EMI3P-Y2R0

COMMUNICATION PROTOCOL

Version 1 Revision 0

May 07th, 2018

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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 EMI3P-Y2R0 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 "Modbus_Application_Protocol_V1_1a.pdf" document that is downloadable from the www.modbus.org web site.

1.2 MODBUS functions

These functions are available on EMI3P-Y2R0:

- 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 EMI3P-Y2R0 instruction manual)

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 61 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 10h (1 to 11)	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		

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 61 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 10h (1 to 11)	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		

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		

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.
EMI3P-Y2R0 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		

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

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 (master side, if not already embedded, by inserting a 150 Ohm 1/2W 5% resistor between line B and A) and at the end (by connecting the terminals B+ and T in the last instrument).
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 EMI3P-Y2R0 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 on the master 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.

MODBUS timing

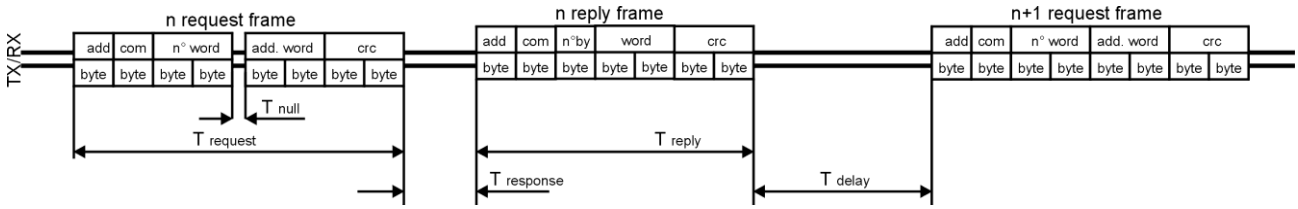


Fig. 1 : 2-wire timing diagram

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

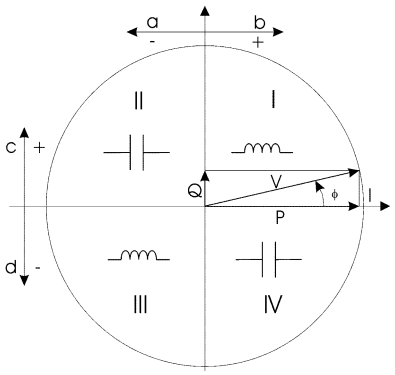
The variables are represented by integers or floating numbers, with 2's complement notation in case of "signed" format, using the following:

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	$-(1+[1-2^{-23}])x2^{127}$ .. 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.

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

2.2 Maximum and minimum electrical values

The maximum electrical input values are reported in electrical data sheet. The overflow indication "EEE" is displayed when the MSB value of the relevant variable is 7FFFh.

2.3 Instantaneous variables and meters (grouped by variable type)

MODBUS: read only mode with functions code 03 and 04 Table 2.3-1

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	W L1	INT32	Value weight: Watt*10
300021	0014h	2	W L2	INT32	
300023	0016h	2	W L3	INT32	
300025	0018h	2	VA L1	INT32	Value weight: VA*10
300027	001Ah	2	VA L2	INT32	
300029	001Ch	2	VA L3	INT32	
300031	001Eh	2	VAR L1	INT32	Value weight: Var*10
300033	0020h	2	VAR L2	INT32	
300035	0022h	2	VAR L3	INT32	
300037	0024h	2	V L-N ∑	INT32	Value weight: Volt*10
300039	0026h	2	V L-L ∑	INT32	
300041	0028h	2	W ∑	INT32	Value weight: Watt*10
300043	002Ah	2	VA ∑	INT32	Value weight: VA*10
300045	002Ch	2	VAR ∑	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 ∑	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
300053	0034h	2	kWh(+) TOT	INT32	Value weight: kWh*10
300055	0036h	2	kvarh(+) TOT	INT32	Value weight: kvarh*10
300079	004Eh	2	kWh(-) TOT	INT32	Value weight: kWh*10
300091	005Ah	2	Hour counter meter	INT32	Value weight: hours*100
300093	005Ch	2	Hour counter meter neg	INT32	Value weight: hours*100
300131	0082h	2	THD(16h) A L1	INT32	Value weight: %*100
300133	0084h	2	THD(16h) A L2	INT32	Value weight: %*100
300135	0086h	2	THD(16h) A L3	INT32	Value weight: %*100
300137	0088h	2	THD(16h) V L-N ∑	INT32	Not available, value =0*
300139	008Ah	2	THD(16h) V1-N	INT32	Value weight: %*100
300141	008Ch	2	THD(16h) V2-N	INT32	Value weight: %*100
300143	008Eh	2	THD(16h) V3-N	INT32	Value weight: %*100
300145	0090h	2	THD(16h) V L-L ∑	INT32	Not available, value =0*
300147	0092h	2	THD(16h) V12	INT32	Value weight: %*100
300149	0094h	2	THD(16h) V23	INT32	Value weight: %*100
300151	0096h	2	THD(16h) V31	INT32	Value weight: %*100
300153	0098h	2	Neutral current (In)	INT32	Value weight: Ampere*1000

*The System THD won't be calculated. The value in the respective address will be forced to "0"

Important note: The product (CT ratio)x(VT ratio) shall be automatically limited to prevent overflow of kW indication on the meter

2.4 Instantaneous variables and meters (grouped by phase)

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
System variables					
300247	00F6h	2	Hour counter meter neg	INT32	Value weight: hours*100
300249	00F8h	2	Neutral current (In)	INT32	Value weight: Ampere*1000
300255	00FEh	2	Hour counter meter	INT32	Value weight: hours*100
300257	0100h	2	n.a.	INT32	Not available, value =0
300259	0102h	2	V L-N ∑	INT32	Value weight: Volt*10
300261	0104h	2	V L-L ∑	INT32	Value weight: Volt*10
300263	0106h	2	W ∑	INT32	Value weight: Watt*10
300265	0108h	2	VA ∑	INT32	Value weight: VA*10
300267	010Ah	2	VAR ∑	INT32	Value weight: var*10
300269	010Ch	2	PF ∑	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
Total energies					
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
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	W L1	INT32	Value weight: Watt*10
300295	0126h	2	VA L1	INT32	Value weight: VA*10
300297	0128h	2	VAR 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	W L2	INT32	Value weight: Watt*10
300309	0134h	2	VA L2	INT32	Value weight: VA*10
300311	0136h	2	VAR 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	W L3	INT32	Value weight: Watt*10
300323	0142h	2	VA L3	INT32	Value weight: VA*10
300325	0144h	2	VAR L3	INT32	Value weight: var*10
300327	0146h	2	PF L3	INT32	Value weight: PF*1000
Other Phase 1 variables					
300385	0180h	2	THD(16h) A L1	INT32	Value weight: %*100
300387	0182h	2	THD(16h) V1-N	INT32	Value weight: %*100
300389	0184h	2	THD(16h) V12	INT32	Value weight: %*100
Other Phase 2 variables					
300403	0192h	2	THD(16h) A L2	INT32	Value weight: %*100
300405	0194h	2	THD(16h) V2-N	INT32	Value weight: %*100
300407	0196h	2	THD(16h) V23	INT32	Value weight: %*100
Other Phase 3 variables					
300421	01A4h	2	THD(16h) A L3	INT32	Value weight: %*100
300423	01A6h	2	THD(16h) V3-N	INT32	Value weight: %*100
300425	01A8h	2	THD(16h) V31	INT32	Value weight: %*100

Notes : Negative values correspond to exported active power, positive values correspond to imported active power.
If Measuring system parameter is configured for 1-phase or 2-phase systems, the values relevant to phase 2 and 3 can still be read with a valid value, equal to 0

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” Value=1: Version “B” ...
300772	0303h	1	Revision code	UINT 16	Value=0: Revision 0 Value=1: Revision 1 ...

2.6 Programming lock status

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
300773	0304h	1	Programming lock (trimmer position in the rear of the display)	UINT 16	Value=1: programming locked Value=0: programming unlocked

2.7 Eaton identification code

MODBUS: read only mode with functions code 03 and 04 limited to a word at a time Table 2.7-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
300012	000Bh	1	Identification code	UINT 16	Value=211: EMI3P-Y2R0

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2.8 Programming parameter tables

The values are update immediately.

Password configuration menu

MODBUS: read and write mode Table 2.8-1

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304097	1000h	1	PASSWORD	UINT 16	Minimum valid value: 0d Maximum valid value: 999d Default: 0d

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 Value=1: 3P Value=2: 2P Value=3: 1P Value=4: 3P1 Default: 3Pn

PT and CT configuration menu

MODBUS: read and write mode Table 2.8-3

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304100	1003h	2	Current transformer ratio	UINT 32	Value min = 10 (CT=10) Value max = 9999 (CT=9999) Default = 10 (CT=10)
304102	1005h	2	Voltage transformer ratio	UINT 32	Value min = 10 (VT=1.0) Value max = 9990 (VT=999.0) Default = 10 (VT=1.0)

Current Sensor

MODBUS: read and write mode

Table 2.8-4

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304104	1007h	1	Sensor selection	UINT 16	Value = 0: Ct Value = 1: Rogowski 100 mV
304105	1008h	1	Range Rogowski sensor	UINT 16	Value = 0: 1000 A Value = 1: 2000 A Value = 2: 4000 A

Wrong Connection enabling and status

Initial assumptions:

The check is based on some initial assumptions on the system to be measured. Specifically, it is assumed that each system phase is characterized by:

- a load with PF>0.766 (<40°) power factor if inductive or PF>0.996 (<5°) if capacitive.
- current at least equal to 10% rated current (primary current transformer).

MODBUS: read and write mode

Table 2.8-5

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
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 More bits can be 1. In any case a sequence of wiring modifications is needed until the wiring is correct (all bit=0)

THD Calculation enabling

MODBUS: read and write mode

Table 2.8-6

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304359	1106h	1	THD calculation enabling	UINT 16	Value min = 0 (OFF) Value max = 1 (ON) = DEFAULT Any other value = OFF

Start current for hours counting

MODBUS: read and write mode

Table 2.8-7

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304360	1107h	2	I_counth	INT32	Value weight: %*10 Value min = 2 Value max = 1000 Defult value = 2

Pulse output duration (T_{ON})

MODBUS: read and write mode

Table 2.8-8

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304115	1012h	1	Pulse output duration (T_{ON})	UINT 16	Value=0: 30ms Value=1: 100ms Default=0: 30ms

Pulse output configuration menu

MODBUS: read and write mode

Table 2.8-9

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304129	1020h	1	kWh per pulse	UINT 16	Value min = 1 (0.01kWh) Value max = 999 (9.99kWh) Default = 1 (0.01kWh)

Application menu

MODBUS: read and write mode

Table 2.8-10

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
304865	1300h	1	Type of application	UINT 16	Value=0: A Value=1: B Value=2: C (default) Value=3: D Value=4: E Value=5: F

Serial port configuration menu

MODBUS: read and write mode

Table 2.8-11

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
308193	2000h	1	RS485 instrument address	UINT 16	Value min = 1 Value max = 247
308194	2001h	1	RS485 baud rate	UINT 16	Value 0 = 9.6 kbps (default) Value 1 = 19.2 kbps Value 2 = 38.4 kbps Value 3 = 57.6 kbps Value 4 = 115.2 kbps Any other value = 9.6 kbps
308195	2002h	1	RS485 parity	UINT 16	Value 0 = no parity (default) Value 1 = even parity Any other value = no parity
308196	2003h	1	RS485 Stop bit	UINT 16	Value 0 = 1 stop bit (default) Value 1 = 2 stop bit Any other value = 1 stop bit

NOTE: The values are update in real time

Reset commands

MODBUS: read and write mode

Table 2.8-12

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
316385	4000h	1	Reset of all meters (kWhTOT, kvarhTOT, positive HoursCounter, negative HoursCounter)	UINT 16	Value=1: Command is executed Value=0: Command is running All other values produce no effects

Serial number

MODBUS: read only mode

Table 2.8-13

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
320481	5000h	1	Letter 1 (from SX) Letter 2 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320482	5001h	1	Letter 3 (from SX) Letter 4 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320483	5002h	1	Letter 5 (from SX) Letter 6 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320484	5003h	1	Letter 7 (from SX) Letter 8 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320485	5004h	1	Letter 9 (from SX) Letter 10 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320486	5005h	1	Letter 11 (from SX) Letter 12 (from SX)	UINT 16	MSB: ASCII code LSB: ASCII code
320487	5006h	1	Letter 13 (from SX)	UINT 16	MSB: ASCII code

Production year

MODBUS: read only mode

Table 2.8-14

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
320488	5007h	1	Instrument production year	UINT 16	

Secondary address

MODBUS: read only mode

Table 2.8-15

Modicom address	Physical address	Length (words)	VARIABLE ENG. UNIT	Data Format	Notes
320737	5100h	2	Instrument secondary address	UINT 32	**5100h:LSW** **5101h:MSW**

Note.

A default value is automatically assigned to the parameters when an out-of-range or invalid value is written.
The default value is the minimum valid value.

3 Revisions

Version 1 Revision 0

- First document issue.