



EM300 Series and ET300 Series

COMMUNICATION PROTOCOL

Version 2 Revision 9

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1.1 Introduction

The RS485 serial interface supports the MODBUS/JBUS (RTU) protocol. In this document only the information necessary to read/write from/to EM/ET300 SERIES has been reported (not all the parts of the protocol have been implemented).

For a complete description of the MODBUS protocol please refer to the latest revision of the "Modbus_Application_Protocol" document that is downloadable from the www.modbus.org web site.

1.2 MODBUS functions

These functions are available on EM/ET300 SERIES:

- Reading of n "Holding Registers" (code 03h)
- Reading of n "Input Register" (code 04h)
- Writing of one "Holding Registers" (code 06h)
- Diagnostic (code 08h with sub-function code 00h)
- Broadcast mode (writing instruction on address 00h)

IMPORTANT:

- 1) In this document the "Modbus address" field is indicated in two modes:
 - 1.1) "**Modicom address**": it is the "6-digit Modicom" representation with Modbus function code 04 (Read Input Registers). It is possible to read the same values with function code 03 (Read Holding Registers) replacing the first digit ("3") with the number "4".
 - 1.2) "**Physical address**": it is the "word address" value to be included in the communication frame.
- 2) The functions 03h and 04h have exactly the same effect and can be used indifferently.
- 3) The communication parameters are to be set according to the configuration of the instrument (refer to EM/ET300 SERIES instruction manual)

1.2.1 Function 03h (Read Holding Registers)

This function is used to read the contents of a contiguous block of holding registers (word). The Request frame specifies the starting register address and the number of registers to be read. It is possible to read maximum 50 registers (words) with a single request, when not differently specified.

The register data in the response message are packed as two bytes per register (word), with the binary contents right justified within each byte. For each register, the first byte contains the high order bits (MSB) and the second contains the low order bits (LSB).

Request frame

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	03h	
Starting address	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
Quantity of registers (N word)	2 bytes	1 to 14h (1 to 20)	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (correct action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	03h	
Quantity of requested bytes	1 byte	N word * 2	
Register value	N*2 bytes		Byte order: MSB, LSB
CRC	2 bytes		

Response frame (incorrect action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	Possible exception : 01h: illegal function 02h: illegal data address 03h: illegal data value 04h: slave device failure
Function code	1 byte	83h	
Exception code	1 byte	01h, 02h, 03h, 04h (see note)	
CRC	2 bytes		

1.2.2 Function 04h (Read Input Registers)

This function code is used to read the contents of a contiguous block of input registers (word). The Request frame specifies the starting register address and the number of registers to be read. It is possible to read maximum 50 register (word) with a single request, when not differently specified. The register data in the response message are packed as two bytes per register (word), with the binary contents right justified within each byte. For each register, the first byte contains the high order bits (MSB) and the second contains the low order bits (LSB).

Request frame

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	04h	
Starting address	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
Quantity of registers (N word)	2 bytes	1 to 14h (1 to 20)	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (correct action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	04h	
Quantity of requested bytes	1 byte	N word * 2	
Register value	N*2 bytes		Byte order: MSB, LSB
CRC	2 bytes		

Response frame (incorrect action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	Possible exception : 01h: illegal function 02h: illegal data address 03h: illegal data value 04h: slave device failure
Function code	1 byte	84h	
Exception code	1 byte	01h, 02h, 03h, 04h	
CRC	2 bytes		

1.2.3 Function 06h (Write Single Holding Register)

This function code is used to write a single holding register. The Request frame specifies the address of the register (word) to be written and its content. The correct response is an echo of the request, returned after the register content has been written.

Request frame

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	06h	
Starting address	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
Register value	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (correct action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	06h	
Starting address	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
Register value	2 bytes	0000h to FFFFh	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (incorrect action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	Possible exception : 01h: illegal function 02h: illegal data address 03h: illegal data value 04h: slave device failure
Function code	1 byte	86h	
Exception code	1 byte	01h, 02h, 03h, 04h	
CRC	2 bytes		

1.2.4 Function 08h (Diagnostic with sub-function code 00h)

MODBUS function 08h provides a series of tests to check the communication system between a client (Master) device and a server (Slave), or to check various internal error conditions in a server.

EM/ET300 Series supports only 0000h sub-function code (Return Query Data). With this sub-function the data passed in the request data field is to be returned (looped back) in the response. The entire response message should be identical to the request.

Request frame

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	
Function code	1 byte	08h	
Sub-function	2 bytes	0000h	
Data (N word)	N *2 bytes	Data	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (correct action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7 (1 to 247)	
Function code	1 byte	08h	
Sub-function	2 bytes	0000h	
Data (N word)	N *2 bytes	Data	Byte order: MSB, LSB
CRC	2 bytes		

Response frame (incorrect action)

Description	Length	Value	Note
Physical address	1 byte	1 to F7h (1 to 247)	Possible exception : 01h: illegal function 02h: illegal data address 03h: illegal data value 04h: slave device failure
Function code	1 byte	88h	
Exception code	1 byte	01h, 02h, 03h, 04h	
CRC	2 bytes		

1.2.5 Broadcast mode

In broadcast mode the master can send a request (command) to all the slaves. No response is returned to broadcast requests sent by the master. It is possible to send the broadcast message only with function code 06h using address 00h.

1.3 Application notes

1.3.1 RS485 general considerations

1. To avoid errors due to the signal reflections or line coupling, it is necessary to terminate the bus at the beginning and at the end (inserting a 120 ohm 1/2W 5% resistor between line B and A in the last instrument and in the Host interface). The termination resistance is included in the meter and can be inserted by connecting terminal T with terminal B.
2. The network termination is necessary even in case of point-to-point connection and/or of short distances.
3. For connections longer than 1000m or if in the network there are more than 160 instruments (with 1/5 unit load as used in EM/ET300 SERIES interface), a signal repeater is necessary.
4. For bus connection it is suggested to use an AWG24 balanced pair cable and to add a third wire for GND connection. Connect GND to the shield if a shielded cable is used.
5. The GND is to be connected to ground only at the host side.
6. If an instrument does not answer within the “max answering time”, it is necessary to repeat the query. If the instrument does not answer after 2 or 3 consecutive queries, it is to be considered as not connected, faulty or reached with a wrong address. The same consideration is valid in case of CRC errors or incomplete response frames.

1.3.2 MODBUS timing

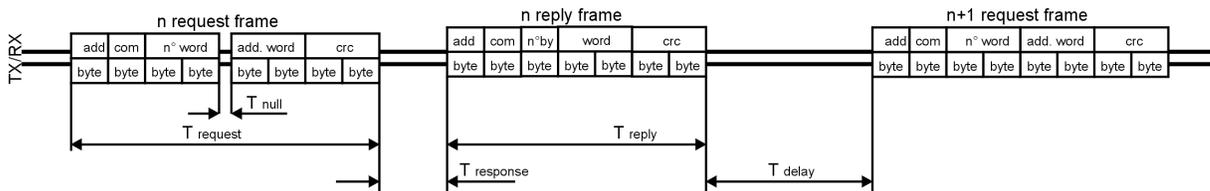


Fig. 1 : 2-wire timing diagram

Timing characteristics of reading function:	msec
T response: Max answering time	500ms
T response: Typical answering time	40ms
T delay: Minimum time before a new query	3,5char
T null: Max interruption time during the request frame	2,5char

2 TABLES

2.1 Data format representation In Carlo Gavazzi instruments

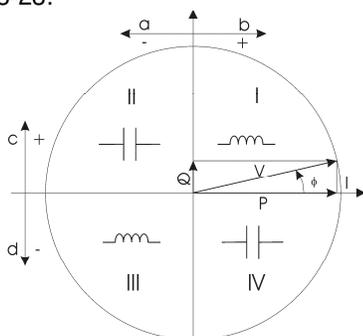
The variables are represented by integers or floating numbers, with 2's complement notation in case of "signed" format, using the following:

Format	IEC data type	Description	Bits	Range
INT16	INT	Integer	16	-32768 .. 32767
UINT16	UINT	Unsigned integer	16	0 .. 65535
INT32	DINT	Double integer	32	$-2^{31} .. 2^{31}$
UINT32	UDINT	Unsigned double int	32	$0 .. 2^{32}-1$
UINT64	ULINT	Unsigned long integer	64	$0 .. 2^{64}-1$
IEEE754 SP		Single-precision floating-point	32	$-(1+[1-2^{-23}]) \times 2^{127} .. 2^{128}$

For all the formats the byte order (inside the single word) is MSB->LSB. In INT32, UINT32 and UINT64 formats, the word order is LSW-> MSW.

2.2 Geometric representation

According to the signs of the power factor, the active power P and the reactive power Q, it is possible to obtain a geometric representation of the power vector, as indicated in the drawing below, according to EN 60253-23:



a = Exported active power
 b = Imported active power
 c = Imported reactive power
 d = Exported reactive power

Fig. 2 : Geometric Representation

According to the measurement mode (easy connection or bidirectional), the following sign convention is used in EM/ET300 SERIES.

- Easy connection mode
 - o I always >0
 - o P always >0
 - o kWh always increasing (correspondent to Annex D option PFA)
 - o **kvarh increases only when Q>0**
 - o PF only with C and L (without sign) indication
- Bidirectional mode)
 - o I < or >0 (with indication of "-" sign)
 - o P < or >0 (with indication of "-" sign)
 - o kWh+ increasing only when P > 0 (correspondent to Annex D option PFB)
 - o kWh- increasing only when P < 0
 - o kvarh+ increasing only when Q > 0
 - o kvarh- increasing only when Q < 0
 - o PF with ±C or ±L indication

Application	Real measurement	Displayed values	Displayed energies	Notes
Easy connection Mode	Quadrant I	A, W, var, L PF	kWh increases, kvarh increases	Measurement A or PFA models
	Quadrant II	A, W, -var, C PF	kWh increases, kvarh doesn't increases	Measurement A or PFA models
	Quadrant III	A, W, var, L PF	kWh increases, kvarh increases	Measurement A or PFA models
	Quadrant IV	A, W, -var, C PF	kWh increases, kvarh doesn't increases	Measurement A or PFA models
Bidirectional Mode	Quadrant I	A, W, var, +L PF	kWh+ increases, kvarh+ increases	Measurement B or PFB models
	Quadrant II	-A, -W, +var, -C PF	kWh- increases, kvarh+ increases	Measurement B or PFB models
	Quadrant III	-A, -W, -var, -L PF	kWh- increases, kvarh- increases	Measurement B or PFB models
	Quadrant IV	A, W, -var, +C PF	kWh+ increases, kvarh- increases	Measurement B or PFB models

2.3 Maximum and minimum electrical values in EM/ET300 SERIES

The maximum electrical input values are reported in the following table. If the input is above the maximum value the display shows “EEE”.

Table 2.1-

	AV5 input option		AV6 input option	
	Max value	Min value	Max value	Min value
VL-N	485V	0	150V	0
VL-L	840V	0	260V	0
A	6,5A (displayed value = 6.5 Ax CT ratio)	0	6,5A (displayed value = 6.5 Ax CT ratio)	0
VT	1000	1	1000	1
CT	1000	1	1000	1

Note: The product (CT ratio)x(VT ratio) shall be automatically limited to prevent overflow of kW indication on the meter (max power = 9999 kW).

The overflow indication “EEE” is displayed when the MSB value of the relevant variable is 7FFFFFFFh (word order FFFF 7FFF).

2.4 Instantaneous variables and meters (grouped by variable type)

MODBUS: read only mode with functions code 03 and 04

Table 2.4-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
300001	0000h	2	V L1-N	INT32	Value weight: Volt*10
300003	0002h	2	V L2-N	INT32	
300005	0004h	2	V L3-N	INT32	
300007	0006h	2	V L1-L2	INT32	
300009	0008h	2	V L2-L3	INT32	
300011	000Ah	2	V L3-L1	INT32	
300013	000Ch	2	A L1	INT32	Value weight: Ampere*1000
300015	000Eh	2	A L2	INT32	
300017	0010h	2	A L3	INT32	
300019	0012h	2	kW L1	INT32	Value weight: Watt*10
300021	0014h	2	kW L2	INT32	
300023	0016h	2	kW L3	INT32	
300025	0018h	2	kVA L1	INT32	Value weight: VA*10
300027	001Ah	2	kVA L2	INT32	
300029	001Ch	2	kVA L3	INT32	
300031	001Eh	2	kvar L1	INT32	Value weight: var*10
300033	0020h	2	kvar L2	INT32	
300035	0022h	2	kvar L3	INT32	
300037	0024h	2	V L-N sys	INT32	Value weight: Volt*10
300039	0026h	2	V L-L sys	INT32	
300041	0028h	2	kW sys	INT32	Value weight: Watt*10
300043	002Ah	2	kVA sys	INT32	Value weight: VA*10
300045	002Ch	2	kvar sys	INT32	Value weight: var*10
300047	002Eh	1	PF L1	INT16	Negative values correspond to exported active power, positive values correspond to imported active power. Value weight: PF*1000
300048	002Fh	1	PF L2	INT16	
300049	0030h	1	PF L3	INT16	
300050	0031h	1	PF sys	INT16	
300051	0032h	1	Phase sequence	INT16	The value -1 corresponds to L1-L3-L2 sequence, the value 0 corresponds to L1-L2-L3 sequence. The phase sequence value is meaningful only in a 3-phase system
300052	0033h	1	Hz	INT16	Value weight: Hz*10
300053	0034h	2	kWh (+) TOT	INT32	Value weight: kWh*10
300055	0036h	2	Kvarh (+) TOT	INT32	Value weight: kvarh*10
300057	0038h	2	kW dmd	INT32	Value weight: Watt*10
300059	003Ah	2	kW dmd peak	INT32	Value weight: Watt*10
300061	003Ch	2	kWh (+) PARTIAL	INT32	Value weight: kWh*10
300063	003Eh	2	Kvarh (+) PARTIAL	INT32	Value weight: kvarh*10
300065	0040h	2	kWh (+) L1	INT32	Value weight: kWh*10
300067	0042h	2	kWh (+) L2	INT32	Value weight: kWh*10
300069	0044h	2	kWh (+) L3	INT32	Value weight: kWh*10
300071	0046h	2	kWh (+) t1	INT32	Value weight: kWh*10
300073	0048h	2	kWh (+) t2	INT32	Value weight: kWh*10
300075	004Ah	2	kWh (+) t3	INT32	If available, Value weight: kWh*10
300077	004Ch	2	kWh (+) t4	INT32	If available, Value weight: kWh*10
300079	004Eh	2	kWh (-) TOT	INT32	Value weight: kWh*10
300081	0050h	2	kvarh (-) TOT	INT32	Value weight: kvarh*10
300083	0052h	2	kWh (-) PARTIAL	INT32	Not available, value =0
300085	0054h	2	Kvarh (-) PARTIAL	INT32	Not available, value =0
300087	0056h	2	kVAh TOT	INT32	Not available, value =0
300089	0058h	2	kVAh PARTIAL	INT32	Not available, value =0
300091	005Ah	2	Hour meter	INT32	Value weight: hours*100, only ET series
300093	005Ch	2	Hour meter kWh (1)	INT32	Not available, value =0
300095	005Eh	2	n.a.	INT32	Not available, value =0
300097	0060h	2	kWh (-) L1	INT32	Value weight: kWh*10, only ET series
300099	0062h	2	kWh (-) L2	INT32	Value weight: kWh*10, only ET series
300101	0064h	2	kWh (-) L3	INT32	Value weight: kWh*10, only ET series
300103	0066h	2	kWh (+) t5	INT32	Not available, value =0
300105	0068h	2	kWh (+) t6	INT32	Not available, value =0
300107	006Ah	2	kWh (+) t7	INT32	Not available, value =0
300109	006Ch	2	kWh (+) t8	INT32	Not available, value =0
300111	006Eh	2	n.a.	INT32	Not available, value =0
300113	0070h	2	n.a.	INT32	Not available, value =0
300115	0072h	2	n.a.	INT32	Not available, value =0
300117	0074h	2	n.a.	INT32	Not available, value =0
300119	0076h	2	n.a.	INT32	Not available, value =0
300121	0078h	2	n.a.	INT32	Not available, value =0
300123	007Ah	2	n.a.	INT32	Not available, value =0
300125	007Ch	2	n.a.	INT32	Not available, value =0



300127	007Eh	2	n.a.	INT32	Not available, value =0
300129	0080h	2	n.a.	INT32	Not available, value =0
300131	0082h	2	THD A L1	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300133	0084h	2	THD A L2	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300135	0086h	2	THD A L3	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300137	0088h	2	THD V L-N sys	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h. Average of V1-N, V2-N, V3-N
300139	008Ah	2	THD V L1-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300141	008Ch	2	THD V L2-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300143	008Eh	2	THD V L3-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300145	0090h	2	THD V L-L sys	INT32	Not available, value =0
300147	0092h	2	THD V L1-L2	INT32	Not available, value =0
300149	0094h	2	THD V L2-L3	INT32	Not available, value =0
300151	0096h	2	THD V L3-L1	INT32	Not available, value =0
300153	0098h	2	An	INT32	Not available, value =0

Instantaneous variables and meters (grouped by phase)

MODBUS: read only mode with functions code 03 and 04

Table 0-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
System variables					
300249	00F6h	2	Hour meter kWh L1	INT32	Value weight: Ampere*1000
300249	00F8h	2	A n	INT32	Value weight: Ampere*1000
300251	00FAh	2	THD V L-N sys	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h. Average of V1-N, V2-N, V3-N
300253	00FCh	2	THD V L-L sys	INT32	Not available, value =0
300255	00FEh	2	Hour meter	INT32	Value weight: hours*100, only ET series
300257	0100h	2	n.a.	INT32	Not available, value =0
300259	0102h	2	V L-N sys	INT32	Value weight: Volt*10
300261	0104h	2	V L-L sys	INT32	Value weight: Volt*10
300263	0106h	2	kW sys	INT32	Value weight: Watt*10
300265	0108h	2	kVA sys	INT32	Value weight: VA*10
300267	010Ah	2	kvar sys	INT32	Value weight: var*10
300269	010Ch	2	PF sys	INT32	(*) Value weight: PF*1000
300271	010Eh	2	Phase sequence	INT32	The value -1 corresponds to L1-L3-L2 sequence, the value 0 corresponds to L1-L2-L3 sequence. The phase sequence value is meaningful only in a 3-phase system
300273	0110h	2	Hz	INT32	Value weight: Hz*10
Total energies and dmd power					
300275	0112h	2	kWh (+) TOT	INT32	Value weight: kWh*10
300277	0114h	2	Kvarh (+) TOT	INT32	Value weight: kvarh*10
300279	0116h	2	kWh (-) TOT	INT32	Value weight: kWh*10
300281	0118h	2	kvarh (-) TOT	INT32	Value weight: kvarh*10
300283	011Ah	2	kW dmd	INT32	Value weight: Watt*10
300285	011Ch	2	kW dmd peak	INT32	Value weight: Watt*10
Phase 1 variables					
300287	011Eh	2	V L1-L2	INT32	Value weight: Volt*10
300289	0120h	2	V L1-N	INT32	Value weight: Volt*10
300291	0122h	2	A L1	INT32	Value weight: Ampere*1000
300293	0124h	2	kW L1	INT32	Value weight: Watt*10
300295	0126h	2	kVA L1	INT32	Value weight: VA*10
300297	0128h	2	kvar L1	INT32	Value weight: var*10
300299	012Ah	2	PF L1	INT32	(*) Value weight: PF*1000
Phase 2 variables					
300301	012Ch	2	V L2-L3	INT32	Value weight: Volt*10
300303	012Eh	2	V L2-N	INT32	Value weight: Volt*10
300305	0130h	2	A L2	INT32	Value weight: Ampere*1000
300307	0132h	2	kW L2	INT32	Value weight: Watt*10
300309	0134h	2	kVA L2	INT32	Value weight: VA*10
300311	0136h	2	kvar L2	INT32	Value weight: var*10
300313	0138h	2	PF L2	INT32	(*) Value weight: PF*1000
Phase 3 variables					
300315	013Ah	2	V L3-L1	INT32	Value weight: Volt*10
300317	013Ch	2	V L3-N	INT32	Value weight: Volt*10
300319	013Eh	2	A L3	INT32	Value weight: Ampere*1000
300321	0140h	2	kW L3	INT32	Value weight: Watt*10
300323	0142h	2	kVA L3	INT32	Value weight: VA*10
300325	0144h	2	kvar L3	INT32	Value weight: var*10
300327	0146h	2	PF L3	INT32	(*) Value weight: PF*1000
Other energies					
300329	0148h	2	kWh (+) PARTIAL	INT32	Value weight: kWh*10
300331	014Ah	2	Kvarh (+) PARTIAL	INT32	Value weight: kvarh*10
300333	014Ch	2	kWh (+) L1	INT32	Value weight: kWh*10
300335	014Eh	2	kWh (+) L2	INT32	Value weight: kWh*10
300337	0150h	2	kWh (+) L3	INT32	Value weight: kWh*10
300339	0152h	2	kWh (+) t1	INT32	Value weight: kWh*10
300341	0154h	2	kWh (+) t2	INT32	Value weight: kWh*10
300343	0156h	2	kWh (+) t3	INT32	Not available, value =0
300345	0158h	2	kWh (+) t4	INT32	Not available, value =0
300347	015Ah	2	kWh (-) PARTIAL	INT32	Not available, value =0
300349	015Ch	2	Kvarh (-) PARTIAL	INT32	Not available, value =0
300351	015Eh	2	kVAh TOT	INT32	Not available, value =0
300353	0160h	2	kVAh PARTIAL	INT32	Not available, value =0
300355	0162h	2	n.a.	INT32	Not available, value =0
300357	0164h	2	n.a.	INT32	Not available, value =0
300359	0166h	2	n.a.	INT32	Not available, value =0
300361	0168h	2	n.a.	INT32	Not available, value =0
300363	016Ah	2	n.a.	INT32	Not available, value =0



300365	016Ch	2	kWh (-) L1	INT32	Value weight: kWh*10, only ET series
300367	016Eh	2	kWh (-) L2	INT32	Value weight: kWh*10, only ET series
300369	0170h	2	kWh (-) L3	INT32	Value weight: kWh*10, only ET series
300371	0172h	2	kWh (+) I5	INT32	Not available, value =0
300373	0174h	2	kWh (+) I6	INT32	Not available, value =0
300375	0176h	2	kWh (+) I7	INT32	Not available, value =0
300377	0178h	2	kWh (+) I8	INT32	Not available, value =0
300379	017Ah	2	n.a.	INT32	Not available, value =0
300381	017Ch	2	n.a.	INT32	Not available, value =0
300383	017Eh	2	n.a.	INT32	Not available, value =0

Other Phase 1 variables

300385	0180h	2	THD A L1	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300387	0182h	2	THD V L1-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300389	0184h	2	THD V L1-L2	INT32	Not available, value =0
300391	0186h	2	n.a.	INT32	Not available, value =0
300393	0188h	2	n.a.	INT32	Not available, value =0
300395	018Ah	2	n.a.	INT32	Not available, value =0
300397	018Ch	2	n.a.	INT32	Not available, value =0
300399	018Eh	2	n.a.	INT32	Not available, value =0
300401	0190h	2	n.a.	INT32	Not available, value =0

Other Phase 2 variables

300403	0192h	2	THD A L2	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300405	0194h	2	THD V L2-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300407	0196h	2	THD V L2-L3	INT32	Not available, value =0
300409	0198h	2	n.a.	INT32	Not available, value =0
300411	019Ah	2	n.a.	INT32	Not available, value =0
300413	019Ch	2	n.a.	INT32	Not available, value =0
300415	019Eh	2	n.a.	INT32	Not available, value =0
300417	01A0h	2	n.a.	INT32	Not available, value =0
300419	01A2h	2	n.a.	INT32	Not available, value =0

Other Phase 3 variables

300421	01A4h	2	THD A L3	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300423	01A6h	2	THD V L3-N	INT32	Value weight: %*100, only ET series if THD calculation is enabled in 1106h
300425	01A8h	2	THD V L3-L1	INT32	Not available, value =0
300427	01AAh	2	n.a.	INT32	Not available, value =0
300429	01ACh	2	n.a.	INT32	Not available, value =0
300431	01AEh	2	n.a.	INT32	Not available, value =0
300433	01B0h	2	n.a.	INT32	Not available, value =0
300435	01B2h	2	n.a.	INT32	Not available, value =0
300437	01B4h	2	n.a.	INT32	Not available, value =0

Note *: Negative values correspond to exported active power, positive values correspond to imported active power.

Note Table 2.4-1 and 2.5-1 are equivalent and includes a copy of the same variable values.

Note For meters that support also 1-phase and 2-phase systems, the values relevant to phase 2 and 3 can still be read with a valid value, equal to 0

Programming parameter note: reading values in addresses not specified in the below tables returns an illegal data address exception.

2.5 Firmware version and revision code

MODBUS: read only mode with functions code 03 and 04 limited to a word at a time

Table 2.5-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
300771	0302h	1	Version code	UINT 16	Value=0: Version "A", =1: Version "B", etc.
300772	0303h	1	Revision code	UINT 16	Value=0: Revision "0" etc.

2.6 Carlo Gavazzi Controls identification code

MODBUS: read only mode with functions code 03 and 04 limited to a word at a time

Table 2.6-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
300012	000Bh	1	Carlo Gavazzi Controls identification code	UINT 16	See table 2.6-2



Table 2.7-2

Complete item number	CG identification code
EM330-DIN AV5 3 H S1 X ENGINEERING SAMPLE ONLY (with MSW-LSW word order)	330
EM330-DIN AV5 3 L S1 X	332
EM330-DIN AV5 3 L S1 PF A	332
EM330-DIN AV5 3 L S1 PF B	332
EM330-DIN AV5 3 H S1 X	332
EM330-DIN AV5 3 H S1 PF A	332
EM330-DIN AV5 3 H S1 PF B	332
EM330-DIN AV6 3 L S1 X	331
EM330-DIN AV6 3 L S1 PF A	331
EM330-DIN AV6 3 L S1 PF B	331
EM330-DIN AV6 3 H S1 X	331
EM330-DIN AV6 3 H S1 PF A	331
EM330-DIN AV6 3 H S1 PF B	331
ET330-DIN AV5 3 L S1 X	335
ET330-DIN AV5 3 H S1 X	335
ET330-DIN AV6 3 L S1 X	336
ET330-DIN AV6 3 H S1 X	336
EM340-DIN AV2 3 X S1 X ENGINEERING SAMPLE ONLY (with MSW-LSW word order)	340
EM340-DIN AV2 3 X S1 X	341
EM340-DIN AV2 3 X S1 PF A	341
EM340-DIN AV2 3 X S1 PF B	341
EM341-DIN AV2 3 X OS X	346
ET340-DIN AV2 3 X S1 X	345

2.7 Programming parameter tables

2.7.1 Password configuration menu

MODBUS: read and write mode

Table 2.7-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304097	1000h	1	PASSWORD (EM only)	UINT 16	Minimum valid value: 0d Maximum valid value: 9999d In ET always 0.

2.7.2 System configuration menu

MODBUS: read and write mode

Table 2.8-2

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304099	1002h	1	Measuring system	UINT 16	Value=0: "3Pn" (3-phase with neutral) Value=1: "3P" (3-phase without neutral) Value=2: "2P" (2-phase with neutral) Value=3: 1P

2.7.3 PT and CT configuration menu

MODBUS: read and write mode

Table 2.7-3

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304100	1003h	2	Current transformer ratio	UINT 32	Value min = 10 (CT=1,0) Value max = 10000 (CT=1000.0)
304102	1005h	2	Voltage transformer ratio	UINT 32	Value min = 10 (VT=1,0) Value max = 10000 (VT=1000.0)

Important note:

- The product (CT ratio)x(VT ratio) shall be automatically limited to prevent overflow of kW indication on the meter
- The product (CT ratio)x(VT ratio) shall be automatically limited in MID versions to prevent the rollover of the kWh meter before 4000 h, as stated in MID regulation.

2.7.4 Dmd and pulse outs configuration menu

MODBUS: read and write mode

Table 2.7

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
	1010h	2	Integration time for dmd power calculation	UINT 32	Value min = 1 Value max = 30
	1012h	2	Ton (Ton time for pulse output square wave)	UINT 32	Value min = 0 (30ms) Value max = 1 (100 ms)
	1020h	2	kWh per pulse relevant to digital out 1 (if existing)	UINT 32	
	1022h	2	kWh per pulse relevant to digital out 2 (if existing)	UINT 32	

2.7.5 Other functions configuration menu

MODBUS: read and write mode

Table 2.7

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304353	1100h	1	Display mode	UINT 16	Value min = 0 (Full, default) Value max = 1 (Easy) Any other value = Full
304354	1101h	1	Tariff management enabling	UINT 16	Value min = 0 (OFF) Value max = 1 (ON) Any other value = OFF
304355	1102h	1	Home page selection (EM only)	UINT 16	Value min = 0 (page 0, default) Value max = 19 (page 19) Restrictions in case of display mode = Easy Any other value = page 0 In ET always = 0
304356	1103h	1	Measurement mode selection	UINT 16	Value min = 0 (A) Value max = 1 (B) Any other value = A
304357	1104h	1	Wrong connection (Installing help) management enabling	UINT 16	Value min = 0 (ON) Value max = 1 (OFF) Any other value = ON
304358	1105h	1	Wrong connection (installing help) status	UINT 16	Bit 0 = 1 means: Wrong voltage sequence Bit 1 = 1 means: Phase 1 inverted Bit 2 = 1 means: Phase 2 inverted Bit 3 = 1 means: Phase 3 inverted Bit 4 = 1 means: Phases 1 and 2 exchanged Bit 5 = 1 means: Phases 1 and 3 exchanged Bit 6 = 1 means: Phases 2 and 3 exchanged Bit 7 = 1 means: Phases 1, 2, 3 exchanged In EM/ET330 only a bit at a time can be 1. In EM/ET340 more bits can be 1. In any case a sequence of wiring modifications is needed until the wiring is correct (all bit=0)
304359	1106h	1	THD calculation enabling	UINT 16	Value min = 0 (OFF) Value max = 1 (ON) = DEFAULT Any other value = OFF
304360	1107h	2	Start-up current of the hour counter meter	UINT 32	Value weight: Ampere*1000 Value min = 10 Value max = 6000 Default value = 10

2.7.6 Active tariff selection

MODBUS: read and write mode

Table 2.7

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304608	1200h	1	Tariff mode selection (tariff management via digital input or serial comm.)	UINT 16	Value min = 0 (via digital inputs) Value max = 1 (via serial comm.) Any other value = via digital in.
304609	1201h	1	Tariff number selection via serial comm. Current tariff (EM341)	UINT 16	Value min = 1 (tariff 1) Value max = 2 (tariff 2) Any other value = tariff 1 If 1200h = 0 (tariff via digital input), this parameter is "read only" mode EM341: 0=tar 1 1=tar 2 2=tar 3 3=tar 4 Any other value=tar 1 this parameter is "read only" mode

2.7.7 Serial port configuration menu

MODBUS: read and write mode

Table 2.8-7

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
308193	2000h	1	RS485 instrument address	UINT 16	Value min = 1 (default) Value max = 247 Any other value = 1
308194	2001h	1	RS485 baud rate	UINT 16	Value 1 = 9.6 kbps (default) Value 2 = 19.2 kbps Value 3 = 38.4 kbps Value 4 = 57.6 kbps Value 5 = 115.2 kbps Any other value = 9.6 kbps
308195	2002h	1	RS485 parity	UINT 16	Value 1 = no parity (default) Value 2 = even parity Any other value = no parity
308196	2003h	1	RS485 Stop bit	UINT 16	Value 0 = 1 stop bit Value 1 = 1 (default) Value 2 =2 (only if parity is even) Any other value = 1 stop bit
308197	2004h	1	Max number of words readable with a single Modbus request	UINT 16	Value = 50 (words)
308198	2005h	1	Intentional response delay	UINT 16	Value min=0 Value max=500 Default:50 Any other value = 0 (no intentional response time delay)

Note: The number of stop bits is fixed to "1" if parity is EVEN.

2.7.8 Reset commands

MODBUS: read and write mode

Table 2.8-8

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
316385	4000h	1	Reset of all partial and tariff meters, kWdmd and kWdmdm peak (and hourcounter meter in EM210)	UINT 16	Value=0: reset done Value=1: execute the command All other values produce no effects
316386	4001h	1	Reset of total energy meters (only for non-MID versions, X option)	UINT 16	Value=0: reset done Value=1: execute the command All other values produce no effects
316387	4002h	1	Reset of hour counter (ET330 and ET340)	UINT 16	Value=0: reset done Value=1: execute the command All other values produce no effects

2.7.9 Serial number

MODBUS: read only mode
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Table 2.8-

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
320481	5000h	1	Letter 1 (from SX) Letter 2 (from SX)		MSB: ASCII code LSB: ASCII code
320482	5001h	1	Letter 3 (from SX) Letter 4 (from SX)		MSB: ASCII code LSB: ASCII code
320483	5002h	1	Letter 5 (from SX) Letter 6 (from SX)		MSB: ASCII code LSB: ASCII code
320484	5003h	1	Letter 7 (from SX) Letter 8 (from SX)		MSB: ASCII code LSB: ASCII code
320485	5004h	1	Letter 9 (from SX) Letter 10 (from SX)		MSB: ASCII code LSB: ASCII code
320486	5005h	1	Letter 11 (from SX) Letter 12 (from SX)		MSB: ASCII code LSB: ASCII code
320487	5006h	1	Letter 13 (from SX)		MSB: ASCII code

2.7.10 Note

The default value shall be automatically assigned to the parameters when an out-of-range or invalid value is written.

2.8 EM341 additional parameters

2.8.1 Date/hour configuration

2.8.1.1 Date configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6500h	1	Clockcalendar:Year	UINT16	2009-2099
	6501h	1	Clockcalendar:Month	UINT16	1-12
	6502h	1	Clockcalendar:Day	UINT16	1-31

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.1.2 Hour configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6503h	1	Clock:Hour	UINT16	0-23
	6504h	1	Clock:Minutes	UINT16	0-59
	6505h	1	Clock:Seconds	UINT16	0-59

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.1.3 Legal/solar time

	6507h	1	Automatic legal/solar time setting	UINT16	Value=0: OFF Value=1: ISr(default) Any other Value=ISr
--	-------	---	------------------------------------	--------	--

2.8.2 Current status (ONLY READ)

	6508h	1	Output Status	UINT16	Bit0 Alarm1:0 (OFF) or 1 (ON) Bit1 Alarm1:0 (OPEN) or 1 (CLOSED) Bit2 Alarm2: 0 (OFF) or 1 (ON) Bit3 Alarm2: 0 (OPEN) or 1 (CLOSED)
	6509h	1	current season (period of the year)	UINT16	Value=0: Spring Value=1: Summer Value=2: Autumn Value=3: Winter Any other Value= Spring
	650Ah	1	current day type	UINT16	Value=1: Working Days Value=2: Festive Days Value=3: Pre_Festive Days Any other Value= Working Days
	650Bh	1	current time slot	UINT16	Value=0: slot1 Value=1: slot2 Value=2: slot3 Value=3: slot4 Value=4: slot5 Value=5: slot6 Any other Value= No slot

2.8.3 Outputs configuration

2.8.3.1 Output function selection

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6510h	1	Output 1 function	UINT16	Value=0: kWh+ (default) Value=1: kWh- Value=2: kWhL1 pulse Value=3: Alarm 1 Any other Value= kWh+
	6511h	1	Output 2 function	UINT16	Value=0: kWh+ (default) Value=1: kWh- Value=2: kWhL2 pulse Value=3: Alarm 2 Any other Value= kWh-

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.3.2 Pulse 1 configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6512h	1	Pulse 1	UINT16	Value=0: 30ms Value=1: 100ms (default) Any other Value=30ms
	6513h	1	Pulse 1 rate	UINT16	30ms Value=10 ~ 1500 100ms Value=10 ~ 500 (default:10)

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.3.3 Pulse 2 configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6514h	1	Pulse 2	UINT16	Value=0: 30ms Value=1: 100ms Any other Value=30ms (default)
	6515h	1	Pulse 2 rate	UINT16	30ms Value=100 ~ 1500 100ms Value=100 ~ 500 (default:10)

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.3.4 Alarm 1 configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6516h	1		UINT16	Value = 0:kw System (default) Value = 1:V L-L Sys Value = 2:V L-N Sys Value = 3:PF System Value = 4:Hz Value = 5:kvAr System Value = 6:kvA System Value = 7:kw dmd Value = 8:kvA L1 Value = 9:kvA L2 Value = 10:kvA L3 Value = 11:kvar L1 Value = 12:kvar L2 Value = 13:kvar L3 Value = 14:PF L1 Value = 15:PF L2 Value = 16:PF L3 Value = 17:V L-N L1 Value = 18:V L-N L2 Value = 19:V L-N L3 Value = 20:V L-L L12 Value = 21:V L-L L23 Value = 22:V L-L L31 Value = 23:A L1 Value = 24:A L2 Value = 25:A L3 Value = 26:kw L1 Value = 27:kw L2 Value = 28:kw L3 Any other Value = kw System
	6517h	1	Set 1	UINT16	Value=000.0~999.9 S (default: 0.0)
	6518h	1	Set 2	UINT16	Value=000.0~999.9 S (default: 0.0)
	6519h	1	Delay	UINT16	Value=1~255 S (default: 1S)
	651Ah	1	Status	UINT16	Value=0: normally de-energised(nd) (default) Value=1: normally energised(nE) Any other Value=normally de-energised(nd)

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.3.5 Alarm 2 configuration

Physical address	Length (words)	VARIABLE	Data Format	Notes
651Bh	1	Alarm 2	UINT16	Value = 0:kw System (default) Value = 1:V L-L SyS Value = 2:V L-N SyS Value = 3:PF System Value = 4:Hz Value = 5:kvAr System Value = 6:kvA System Value = 7:kw dmd Value = 8:kvA L1 Value = 9:kvA L2 Value = 10:kvA L3 Value = 11:kvar L1 Value = 12:kvar L2 Value = 13:kvar L3 Value = 14:PF L1 Value = 15:PF L2 Value = 16:PF L3 Value = 17:V L-N L1 Value = 18:V L-N L2 Value = 19:V L-N L3 Value = 20:V L-L L12 Value = 21:V L-L L23 Value = 22:V L-L L31 Value = 23:A L1 Value = 24:A L2 Value = 25:A L3 Value = 26:kw L1 Value = 27:kw L2 Value = 28:kw L3 Any other Value = kw System
651Ch	1	Set 1	UINT16	Value=000.0~999.9 S (default: 0.0)
651Dh	1	Set 2	UINT16	Value=000.0~999.9 S (default: 0.0)
651Eh	1	Delay	UINT16	Value=1~255 S (default: 1S)
651Fh	1	Status	UINT16	Value=0: normally de-energised(nd) (default) Value=1: normally energised(nE) Any other Value=normally de-energised(nd)

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.4 Working/pre-festive/festive and default tariff configuration

Physical address	Length (words)	VARIABLE	Data Format	Notes
6000h	1	Working Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
6001h	1	Pre_Festive Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
6002h	1	Festive Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.



2.8.5 Calendar periods configuration

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6000h	1	Working Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
	6001h	1	Pre_Festive Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday
	6002h	1	Festive Days	UINT16	Bit value: 1, working day Bit value: 0, non-working day Bit position (LSB concept) 0: Sunday 1: Monday 2: Tuesday 3: Wednesday 4: Thursday 5: Friday 6: Saturday

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.6 Calendar periods configuration

2.8.6.1 Period 1

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6004h	1	CalendarPeriod 1st Start	UINT16	"Format: mmdd Value < 101: disabled mm = 12 dd = 26 Value = 1226"

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.6.2 Period 2

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6006h	1	CalendarPeriod 2nd Start	UINT16	"Format: mmdd Value < 101: disabled mm = 12 dd = 26 Value = 1226"
	6007h	1	CalendarPeriod 2nd Stop	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.6.3 Period 3

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6008h	1	CalendarPeriod 3rd Start	UINT16	"Format: mmdd Value < 101: disabled mm = 12 dd = 26 Value = 1226"
	6009h	1	CalendarPeriod 3rd Stop	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.



2.8.6.4 Period 4

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	600Ah	1	CalendarPeriod 4th Start	UINT16	"Format: mmdd Value < 101: disabled mm = 12 dd = 26 Value = 1226"
	600Bh	1	CalendarPeriod 4th Stop	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7 Calendar period tariff slots configuration

2.8.7.1 Working days period 1

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6010h	1	CalendarPeriod 1st Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	6011h	1	CalendarPeriod 1st Slot1 Stop	UINT16	
	6012h	1	CalendarPeriod 1st Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	6013h	1	CalendarPeriod 1st Slot2 Start	UINT16	
	6014h	1	CalendarPeriod 1st Slot2 Stop	UINT16	
	6015h	1	CalendarPeriod 1st Slot2 Tariff	UINT16	
	6016h	1	CalendarPeriod 1st Slot3 Start	UINT16	
	6017h	1	CalendarPeriod 1st Slot3 Stop	UINT16	
	6018h	1	CalendarPeriod 1st Slot3 Tariff	UINT16	
	6019h	1	CalendarPeriod 1st Slot4 Start	UINT16	
	601Ah	1	CalendarPeriod 1st Slot4 Stop	UINT16	
	601Bh	1	CalendarPeriod 1st Slot4 Tariff	UINT16	
	601Ch	1	CalendarPeriod 1st Slot5 Start	UINT16	
	601Dh	1	CalendarPeriod 1st Slot5 Stop	UINT16	
	601Eh	1	CalendarPeriod 1st Slot5 Tariff	UINT16	
	601Fh	1	CalendarPeriod 1st Slot6 Start	UINT16	
	6020h	1	CalendarPeriod 1st Slot6 Stop	UINT16	
	6021h	1	CalendarPeriod 1st Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.2 Working days period 2

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6022h	1	CalendarPeriod 2nd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	6023h	1	CalendarPeriod 2nd Slot1 Stop	UINT16	
	6024h	1	CalendarPeriod 2nd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled
	6025h	1	CalendarPeriod 2nd Slot2 Start	UINT16	etc.
	6026h	1	CalendarPeriod 2nd Slot2 Stop	UINT16	
	6027h	1	CalendarPeriod 2nd Slot2 Tariff	UINT16	
	6028h	1	CalendarPeriod 2nd Slot3 Start	UINT16	
	6029h	1	CalendarPeriod 2nd Slot3 Stop	UINT16	
	602Ah	1	CalendarPeriod 2nd Slot3 Tariff	UINT16	
	602Bh	1	CalendarPeriod 2nd Slot4 Start	UINT16	
	602Ch	1	CalendarPeriod 2nd Slot4 Stop	UINT16	
	602Dh	1	CalendarPeriod 2nd Slot4 Tariff	UINT16	
	602Eh	1	CalendarPeriod 2nd Slot5 Start	UINT16	
	602Fh	1	CalendarPeriod 2nd Slot5 Stop	UINT16	
	6030h	1	CalendarPeriod 2nd Slot5 Tariff	UINT16	
	6031h	1	CalendarPeriod 2nd Slot6 Start	UINT16	
	6032h	1	CalendarPeriod 2nd Slot6 Stop	UINT16	
	6033h	1	CalendarPeriod 2nd Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.3 Working days period 3

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6034h	1	CalendarPeriod 3rd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	6035h	1	CalendarPeriod 3rd Slot1 Stop	UINT16	
	6036h	1	CalendarPeriod 3rd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled
	6037h	1	CalendarPeriod 3rd Slot2 Start	UINT16	etc.
	6038h	1	CalendarPeriod 3rd Slot2 Stop	UINT16	
	6039h	1	CalendarPeriod 3rd Slot2 Tariff	UINT16	
	603Ah	1	CalendarPeriod 3rd Slot3 Start	UINT16	
	603Bh	1	CalendarPeriod 3rd Slot3 Stop	UINT16	
	603Ch	1	CalendarPeriod 3rd Slot3 Tariff	UINT16	

	603Dh	1	CalendarPeriod 3rd Slot4 Start	UINT16	
	603Eh	1	CalendarPeriod 3rd Slot4 Stop	UINT16	
	603Fh	1	CalendarPeriod 3rd Slot4 Tariff	UINT16	
	6040h	1	CalendarPeriod 3rd Slot5 Start	UINT16	
	6041h	1	CalendarPeriod 3rd Slot5 Stop	UINT16	
	6042h	1	CalendarPeriod 3rd Slot5 Tariff	UINT16	
	6043h	1	CalendarPeriod 3rd Slot6 Start	UINT16	
	6044h	1	CalendarPeriod 3rd Slot6 Stop	UINT16	
	6045h	1	CalendarPeriod 3rd Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.4 Working days period 4

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6046h	1	CalendarPeriod 4th Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	6047h	1	CalendarPeriod 4th Slot1 Stop	UINT16	
	6048h	1	CalendarPeriod 4th Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled
	6049h	1	CalendarPeriod 4th Slot2 Start	UINT16	etc.
	604Ah	1	CalendarPeriod 4th Slot2 Stop	UINT16	
	604Bh	1	CalendarPeriod 4th Slot2 Tariff	UINT16	
	604Ch	1	CalendarPeriod 4th Slot3 Start	UINT16	
	604Dh	1	CalendarPeriod 4th Slot3 Stop	UINT16	
	604Eh	1	CalendarPeriod 4th Slot3 Tariff	UINT16	
	604Fh	1	CalendarPeriod 4th Slot4 Start	UINT16	
	6050h	1	CalendarPeriod 4th Slot4 Stop	UINT16	
	6051h	1	CalendarPeriod 4th Slot4 Tariff	UINT16	
	6052h	1	CalendarPeriod 4th Slot5 Start	UINT16	
	6053h	1	CalendarPeriod 4th Slot5 Stop	UINT16	
	6054h	1	CalendarPeriod 4th Slot5 Tariff	UINT16	
	6055h	1	CalendarPeriod 4th Slot6 Start	UINT16	
	6056h	1	CalendarPeriod 4th Slot6 Stop	UINT16	
	6057h	1	CalendarPeriod 4th Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.



2.8.7.5 Pre-festive days period 1

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	6058h	1	Pre-Festive 1st Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	6059h	1	Pre-Festive 1st Slot1 Stop	UINT16	
	605Ah	1	Pre-Festive 1st Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	605Bh	1	Pre-Festive 1st Slot2 Start	UINT16	
	605Ch	1	Pre-Festive 1st Slot2 Stop	UINT16	
	605Dh	1	Pre-Festive 1st Slot2 Tariff	UINT16	
	605Eh	1	Pre-Festive 1st Slot3 Start	UINT16	
	605Fh	1	Pre-Festive 1st Slot3 Stop	UINT16	
	6060h	1	Pre-Festive 1st Slot3 Tariff	UINT16	
	6061h	1	Pre-Festive 1st Slot4 Start	UINT16	
	6062h	1	Pre-Festive 1st Slot4 Stop	UINT16	
	6063h	1	Pre-Festive 1st Slot4 Tariff	UINT16	
	6064h	1	Pre-Festive 1st Slot5 Start	UINT16	
	6065h	1	Pre-Festive 1st Slot5 Stop	UINT16	
	6066h	1	Pre-Festive 1st Slot5 Tariff	UINT16	
	6067h	1	Pre-Festive 1st Slot6 Start	UINT16	
	6068h	1	Pre-Festive 1st Slot6 Stop	UINT16	
	6069h	1	Pre-Festive 1st Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.6 Pre-festive days period 2

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	606Ah	1	Pre-Festive 2nd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	606Bh	1	Pre-Festive 2nd Slot1 Stop	UINT16	
	606Ch	1	Pre-Festive 2nd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	606Dh	1	Pre-Festive 2nd Slot2 Start	UINT16	
	606Eh	1	Pre-Festive 2nd Slot2 Stop	UINT16	
	606Fh	1	Pre-Festive 2nd Slot2 Tariff	UINT16	
	6070h	1	Pre-Festive 2nd Slot3 Start	UINT16	

	6071h	1	Pre-Festive 2nd Slot3 Stop	UINT16	
	6072h	1	Pre-Festive 2nd Slot3 Tariff	UINT16	
	6073h	1	Pre-Festive 2nd Slot4 Start	UINT16	
	6074h	1	Pre-Festive 2nd Slot4 Stop	UINT16	
	6075h	1	Pre-Festive 2nd Slot4 Tariff	UINT16	
	6076h	1	Pre-Festive 2nd Slot5 Start	UINT16	
	6077h	1	Pre-Festive 2nd Slot5 Stop	UINT16	
	6078h	1	Pre-Festive 2nd Slot5 Tariff	UINT16	
	6079h	1	Pre-Festive 2nd Slot6 Start	UINT16	
	607Ah	1	Pre-Festive 2nd Slot6 Stop	UINT16	
	607Bh	1	Pre-Festive 2nd Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.7 Pre-festive days period 3

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	607Ch	1	Pre-Festive 3rd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	607Dh	1	Pre-Festive 3rd Slot1 Stop	UINT16	
	607Eh	1	Pre-Festive 3rd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	607Fh	1	Pre-Festive 3rd Slot2 Start	UINT16	
	6080h	1	Pre-Festive 3rd Slot2 Stop	UINT16	
	6081h	1	Pre-Festive 3rd Slot2 Tariff	UINT16	
	6082h	1	Pre-Festive 3rd Slot3 Start	UINT16	
	6083h	1	Pre-Festive 3rd Slot3 Stop	UINT16	
	6084h	1	Pre-Festive 3rd Slot3 Tariff	UINT16	
	6085h	1	Pre-Festive 3rd Slot4 Start	UINT16	
	6086h	1	Pre-Festive 3rd Slot4 Stop	UINT16	
	6087h	1	Pre-Festive 3rd Slot4 Tariff	UINT16	
	6088h	1	Pre-Festive 3rd Slot5 Start	UINT16	
	6089h	1	Pre-Festive 3rd Slot5 Stop	UINT16	
	608Ah	1	Pre-Festive 3rd Slot5 Tariff	UINT16	
	608Bh	1	Pre-Festive 3rd Slot6 Start	UINT16	
	608Ch	1	Pre-Festive 3rd Slot6 Stop	UINT16	

	608Dh	1	Pre-Festive 3rd Slot6 Tariff	UINT16	
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NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.8 Pre-festive days period 4

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	608Eh	1	Pre-Festive 4th Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	608Fh	1	Pre-Festive 4th Slot1 Stop	UINT16	
	6090h	1	Pre-Festive 4th Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled
	6091h	1	Pre-Festive 4th Slot2 Start	UINT16	etc.
	6092h	1	Pre-Festive 4th Slot2 Stop	UINT16	
	6093h	1	Pre-Festive 4th Slot2 Tariff	UINT16	
	6094h	1	Pre-Festive 4th Slot3 Start	UINT16	
	6095h	1	Pre-Festive 4th Slot3 Stop	UINT16	
	6096h	1	Pre-Festive 4th Slot3 Tariff	UINT16	
	6097h	1	Pre-Festive 4th Slot4 Start	UINT16	
	6098h	1	Pre-Festive 4th Slot4 Stop	UINT16	
	6099h	1	Pre-Festive 4th Slot4 Tariff	UINT16	
	609Ah	1	Pre-Festive 4th Slot5 Start	UINT16	
	609Bh	1	Pre-Festive 4th Slot5 Stop	UINT16	
	609Ch	1	Pre-Festive 4th Slot5 Tariff	UINT16	
	609Dh	1	Pre-Festive 4th Slot6 Start	UINT16	
	609Eh	1	Pre-Festive 4th Slot6 Stop	UINT16	
	609Fh	1	Pre-Festive 4th Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.9 Festive days period 1

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60A0h	1	Festive 1st Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	60A1h	1	Festive 1st Slot1 Stop	UINT16	
	60A2h	1	Festive 1st Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled
	60A3h	1	Festive 1st Slot2 Start	UINT16	etc.
	60A4h	1	Festive 1st Slot2 Stop	UINT16	

	60A5h	1	Festive 1st Slot2 Tariff	UINT16	
	60A6h	1	Festive 1st Slot3 Start	UINT16	
	60A7h	1	Festive 1st Slot3 Stop	UINT16	
	60A8h	1	Festive 1st Slot3 Tariff	UINT16	
	60A9h	1	Festive 1st Slot4 Start	UINT16	
	60AAh	1	Festive 1st Slot4 Stop	UINT16	
	60ABh	1	Festive 1st Slot4 Tariff	UINT16	
	60ACh	1	Festive 1st Slot5 Start	UINT16	
	60ADh	1	Festive 1st Slot5 Stop	UINT16	
	60AEh	1	Festive 1st Slot5 Tariff	UINT16	
	60AFh	1	Festive 1st Slot6 Start	UINT16	
	60B0h	1	Festive 1st Slot6 Stop	UINT16	
	60B1h	1	Festive 1st Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.10 Festive days period 2

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60B2h	1	Festive 2nd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	60B3h	1	Festive 2nd Slot1 Stop	UINT16	
	60B4h	1	Festive 2nd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	60B5h	1	Festive 2nd Slot2 Start	UINT16	
	60B6h	1	Festive 2nd Slot2 Stop	UINT16	
	60B7h	1	Festive 2nd Slot2 Tariff	UINT16	
	60B8h	1	Festive 2nd Slot3 Start	UINT16	
	60B9h	1	Festive 2nd Slot3 Stop	UINT16	
	60BAh	1	Festive 2nd Slot3 Tariff	UINT16	
	60BBh	1	Festive 2nd Slot4 Start	UINT16	
	60BCh	1	Festive 2nd Slot4 Stop	UINT16	
	60BDh	1	Festive 2nd Slot4 Tariff	UINT16	
	60BEh	1	Festive 2nd Slot5 Start	UINT16	
	60BFh	1	Festive 2nd Slot5 Stop	UINT16	
	60C0h	1	Festive 2nd Slot5 Tariff	UINT16	

	60C1h	1	Festive 2nd Slot6 Start	UINT16	
	60C2h	1	Festive 2nd Slot6 Stop	UINT16	
	60C3h	1	Festive 2nd Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.11 Festive days period 3

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60C4h	1	Festive 3rd Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	60C5h	1	Festive 3rd Slot1 Stop	UINT16	
	60C6h	1	Festive 3rd Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	60C7h	1	Festive 3rd Slot2 Start	UINT16	
	60C8h	1	Festive 3rd Slot2 Stop	UINT16	
	60C9h	1	Festive 3rd Slot2 Tariff	UINT16	
	60CAh	1	Festive 3rd Slot3 Start	UINT16	
	60CBh	1	Festive 3rd Slot3 Stop	UINT16	
	60CCh	1	Festive 3rd Slot3 Tariff	UINT16	
	60CDh	1	Festive 3rd Slot4 Start	UINT16	
	60CEh	1	Festive 3rd Slot4 Stop	UINT16	
	60CFh	1	Festive 3rd Slot4 Tariff	UINT16	
	60D0h	1	Festive 3rd Slot5 Start	UINT16	
	60D1h	1	Festive 3rd Slot5 Stop	UINT16	
	60D2h	1	Festive 3rd Slot5 Tariff	UINT16	
	60D3h	1	Festive 3rd Slot6 Start	UINT16	
	60D4h	1	Festive 3rd Slot6 Stop	UINT16	
	60D5h	1	Festive 3rd Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.7.12 Festive days period 4

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60D6h	1	Festive 4th Slot1 Start	UINT16	Format: hhmm (24h format) hh = 23 dd = 59 Value = 2359
	60D7h	1	Festive 4th Slot1 Stop	UINT16	

	60D8h	1	Festive 4th Slot1 Tariff	UINT16	Value=0: tariff 1; Value=1: tariff 2; Value=2: tariff 3; Value=3: tariff 4; Value=4: disabled etc.
	60D9h	1	Festive 4th Slot2 Start	UINT16	
	60DAh	1	Festive 4th Slot2 Stop	UINT16	
	60DBh	1	Festive 4th Slot2 Tariff	UINT16	
	60DCh	1	Festive 4th Slot3 Start	UINT16	
	60DDh	1	Festive 4th Slot3 Stop	UINT16	
	60DEh	1	Festive 4th Slot3 Tariff	UINT16	
	60DFh	1	Festive 4th Slot4 Start	UINT16	
	60E0h	1	Festive 4th Slot4 Stop	UINT16	
	60E1h	1	Festive 4th Slot4 Tariff	UINT16	
	60E2h	1	Festive 4th Slot5 Start	UINT16	
	60E3h	1	Festive 4th Slot5 Stop	UINT16	
	60E4h	1	Festive 4th Slot5 Tariff	UINT16	
	60E5h	1	Festive 4th Slot6 Start	UINT16	
	60E6h	1	Festive 4th Slot6 Stop	UINT16	
	60E7h	1	Festive 4th Slot6 Tariff	UINT16	

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.8 Holiday configuration

2.8.8.1 Start year

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60E8h	1	Holiday (Set Start Year)	UINT16	Value = 2000 - 2099 if Value = 2015 Scope Year:2015-2025 if Value = 2017 Scope Year:2017-2027

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.8.2 Read / write holiday

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60E9h	1	Holiday (Select Current Read Write Year)	UINT16	Value = 2000 - 2099 Value = Fixed Holiday Format: mmdd Value < 101: disabled
	60EAh	1	Holiday1 Start	UINT16	
	60EBh	1	Holiday1 Stop	UINT16	
	60ECh	1	Holiday2 Start	UINT16	

	60EDh	1	Holiday2 Stop	UINT16	
	60EEh	1	Holiday3 Start	UINT16	
	60EFh	1	Holiday3 Stop	UINT16	
	60F0h	1	Holiday4 Start	UINT16	
	60F1h	1	Holiday4 Stop	UINT16	
	60F2h	1	Holiday5 Start	UINT16	
	60F3h	1	Holiday5 Stop	UINT16	
	60F4h	1	Holiday6 Start	UINT16	
	60F5h	1	Holiday6 Stop	UINT16	
	60F6h	1	Holiday7 Start	UINT16	
	60F7h	1	Holiday7 Stop	UINT16	
	60F8h	1	Holiday8 Start	UINT16	
	60F9h	1	Holiday8 Stop	UINT16	
	60FAh	1	Holiday9 Start	UINT16	
	60FBh	1	Holiday9 Stop	UINT16	
	60FCh	1	Holiday10 Start	UINT16	
	60FDh	1	Holiday10 Stop	UINT16	
	60FEh	1	Pre-festive day before holiday enabling	UINT16	Bit value 1: the day before the holiday is pre-festive Bit value 0: the day before the holiday is not pre-festive Bit position (LSB concept) 0: Holiday 1 pre-festive enabling 1: Holiday 2 pre-festive enabling 2: Holiday 3 pre-festive enabling 3: Holiday 4 pre-festive enabling 4: Holiday 5 pre-festive enabling 5: Holiday 6 pre-festive enabling 6: Holiday 7 pre-festive enabling 7: Holiday 8 pre-festive enabling 8: Holiday 9 pre-festive enabling 9: Holiday 10 pre-festive enabling

NOTE: ALL THE PARAMETERS OF THE TABLE MUST BE WRITTEN, ONE BY ONE IN SEQUENCE, TO APPLY CHANGES.

2.8.9 Datalogger

	Physical address	Length (words)	VARIABLE	Data Format	Notes
	60FFh	1	Daily Total kWh+ and - OR Daily Tariff kWh	UINT16	Value = 0: Total Value = 1: Tariff Any other value: Total
	6100h	1	Select Current Read content	UINT16	Value = 0: Kwh+ or Tariff1 Value = 1: Kwh- or Tariff2 Value = 2: Tariff3 Value = 3: Tariff4 Value = 4: Time

6101h	2	EnergyCurve_01day	UINT32	
6103h	2	EnergyCurve_02day	UINT32	
6105h	2	EnergyCurve_03day	UINT32	
6107h	2	EnergyCurve_04day	UINT32	
6109h	2	EnergyCurve_05day	UINT32	
610Bh	2	EnergyCurve_06day	UINT32	
610Dh	2	EnergyCurve_07day	UINT32	
610Fh	2	EnergyCurve_08day	UINT32	
6111h	2	EnergyCurve_09day	UINT32	
6113h	2	EnergyCurve_10day	UINT32	
6115h	2	EnergyCurve_11day	UINT32	
6117h	2	EnergyCurve_12day	UINT32	
6119h	2	EnergyCurve_13day	UINT32	
611Bh	2	EnergyCurve_14day	UINT32	
611Dh	2	EnergyCurve_15day	UINT32	
611Fh	2	EnergyCurve_16day	UINT32	
6121h	2	EnergyCurve_17day	UINT32	
6123h	2	EnergyCurve_18day	UINT32	
6125h	2	EnergyCurve_19day	UINT32	
6127h	2	EnergyCurve_20day	UINT32	
6129h	2	EnergyCurve_21day	UINT32	
612Bh	2	EnergyCurve_22day	UINT32	
612Dh	2	EnergyCurve_23day	UINT32	
612Fh	2	EnergyCurve_24day	UINT32	
6131h	2	EnergyCurve_25day	UINT32	
6133h	2	EnergyCurve_26day	UINT32	
6135h	2	EnergyCurve_27day	UINT32	
6137h	2	EnergyCurve_28day	UINT32	
6139h	2	EnergyCurve_29day	UINT32	
613Bh	2	EnergyCurve_30day	UINT32	
613Dh	2	EnergyCurve_31day	UINT32	
613Fh	2	EnergyCurve_32day	UINT32	
6141h	2	EnergyCurve_33day	UINT32	

	6143h	2	EnergyCurve_34day	UINT32	
	6145h	2	EnergyCurve_35day	UINT32	
	6147h	2	EnergyCurve_36day	UINT32	
	6149h	2	EnergyCurve_37day	UINT32	
	614Bh	2	EnergyCurve_38day	UINT32	
	614Dh	2	EnergyCurve_39day	UINT32	
	614Fh	2	EnergyCurve_40day	UINT32	
	6151h	2	EnergyCurve_41day	UINT32	
	6153h	2	EnergyCurve_42day	UINT32	
	6155h	2	EnergyCurve_43day	UINT32	
	6157h	2	EnergyCurve_44day	UINT32	
	6159h	2	EnergyCurve_45day	UINT32	
	615Bh	2	EnergyCurve_46day	UINT32	
	615Dh	2	EnergyCurve_47day	UINT32	
	615Fh	2	EnergyCurve_48day	UINT32	
	6161h	2	EnergyCurve_49day	UINT32	
	6163h	2	EnergyCurve_50day	UINT32	
	6165h	2	EnergyCurve_51day	UINT32	
	6167h	2	EnergyCurve_52day	UINT32	
	6169h	2	EnergyCurve_53day	UINT32	
	616Bh	2	EnergyCurve_54day	UINT32	
	616Dh	2	EnergyCurve_55day	UINT32	
	616Fh	2	EnergyCurve_56day	UINT32	
	6171h	2	EnergyCurve_57day	UINT32	
	6173h	2	EnergyCurve_58day	UINT32	
	6175h	2	EnergyCurve_59day	UINT32	
	6177h	2	EnergyCurve_60day	UINT32	

Note

The default value shall be automatically assigned to the parameters when an out-of-range or invalid value is written.



The default value shall be automatically assigned to the parameters when an out-of-range or invalid value is written.