2	2nd SWITCH ON/OFF DETECTED	R	1: Instrument switched on 0: Instrument switched off
---	---	---	---	---	---
41D4	16852	2	TIME*	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
41D6	16854	2	DATE**	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
41D8	16856	2	31th SWITCH ON/OFF DETECTED	R	1: Instrument switched on 0: Instrument switched off
41DA	16858	2	TIME*	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
41DC	16860	2	DATE**	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
41DE	16862	2	32th SWITCH ON/OFF DETECTED	R	1: Instrument switched on 0: Instrument switched off

Password setup

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5000	20480	2	ACCESS KEY VALUE	W	0 ÷ 999'999'999 *[Default 0: Password disabled]*
5002	20482	2	ACCESS KEY VALID PERIOD	R/W	1 ÷ 60 min *[Default: 5 min]*
5004	20484	2	KEYS PROTECTION	R/W	0: Not protected *[Default]* 1: Protected by password
5006	20486	2	COMMUNICATION PROTECTION	R/W	0: Not protected *[Default]* 1: Protected by password (write command only).
5008	20488	2	ENABLE OPTIONS	R/W	0 ÷ 999'999'999

Warning: If COMMUNICATION PROTECT is enabled, it's necessary to write ACCESS KEY register only before send another write command.

Device setup

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.

Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5050	20560	2	RESET	W	00000001h: Reset to Default 00000002h: Reset Setup 00000004h: Reset all Energies 00000008h: Reset all Energies TB *(no total energies)* 00000010h: Reset all Counters 00000020h: Reset all Counters TB *(no total energies)* 00000040h: Reset Minimums and Maximum 00000080h: Reset Maximum Demand 00000100h: Reset Energy Log 00000200h: Reset Setpoint Log 00000400h: Reset Generic, Smart, Trigger and Timed Log 00000800h: Events Log 00001000h: Manual Reset SP-DO
5052	20562	2	HOUR	R/W	00 to 23 hours (00=Midnight)
5054	20564	2	MINUTE	R/W	00 to 59 minutes
5056	20566	2	SECOND	R/W	00 to 59 seconds
5058	20568	2	DAY OF WEEK	R/W	0001h = Monday 0004h = Thursday 0007h = Sunday 0002h = Tuesday 0005h = Friday 0003h = Wednesday 0006h = Saturday
505A	20570	2	DAY	R/W	01 to 31 day-of-month
505C	20572	2	MONTH	R/W	01 to 12 month
505E	20574	2	YEAR	R/W	2000 to 2099 year
5060	20576	2	SYNCRONIZE CLOCK	R/W	00000000h: only valid parameter (set to 00 second)
5062	20578	2	KCT TRANSFORM RATIO CURRENT	R/W	1 ÷ 5'000 *[Default: 1]* if KCT * KVT is higher than 300'000 the *MEASURAMENT POWERS* is set to 2 (kW, kVAr, kVA) and the *MEASURAMENT ENERGIES* is set to 1 (100 kWh, kVarh, kVah) automatically.
5064	20580	2	KCTN TRANSF. RATIO NEUTRAL CURRENT	R/W	1 ÷ 5'000 *[Default: 1]*
5066	20582	2	KVT TRANSFORM RATIO VOLTAGE	R/W	1 ÷ 5'000 *[Default: 1]* if KCT * KVT is higher than 300'000 the *MEASURAMENT POWERS* is set to 2 (kW, kVAr, kVA) and the *MEASURAMENT ENERGIES* is set to 1 (100 kWh, kVarh, kVah) *automatically.*
5068	20584	2	WINDOW UPDATE TIME	R/W	00: 1 min 03: 5 min 06: 12 min 09: 30 min 01: 2 min 04: 6 min 07: 15 min *[Default]* 10: 60 min 02: 3 min 05: 10 min 08: 20 min After this time the max and min relative, the average, the max demand and the expected power (fixed window) will be reset.
506A	20586	2	WINDOW TYPE (average, max demand, expected power)	R/W	0: Fixed window (synchronized with RTC) *[Default]* 1: Shifting window
506C	20588	2	TIMEBAND ENERGY MODE	R/W	00h: Manual 01h: Selection from Digital Input 02h: Preset
506E	20590	2	TIMEBAND ENERGY USED	R/W	01h: Timeband 1 Used *[Default]* - - - - - - - - - - - - - - 10h: Timeband 16 Used
5070	20592	2	TIMEBAND COUNTER MODE	R/W	00h: Manual 01h: Selection from Digital Input
5072	20594	2	TIMEBAND COUNTER USED	R/W	01h: Timeband 1 Used *[Default]* - - - - - - - - - - - - - - 10h: Timeband 16 Used
5074	20596	2	FUNDAMENTAL FREQUENCY	R/W	0000h: 50 Hz *[Default]* 0001h: 60 Hz
5076	20598	2	MONITORED PHASE	R/W	Select phase for frequency and sag monitor: 0000h: Phase A *[Default]* 0001h: Phase B 0002h: Phase C
5078	20600	2	SAG THRESHOLD (see monitored phase)	R/W	30 ÷ 400: Volt RMS value (send 200 for 200V RMS) *[Default: 210]* See user manual (IM1200) for detail. **Warning***:* The new value will be valid after the next Power Up
507A	20602	2	SAG PERIOD (see monitored phase)	R/W	1 ÷ 1000 mS *[Default: 32 mS]* See user manual (IM1200) for detail. **Warning***:* The new value will be valid after the next Power Up
507C	20604	2	WIRING	R/W	0000h: 3-Phase *[Default].* 0001h: Aron 0002h: 3- Phase Balanced 0003h: 3-Phase Multi Load Balanced 0004h: Single-Phase 0005h: Single-Phase - Multi Load 0006h: Multi Single-Phase 0007h: Two-Phase
507E	20606	2	NEUTRAL CURRENT	R/W	0000h: computed 0001h: measured (if Neutral CT is present). *[Default]*
5080	20608	2	POWER FACTOR CONVENTION	R/W	0000h: Sign convention 0002h: IEEE/DIN convention 0001h: IEC convention **Note:** see the user manual (IM1200) for details
5082	20610	2	NOT USED	R/W	NOT USED
5084	20612	2	NOT USED	R/W	NOT USED

Primary Secondary Ratio setup *(only for custom version)*

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50A0	20640	2	CT PRIMARY	R/W	1 ÷ 400'000
50A2	20642	2	CT SECONDARY	R/W	1 ÷ 400'000 *[Default: 1]*
50A4	20644	2	CT-N PRIMARY	R/W	1 ÷ 400'000
50A6	20646	2	CT-N SECONDARY	R/W	1 ÷ 400'000 *[Default: 1]*
50A8	20648	2	VT PRIMARY	R/W	1 ÷ 400'000 *[Default: 1]*
50AA	20650	2	VT SECONDARY	R/W	1 ÷ 400'000 *[Default: 1]*

Units and Modality setup

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50B0	20656	2	UNITS MEASURE - **LMH**	R/W	0: **L**IGHT → mV, mA, mW/VAr/VA, 100 Wh/VArh/VAh 1: **M**EDIUM → mV, mA, W, VAr, VA 100k Wh/VArh/VAh *[Default]* 2: **H**EAVY → V, A, kW, kVAr, kVA, 100M Wh/VArh/VAh
50B2	20658	2	COUNTING MODE	R/W	0: bidirectional *[Default]* 1: monodirectional
50B4	20660	2	DIFFERENTIAL CURRENT ($I_1+I_2+I_3 - I_N$)	R/W	0: not computed 1: computed (only if it is present the neutral current input)

Digital Outputs

Digital output 1 setup

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50C0	20672	2	STATUS	R/W	State *[Default: 0]*
50C2	20674	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
50C4	20676	2	MODE	R/W	0000h: State (see STATE command) *[Default]* 0001h: Pulse 0002h: Setpoint
50C6	20678	2	PULSE WEIGHT (used only in Pulse Mode)	R/W	Weight from 1 to 10000: - 1: pulse every 1 Wh, 1 VARh, 1 VAh. - 10: pulse every 10 Wh, 10 VARh ,10 VAh. - 100: pulse every 100 Wh, 100 VARh ,100 VAh. [Default] - 1k: pulse every 1 kWh, 1 kVARh ,1 kVAh. - 10k: pulse every 10 kWh, 10 kVARh ,10 kVAh.
50C8	20680	2	PULSE PERIOD (used only in Pulse Mode)	R/W	60 mSec ÷ 1000 mSec with 50% of duty cicle *[Default: 500mSec]* For example if it send: 500 mSec → T_{On} 250 mSec – T_{Off} 250 mSec
50CA	20682	2	MEASURE ASSOCIATED (used only in Pulse Mode)	R/W	Total Energy Group *[Default: S-Wh-I]*

Digital output 2 setup

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50D0	20688	2	STATUS	R/W	State *[Default: 0]*
50D2	20690	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
50D4	20692	2	MODE	R/W	0000h: State (see STATE command) *[Default]* 0001h: Pulse 0002h: Setpoint
50D6	20694	2	PULSE WEIGHT (used only in Pulse Mode)	R/W	Weight from 1 to 10000: - 1: pulse every 1 Wh, 1 VARh, 1 VAh. - 10: pulse every 10 Wh, 10 VARh ,10 VAh. - 100: pulse every 100 Wh, 100 VARh ,100 VAh. [Default] - 1k: pulse every 1 kWh, 1 kVARh ,1 kVAh. - 10k: pulse every 10 kWh, 10 kVARh ,10 kVAh.
50D8	20696	2	PULSE PERIOD (used only in Pulse Mode)	R/W	60 mSec ÷ 1000 mSec with 50% of duty cicle *[Default: 500mSec]* For example if it send: 500 mSec → T_{On} 250 mSec – T_{Off} 250 mSec
50DA	20698	2	MEASURE ASSOCIATED (used only in Pulse Mode)	R/W	Total Energy Group *[Default: S-VArh-I]*

Digital output 3 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50E0	20704	2	STATUS	R/W	State *[Default: 0]*
50E2	20706	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
50E4	20708	2	MODE	R/W	0000h: State (see STATE command) *[Default]* 0001h: Pulse 0002h: Setpoint
50E6	20710	2	PULSE WEIGHT (used only in Pulse Mode)	R/W	Weight from 1 to 10000: - 1: pulse every 1 Wh, 1 VARh, 1 VAh. - 10: pulse every 10 Wh, 10 VARh ,10 VAh. - 100: pulse every 100 Wh, 100 VARh ,100 VAh. [Default] - 1k: pulse every 1 kWh, 1 kVARh ,1 kVAh. - 10k: pulse every 10 kWh, 10 kVARh ,10 kVAh.
50E8	20712	2	PULSE PERIOD (used only in Pulse Mode)	R/W	60 mSec ÷ 1000 mSec with 50% of duty cicle *[Default: 500mSec]* For example if it send: 500 mSec → T_{On} 250 mSec – T_{Off} 250 mSec
50EA	20714	2	MEASURE ASSOCIATED (used only in Pulse Mode)	R/W	Total Energy Group *[Default: S-Wh-O]*

Digital output 4 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
50F0	20720	2	STATUS	R/W	State *[Default: 0]*
50F2	20722	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
50F4	20724	2	MODE	R/W	0000h: State (see STATE command) *[Default]* 0001h: Pulse 0002h: Setpoint
50F6	20726	2	PULSE WEIGHT (used only in Pulse Mode)	R/W	Weight from 1 to 10000: - 1: pulse every 1 Wh, 1 VARh, 1 VAh. - 10: pulse every 10 Wh, 10 VARh ,10 VAh. - 100: pulse every 100 Wh, 100 VARh ,100 VAh. [Default] - 1k: pulse every 1 kWh, 1 kVARh ,1 kVAh. - 10k: pulse every 10 kWh, 10 kVARh ,10 kVAh.
50F8	20728	2	PULSE PERIOD (used only in Pulse Mode)	R/W	60 mSec ÷ 1000 mSec with 50% of duty cicle *[Default: 500mSec]* For example if it send: 500 mSec → T_{On} 250 mSec – T_{Off} 250 mSec
50FA	20730	2	MEASURE ASSOCIATED (used only in Pulse Mode)	R/W	Total Energy Group *[Default: S-VArh-O]*

Digital output 5 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5150	20816	2	STATUS	R/W	State *[Default: 0]*
5152	20818	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
5154	20820	2	MODE	R/W	0000h: State *[Default]* (see STATE command) 0001h: Not used 0002h: Setpoint

Digital output 6 setup (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
5160	20832	2	STATUS	R/W	State *[Default: 0]*
5162	20834	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
5164	20836	2	MODE	R/W	0000h: State *[Default]* (see STATE command) 0001h: Not used 0002h: Setpoint

Digital output 7 setup (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
5170	20848	2	STATUS	R/W	State *[Default: 0]*
5172	20850	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
5174	20852	2	MODE	R/W	0000h: State *[Default]* (see STATE command) 0001h: Not used 0002h: Setpoint

Digital output 8 setup (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
5180	20864	2	STATUS	R/W	State *[Default: 0]*
5182	20866	2	LEVEL	R/W	0000h: Active Low (Initial State: High Level) 0001h: Active High (Initial State: Low Level) *[Default]* **WARNING**: when it changes, the STATUS come back to default.
5184	20868	2	MODE	R/W	0000h: State *[Default]* (see STATE command) 0001h: Not used 0002h: Setpoint

Digital Inputs

Digital input 1 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
51A0	20896	2	STATE	R	State
51A2	20898	2	MODE	R/W	0000h: Status *[Default]* 0001h: Counter 0002h: Select Energy Timeband Used (DI bit logic) 0003h: Select Counter Timeband Used (DI bit logic) 0004h: Select Energy and Counter Timeband Used (DI bit logic) Examples: DI-4 = 1, DI-3, = 0 DI-2 = 0, DI-1 = 1 TB selected is 1001bin → TB 9 DI-4 = 0, DI-3, = 0 DI-2 = 1, DI-1 = 1 TB selected is 0011bin → TB 3
51A4	20900	2	MULTIPLIER	R/W	1÷100000 *[Default: 1]*
51A6	20902	2	DIVISOR	R/W	1÷100000 *[Default: 1]*
51A8	20904	2	NORMALLY	R/W	0: active low 1: active high *[Default]*
51AA	20906	2	SETPOINT RESET DO	R/W	Bit logic: Bit 0: for reset DO used in Setpoint 1 when DI is engaged Bit 1: for reset DO used in Setpoint 2 when DI is engaged --- ---------- Bit 31: for reset DO used in Setpoint 32 when DI is engaged

Digital input 2 setup	First parameter 0x51B0 hex – 20912 dec,	Last parameter 0x51BA hex – 20922 dec
Digital input 3 setup	First parameter 0x51C0 hex – 20928 dec,	Last parameter 0x51CA hex – 20938 dec
Digital input 4 setup	First parameter 0x51D0 hex – 20944 dec,	Last parameter 0x51DA hex – 20954 dec
Digital input 5 setup	First parameter 0x52A0 hex – 21152 dec,	Last parameter 0x52AA hex – 21162 dec
Digital input 6 setup	First parameter 0x52B0 hex – 21168 dec,	Last parameter 0x52BA hex – 21178 dec
Digital input 7 setup	First parameter 0x52C0 hex – 21184 dec,	Last parameter 0x52CA hex – 21194 dec
Digital input 8 setup	First parameter 0x52D0 hex – 21200 dec,	Last parameter 0x52DA hex – 21210 dec

Analog outputs

Analog output 1 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5200	20992	2	RANGE	R/W	0: 0 V to 5 V *[Default]* 1: 0 V to 10 V 2: ±5 V 3: ±10 V 4: 4 mA to 20 mA 5: 0 mA to 20 mA
5202	20994	2	GROUP	R/W	0: Not used *[Default]* 1: Instantaneous measure
5204	20996	2	MEASURE	R/W	If GROUP is 1: See Instantaneous group
5206	20998	2	HIGH THRESHOLD	R/W	Value: ±999999
5208	21000	2	HIGH THRESHOLD UNIT	R/W	voltage: 0: mV, 1: V, 2: kV, 3: MV current: 0: mA, 1: A, 2: kA, 3: MA cos phi and PF: 0, 1, 2, 3: no unit power: 0: VA, W, Var 1: kVA, kW, kVAr 2 : MVA, MW, GVAr 3: GVA, GW, GVAr frequency: 0, 1, 2, 3: mHz THD & Harmonics: 0, 1, 2, 3: %*100 angle degree: 0, 1, 2, 3: degree*10 tan phi 0, 1, 2, 3: no unit energy: 0: VAh*100, kWh*100, kVArh*100 1: kVAh, kWh, kVAr 2 : MVAh, MWh, GVArh 3: GVAh, GWh, GVArh
520A	21002	2	LOW THRESHOLD	R/W	See HIGH THRESHOLD
520C	21004	2	LOW THRESHOLD UNIT	R/W	See HIGH THRESHOLD UNIT

Analog output 2 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5230	21040	2	RANGE	R/W	0: 0 V to 5 V *[Default]* 1: 0 V to 10 V 2: ± 5 V 3: ± 10 V 4: 4 mA to 20 mA 5: 0 mA to 20 mA
5232	21042		GROUP	R/W	0: Not used *[Default]* 1: Instantaneous measure
5234	21044		MEASURE	R/W	If GROUP is 1: See Instantaneous group
5236	21046	2	HIGH THRESHOLD	R/W	Value: ± 999999
5238	21048	2	HIGH THRESHOLD UNIT	R/W	voltage: 0: mV, 1: V, 2: kV, 3: MV current: 0: mA, 1: A, 2: kA, 3: MA cos phi and PF: 0, 1, 2, 3: no unit power: 0: VA, W, Var 1: kVA, kW, kVAr 2 : MVA, MW, GVAr 3: GVA, GW, GVAr frequency: 0, 1, 2, 3: mHz THD & Harmonics: 0, 1, 2, 3: %*100 angle degree: 0, 1, 2, 3: degree*10 tan phi 0, 1, 2, 3: no unit energy: 0: VAh*100, kWh*100, kVArh*100 1: kVAh, kWh, kVAr 2 : MVAh, MWh, GVArh 3: GVAh, GWh, GVArh
523A	21050	2	LOW THRESHOLD	R/W	See HIGH THRESHOLD
523C	21052	2	LOW THRESHOLD UNIT	R/W	See HIGH THRESHOLD UNIT

Analog output 3 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5260	21088	2	RANGE	R/W	0: 0 V to 5 V *[Default]* 1: 0 V to 10 V 2: ±5 V 3: ±10 V 4: 4 mA to 20 mA 5: 0 mA to 20 mA
5262	21090	2	GROUP	R/W	0: Not used *[Default]* 1: Instantaneous measure
5264	21092	2	MEASURE	R/W	If GROUP is 1: See Instantaneous group
5266	21094	2	HIGH THRESHOLD	R/W	Value: ± 999999
5268	21096	2	HIGH THRESHOLD UNIT	R/W	voltage: 0: mV, 1: V, 2: kV, 3: MV current: 0: mA, 1: A, 2: kA, 3: MA cos phi and PF: 0, 1, 2, 3: no unit power: 0: VA, W, Var 1: kVA, kW, kVAr 2 : MVA, MW, GVAr 3: GVA, GW, GVAr frequency: 0, 1, 2, 3: mHz THD & Harmonics: 0, 1, 2, 3: %*100 angle degree: 0, 1, 2, 3: degree*10 tan phi 0, 1, 2, 3: no unit energy: 0: VAh*100, kWh*100, kVArh*100 1: kVAh, kWh, kVAr 2 : MVAh, MWh, GVArh 3: GVAh, GWh, GVArh
526A	21098	2	LOW THRESHOLD	R/W	See HIGH THRESHOLD
526C	21100	2	LOW THRESHOLD UNIT	R/W	See HIGH THRESHOLD UNIT

Analog output 4 setup (option)

Warning: Must be send the entire parameter length (2 words or 1 word – see the long of each parameter) for a correct command setting.
Warning: All Write command could be send in Broadcast Mode (Node ID 0) but if the Modbus Register or Modbus Parameters is wrong anything messages are returned.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5290	21136	2	RANGE	R/W	0: 0 V to 5 V *[Default]* 1: 0 V to 10 V 2: ±5 V 3: ±10 V 4: 4 mA to 20 mA 5: 0 mA to 20 mA
5292	21138	2	GROUP	R/W	0: Not used *[Default]* 1: Instantaneous measure
5294	21140	2	MEASURE	R/W	If GROUP is 1: See Instantaneous group
5296	21142	2	HIGH THRESHOLD	R/W	Value: ± 999999
5298	21144	2	HIGH THRESHOLD UNIT	R/W	voltage: 0: mV, 1: V, 2: kV, 3: MV current: 0: mA, 1: A, 2: kA, 3: MA cos phi and PF: 0, 1, 2, 3: no unit power: 0: VA, W, Var 1: kVA, kW, kVAr 2 : MVA, MW, GVAr 3: GVA, GW, GVAr frequency: 0, 1, 2, 3: mHz THD & Harmonics: 0, 1, 2, 3: %*100 angle degree: 0, 1, 2, 3: degree*10 tan phi 0, 1, 2, 3: no unit energy: 0: VAh*100, kWh*100, kVArh*100 1: kVAh, kWh, kVAr 2 : MVAh, MWh, GVArh 3: GVAh, GWh, GVArh
529A	21146	2	LOW THRESHOLD	R/W	See HIGH THRESHOLD
529C	21148	2	LOW THRESHOLD UNIT	R/W	See HIGH THRESHOLD UNIT

Analog inputs

Analog input 1

Register HEX	Register DEC	Word	Description	R/W	Parameters
C180	49536	2	VALUE	R	0 ÷ 20000 *[Default]*
C182	49538	2	MIN EQUAL TO	R/W	-999999999 ÷ +999999999
C184	49540	2	MAX EQUAL TO	R/W	-999999999 ÷ +999999999

Analog input 2

Register HEX	Register DEC	Word	Description	R/W	Parameters
C1A0	49568	2	VALUE	R	0 ÷ 20000 *[Default]*
C1A2	49570	2	MIN EQUAL TO	R/W	-999999999 ÷ +999999999
C1A4	49572	2	MAX EQUAL TO	R/W	-999999999 ÷ +999999999

Setpoint

Setpoint 1 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5300	21248	2	STATUS	R	0: Between the limits set 1: Over the limits set
5302	21250	2	EVENTS	R	Number of overcoming events
5304	21252	2	TIMER	R	Time over the limit (seconds)

Setpoint 1 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5320	21280	2	ENABLE	R/W	0: No *[Default]* 1: Yes
5322	21282	2	SOURCE	R/W	0: Internal Measure 1 to 20: Measure node XX
5324	21284	2	GROUP	R/W	With SOURCE = Internal Measure: 0: Not used [Default] 10: Energies TB-3 20: Energies TB-13 1: Instantaneous measure 11: Energies TB-4 21: Energies TB-14 2: Average 12: Energies TB-5 22: Energies TB-15 3: Total Energies 13: Energies TB-6 23: Energies TB-16 4: Digital input state 14: Energies TB-7 24: Harmonics V1 5: Digital input counters 15: Energies TB-8 25: Harmonics V2 6: Analog Input 16: Energies TB-9 26: Harmonics V3 7: Math 17: Energies TB-10 27: Harmonics A1 8: Energies TB-1 18: Energies TB-11 28: Harmonics A2 9: Energies TB-2 19: Energies TB-12 29: Harmonics A3 With SOURCE = Measure node XX: 0: Not used [Default] 1: External Measure
5326	21286	2	ITEM	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3, or from 8 to 23: See Total Energy group
5328	21288	2	HIGH THRESHOLD (signed)	R/W	Value: ± 9999'9999 do ACTION after the value exceed the threshold
532A	21290	2	HIGH THRESHOLD UNIT	R/W	voltage: 0: mV, 1: V, 2: kV, 3: MV current: 0: mA, 1: A, 2: kA, 3: MA cos phi and PF: 0, 1, 2, 3: no unit power: 0: VA, W, Var 1: kVA, kW, kVAr 2 : MVA, MW, GVAr 3: GVA, GW, GVAr frequency: 0, 1, 2, 3: mHz THD & Harmonics: 0, 1, 2, 3: %*100 angle degree: 0, 1, 2, 3: degree*10 tan phi 0, 1, 2, 3: no unit energy: 0: VAh*100, kWh*100, kVArh*100 1: kVAh, kWh, kVArh 2 : MVAh, MWh, GVArh 3: GVAh, GWh, GVArh
532C	21292	2	LOW THRESHOLD (signed)	R/W	Value: ± 9999'9999 do ACTION after the value exceed the threshold
532E	21294	2	LOW THRESHOLD UNIT	R/W	See HIGH THRESHOLD UNIT
5330	21296	2	OVER DELAY	R/W	0: Instantaneous ACTION 1 ÷ 10000: do ACTION after the condition persist for n Sec
5332	21298	2	ENTRY DELAY	R/W	0: Instantaneous ACTION 1 ÷ 10000: do ACTION after the condition persist for n Sec
5334	21300	2	HYSTERESIS	R/W	0: No hysteresis 1: 1% of high & low threshold - - - 100: 100% of high & low threshold
5336	21302	2	LOGIC OPERATION OVER	R/W	0: Logic operation disabled [Default] 1: operation OR between operands selected 2: operation AND between operands selected **WARNING:** with LOGIC OPERATION, set ACTION in only a setpoint.
5338	21304	2	LOGIC OPERATION ENTRY	R/W	0: Logic operation disabled. [Default] 1: operation OR between operands selected. 2: operation AND between operands selected. **WARNING:** with LOGIC OPERATION, set ACTION in only a setpoint.
533A	21306	2	LOGIC OPERANDS 1 - 16	R/W	Set (**binary format**): Bit 00: for include set point 01 in the logic. --- Bit 15: for include set point 16 in the logic. **WARNING:** with LOGIC OPERATION, set ACTION in all setpoint.
533C	21308	2	LOGIC OPERANDS 17 - 32	R/W	Set (**binary format**): Bit 00: for include set point 17 in the logic. --- Bit 15: for include set point 32 in the logic. **WARNING:** with LOGIC OPERATION, set ACTION in all setpoint.
533E	21310	2	ACTION OVER (high or low threshold)	R/W	It possible to select **one, more or anything** action: Set bit 00: visualize and save setpoint overcoming in log page Set bit 01: change DO-X state at over Set bit 02: increase events Set bit 03: increase timer

5340	21312	2	ACTION ENTRY (high or low threshold)	R/W	It possible to select **one, more or anything** action: Set bit 00: visualize and save setpoint entry in log page. Set bit 01: recovery DO-XX state at entry
5342	21314	2	DIGITAL OUTPUT USED	R/W	It possible to select one **or** more DO: Bit 00: DO-1 Bit 02: DO-3*(option)* Bit 04: DO-5*(option)* Bit 06: DO-7*(option)* Bit 01: DO-2 Bit 03: DO-4*(option)* Bit 05: DO-6*(option)* Bit 07: DO-8*(option)* **WARNING***:* before to use this function must be sure that the DO-X MODE is set as SETPOINT MODE.

Setpoint 2 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5350	21248	2	STATUS	R	0: Between the limits set 1: Over the limits set
5352	21250	2	EVENTS	R	Number of overcoming events
5354	21252	2	TIMER	R	Time over the limit (seconds)

Setpoint 2 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5370	21360	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5392	21394	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 3 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
53A0	21408	2	STATUS	R	0: Between the limits set 1: Over the limits set
53A2	21410	2	EVENTS	R	Number of overcoming events
53A4	21412	2	TIMER	R	Time over the limit (seconds)

Setpoint 3 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
53C0	21440	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
53E2	21474	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 4 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
53F0	21488	2	STATUS	R	0: Between the limits set 1: Over the limits set
53F2	21490	2	EVENTS	R	Number of overcoming events
53F4	21492	2	TIMER	R	Time over the limit (seconds)

Setpoint 4 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5410	21520	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5432	21554	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 5 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5440	21568	2	STATUS	R	0: Between the limits set 1: Over the limits set
5442	21570	2	EVENTS	R	Number of overcoming events
5444	21572	2	TIMER	R	Time over the limit (seconds)

Setpoint 5 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5460	21600	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5482	21634	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 6 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5490	21648	2	STATUS	R	0: Between the limits set 1: Over the limits set
5492	21650	2	EVENTS	R	Number of overcoming events
5494	21652	2	TIMER	R	Time over the limit (seconds)

Setpoint 6 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
54B0	21680	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
54D2	21714	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 7 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
54E0	21728	2	STATUS	R	0: Between the limits set 1: Over the limits set
54E2	21730	2	EVENTS	R	Number of overcoming events
54E4	21732	2	TIMER	R	Time over the limit (seconds)

Setpoint 7 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5500	21760	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5522	21794	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 8 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5530	21808	2	STATUS	R	0: Between the limits set 1: Over the limits set
5532	21810	2	EVENTS	R	Number of overcoming events
5534	21812	2	TIMER	R	Time over the limit (seconds)

Setpoint 8 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5550	21840	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5572	21874	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 9 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5580	21888	2	STATUS	R	0: Between the limits set 1: Over the limits set
5582	21890	2	EVENTS	R	Number of overcoming events
5584	21892	2	TIMER	R	Time over the limit (seconds)

Setpoint 9 setup - **WARNING**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
55A0	21920	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
55C2	21954	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 10 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
55D0	21968	2	STATUS	R	0: Between the limits set 1: Over the limits set
55D2	21970	2	EVENTS	R	Number of overcoming events
55D4	21972	2	TIMER	R	Time over the limit (seconds)

Setpoint 10 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
55F0	22000	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5612	22034	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 11 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5620	22048	2	STATUS	R	0: Between the limits set 1: Over the limits set
5622	22050	2	EVENTS	R	Number of overcoming events
5624	22052	2	TIMER	R	Time over the limit (seconds)

Setpoint 11 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5640	22080	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5662	22114	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 12 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5670	22128	2	STATUS	R	0: Between the limits set 1: Over the limits set
5672	22130	2	EVENTS	R	Number of overcoming events
5674	22132	2	TIMER	R	Time over the limit (seconds)

Setpoint 12 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5690	22160	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
56B2	22194	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 13 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
56C0	22208	2	STATUS	R	0: Between the limits set 1: Over the limits set
56C2	22210	2	EVENTS	R	Number of overcoming events
56C4	22212	2	TIMER	R	Time over the limit (seconds)

Setpoint 13 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
56E0	22240	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5702	22274	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 14 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5710	22288	2	STATUS	R	0: Between the limits set 1: Over the limits set
5712	22290	2	EVENTS	R	Number of overcoming events
5714	22292	2	TIMER	R	Time over the limit (seconds)

Setpoint 14 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5730	22320	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
5752	22354	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 15 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
5760	22368	2	STATUS	R	0: Between the limits set 1: Over the limits set
5762	22370	2	EVENTS	R	Number of overcoming events
5764	22372	2	TIMER	R	Time over the limit (seconds)

Setpoint 15 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
5780	22400	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
57A2	22434	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 16 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
57B0	22448	2	STATUS	R	0: Between the limits set 1: Over the limits set
57B2	22450	2	EVENTS	R	Number of overcoming events
57B4	22452	2	TIMER	R	Time over the limit (seconds)

Setpoint 16 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
57D0	22480	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
57F2	22514	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 17 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BC00	48128	2	STATUS	R	0: Between the limits set 1: Over the limits set
BC02	48130	2	EVENTS	R	Number of overcoming events
BC04	48132	2	TIMER	R	Time over the limit (seconds)

Setpoint 17 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BC20	48160	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BC42	48194	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 18 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BC50	48208	2	STATUS	R	0: Between the limits set 1: Over the limits set
BC52	48210	2	EVENTS	R	Number of overcoming events
BC54	48212	2	TIMER	R	Time over the limit (seconds)

Setpoint 18 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BC70	48240	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BC92	48274	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 19 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BCA0	48288	2	STATUS	R	0: Between the limits set 1: Over the limits set
BCA2	48290	2	EVENTS	R	Number of overcoming events
BCA4	48292	2	TIMER	R	Time over the limit (seconds)

Setpoint 19 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BCC0	48320	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BCE2	48354	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 20 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BCF0	48368	2	STATUS	R	0: Between the limits set 1: Over the limits set
BCF2	48370	2	EVENTS	R	Number of overcoming events
BCF4	48372	2	TIMER	R	Time over the limit (seconds)

Setpoint 20 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BD10	48400	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BD32	48434	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 21 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BD40	48448	2	STATUS	R	0: Between the limits set 1: Over the limits set
BD42	48450	2	EVENTS	R	Number of overcoming events
BD44	48452	2	TIMER	R	Time over the limit (seconds)

Setpoint 21 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BD60	48480	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BD82	48514	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 22 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BD90	48528	2	STATUS	R	0: Between the limits set 1: Over the limits set
BD92	48530	2	EVENTS	R	Number of overcoming events
BD94	48532	2	TIMER	R	Time over the limit (seconds)

Setpoint 22 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BDB0	48560	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BDD2	48594	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 23 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BDE0	48608	2	STATUS	R	0: Between the limits set 1: Over the limits set
BDE2	48610	2	EVENTS	R	Number of overcoming events
BDE4	48612	2	TIMER	R	Time over the limit (seconds)

Setpoint 23 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BE00	48640	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BE22	48674	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 24 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BE30	48688	2	STATUS	R	0: Between the limits set 1: Over the limits set
BE32	48690	2	EVENTS	R	Number of overcoming events
BE34	48692	2	TIMER	R	Time over the limit (seconds)

Setpoint 24 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BE50	48720	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BE72	48754	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 25 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BE80	48768	2	STATUS	R	0: Between the limits set 1: Over the limits set
BE82	48770	2	EVENTS	R	Number of overcoming events
BE84	48772	2	TIMER	R	Time over the limit (seconds)

Setpoint 25 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BEA0	48800	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BEC2	48834	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 26 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BED0	48848	2	STATUS	R	0: Between the limits set 1: Over the limits set
BED2	48850	2	EVENTS	R	Number of overcoming events
BED4	48852	2	TIMER	R	Time over the limit (seconds)

Setpoint 26 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BEF0	48880	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BF12	48914	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 27 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BF20	48928	2	STATUS	R	0: Between the limits set 1: Over the limits set
BF22	48930	2	EVENTS	R	Number of overcoming events
BF24	48932	2	TIMER	R	Time over the limit (seconds)

Setpoint 27 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BF40	48960	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BF62	48994	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 28 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BF70	49008	2	STATUS	R	0: Between the limits set 1: Over the limits set
BF72	49010	2	EVENTS	R	Number of overcoming events
BF74	49012	2	TIMER	R	Time over the limit (seconds)

Setpoint 28 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BF90	49040	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
BFB2	49074	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 29 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
BFC0	49088	2	STATUS	R	0: Between the limits set 1: Over the limits set
BFC2	49090	2	EVENTS	R	Number of overcoming events
BFC4	49092	2	TIMER	R	Time over the limit (seconds)

Setpoint 29 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
BFE0	49120	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
C002	49154	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 30 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
C010	49168	2	STATUS	R	0: Between the limits set 1: Over the limits set
C012	49170	2	EVENTS	R	Number of overcoming events
C014	49172	2	TIMER	R	Time over the limit (seconds)

Setpoint 30 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
C030	49200	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
C052	49234	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 31 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
C060	49248	2	STATUS	R	0: Between the limits set 1: Over the limits set
C062	49250	2	EVENTS	R	Number of overcoming events
C064	49252	2	TIMER	R	Time over the limit (seconds)

Setpoint 31 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
C080	49280	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
C0A2	49314	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint 32 status

Register HEX	Register DEC	Word	Description	R/W	Parameters
C0B0	49360	2	STATUS	R	0: Between the limits set 1: Over the limits set
C0B2	49362	2	EVENTS	R	Number of overcoming events
C0B4	49364	2	TIMER	R	Time over the limit (seconds)

Setpoint 32 setup - **Warning**: must be completed all setpoint setting before change the ENABLE register to 1.

Register HEX	Register DEC	Word	Description	R/W	Parameters
C0D0	49360	2	ENABLE	R/W	0: No *[Default]* 1: Yes
---	---	---	---	---	---
C0F2	49394	2	DIGITAL OUTPUT USED	R/W	See **Setpoint 1 setup** table

Setpoint log to read

Register HEX	Register DEC	Word	Description	R/W	Parameters
5A00	23040	2	LOG TO READ	R/W	1 ÷ 256

Setpoint log info

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
5A10	23056	2	LOG	R	-	Unsigned
5A12	23042	2	MEMORY USED **	R	% * 100	Unsigned

**: Read Examples: 2520 equal to 25,20% - 5000 equal to 50,00%

Setpoint log

Register HEX	Register DEC	Word	Description	R/W	Parameters
5A20	23072	2	EMPTY, HOUR, MINUTE, SECOND	R	-
5A22	23074	2	DAY, MONYH, YEAR,YEAR	R	-
5A24	23076	2	SETPOINT GENERATED LOG	R	1 to 32
5A26	23078	2	ACTION	R	1: Over 0: Entry

Note: FIFO logic log.

COM (option)

COM 1 setup (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
6000	24576	2	OPERATION MODE *	R/W	0000h: Slave Mode *[Default]* 0001h: Master Mode
6002	24578	2	SLAVE CONNECTED (used only in Master Mode)	R/W	0001h ÷ 0014h (001 ÷ 20 dec) *[Default: 1]* **Note**: valid only in Master Mode.
6004	24580	2	MASTER TIMEOUT (used only in Master Mode)	R/W	0 ÷ 10000 mSec *[Default: 800]*
6006	24582	2	MASTER SCAN RATE (used only in Master Mode)	R/W	0 ÷ 10000 mSec *[Default: 1000]* Delay between two master request (master mode). **Note**: this value must be greater than MASTER TIMEOUT.
6008	24584	2	NODE ID*	R/W	0001h ÷ 00F7h (001 ÷ 247 dec) *[Default: 1]* **Note**: valid only in Slave Mode.
600A	24586	2	BAUD RATE*	R/W	0000h:4800Baud 0002h:9200Baud 0004h:57600Baud 0001h:9600Baud 0003h:38400Baud*[Def.]* 0005h:115200Baud
600C	24588	2	STOP BITS*	R/W	0000h: 1 Stop Bit *[Default]* 0001h: 2 Stop Bits
600E	24590	2	PARITY*	R/W	0000h: None *[Default]* 0001h: Parity Odd 0002h: Parity Even
6010	24592	2	MINIMUM RESPONSE DELAY	R/W	5 ÷ 100 mSec *[Default: 10]* **Note**: valid only in Slave Mode.
6012	24594	2	STATE	R/W	Default: All bit are "Low" (not error present) Bit 00: Set if slave doesn't response Bit 01: Set if master received corrupted answer Bit 02: Set if master received illegal answer **Note**: Write 0 to clear register
6014	24596	2	ILLEGAL MESSAGES COUNTER	R/W	It is the sum of: - illegal function - illegal address - illegal data received from instrument **Note**: Write 0 to clear register
6016	24598	2	CORRUPTED MESSAGES COUNTER	R/W	Number of corrupted messages received **Note**: Write 0 to clear register
6018	24600	2	NO RESPONSE COUNTER	R/W	Number of answer doesn't received **Note**: Write 0 to clear register

* The Serial setting will be changed after the command response.

COM 1 slaves type (option)

Register HEX	Register DEC	Word	Description	R/W	Type
6050	24656	2	1° SLAVE	R/W	0: Not selected 1: TTC-V 2: CTT-4 3: CTT-8 4: HRI 5: EMM-h 6: EMT-4s 7: EMS-96 8: RI-SM
---	---	---	---	---	---
6076	24694	2	20° SLAVE	R/W	0: Not selected 1: TTC-V 2: CTT-4 3: CTT-8 4: HRI 5: EMM-h 6: EMT-4s 7: EMS-96 8: RI-SM

COM 1 selection slave to read (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
60A0	24736	2	SLAVE SELECTION	R/W	1 ÷ 20

COM 1 slave register (option)

Register HEX	Register DEC	Word	Description	R/W	Type
60B0	24752	2	1° SLAVE REGISTER	R	
---		---	---	---	---
614E	24910	2	80° SLAVE REGISTER	R	

COM 2 setup (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
6300	25344	2	OPERATION MODE *	R/W	0000h: Slave Mode *[Default]* 0001h: Master Mode
---	---	---	---	---	---
6318	24680	2	NO RESPONSE COUNTER	R/W	Number of answer doesn't received **Note**: Write 0 to clear register

* The Serial setting will be changed after the command response.

COM 2 slaves type (option)

Register HEX	Register DEC	Word	Description	R/W	Type
6350	25424	2	1° SLAVE	R/W	0: Not selected 1: TTC-V 2: CTT-4 3: CTT-8 4: HRI 5: EMM-h 6: EMT-4s 7: EMS-96 8: RI-SM
---	---	---	---	---	---
6376	25462	2	20° SLAVE	R/W	0: Not selected 1: TTC-V 2: CTT-4 3: CTT-8 4: HRI 5: EMM-h 6: EMT-4s 7: EMS-96 8: RI-SM

COM 2 selection slave to read (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
63A0	25504	2	SLAVE SELECTION	R/W	1 ÷ 20

COM 2 slave register (option)

Register HEX	Register DEC	Word	Description	R/W	Type
63B0	25520	2	1° SLAVE REGISTER	R	
---		---	---	---	---
644E	25678	2	80° SLAVE REGISTER	R	

M-BUS setup (option)

Register HEX	Register DEC	Word	Description	W/R	Parameters
6600	26112	2	PRIMARY ADDRESS	W/R	0000h ÷ 00FAh (000 ÷ 250 dec) *[Default: 1]*
6602	26114	2	BAUDRATE	W/R	0000h: 300 Baud 0003h: 2400 Baud 0006h: 19200 Baud 0001h: 600 Baud 0004h: 4800 Baud 0007h: 38400 Baud 0002h: 1200 Baud 0005h: 9600 Baud
6604	26116	2	STOP BITS	W/R	0000h: 1 Stop Bit *[Default]* 0001h: 2 Stop Bits
6606	26118	2	PARITY	W/R	0000h: None *[Default]* 0001h: Parity Odd 0002h: Parity Even
6608	26120	2	ACCESS NUMBER	W/R	Write 0000h to reset

M-BUS readout data setup (option)

Register HEX	Register DEC	Word	Description	W/R	Parameters
6700	26368	2	FRAME SLOT 1 – GROUP	W/R	0: Measure not used 7: TB Energy 4 14: TB Energy 11 1: Instantaneous 8: TB Energy 5 15: TB Energy 12 2: Average 9: TB Energy 6 16: TB Energy 13 3: Total Energy 10: TB Energy 7 17: TB Energy 14 4: TB Energy 1 11: TB Energy 8 18: TB Energy 15 5: TB Energy 2 12: TB Energy 9 19: TB Energy 16 6: TB Energy 3 13: TB Energy 10
6702	26370	2	FRAME SLOT 1 – MEASURE	W/R	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3: See Total Energy group If GROUP is 4: See TB Energy 1 group If GROUP is 5: See TB Energy 2 group If GROUP is 6: See TB Energy 3 group If GROUP is 7: See TB Energy 4 group If GROUP is 8: See TB Energy 5 group If GROUP is 9: See TB Energy 6 group If GROUP is 10: See TB Energy 7 group If GROUP is 11: See TB Energy 8 group If GROUP is 12: See TB Energy 9 group If GROUP is 13: See TB Energy 10 group If GROUP is 14: See TB Energy 11 group If GROUP is 15: See TB Energy 12 group If GROUP is 16: See TB Energy 13 group If GROUP is 17: See TB Energy 14 group If GROUP is 18: See TB Energy 15 group If GROUP is 19: See TB Energy 16 group
6704	26372	2	FRAME SLOT 2 – GROUP	W/R	See previous GROUP command
6706	26374	2	FRAME SLOT 2 – MEASURE	W/R	See previous MEASURE command
6708	26376	2	FRAME SLOT 3 – GROUP	W/R	See previous GROUP command
670A	26378	2	FRAME SLOT 3 – MEASURE	W/R	See previous MEASURE command
670C	26380	2	FRAME SLOT 4 – GROUP	W/R	See previous GROUP command
670E	26382	2	FRAME SLOT 4 – MEASURE	W/R	See previous MEASURE command
6710	26384	2	FRAME SLOT 5 – GROUP	W/R	See previous GROUP command
6712	26386	2	FRAME SLOT 5 – MEASURE	W/R	See previous MEASURE command
6714	26388	2	FRAME SLOT 6 – GROUP	W/R	See previous GROUP command
6716	26390	2	FRAME SLOT 6 – MEASURE	W/R	See previous MEASURE command
6718	26392	2	FRAME SLOT 7 – GROUP	W/R	See previous GROUP command
671A	26394	2	FRAME SLOT 7 – MEASURE	W/R	See previous MEASURE command
671C	26396	2	FRAME SLOT 8 – GROUP	W/R	See previous GROUP command
671E	26398	2	FRAME SLOT 8 – MEASURE	W/R	See previous MEASURE command
6720	26400	2	FRAME SLOT 9 – GROUP	W/R	See previous GROUP command
6722	26402	2	FRAME SLOT 9 – MEASURE	W/R	See previous MEASURE command
6724	26404	2	FRAME SLOT 10 – GROUP	W/R	See previous GROUP command
6726	26406	2	FRAME SLOT 10 – MEASURE	W/R	See previous MEASURE command
6728	26408	2	FRAME SLOT 11 – GROUP	W/R	See previous GROUP command
672A	26410	2	FRAME SLOT 11 – MEASURE	W/R	See previous MEASURE command
672C	26412	2	FRAME SLOT 12 – GROUP	W/R	See previous GROUP command
672E	26414	2	FRAME SLOT 12 – MEASURE	W/R	See previous MEASURE command
6730	26416	2	FRAME SLOT 13 – GROUP	W/R	See previous GROUP command
6732	26418	2	FRAME SLOT 13 – MEASURE	W/R	See previous MEASURE command
6734	26420	2	FRAME SLOT 14 – GROUP	W/R	See previous GROUP command
6736	26422	2	FRAME SLOT 14 – MEASURE	W/R	See previous MEASURE command
6738	26424	2	FRAME SLOT 15 – GROUP	W/R	See previous GROUP command
673A	26426	2	FRAME SLOT 15 – MEASURE	W/R	See previous MEASURE command
673C	26428	2	FRAME SLOT 16 – GROUP	W/R	See previous GROUP command
673E	26430	2	FRAME SLOT 16 – MEASURE	W/R	See previous MEASURE command
6740	26432	2	FRAME SLOT 17 – GROUP	W/R	See previous GROUP command
6742	26434	2	FRAME SLOT 17 – MEASURE	W/R	See previous MEASURE command
6744	26436	2	FRAME SLOT 18 – GROUP	W/R	See previous GROUP command
6746	26438	2	FRAME SLOT 18 – MEASURE	W/R	See previous MEASURE command
6748	26440	2	FRAME SLOT 19 – GROUP	W/R	See previous GROUP command
674A	26442	2	FRAME SLOT 19 – MEASURE	W/R	See previous MEASURE command
674C	26444	2	FRAME SLOT 20 – GROUP	W/R	See previous GROUP command
674E	26446	2	FRAME SLOT 20 – MEASURE	W/R	See previous MEASURE command

Preset timeband (option)

Daily plan 01

Register HEX	Register DEC	Word	Description	R/W	Parameters
7000	28672	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7002	28674	2	START TIME MINUTE – PERIOD 01	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7004	28676	2	TIMEBAND USED – PERIOD 01	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7006	28678	2	START TIME HOUR – PERIOD 02	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7008	28680	2	START TIME MINUTE – PERIOD 012	R/W	Minute: 0 ÷ 59 *[Default: 0]*
700A	28682	2	TIMEBAND USED – PERIOD 02	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
700C	28684	2	START TIME HOUR – PERIOD 03	R/W	Hour: 0 ÷ 23 *[Default: 0]*
700E	28686	2	START TIME MINUTE – PERIOD 03	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7010	28688	2	TIMEBAND USED – PERIOD 03	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7012	28690	2	START TIME HOUR – PERIOD 04	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7014	28692	2	START TIME MINUTE – PERIOD 04	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7016	28694	2	TIMEBAND USED – PERIOD 04	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7018	28696	2	START TIME HOUR – PERIOD 05	R/W	Hour: 0 ÷ 23 *[Default: 0]*
701A	28698	2	START TIME MINUTE – PERIOD 05	R/W	Minute: 0 ÷ 59 *[Default: 0]*
701C	28700	2	TIMEBAND USED – PERIOD 05	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
701E	28702	2	START TIME HOUR – PERIOD 06	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7020	28704	2	START TIME MINUTE – PERIOD 06	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7022	28706	2	TIMEBAND USED – PERIOD 06	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7024	28708	2	START TIME HOUR – PERIOD 07	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7026	28710	2	START TIME MINUTE – PERIOD 07	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7028	28712	2	TIMEBAND USED – PERIOD 07	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
702A	28714	2	START TIME HOUR – PERIOD 08	R/W	Hour: 0 ÷ 23 *[Default: 0]*
702C	28716	2	START TIME MINUTE – PERIOD 08	R/W	Minute: 0 ÷ 59 *[Default: 0]*
702E	28718	2	TIMEBAND USED – PERIOD 08	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7030	28720	2	START TIME HOUR – PERIOD 09	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7032	28722	2	START TIME MINUTE – PERIOD 09	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7034	28724	2	TIMEBAND USED – PERIOD 09	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7036	28726	2	START TIME HOUR – PERIOD 10	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7038	28728	2	START TIME MINUTE – PERIOD 10	R/W	Minute: 0 ÷ 59 *[Default: 0]*
703A	28730	2	TIMEBAND USED – PERIOD 10	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
703C	28732	2	START TIME HOUR – PERIOD 11	R/W	Hour: 0 ÷ 23 *[Default: 0]*
703E	28734	2	START TIME MINUTE – PERIOD 11	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7040	28736	2	TIMEBAND USED – PERIOD 11	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7042	28738	2	START TIME HOUR – PERIOD 12	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7044	28740	2	START TIME MINUTE – PERIOD 12	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7046	28742	2	TIMEBAND USED – PERIOD 12	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7048	28744	2	START TIME HOUR – PERIOD 13	R/W	Hour: 0 ÷ 23 *[Default: 0]*
704A	28746	2	START TIME MINUTE – PERIOD 13	R/W	Minute: 0 ÷ 59 *[Default: 0]*
704C	28748	2	TIMEBAND USED – PERIOD 13	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
704E	28750	2	START TIME HOUR – PERIOD 14	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7050	28752	2	START TIME MINUTE – PERIOD 14	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7052	28754	2	TIMEBAND USED – PERIOD 14	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
7054	28756	2	START TIME HOUR – PERIOD 15	R/W	Hour: 0 ÷ 23 *[Default: 0]*
7056	28758	2	START TIME MINUTE – PERIOD 15	R/W	Minute: 0 ÷ 59 *[Default: 0]*
7058	28760	2	TIMEBAND USED – PERIOD 15	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*
705A	28762	2	START TIME HOUR – PERIOD 16	R/W	Hour: 0 ÷ 23 *[Default: 0]*
705C	28764	2	START TIME MINUTE – PERIOD 16	R/W	Minute: 0 ÷ 59 *[Default: 0]*
705E	28766	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 02

Register HEX	Register DEC	Word	Description	R/W	Parameters
7100	28928	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
715E	29022	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 03

Register HEX	Register DEC	Word	Description	R/W	Parameters
7200	29184	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
725E	29278	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 04

Register HEX	Register DEC	Word	Description	R/W	Parameters
7300	29440	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
735E	29534	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 05

Register HEX	Register DEC	Word	Description	R/W	Parameters
7400	29696	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
745E	29790	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 06

Register HEX	Register DEC	Word	Description	R/W	Parameters
7500	29952	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
755E	30046	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 07

Register HEX	Register DEC	Word	Description	R/W	Parameters
7600	30208	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
765E	30302	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 08

Register HEX	Register DEC	Word	Description	R/W	Parameters
7700	30464	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
775E	30558	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 09

Register HEX	Register DEC	Word	Description	R/W	Parameters
7800	30720	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
785E	30814	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 10

Register HEX	Register DEC	Word	Description	R/W	Parameters
7900	30976	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
795E	31070	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 11

Register HEX	Register DEC	Word	Description	R/W	Parameters
7A00	31232	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7A5E	31326	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 12

Register HEX	Register DEC	Word	Description	R/W	Parameters
7B00	31488	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7B5E	31582	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 13

Register HEX	Register DEC	Word	Description	R/W	Parameters
7C00	31744	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7C5E	31838	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 14

Register HEX	Register DEC	Word	Description	R/W	Parameters
7D00	32000	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7D5E	32094	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 15

Register HEX	Register DEC	Word	Description	R/W	Parameters
7E00	32256	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7E5E	32350	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Daily plan 16

Register HEX	Register DEC	Word	Description	R/W	Parameters
7F00	32512	2	START TIME HOUR – PERIOD 01	R/W	Hour: 0 ÷ 23 *[Default: 0]*
---	---	---	---	---	---
7F5E	32606	2	TIMEBAND USED – PERIOD 16	R/W	Timeband: 0 ÷ 16 *[Default: 0 → Timeband Not Used]*

Period plan 1

Register HEX	Register DEC	Word	Description	R/W	Parameters
8000	32768	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
8002	32770	2	START PERIOD - MONTH	R/W	1 ÷ 12 *[Default: 1]*
8004	32772	2	START PERIOD - DAY	R/W	1 ÷ 7 *[Default: 1]*
8006	32774	2	END PERIOD - MONTH	R/W	1 ÷ 12 *[Default: 12]*
8008	32776	2	END PERIOD - DAY	R/W	1 ÷ 7 *[Default: 31]*
800A	32778	2	MONDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
800C	32780	2	TUESDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
800E	32782	2	WEDNESDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
8010	32784	2	THURSDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
8012	32786	2	FRIDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
8014	32788	2	SATURDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*
8016	32790	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 2

Register HEX	Register DEC	Word	Description	R/W	Parameters
8020	32800	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8036	32822	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 3

Register HEX	Register DEC	Word	Description	R/W	Parameters
8040	32832	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8056	32854	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 4

Register HEX	Register DEC	Word	Description	R/W	Parameters
8060	32864	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8076	32886	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 5

Register HEX	Register DEC	Word	Description	R/W	Parameters
8080	32896	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8096	32918	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 6

Register HEX	Register DEC	Word	Description	R/W	Parameters
80A0	32928	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
80B6	32950	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 7

Register HEX	Register DEC	Word	Description	R/W	Parameters
80C0	32960	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
80D6	32982	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 8

Register HEX	Register DEC	Word	Description	R/W	Parameters
80E0	32992	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
80F6	33014	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 9

Register HEX	Register DEC	Word	Description	R/W	Parameters
8100	33024	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8116	33046	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 10

Register HEX	Register DEC	Word	Description	R/W	Parameters
8120	33056	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8136	33078	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 11

Register HEX	Register DEC	Word	Description	R/W	Parameters
8140	33088	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8156	33110	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 12

Register HEX	Register DEC	Word	Description	R/W	Parameters
8160	33120	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8176	33142	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 13

Register HEX	Register DEC	Word	Description	R/W	Parameters
8180	33152	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
8196	33174	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 14

Register HEX	Register DEC	Word	Description	R/W	Parameters
81A0	33184	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
81B6	33206	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 15

Register HEX	Register DEC	Word	Description	R/W	Parameters
81C0	33216	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
81D6	33238	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Period plan 16

Register HEX	Register DEC	Word	Description	R/W	Parameters
81E0	33248	2	ENABLE PLAN	R/W	0: Disabled 1: Enable
---	---	---	---	---	---
81F6	33270	2	SUNDAY PLAN	R/W	Plan: 1 ÷ 16 *[Default: 1]*

Holiday

Register HEX	Register DEC	Word	Description	R/W	Parameters
8200	33280	2	HOLIDAY MONTH 1	R/W	Month: 1 ÷ 12 *[Default: 1]*
8202	33282	2	HOLIDAY DAY 1	R/W	Day: 1 ÷ 31 *[Default: 1]*
8204	33284	2	HOLIDAY PLAN 1	R/W	Plan: 0 ÷ 16 *[Default: 0 → Plan Not Used]*
---	---	---	---	---	---
831A	33562	2	HOLIDAY MONTH 48	R/W	Month: 1 ÷ 12 *[Default: 1]*
831C	33564	2	HOLIDAY DAY 48	R/W	Day: 1 ÷ 31 *[Default: 1]*
831E	33566	2	HOLIDAY PLAN 48	R/W	Plan: 0 ÷ 16 *[Default: 0 → Plan Not Used]*

Last year energy log (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
9000	36864	2	ACTIVE ENERGY IN - 1° JANUARY	R	
9002	36866	2	REACTIVE ENERGY IN - 1° JANUARY	R	
9004	36868	2	ACTIVE ENERGY OUT - 1° JANUARY	R	
9006	36870	2	REACTIVE ENERGY OUT - 1° JANUARY	R	
---	---	---	---	---	
90F0	37104	2	ACTIVE ENERGY IN - 31° JANUARY	R	
90F2	37106	2	REACTIVE ENERGY IN - 31° JANUARY	R	
90F4	37108	2	ACTIVE ENERGY OUT - 31° JANUARY	R	
90F6	37110	2	REACTIVE ENERGY OUT - 31° JANUARY	R	
90F8	37112	2	EMPTY	R	
90FA	37114	2	EMPTY	R	
90FC	37116	2	EMPTY	R	
90FE	37118	2	EMPTY	R	
9100	37120	2	ACTIVE ENERGY IN - 1° FEBRUARY	R	
9102	37122	2	REACTIVE ENERGY IN - 1° FEBRUARY	R	
9104	37124	2	ACTIVE ENERGY OUT - 1° FEBRUARY	R	
9106	37126	2	REACTIVE ENERGY OUT - 1° FEBRUARY	R	
---	---	---	---	---	
91E0	37344	2	ACTIVE ENERGY IN - 29° FEBRUARY	R	
91E2	37346	2	REACTIVE ENERGY IN - 29° FEBRUARY	R	
91E4	37348	2	ACTIVE ENERGY OUT - 29° FEBRUARY	R	
91E6	37350	2	REACTIVE ENERGY OUT - 29° FEBRUARY	R	
91E8	37352	2	EMPTY	R	
91EA	37354	2	EMPTY	R	
91EC	37356	2	EMPTY	R	
91EE	37358	2	EMPTY	R	
91F0	37360	2	EMPTY	R	
91F2	37362	2	EMPTY	R	
91F4	37364	2	EMPTY	R	
91F6	37366	2	EMPTY	R	
91F8	37368	2	EMPTY	R	
91FA	37370	2	EMPTY	R	
91FC	37372	2	EMPTY	R	
91FE	37374	2	EMPTY	R	
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9B00	39680	2	ACTIVE ENERGY IN - 1° DECEMBER	R	
9B02	39682	2	REACTIVE ENERGY IN - 1° DECEMBER	R	
9B04	39684	2	ACTIVE ENERGY OUT - 1° DECEMBER	R	
9B06	39686	2	REACTIVE ENERGY OUT - 1° DECEMBER	R	
---	---	---	---	---	
9BF0	39920	2	ACTIVE ENERGY IN - 31° DECEMBER	R	
9BF2	39922	2	REACTIVE ENERGY IN - 31° DECEMBER	R	
9BF4	39924	2	ACTIVE ENERGY OUT - 31° DECEMBER	R	
9BF6	39926	2	REACTIVE ENERGY OUT - 31° DECEMBER	R	
9BF8	39228	2	EMPTY	R	
9BFA	39930	2	EMPTY	R	
9BFC	39932	2	EMPTY	R	
9BFE	39934	2	EMPTY	R	

Yearly energy log (5 year with FIFO logic) (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
A000	40960	2	YEAR (YYYY-1)	R	
A002	40962	2	ACTIVE ENERGY IN - JANUARY	R	
A004	40964	2	REACTIVE ENERGY IN - JANUARY	R	
A006	40966	2	ACTIVE ENERGY OUT - JANUARY	R	
A008	40968	2	REACTIVE ENERGY OUT - JANUARY	R	
---	---	---	---	---	
A05A	41050	2	ACTIVE ENERGY IN - DECEMBER	R	
A05C	41052	2	REACTIVE ENERGY IN - DECEMBER	R	
A05E	41054	2	ACTIVE ENERGY OUT - DECEMBER	R	
A060	41056	2	REACTIVE ENERGY OUT - DECEMBER	R	

Register HEX	Register DEC	Word	Description	R/W	Parameters
A100	41216	2	YEAR (YYYY-2)	R	
A102	41218	2	ACTIVE ENERGY IN - JANUARY	R	
A104	41220	2	REACTIVE ENERGY IN - JANUARY	R	
A106	41222	2	ACTIVE ENERGY OUT - JANUARY	R	
A108	41224	2	REACTIVE ENERGY OUT - JANUARY	R	
---	---	---	---	---	
A15A	41306	2	ACTIVE ENERGY IN - DECEMBER	R	
A15C	41308	2	REACTIVE ENERGY IN - DECEMBER	R	
A15E	41310	2	ACTIVE ENERGY OUT - DECEMBER	R	
A160	41312	2	REACTIVE ENERGY OUT - DECEMBER	R	

Register HEX	Register DEC	Word	Description	R/W	Parameters
A200	41472	2	YEAR (YYYY-3)	R	
A202	41474	2	ACTIVE ENERGY IN - JANUARY	R	
A204	41476	2	REACTIVE ENERGY IN - JANUARY	R	
A206	41478	2	ACTIVE ENERGY OUT - JANUARY	R	
A208	41480	2	REACTIVE ENERGY OUT - JANUARY	R	
---	---	---	---	---	
A25A	41562	2	ACTIVE ENERGY IN - DECEMBER	R	
A25C	41564	2	REACTIVE ENERGY IN - DECEMBER	R	
A25E	41566	2	ACTIVE ENERGY OUT - DECEMBER	R	
A260	41568	2	REACTIVE ENERGY OUT - DECEMBER	R	

Register HEX	Register DEC	Word	Description	R/W	Parameters
A300	41728	2	YEAR (YYYY-4)	R	
A302	41730	2	ACTIVE ENERGY IN - JANUARY	R	
A304	41732	2	REACTIVE ENERGY IN - JANUARY	R	
A306	41734	2	ACTIVE ENERGY OUT - JANUARY	R	
A308	41736	2	REACTIVE ENERGY OUT - JANUARY	R	
---	---	---	---	---	
A35A	41818	2	ACTIVE ENERGY IN - DECEMBER	R	
A35C	41820	2	REACTIVE ENERGY IN - DECEMBER	R	
A35E	41822	2	ACTIVE ENERGY OUT - DECEMBER	R	
A360	41824	2	REACTIVE ENERGY OUT - DECEMBER	R	

Register HEX	Register DEC	Word	Description	R/W	Parameters
A400	41984	2	YEAR (YYYY-5)	R	
A402	41986	2	ACTIVE ENERGY IN - JANUARY	R	
A404	41988	2	REACTIVE ENERGY IN - JANUARY	R	
A406	41990	2	ACTIVE ENERGY OUT - JANUARY	R	
A408	41992	2	REACTIVE ENERGY OUT - JANUARY	R	
---	---	---	---	---	
A45A	42074	2	ACTIVE ENERGY IN - DECEMBER	R	
A45C	42076	2	REACTIVE ENERGY IN - DECEMBER	R	
A45E	42078	2	ACTIVE ENERGY OUT - DECEMBER	R	
A460	42080	2	REACTIVE ENERGY OUT - DECEMBER	R	

Math

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
A500	42240	2	RESULT 1	R	---	Signed
A502	42242	2	RESULT 2	R	---	Signed
A504	42244	2	RESULT 3	R	---	Signed
A506	42246	2	RESULT 4	R	---	Signed
A508	42248	2	RESULT 5	R	---	Signed
A50A	42250	2	RESULT 6	R	---	Signed
A50C	42252	2	RESULT 7	R	---	Signed
A50E	42254	2	RESULT 8	R	---	Signed

Setup math 1

Register HEX	Register DEC	Word	Description	R/W	Parameters
A550	42320	2	ENABLE	R/W	0: No *[Default]* 1: Yes
A552	42322	2	INTERVAL	R/W	0: 1 sec. 5: 10 sec. 10: 1 min. 15: 10 min. 20: 60 min. 1: 2 sec. 6: 12 sec. 11: 2 min. 16: 12 min. 21: end day 2: 3 sec. 7: 15 sec. 12: 3 min. 17: 15 min. 22: end week 3: 5 sec. 8: 20 sec. 13: 5 min. 18: 20 min. 23: end month 4: 6 sec. 9: 30 sec. 14: 6 min. 19: 30 min.
A554	42324	2	SOURCE 1	R/W	0: Internal Measure 1 to 20: Measure node XX
A556	43326	2	GROUP 1	R/W	With SOURCE = Internal Measure: 0: Not used [Default] 2: Average 4: Digital input 1: Instantaneous measure 3: Energies (total) 5: Analog input With SOURCE = Measure node XX: 0: Not used *[Default]* 1: External Measure
A558	43328	2	ITEM 1	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Aveerage group If GROUP is 3: See Total Energy group If GROUP is 4 See Digital Input group If GROUP is 5: See Counters group If GROUP is 6: See Analog Input group If GROUP is 7: See Math group
A55A	43330	2	MULTIPLIER 1	R/W	1 ÷ 100000
A55C	43332	2	DIVISOR 1	R/W	1 ÷ 100000
A55E	43334	2	OPERATION	R/W	0: sum 1: subtraction 2: multiplication 3: division
A560	43336	2	SOURCE 2	R/W	0: Internal Measure 1 to 20: Measure node XX
A562	43338	2	GROUP 2	R/W	With SOURCE = Internal Measure: 0: Not used [Default] 2: Average 4: Digital input 1: Instantaneous measure 3: Energies (total) 5: Analog input With SOURCE = Measure node XX: 0: Not used *[Default]* 1: External Measure
A564	43340	2	ITEM 2	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Aveerage group If GROUP is 3: See Total Energy group If GROUP is 4 See Digital Input group If GROUP is 5: See Counters group If GROUP is 6: See Analog Input group If GROUP is 7: See Math group
A566	43342	2	MULTIPLIER 2	R/W	1 ÷ 100000
A568	43344	2	DIVISOR 2	R/W	1 ÷ 100000

Setup math 2

Register HEX	Register DEC	Word	Description	R/W	Parameters
A580	42368	2	ENABLE	R/W	See Setup math 1
A582	42370	2	INTERVAL	R/W	See Setup math 1
A584	42372	2	SOURCE 1	R/W	See Setup math 1
A586	42374	2	GROUP 1	R/W	See Setup math 1
A588	42376	2	ITEM 1	R/W	See Setup math 1
A58A	42378	2	MULTIPLIER 1	R/W	See Setup math 1
A58C	42380	2	DIVISOR 1	R/W	See Setup math 1
A58E	42382	2	OPERATION	R/W	See Setup math 1
A590	42384	2	SOURCE 2	R/W	See Setup math 1
A592	42386	2	GROUP 2	R/W	See Setup math 1
A594	42388	2	ITEM 2	R/W	See Setup math 1
A596	42390	2	MULTIPLIER 2	R/W	See Setup math 1
A598	42392	2	DIVISOR 2	R/W	See Setup math 1

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Setup math 8

Register HEX	Register DEC	Word	Description	R/W	Parameters
A6A0	42656	2	ENABLE	R/W	See Setup math 1
A6A2	42658	2	INTERVAL	R/W	See Setup math 1
A6A4	42660	2	SOURCE 1	R/W	See Setup math 1
A6A6	42662	2	GROUP 1	R/W	See Setup math 1
A6A8	42664	2	ITEM 1	R/W	See Setup math 1
A6AA	42666	2	MULTIPLIER 1	R/W	See Setup math 1
A6AC	42668	2	DIVISOR 1	R/W	See Setup math 1
A6AE	42670	2	OPERATION	R/W	See Setup math 1
A6B0	42672	2	SOURCE 2	R/W	See Setup math 1
A6B2	42674	2	GROUP 2	R/W	See Setup math 1
A6B4	42676	2	ITEM 2	R/W	See Setup math 1
A6B6	42678	2	MULTIPLIER 2	R/W	See Setup math 1
A6B8	42680	2	DIVISOR 2	R/W	See Setup math 1

Generic log setup* (option)

Warning: any changes to the register values DELETES all generic, smart and trigger logs saved (except LOG TO READ register).

Register HEX	Register DEC	Word	Description	R/W	Parameters
B000	45056	2	LOG TO READ	R/W	Log number that must be read. From 1 to n.
B002	45058	2	ENABLE	R/W	0: Disabled *[Default]* 1: Enabled **Warning**: it's possible to enable max 2 log type at the same time
B004	45060	2	SAMPLING	R/W	0: 1 sec. 6: 12 sec. 12: 3 min. 18: 20 min. 1: 2 sec. 7: 15 sec. 13: 5 min. 19: 30 min. 2: 3 sec. 8: 20 sec. 14: 6 min. 20: 60 min. 3: 5 sec. 9: 30 sec. 15: 10 min. 21: end day 4: 6 sec. 10: 1 min. 16: 12 min. 22: end week 5: 10 sec. 11: 2 min. 17: 15 min. 23: end month
B006	45062	2	STORAGE TYPE	R/W	0: Stop at the end of log space *[Default]* 1: FIFO (after 10 consecutive cycles is automatically disabled)
B008	45064	2	01st GROUP	R/W	0: Measure not used 10: Energies TB-3 20: Energies TB-13 1: Instantaneous 11: Energies TB-4 21: Energies TB-14 2: Average 12: Energies TB-5 22: Energies TB-15 3: Total Energies 13: Energies TB-6 23: Energies TB-16 4: Digital input state 14: Energies TB-7 24: Harmonics V1 5: Digital input counters 15: Energies TB-8 25: Harmonics V2 6: Analog Input 16: Energies TB-9 26: Harmonics V3 7: Math 17: Energies TB-10 27: Harmonics A1 8: Energies TB-1 18: Energies TB-11 28: Harmonics A2 9: Energies TB-2 19: Energies TB-12 29: Harmonics A3
B00A	45066	2	01st MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3, or from 8 to 23: See Total Energy group
---	---	---	---	---	---
B040	45120	2	15th GROUP	R/W	See 01st GROUP
B042	45122	2	15th MEASURE	R/W	See 01st MEASURE

*: The log will start at the next "0 Seconds"

Generic log info (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
B0A0	45216	2	LOG ACQUIRED	R	-	Unsigned
B0A2	45218	2	MEMORY USED**	R	% * 100	Unsigned
B0A4	45220	2	REMAINING TIME	R	Minutes	Unsigned

**: Read Examples: 2520 equal to 25,20% - 5000 equal to 50,00%

Generic log selected (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
B0B0	45232	2	TIME	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
B0B2	45234	2	DATE	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
B0B4	45236	2	01st MEASURE	R	---
---	---	---	---	---	---
B0D0	45264	2	15th MEASURE	R	---

WARNING

Follow this procedure before modify the log setup (except LOG TO READ command):

- Disable Generic (Smart and Trigger if enabled) log.
- Read all saved logs (Generic, Smart and Trigger) because the Enable operation delete all logs (refer to log summary table to know the number of actual log saved).
- Modify the log parameters.
- Enable the Generic log. This operation delete all the log and could be last up to 5 seconds.

Smart log setup (option)

Warning: any changes to the register values DELETES all generic, smart and trigger logs saved (except LOG TO READ register).

Register HEX	Register DEC	Word	Description	R/W	Parameters
B200	45568	2	LOG TO READ	R/W	Log number that must be read. From 1 to n.
B202	45570	2	ENABLE	R/W	0: Disabled *[Default]* 1: Enabled **Warning**: it's possible to enable max 2 log type at the same time
B204	45572	2	WINDOW UPDATE TIME	R/W	00: 1 min 05: 10 min 10: 60 min 01: 2 min 06: 12 min 11: end of day 02: 3 min 07: 15 min *[Default]* 12: end of week 03: 5 min 08: 20 min 13: end of month 04: 6 min 09: 30 min 14: end of year
B206	45574	2	STORAGE TYPE	R/W	0: Stop at the end of log space *[Default]* 1: FIFO (after 10 consecutive cycles is automatically disabled)
B208	45576	2	01st GROUP	R/W	0: Measure not used 1: Instantaneous 2: Average
B20A	45578	2	01st MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3: See Total Energy group
---	---	---	---	---	---
B240	45632	2	15th GROUP	R/W	0: Measure not used 1: Instantaneous 2: Average
B242	45634	2	15th MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3: See Total Energy group

*: The log will start at the next "0 Minutes"

Smart log info (option)

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
B2A0	45728	2	LOG NUMBER	R	---	Unsigned
B2A2	45730	2	MEMORY USED (*2*)	R	% * 100	Unsigned
B2A4	45732	2	REMAINING TIME	R	Minutes	Unsigned

(*2*): Read Examples: 2520 equal to 25,20% - 5000 equal to 50,00%

Smart log selected (option)

Register HEX	Register DEC	Word	Description	R/W	Parameters
B2B0	45744	2	TIME	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
B2B2	45746	2	DATE	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
B2B4	45748	2	01st MEASURE MAX	R	---
B2B6	45750	2	01st MEASURE MEDIA	R	---
B2B8	45752	2	01st MEASURE MIN	R	---
---	---	---	---	---	---
B308	45832	2	15th MEASURE MAX	R	---
B30A	45834	2	15th MEASURE MEDIA	R	---
B30C	45836	2	15th MEASURE MIN	R	---

WARNING

Follow this procedure before modify the log setup (except LOG TO READ command):

- Disable Smart (Generic and Trigger if enabled) log.
- Read all saved logs (Generic, Smart and Trigger) because the Enable operation delete all logs (refer to log summary table for know the number of actual log saved).
- Modify the setup log parameters.
- Enable the Smart log. This operation delete all the log and could be last up to 5 seconds.

Trigger log setup **(option)**

Warning: any changes to the register values DELETES all generic, smart and trigger logs saved (except LOG TO READ register).

Register HEX	Register DEC	Word	Description	R/W	Parameters
B400	46080	2	LOG TO READ	R/W	Log number that must be read. From 1 to n.
B402	46082	2	ENABLE	R/W	0: Disabled *[Default]* 1: Enabled **Warning**: it's possible to enable max 2 log type at the same time
B404	46084	2	SAMPLING	R/W	1 ÷ 3'600 Second***** *Default: 10 sec*
B406	46086	2	STORAGE TYPE	R/W	0: Stop at the end of log space *[Default]* 1: FIFO (after 10 consecutive cycles is automatically disabled)
B408	46088	2	TRIGGER INPUT	R/W	0: Digital input - high level = log enabled 1: Digital input - low level = log enabled 2: Setpoint (start log when the setpoint pass the threshold)
B40A	46090	2	DIGITAL INPUT TRIGGER	R/W	1 ÷ 4 **Warning**: MODE of digital input X must be set as external trigger
B40C	46092	2	SETPOINT USED TRIGGER	R/W	1 ÷ 16
B40E	46094	2	01st GROUP	R/W	0: Measure not used 2: Average 1: Instantaneous 3: Total Energy
B410	46096	2	01st MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3: See Total Energy group
---	---	---	---	---	---
B446	46150	2	15th GROUP	R/W	0: Measure not used 2: Average 1: Instantaneous 3: Total Energy
B448	46152	2	15th MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3: See Total Energy group

Trigger log info **(option)**

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
B4A0	46240	2	LOG NUMBER	R	---	Unsigned
B4A2	46242	2	MEMORY USED (*2*)	R	% * 100	Unsigned
B4A4	46244	2	REMAINING TIME	R	Minutes	Unsigned

(*2*): Read Examples: 2520 equal to 25,20% - 5000 equal to 50,00%

Trigger log selected **(option)**

Register HEX	Register DEC	Word	Description	R/W	Parameters
B4B0	46256	2	TIME	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
B4B2	46258	2	DATE	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
B4B4	46260	2	01st MEASURE	R	---
---	---	---	---	---	---
B4D0	46288	2	15th MEASURE	R	---

WARNING

Follow this procedure before modify the log setup (except LOG TO READ command):

- Disable Trigger (Generic and Smart if enabled) log.
- Read all saved logs (Generic, Smart and Trigger) because the Enable operation delete all logs (refer to log summary table for know the number of actual log saved).
- Modify the setup log parameters.
- Enable the Trigger log. This operation delete all the log and could be last up to 5 seconds.

Timed log setup **(option)**

Warning: any changes to the register values DELETES all generic, smart, trigger and timed logs saved (except LOG TO READ register).

Register HEX	Register DEC	Word	Description	R/W	Parameters
B600	46592	2	LOG TO READ	R/W	Log number that must be read. From 1 to n.
B602	46594	2	ENABLE	R/W	0: Disabled *[Default]* 1: Enabled **Warning**: it's possible to enable max 2 log type at the same time
B604	46596	2	SAMPLING	R/W	0: 1 sec. 6: 12 sec. 12: 3 min. 18: 20 min. 1: 2 sec. 7: 15 sec. 13: 5 min. 19: 30 min. 2: 3 sec. 8: 20 sec. 14: 6 min. 20: 60 min. 3: 5 sec. 9: 30 sec. 15: 10 min. 21: end day 4: 6 sec. 10: 1 min. 16: 12 min. 22: end week 5: 10 sec. 11: 2 min. 17: 15 min. 23: end month
B606	46598	2	STORAGE TYPE	R/W	0: Stop at the end of log space *[Default]* 1: FIFO (after 10 consecutive cycles is automatically disabled)
B608	46600	2	START HOUR	R/W	00 ÷ 23 *[Default: 00]*
B60A	46602	2	START MINUTE	R/W	00 ÷ 59 *[Default: 00]*
B60C	46604	2	END HOUR	R/W	00 ÷ 23 *[Default: 23]*
B60E	46606	2	END MINUTE	R/W	00 ÷ 59 *[Default: 59]*
B610	46608	2	MONDAY	R/W	0: Disable log for this day 1: Enable log for this day
B612	46610	2	TUESDAY	R/W	0: Disable log for this day 1: Enable log for this day
B614	46612	2	WEDNESDAY	R/W	0: Disable log for this day 1: Enable log for this day
B616	46614	2	THURSDAY	R/W	0: Disable log for this day 1: Enable log for this day
B618	46616	2	FRIDAY	R/W	0: Disable log for this day 1: Enable log for this day
B61A	46618	2	SATURDAY	R/W	0: Disable log for this day 1: Enable log for this day
B61C	46620	2	SUNDAY	R/W	0: Disable log for this day 1: Enable log for this day
B61E	46622	2	01st GROUP	R/W	0: Measure not used 10: Energies TB-3 20: Energies TB-13 1: Instantaneous 11: Energies TB-4 21: Energies TB-14 2: Average 12: Energies TB-5 22: Energies TB-15 3: Total Energies 13: Energies TB-6 23: Energies TB-16 4: Digital input state 14: Energies TB-7 24: Harmonics V1 5: Digital input counters 15: Energies TB-8 25: Harmonics V2 6: Analog Input 16: Energies TB-9 26: Harmonics V3 7: Math 17: Energies TB-10 27: Harmonics A1 8: Energies TB-1 18: Energies TB-11 28: Harmonics A2 9: Energies TB-2 19: Energies TB-12 29: Harmonics A3
B620	46624	2	01st MEASURE	R/W	If GROUP is 1: See Instantaneous group If GROUP is 2: See Average group If GROUP is 3, or from 8 to 23: See Total Energy group
---	---	---	---	---	---
B656	46678	2	15th GROUP	R/W	See 01st GROUP
B658	46680	2	15th MEASURE	R/W	See 01st MEASURE

Timed log info **(option)**

Register HEX	Register DEC	Word	Description	R/W	Measure Unit	Type
B6A0	46752	2	LOG NUMBER	R	---	Unsigned
B6A2	46754	2	MEMORY USED (*2*)	R	% * 100	Unsigned
B6A4	46756	2	REMAINING TIME	R	Minutes	Unsigned

(*2*): Read Examples: 2520 equal to 25,20% - 5000 equal to 50,00%

Timed log selected **(option)**

Register HEX	Register DEC	Word	Description	R/W	Parameters
B6B0	46768	2	TIME	R	byte order/meaning: EMPTY, HOUR, MINUTE, SECOND
B6B2	46770	2	DATE	R	byte order/meaning: DAY, MONYH, YEAR,YEAR
B6B4	46772	2	01st MEASURE	R	---
---	---	---	---	---	---
B6D0	46800	2	15th MEASURE	R	---

WARNING

Follow this procedure before modify the log setup (except LOG TO READ command):

- Disable Timed (Generic, Smart and Trigger if enabled) log.
- Read all saved logs (Generic, Smart, Trigger and Timed) because the Enable operation delete all logs (refer to log summary table for know the number of actual log saved).
- Modify the setup log parameters.
- Enable the Timed log. This operation delete all the log and could be last up to 5 seconds.

Slaves read

Register HEX	Register DEC	Word	Description	R/W	Parameters
D000	53248	2	1° SLAVE – 1° REGISTER	R	See list below
---		---	---	---	See list below
D09E	53406	2	1° SLAVE – 80° REGISTER	R	See list below
D0A0	53408	2	2° SLAVE – 1° REGISTER	R	See list below
---	---	---	---	---	See list below
D13E	53566	2	2° SLAVE – 80° REGISTER	R	See list below
D140	53568	2	3° SLAVE – 1° REGISTER	R	See list below
---	---	---	---	---	See list below
D1DE	53726	2	3° SLAVE – 80° REGISTER	R	See list below
---	---	---	---	---	See list below
---	---	---	---	---	See list below
---	---	---	---	---	See list below
DBE0	56288	2	20° SLAVE – 1° REGISTER	R	See list below
---	---	---	---	---	See list below
DC7E	56446	2	20° SLAVE – 80° REGISTER	R	See list below

EMM-DC slave:

1° register: phase voltage 1
2° register: phase voltage 2
3° register: line current 1
4° register: line current 2
5° register: line power 1
6° register: line power 2
7° register: current sum L1+L2
8° register: power sum L1+L2
9° register: line positive / imported energy L1
10° register: line positive / exported energy L1
11° register: line positive / imported energy L2
12° register: line positive / exported energy L2
13° register: line positive / imported energy SUM L1-L2
14° register: line positive / exported energy SUM L1-L2
15° register: temperature
16° register: hour counters
17° register: max instantaneous voltage V_L

39° register: last avg temperature

See the relative protocol manual for details.

CTT-8 slave:

1° register: temperature channel 1
2° register: temperature channel 2
3° register: temperature channel 3
4° register: temperature channel 4
5° register: temperature channel 5
6° register: temperature channel 6
7° register: temperature channel 7
8° register: temperature channel 8
9° register: peak temperature channel 1
10° register: peak temperature channel 2
11° register: peak temperature channel 3
12° register: peak temperature channel 4
13° register: peak temperature channel 5
14° register: peak temperature channel 6
15° register: peak temperature channel 7
16° register: peak temperature channel 8
17° register: state of channel 1
18° register: state of channel 2
19° register: state of channel 3
20° register: state of channel 4
21° register: state of channel 5
22° register: state of channel 6
23° register: state of channel 7
24° register: state of channel 8

HRI slave:

1° register: insulation resistance
2° register: impedance
3° register: temperature 1
4° register: temperature 2
5° register: current
6° register: mode R
7° register: mode Z
8° register: mode temperature 1
9° register: mode temperature 2
10° register: mode a
11° register: status alarms
12° register: enable alarms
13° register: auxiliary relay
14° register: status remote panel
15° register: frequency
16° register: empty
17° register: threshold resistive insulation
18° register: threshold impedance insulation
19° register: threshold temperature 1
20° register: threshold temperature 2
21° register: threshold current

CTT-4 slave:

1° register: temperature channel 1
2° register: temperature channel 2
3° register: temperature channel 3
4° register: temperature channel 4
5° register: peak temperature channel 1
6° register: peak temperature channel 2
7° register: peak temperature channel 3
8° register: peak temperature channel 4
9° register: state of channel 1
10° register: state of channel 2
11° register: state of channel 3
12° register: state of channel 4

RI-SM slave:

1° register: resistance
2° register: minimum resistance
3° register: trip set
4° register: alarm set
5° register: status

EMT-4s slave:

1°÷47° registers: from sys. voltage to phase tangent phi L3
48°÷68° registers: from sys. active energy in to appar. energy L3

EMM-h slave:
1°÷31° registers: from 3-ph system voltage to reactive power L3
32°÷35° registers: from 3-ph sys. active energy T1 to 3-ph sys. reactive energy T2
36° register: frequency
37° register: neutral current
38° register: 3-phase system apparent energy T1
39° register: 3-phase system apparent energy T2

EMS-96 slave:
1°÷47° registers: from system voltage to phase tangent phi L3

TTC-V slave:
1° register: Current (A x 100)

DVH 5x slave:
1°÷52° registers: from instantaneous voltage V1 to total "S-"

Contacts

Register HEX	Register DEC	Word	Description	R/W	Parameters
C850		2	ROW 1 – 1°, 2°, 3°, 4° CHAR	R/W	4 chars in ASCII format
C852		2	ROW 1 – 5°, 6°, 7°, 8° CHAR	R/W	4 chars in ASCII format
C854		2	ROW 1 – 9°, 10°, 11°, 12° CHAR	R/W	4 chars in ASCII format
C856		2	ROW 1 – 13°, 14°, 15°, 16° CHAR	R/W	4 chars in ASCII format
C858		2	ROW 1 – 17°, 18°, 19°, 20° CHAR	R/W	4 chars in ASCII format
C85A		2	ROW 1 – 21°, 22°, 23°, 24° CHAR	R/W	4 chars in ASCII format
C85C		2	ROW 1 – 25°, 26°, 27°, 28° CHAR	R/W	4 chars in ASCII format
C85E		2	ROW 2 – 1°, 2°, 3°, 4° CHAR	R/W	4 chars in ASCII format
C860		2	ROW 2 – 5°, 6°, 7°, 8° CHAR	R/W	4 chars in ASCII format
C862		2	ROW 2 – 9°, 10°, 11°, 12° CHAR	R/W	4 chars in ASCII format
C864		2	ROW 2 – 13°, 14°, 15°, 16° CHAR	R/W	4 chars in ASCII format
C866		2	ROW 2 – 17°, 18°, 19°, 20° CHAR	R/W	4 chars in ASCII format
C868		2	ROW 2 – 21°, 22°, 23°, 24° CHAR	R/W	4 chars in ASCII format
C86A		2	ROW 2 – 25°, 26°, 27°, 28° CHAR	R/W	4 chars in ASCII format
---	---	---	---	---	---
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C8B2		2	ROW 8 – 1°, 2°, 3°, 4° CHAR	R/W	4 chars in ASCII format
C8B4		2	ROW 8 – 5°, 6°, 7°, 8° CHAR	R/W	4 chars in ASCII format
C8B6		2	ROW 8 – 9°, 10°, 11°, 12° CHAR	R/W	4 chars in ASCII format
C8B8		2	ROW 8 – 13°, 14°, 15°, 16° CHAR	R/W	4 chars in ASCII format
C8BA		2	ROW 8 – 17°, 18°, 19°, 20° CHAR	R/W	4 chars in ASCII format
C8BC		2	ROW 8 – 21°, 22°, 23°, 24° CHAR	R/W	4 chars in ASCII format
C8BE		2	ROW 8 – 25°, 26°, 27°, 28° CHAR	R/W	4 chars in ASCII format

Acronyms tables

Instantaneous group

Value	Acronym	Explanation	Value	Acronym	Explanation
1	V	System Voltage	27	W L3	Active Power L3
2	V L1	Voltage L1	28	VAR	System Reactive Power
3	V L2	Voltage L2	29	VAR L1	Reactive Power L1
4	V L3	Voltage L3	30	VAR L2	Reactive Power L2
5	V L1-L2	L1-L2 Voltage	31	VAR L3	Reactive Power L3
6	V L2-L3	L2-L3 Voltage	32	N	Neutral Current
7	V L3-L1	L3-L1 Voltage	33	Hz	Frequency
8	A	System Current	34	TEMP	Temperature
9	A L1	Current L1	35	THD V L1	THD Voltage L1
10	A L2	Current L2	36	THD V L2	THD Voltage L2
11	A L3	Current L3	37	THD V L3	THD Voltage L3
12	PF	System Power Factor	38	THD A L1	THD Current L1
13	PF L1	Power Factor L1	39	THD A L2	THD Current L2
14	PF L2	Power Factor L2	40	THD A L3	THD Current L3
15	PF L3	Power Factor L3	41	DEG L1-L2	Phase Angle L1-L2
16	COS	System COSϕ	42	DEG L2-L3	Phase Angle L2-L3
17	COS L1	COSϕ L1	43	DEG L3-L1	Phase Angle L3-L1
18	COS L2	COSϕ L2	44	TAN	System Tanϕ
19	COS L3	COSϕ L3	45	TAN L1	Tanϕ L1
20	VA	System Apparent Power	46	TAN L2	Tanϕ L2
21	VA L1	Apparent Power L1	47	TAN L3	Tanϕ L3
22	VA L2	Apparent Power L2	48	EXP W	System Expected Power
23	VA L3	Apparent Power L3	49	EXP W L1	Expected Power L1
24	W	System Active Power	50	EXP W L2	Expected Power L2
25	W L1	Active Power L1	51	EXP W L3	Expected Power L3
26	W L2	Active Power L2			

Total and TB (from 1 to 16) Energies group

Value	Acronym	Explanation	Value	Acronym	Explanation
1	Wh IN	System Active Energy IN	11	Wh L2 IN	Active Energy L2 IN
2	Wh OUT	System Active En. OUT	12	Wh L2 OUT	Active Energy L2 OUT
3	VArh IN	System Reactive En. IN	13	VArh L2 IN	Reactive Energy L2 IN
4	VArh OUT	System Reactive En. OUT	14	VArh L2 OUT	Reactive Energy L2 OUT
5	VAh	System Apparent Energy	15	VAh L2	Apparent Energy L2
6	Wh L1 IN	Active Energy L1 IN	16	Wh L3 IN	Active Energy L3 IN
7	Wh L1 OUT	Active Energy L1 OUT	17	Wh L3 OUT	Active Energy L3 OUT
8	VArh L1 IN	Reactive Energy L1 IN	18	VArh L3 IN	Reactive Energy L3 IN
9	VArh L1 OUT	Reactive Energy L1 OUT	19	VArh L3 OUT	Reactive Energy L3 OUT
10	VAh L1	Apparent Energy L1	20	VAh L3	Apparent Energy L3

Average group

Value	Acronym	Explanation	Value	Acronym	Explanation
1	AVG V	System Average Voltage	20	AVG VA L3	Average Apparent Power L3
2	AVG V L1	Average Voltage Phase 1	21	AVG W	System Average Active Power
3	AVG V L2	Average Voltage Phase 2	22	AVG W L1	Average Active Power L1
4	AVG V L3	Average Voltage Phase 3	23	AVG W L2	Average Active Power L2
5	AVG A	System Average Current	24	AVG W L3	Average Active Power L3
6	AVG A L1	Average Current L1	25	AVG VAR	System Average Reactive Power
7	AVG A L2	Average Current L2	26	AVG VAR L1	Average Reactive Power L1
8	AVG A L3	Average Current L3	27	AVG VAR L2	Average Reactive Power L2
9	AVG PF	System Average Power Factor	28	AVG VAR L3	Average Reactive Power L3
10	AVG PF L1	Average Power Factor L1	29	AVG N	Average Neutral Current
11	AVG PF L2	Average Power Factor L2	30	AVG Hz	Average Frequency
12	AVG PF L3	Average Power Factor L3	31	AVG TAN	Average System Tanϕ
13	AVG COS	System Average COSϕ	32	AVG TAN L1	Average Tanϕ L1
14	AVG COS L1	Average COSϕ L1	33	AVG TAN L2	Average Tanϕ L2
15	AVG COS L2	Average COSϕ L2	34	AVG TAN L3	Average Tanϕ L3
16	AVG-COS-3	Average COSϕ L3	35	EXP W	System Expected Active Power
17	AVG VA	System Average Apparent Power	36	EXP W L1	Expected Active Power L1
18	AVG VA L1	Average Apparent Power L1	37	EXP W L2	Expected Active Power L2
19	AVG VA L2	Average Apparent Power L2	38	EXP W L3	Expected Active Power L3

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