



R5 R8 R14 POWER FACTOR CONTROLLER

MODBUS-RTU PROTOCOL MANUAL



REVISIONs

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1. Communication frame in RTU mode (Remote Terminal Unit)

A MODBUS frame is composed of:

T1 T2 T3	Address (8 bit)	Function (8 bit)	Data (N x 8 bit)	CRC (16 bit)	T1 T2 T3
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in which:

- the Address field contains the address of the Slave to which the message is sent
- the Function field contains the code of the function that must be carried out by the Slave
- the Data field contains the information needed by the Slave to carry out a specific function or contains data collected from the Slave in response to a question
- the CRC field allows both the Master and the Slave to check a message in order to detect any errors in transmission. Sometimes, due to electrical “noise” or other interference, a message may be changed during the transmission from one unit to another. The error check ensures that neither the Master nor the Slave react to messages that have been haltered
- the T1 T2 T3 sequence represents the time that separates one frame from another, and corresponds to at least 3 and a half characters: during this period no one is allowed to talk on the bus, to let the instruments detect that a frame is over and another one is starting

In RTU mode, the synchronisation of the frame can be maintained only by simulating a synchronous message. The receiving device, a R5 for example, measures the time that separates the reception of one character and the reception of the subsequent one (for example, between address and function). If this time is longer than the time needed to transmit three and a half characters, then the message is considered lost and the next character arriving is considered to be an address, in other words the beginning of a new frame.

2. Activation of Modbus protocol and available functions

For R8 and R14 models is necessary enter the setup menu and set “Prot MODBUS” in the “Protocol” page of the Communication’s menu. For R5 it is necessary enter the setup and set “Prt” = “Mod”.

The available MODBUS functions are reported in the following table:

Modbus functions	Action performed in the PFC
------------------	-----------------------------

01 = READ OUTPUT STATUS	Read data relative to the output status
03 = READ HOLDING REGISTERS	Reads data relative to the Measurements and the Setup
06 = PRESET SINGLE REGISTER	Sets Setup parameters
16 = PRESET MULTIPLE REGISTER	Sets Setup parameters
17 = REPORT SLAVE I.D.	Reads the identification of the instrument type

IMPORTANT NOTE REGARDING FUNCTIONS 3 AND 6 DESCRIBED BELOW:

Whenever the user employs commercial programs for reading the data from the Slaves, and these programs are already designed for handling the MODBUS protocol, it is necessary to use the addresses of the storage locations indicated in the first left-hand column of the tables relative to functions 3 and 6 illustrated below.

Instead, whenever the user writes his own program to read the data it is necessary to decrease by one the addresses reported.

For example: the Master wishes to read from slave with address 3 the value of the three-phase equivalent current, available at memory address 18 (= 12Hex).

The communication frame of the Master to the Slave, with hexadecimal values, will be the following:

03	03	00	11	00	02	95	EC
----	----	----	----	----	----	----	----

ove:

- 03 = PFC address (Slave) n° 03
- 03 = function requested by the Master, in this case measure reading request
- 00 11 = address, reduced by one unit (12H - 1H = 11H), of the storage location to be read and containing the value of the three-phase equivalent current
- 00 02 = number of registers to be read beginning with address 11H
- 95 EC = CRC

The Slave response frame to the Master in hexadecimal values will be the following:

03	03	04	00	00	01	E0	D9	EB
----	----	----	----	----	----	----	----	----

in which:

- 03 = PFC address (Slave) no. 03
- 03 = function requested by the Master, in this case measure reading request
- 04 = number of data bytes following in the frame
- 00 00 01 E0 = hex value of the three-phase equivalent current (01E0H = 480 hundredths of A = 4.8A)
- D9 EB = CRC

2.1 Function 01: “READ OUTPUT STATUS”

This function is used to read the status of the R5 ed R8 output; he output is treated like a coil, following MODBUS standard.

The request and answer frame are described below:

Read request (master):

Addr	Func	Coil Addr Start H	Coil Addr Start L	Number of Coils H	Number of Coils L	CRC	CRC
1Fh	01h	00h	00h	00h	10h	3Eh	78h

In the example above the “read output function” **Func = 01** is sent to the slave with address **Addr = 1Fh**, starting from register **Coil Addr Start = 0000h** (compulsory) for **Number of coils = 10h** (compulsory) adjacent coils. The frame is closed with **CRC=3E78h**.

Reply (slave):

Addr	Func	Byte Count	Data Coil Byte 1H	Data Coil Byte 0H	CRC	CRC
1Fh	01h	02h	00h	00h	11h	FEh

The answer fields, as described above, are the slave address **Addr = 1Fh**, the function executed **Func = 01**, the number of data bytes following **Byte Count = 02h**, the coil value **0000h**.

For R5, bit 0, bit 1, bit 2, bit 3 and bit 4 are respectively associated with relay output 1, relay output 2, relay output 3, relay output 4 and relay output 5.

For R8, bit 0, bit 1, bit 2, bit 3, bit 4, bit 5, bit 6, bit 7, bit 9 and bit 10 are respectively associated with relay output 1, relay output 2, relay output 3, relay output 4, relay output 5, relay output 6, relay output 7, relay output 8, relay output 9, relay output 10 and relay output 11.

This function is used to read the status of the R14 output; the output is treated like a coil, following MODBUS standard.

The request and answer frame are described below:

Read request (master):

Addr	Func	Coil Addr Start H	Coil Addr Start L	Number of Coils H	Number of Coils L	CRC	CRC
1Fh	01h	00h	00h	00h	20h	3Eh	6Ch

In the example above the “read output function” **Func = 01** is sent to the slave with address **Addr = 1Fh**, starting from register **Coil Addr Start = 0000h** (compulsory) for **Number of coils = 20h** (compulsory) adjacent coils. The frame is closed with **CRC=3E6Ch**.

Replay (slave):

Addr	Func	Byte Count	Data Coil Byte 3H	Data Coil Byte 2H	Data Coil Byte 1H	Data Coil Byte 0H	CRC	CRC
1Fh	01h	04h	00h	00h	00h	00h	05h	D0h

The answer fields, as described above, are the slave address **Addr = 1Fh**, the function executed **Func = 01**, the number of data bytes following **Byte Count = 04h**, the coil value **00000000h**.

For R14 models the correspondence bit-coil value is described below:

bit 0	output 1
bit 1	output 2
bit 2	output 3
bit 3	output 4
bit 4	output 5
bit 5	output 6
bit 6	output 7
bit 7	output 8
bit 8	output 9
bit 9	output 10
bit 10	output 11
bit 11	output 12
bit 12	output 13
bit 13	output 14
bit 14	output 15
bit 15	output 16
bit 16	output 17
bit 17	output 18
bit 18	output 19
bit 19	output 20
bit 20	output 21
bit 21	output 22
bit 22	output 23
bit 23	output 24
bit 24	output 25
bit 25	output 26
bit 26	output 27
bit 27	output 28
bit 28	output 29

2.2 Function 03 : “READ HOLDING REGISTERS”

This function reads one or more memory adjacent locations, each one being 1 or 2-word sized. It is possible to read up to 24 consecutive measures.

Below are described the read request format (from master to slave) and the reply format (from slave to master).

Read request (master):

Addr	Func	Data Start Register H	Data Start Register L	Data # of Regs H	Data # Regs L	CRC	CRC
1Fh	03h	00h	11h	00h	08h	17h	B7h

In the example above, the master sends the ‘read function’ **Func = 03** to the slave with address **Addr = 1Fh**, starting from base register address **Data Start Register = 0011h** for **Data Regs = 08h** consecutive registers. So the command reads all registers from address **0011h** to **0018h**. The **CRC = 17B7h** closes the data stream.

(Note: the physical address is always obtained from measure address reduced of 1 unit, see note above).

Replay (slave)

Addr	Func	Byte Count	Data Out Reg 0012 H	Data Out Reg 0012 L	Data Out Reg 0018H	Data Out Reg 0018L	CRC	CRC
1Fh	03h	10h	10h	EFh	3Bh	40h	xxh	yyh

The table above shows the fields in the PFC reply, which are :

- Addressed Slave Addr = 1Fh
- Function code request Func = 03
- Number of data byte following Byte Count = 10h
- Data byte fields requested by the master
- CRC closes the reply data streamLa trama di risposta termina sempre con il CRC.

There are three particular cases that can happen using this command; the first is related to the quantity of requested memory, the second is related to the beginning of the requested segment and the last is related to the quantity of the requested words.

In particular, if the quantity of the requested bytes is greater than the slave's memory extension, the instrument will answer an "INVALID DATA" for the not available values; for example, if are requested 20 bytes from the last fourth valid address, a part of the request overflows in the not available memory. The exceeded bytes will be filled by the slave with the value FFh1, indicating a not managed value for those memory cells.

The second particular case is related to a request starting from a not valid address, when the request starts from an address not present in the following table. In this case the instrument will answer with an exception "02 ILLEGAL DATA ADDRESS" (see chapter 3).

The last particular case is the request of a number of word greater than the maximum for the instrument: in this case the instrument will answer with an exception "02 ILLEGAL DATA address" (see chapter 3).

Memory map

The table in **Annex A** indicates the correspondence between the address of the location, the number of accessible words beginning with that address, the description of the measurement value, the unit of measurement of the measurement value and the binary format.

Formats of the variables passed:

- **Unsigned Long**: means a binary number of 2 words (32 bits) unsigned
- **Bit Signed Long**: means a binary number of 2 words (32 bits) if not, the MSB is set to 1.
For example: 8000 0007h = -7.
- **Signed Int**: means a binary 2's-complement number
- **Unsigned Int**: is a binary number of 1-word (16-bit) unsigned
- **Float**: is a floating point (32-bit)

2.3 Function 06 : “PRESET SINGLE REGISTER”

This function lets the user set the Setup parameters of the instrument. Below are described the write request format (from master to slave) and the reply format (from slave to master).

Write request (master):

Addr	Func	Register H	Register L	Data H	Data L	CRC	CRC
------	------	------------	------------	--------	--------	-----	-----

Example

Addr	Func	Register H	Register L	Data H	Data L	CRC	CRC
1Fh	06h	00h	05h	00h	0Fh	DAh	71h

In this example is set the *Average period*, address 6 (0006h), with the value 15 (000Fh). (Note: the physical address is always obtained from measure address reduced of 1 unit, see note above).

The table in **Annex B** indicates the correspondence between the address of the location, the number words, the description of the measurement value, the minimum and maximum value, the unit of measurement of the measurement value and the binary format.

2.4 Function 16 : “PRESET MULTIPLE REGISTER”

This function is available only for R14 models. It can be used to write only 2 register. Below are described the write request format (from master to slave) and the reply format (from slave to master).

Write request (master):

Addr	Func	Reg. H	Reg. L	N Reg. H	N Reg. L	N bytes	Data 4	Data 3	Data 1	Data 0	CRC	CRC
------	------	--------	--------	----------	----------	---------	--------	--------	--------	--------	-----	-----

Example

Addr	Func	Reg. H	Reg. L	N Reg. H	N Reg. L	N bytes	Data 4	Data 3	Data 1	Data 0	CRC	CRC
1Fh	10h	08h	69h	00h	02h	04h	41h	20h	00h	00h	27h	F3h

In this example is set the *Analog input1 min*, address 2154 (086Ah) and value 10 in floating point format (41200000h).). (Note: the physical address is always obtained from measure address reduced of 1 unit, see note above).

The table below indicates the correspondence between the address of the location, the number words, the description of the measurement value, the minimum and maximum value, the unit of measurement of the measurement value and the binary format.

Addr.	N° Word	Description	Min.	Max.	Format
2154	2	Analog input 1 minimum	-10000,0	10000,0	Float
2156	2	Analog input 1 maximum	-10000,0	10000,0	Float

2.5 Function 17: “REPORT SLAVE ID”

This function makes it possible to read the instrument identifier for R5, R8 and R14 models.

Read request (master):

Addr	Func	CRC	CRC
02h	11h	C0h	DCh

Replay (slave):

Addr	Func	Len	Inst. Type (MSB)	Inst. Type (LSB)	Fw rel. (MSB)	Fw rel. (LSB)	CRC	CRC
02h	11h	04h	01h	55h	00h	33h	9Bh	B8h

The answer contains address and function, the number of data bytes **Len = 04h**, the analyser description **Inst. type = 0155h**, and the firmware version Fw rel. = 0033h (51): this value must be divided by 100 (V0.51). CRC **9BB8h** ends the frame.

Inst. type	PFC controller model
101	R5 485
141	R8 485
145	R8 485 USB
146	R8 485 BT
301	R5 485 RADIO
341	R8 485 RADIO
345	R8 485 USB RADIO
346	R8 485 BT RADIO
801	R14 485
805	R14 485 BT
809	R14 485 29R
817	R14 485 AI

3. Exceptions on the Bus

Below is a table of the exceptions handled for errors regarding access to the bus.

Eccezione	Descrizione
01 ILLEGAL FUNCTION	An unsupported function code has been sent
02 ILLEGAL DATA ADDRESS	Illegal address
03 ILLEGAL DATA VALUE	A setup datum is outside of the acceptable limits

4. CRC algorithm

The CRC used in MODBUS follows the standard CRC-16 defined by CCITT. Many algorithms are ready off-the-shelf, below one is reported, written in C, which uses a look-up table.

```

/*CRC-16 (reverse) table lookup for Modbus CRC-16
*   Project: Modbus
*   Author: Lynn August Linse, based on method used by XMODEM
*16Feb94 LAL Create from book about XMODEM */
word crc16_rev_table[256] =
{0x0000, 0xC0C1, 0xC181, 0x0140, 0xC301, 0x03C0, 0x0280, 0xC241,
  0xC601, 0x06C0, 0x0780, 0xC741, 0x0500, 0xC5C1, 0xC481, 0x0440,
  0xCC01, 0x0CC0, 0x0D80, 0xCD41, 0x0F00, 0xCF41, 0xCE81, 0x0E40,
  0x0A00, 0xCAC1, 0xCB81, 0x0B40, 0xC901, 0x09C0, 0x0880, 0xC841,
  0xD801, 0x18C0, 0x1980, 0xD941, 0x1B00, 0xDB41, 0xDA81, 0x1A40,
  0x1E00, 0xDE41, 0xDF81, 0x1F40, 0xDD01, 0x1DC0, 0x1C80, 0xDC41,
  0x1400, 0xD441, 0xD581, 0x1540, 0xD701, 0x17C0, 0x1680, 0xD641,
  0xD201, 0x12C0, 0x1380, 0xD341, 0x1100, 0xD141, 0xD081, 0x1040,
  0xF001, 0x30C0, 0x3180, 0xF141, 0x3300, 0xF341, 0xF281, 0x3240,
  0x3600, 0xF641, 0xF781, 0x3740, 0xF501, 0x35C0, 0x3480, 0xF441,
  0x3C00, 0xFCC1, 0xFD81, 0x3D40, 0xFF01, 0x3FC0, 0x3E80, 0xFE41,
  0xFA01, 0x3AC0, 0x3B80, 0xFB41, 0x3900, 0xF941, 0xF881, 0x3840,
  0x2800, 0xE841, 0xE981, 0x2940, 0xEB01, 0x2BC0, 0x2A80, 0xEA41,
  0xEE01, 0x2EC0, 0x2F80, 0xEF41, 0x2D00, 0xED41, 0xEC81, 0x2C40,
  0xE401, 0x24C0, 0x2580, 0xE541, 0x2700, 0xE741, 0xE681, 0x2640,
  0x2200, 0xE241, 0xE381, 0x2340, 0xE101, 0x21C0, 0x2080, 0xE041,
  0xA001, 0x60C0, 0x6180, 0xA141, 0x6300, 0xA341, 0xA281, 0x6240,
  0x6600, 0xA641, 0xA781, 0x6740, 0xA501, 0x65C0, 0x6480, 0xA441,
  0x6C00, 0xAAC1, 0xAD81, 0x6D40, 0xAF01, 0x6FC0, 0x6E80, 0xAE41,
  0xAA01, 0x6AC0, 0x6B80, 0xAB41, 0x6900, 0xA941, 0xA881, 0x6840,
  0x7800, 0xB841, 0xB981, 0x7940, 0xBB01, 0x7BC0, 0x7A80, 0xBA41,
  0xBE01, 0x7EC0, 0x7F80, 0xBF41, 0x7D00, 0xBDC1, 0xBC81, 0x7C40,
  0xB401, 0x74C0, 0x7580, 0xB541, 0x7700, 0xB741, 0xB681, 0x7640,
  0x7200, 0xB241, 0xB381, 0x7340, 0xB101, 0x71C0, 0x7080, 0xB041,
  0x5000, 0x90C1, 0x9181, 0x5140, 0x9301, 0x53C0, 0x5280, 0x9241,
  0x9601, 0x56C0, 0x5780, 0x9741, 0x5500, 0x95C1, 0x9481, 0x5440,
  0x9C01, 0x5CC0, 0x5D80, 0x9D41, 0x5F00, 0x9FC1, 0x9E81, 0x5E40,
  0x5A00, 0x9AC1, 0x9B81, 0x5B40, 0x9901, 0x99C0, 0x5880, 0x9841,
  0x8801, 0x48C0, 0x4980, 0x8941, 0x4B00, 0x8BC1, 0x8A81, 0x4A40,
  0x4E00, 0x8EC1, 0x8F81, 0x4F40, 0x8D01, 0x4DC0, 0x4C80, 0x8C41,
  0x4400, 0x84C1, 0x8581, 0x4540, 0x8701, 0x47C0, 0x4680, 0x8641,
  0x8201, 0x42C0, 0x4380, 0x8341, 0x4100, 0x81C1, 0x8081, 0x4040};
unsigned fast_crc16( unsigned char *ucpBuf, int nSize){
  register word x; register word crc; int i;
  crc = 0xFFFF; /* start with all 1's for a reverse CRC */
  for( i = 0; i < nSize; ++i) {
    /* process each character in the message - 2 steps per char only! */ x = crc ^
ucpBuf[i];
    crc = (crc >> 8) ^ crc16_rev_table[x & 0x00FF];
  }
  return( crc);
}

```



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READ HOLDING REGISTER FUNCTION (0x03h)

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
2	2	Frequency		Tenths of Hz	Unsigned Long	x	x	x
4	2	Three-phase Equivalent Voltage		V	Unsigned Long	x	x	x
18	2	Three-phase Equivalent Current		Hundredths of A	Unsigned Long	x	x	x
26	2	Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
34	2	Three-phase equivalent active power		W	Bit-Signed Long	x	x	x
36	2	Average three-phase equivalent active power		W	Bit-Signed Long	x	x	x
38	2	Maximum three-phase equivalent active power		W	Bit-Signed Long	x	x	x
58	2	Three-phase equivalent apparent power		VA	Unsigned Long	x	x	x
60	2	Average three-phase equivalent apparent power		VA	Unsigned Long	x	x	x
62	2	Maximum three-phase equivalent apparent power		VA	Unsigned Long	x	x	x
82	2	Three-phase equivalent reactive power		VAR	Bit-Signed Long	x	x	x
84	2	Average three-phase equivalent reactive power		VAR	Bit-Signed Long	x	x	x
86	2	Maximum three-phase equivalent reactive power		VAR	Bit-Signed Long	x	x	x
122	2	Maximum average three-phase active power		W	Bit-Signed Long	x	x	x
142	2	Maximum average three-phase Apparent Power		VA	Unsigned Long	x	x	x
150	2	VT transformation ratio		Unit	Unsigned Long	x	x	x
152	2	CT transformation ratio		Unit	Unsigned Long	x	x	x
154	2	Time of Average		Minute	Unsigned Long	x	x	x
212	2	Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
218	2	Total Harmonic Distortion (THDV1) voltage line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
224	2	Maximum frequency		Tenths of Hz	Unsigned Long	x	x	x
226	2	Minimum frequency		Tenths of Hz	Unsigned Long	x	x	x
228	2	Maximum Three-phase Equivalent Current		Hundredths of A	Unsigned Long	x	x	x
230	2	Minimum Three-phase Equivalent Current		Hundredths of A	Unsigned Long	x	x	x
232	2	Average Three-phase Equivalent Current		Hundredths of A	Unsigned Long	x	x	x
234	2	Maximum Average Three-phase Equivalent Current		Hundredths of A	Unsigned Long	x	x	x
264	2	Maximum Three-phase Equivalent Voltage		V	Unsigned Long	x	x	x
266	2	Minimum Three-phase Equivalent Voltage		V	Unsigned Long	x	x	x
292	2	Minimum Three-phase equivalent apparent power		VA	Unsigned Long	x	x	x
300	2	Minimum Three-phase equivalent active power		W	Bit-Signed Long	x	x	x
308	2	Minimum Three-phase equivalent reactive power		VAR	Bit-Signed Long	x	x	x
310	2	Maximum average three-phase reactive power		VAR	Bit-Signed Long	x	x	x
324	2	Maximum Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
326	2	Minimum Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
328	2	Average Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
330	2	Daily Average Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
332	2	Weekly Average Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	
334	2	Monthly Average Three-phase equivalent power factor	(*)	Hundredths	Bit-Signed Long	x	x	x
354	2	Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
356	2	Maximum Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
358	2	Minimum Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
360	2	Average Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
362	2	Daily Average Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
364	2	Weekly Average Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	
366	2	Monthly Average Three-phase equivalent Cosphi	(*)	Hundredths	Bit-Signed Long	x	x	x
392	2	Delta-KVAR		VAR	Bit-Signed Long	x	x	x
394	2	Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
396	2	Total Harmonic Distortion (THDV1) voltage line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
398	2	Temperature		Tens of °C	Bit-Signed Long	x	x	x
400	2	Maximum temperature		Tens of °C	Bit-Signed Long	x	x	x
402	2	Minimum temperature		Tens of °C	Bit-Signed Long	x	x	x
404	2	Maximum Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
406	2	Maximum Total Harmonic Distortion (THDV1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
410	2	Number of insertion C1		Unit	Unsigned Long	x	x	x
412	2	Number of insertion C2		Unit	Unsigned Long	x	x	x
414	2	Number of insertion C3		Unit	Unsigned Long	x	x	x
416	2	Number of insertion C4		Unit	Unsigned Long	x	x	x
418	2	Number of insertion C5		Unit	Unsigned Long	x	x	x
420	2	Number of insertion C6		Unit	Unsigned Long		x	x
422	2	Number of insertion C7		Unit	Unsigned Long		x	x
424	2	Number of insertion C8		Unit	Unsigned Long		x	x
426	2	Number of insertion C9		Unit	Unsigned Long		x	x
428	2	Number of insertion C10		Unit	Unsigned Long		x	x
430	2	Number of insertion C11		Unit	Unsigned Long		x	x
432	2	Number of insertion C12		Unit	Unsigned Long			x
434	2	Number of insertion C13		Unit	Unsigned Long			x
436	2	Number of insertion C14		Unit	Unsigned Long			x
438	2	Number of insertion C15		Unit	Unsigned Long			x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
440	2	Number of insertion C16		Unit	Unsigned Long			x
442	2	Number of insertion C17		Unit	Unsigned Long			x
444	2	Number of insertion C18		Unit	Unsigned Long			x
446	2	Number of insertion C19		Unit	Unsigned Long			x
448	2	Number of insertion C20		Unit	Unsigned Long			x
450	2	Number of insertion C21		Unit	Unsigned Long			x
452	2	Number of insertion C22		Unit	Unsigned Long			x
454	2	Number of insertion C23		Unit	Unsigned Long			x
456	2	Number of insertion C24		Unit	Unsigned Long			x
458	2	Number of insertion C25		Unit	Unsigned Long			x
460	2	Number of insertion C26		Unit	Unsigned Long			x
462	2	Number of insertion C27		Unit	Unsigned Long			x
464	2	Number of insertion C28		Unit	Unsigned Long			x
466	2	Number of insertion C29		Unit	Unsigned Long			x
470	2	Contact operation C1		Unit	Unsigned Long	x	x	x
472	2	Contact operation C2		Unit	Unsigned Long	x	x	x
474	2	Contact operation C3		Unit	Unsigned Long	x	x	x
476	2	Contact operation C4		Unit	Unsigned Long	x	x	x
478	2	Contact operation C5		Unit	Unsigned Long	x	x	x
480	2	Contact operation C6		Unit	Unsigned Long		x	x
482	2	Contact operation C7		Unit	Unsigned Long		x	x
484	2	Contact operation C8		Unit	Unsigned Long		x	x
486	2	Contact operation C9		Unit	Unsigned Long		x	x
488	2	Contact operation C10		Unit	Unsigned Long		x	x
490	2	Contact operation C11		Unit	Unsigned Long		x	x
492	2	Contact operation C12		Unit	Unsigned Long			x
494	2	Contact operation C13		Unit	Unsigned Long			x
496	2	Contact operation C14		Unit	Unsigned Long			x
498	2	Contact operation C15		Unit	Unsigned Long			x
500	2	Contact operation C16		Unit	Unsigned Long			x
502	2	Contact operation C17		Unit	Unsigned Long			x
504	2	Contact operation C18		Unit	Unsigned Long			x
506	2	Contact operation C19		Unit	Unsigned Long			x
508	2	Contact operation C20		Unit	Unsigned Long			x
510	2	Contact operation C21		Unit	Unsigned Long			x
512	2	Contact operation C22		Unit	Unsigned Long			x
514	2	Contact operation C23		Unit	Unsigned Long			x
516	2	Contact operation C24		Unit	Unsigned Long			x
518	2	Contact operation C25		Unit	Unsigned Long			x
520	2	Contact operation C26		Unit	Unsigned Long			x
522	2	Contact operation C27		Unit	Unsigned Long			x
524	2	Contact operation C28		Unit	Unsigned Long			x
526	2	Contact operation C29		Unit	Unsigned Long			x
530	2	Real power step C1		VAR	Unsigned Long	x	x	x
532	2	Real power step C2		VAR	Unsigned Long	x	x	x
534	2	Real power step C3		VAR	Unsigned Long	x	x	x
536	2	Real power step C4		VAR	Unsigned Long	x	x	x
538	2	Real power step C5		VAR	Unsigned Long	x	x	x
540	2	Real power step C6		VAR	Unsigned Long		x	x
542	2	Real power step C7		VAR	Unsigned Long		x	x
544	2	Real power step C8		VAR	Unsigned Long		x	x
546	2	Real power step C9		VAR	Unsigned Long		x	x
548	2	Real power step C10		VAR	Unsigned Long		x	x
550	2	Real power step C11		VAR	Unsigned Long		x	x
552	2	Real power step C12		VAR	Unsigned Long			x
554	2	Real power step C13		VAR	Unsigned Long			x
556	2	Real power step C14		VAR	Unsigned Long			x
558	2	Real power step C15		VAR	Unsigned Long			x
560	2	Real power step C16		VAR	Unsigned Long			x
562	2	Real power step C17		VAR	Unsigned Long			x
564	2	Real power step C18		VAR	Unsigned Long			x
566	2	Real power step C19		VAR	Unsigned Long			x
568	2	Real power step C20		VAR	Unsigned Long			x
570	2	Real power step C21		VAR	Unsigned Long			x
572	2	Real power step C22		VAR	Unsigned Long			x
574	2	Real power step C23		VAR	Unsigned Long			x
576	2	Real power step C24		VAR	Unsigned Long			x
578	2	Real power step C25		VAR	Unsigned Long			x
580	2	Real power step C26		VAR	Unsigned Long			x
582	2	Real power step C27		VAR	Unsigned Long			x
584	2	Real power step C28		VAR	Unsigned Long			x
586	2	Real power step C29		VAR	Unsigned Long			x
590	2	Working time C1		hours	Unsigned Long	x	x	x
592	2	Working time C2		hours	Unsigned Long	x	x	x
594	2	Working time C3		hours	Unsigned Long	x	x	x
596	2	Working time C4		hours	Unsigned Long	x	x	x
598	2	Working time C5		hours	Unsigned Long	x	x	x
600	2	Working time C6		hours	Unsigned Long		x	x
602	2	Working time C7		hours	Unsigned Long		x	x
604	2	Working time C8		hours	Unsigned Long		x	x
606	2	Working time C9		hours	Unsigned Long		x	x
608	2	Working time C10		hours	Unsigned Long		x	x
610	2	Working time C11		hours	Unsigned Long		x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
612	2	Working time C12		hours	Unsigned Long			x
614	2	Working time C13		hours	Unsigned Long			x
616	2	Working time C14		hours	Unsigned Long			x
618	2	Working time C15		hours	Unsigned Long			x
620	2	Working time C16		hours	Unsigned Long			x
622	2	Working time C17		hours	Unsigned Long			x
624	2	Working time C18		hours	Unsigned Long			x
626	2	Working time C19		hours	Unsigned Long			x
628	2	Working time C20		hours	Unsigned Long			x
630	2	Working time C21		hours	Unsigned Long			x
632	2	Working time C22		hours	Unsigned Long			x
634	2	Working time C23		hours	Unsigned Long			x
636	2	Working time C24		hours	Unsigned Long			x
638	2	Working time C25		hours	Unsigned Long			x
640	2	Working time C26		hours	Unsigned Long			x
642	2	Working time C27		hours	Unsigned Long			x
644	2	Working time C28		hours	Unsigned Long			x
646	2	Working time C29		hours	Unsigned Long			x
650	2	High voltage alarm number		Unit	Unsigned Long	x	x	x
652	2	High current alarm number		Unit	Unsigned Long	x	x	x
654	2	Low voltage alarm number		Unit	Unsigned Long	x	x	x
656	2	Low current alarm number		Unit	Unsigned Long	x	x	x
658	2	THDI% alarm number		Unit	Unsigned Long	x	x	x
660	2	THDV% alarm number		Unit	Unsigned Long	x	x	x
662	2	Temperature alarm number		Unit	Unsigned Long	x	x	x
664	2	High cosfi alarm number		Unit	Unsigned Long	x	x	x
666	2	Low cosfi alarm number		Unit	Unsigned Long	x	x	x
668	2	Voltage dip alarm number		Unit	Unsigned Long	x	x	x
670	2	1° mix list value		Unit	Unsigned Long	x	x	x
672	2	2° mix list value		Unit	Unsigned Long	x	x	x
674	2	3° mix list value		Unit	Unsigned Long	x	x	x
676	2	4° mix list value		Unit	Unsigned Long	x	x	x
678	2	5° mix list value		Unit	Unsigned Long	x	x	x
680	2	6° mix list value		Unit	Unsigned Long	x	x	x
682	2	7° mix list value		Unit	Unsigned Long	x	x	x
684	2	8° mix list value		Unit	Unsigned Long	x	x	x
686	2	9° mix list value		Unit	Unsigned Long	x	x	x
688	2	10° mix list value		Unit	Unsigned Long	x	x	x
690	2	11° mix list value		Unit	Unsigned Long	x	x	x
692	2	12° mix list value		Unit	Unsigned Long	x	x	x
694	2	13° mix list value		Unit	Unsigned Long	x	x	x
696	2	14° mix list value		Unit	Unsigned Long	x	x	x
698	2	15° mix list value		Unit	Unsigned Long	x	x	x
700	2	16° mix list value		Unit	Unsigned Long	x	x	x
702	2	17° mix list value		Unit	Unsigned Long	x	x	x
704	2	18° mix list value		Unit	Unsigned Long	x	x	x
706	2	19° mix list value		Unit	Unsigned Long	x	x	x
708	2	20° mix list value		Unit	Unsigned Long	x	x	x
710	2	21° mix list value		Unit	Unsigned Long	x	x	x
712	2	22° mix list value		Unit	Unsigned Long	x	x	x
714	2	23° mix list value		Unit	Unsigned Long	x	x	x
716	2	24° mix list value		Unit	Unsigned Long	x	x	x
718	2	Number of fan alarm		Unit	Unsigned Long		x	x
720	2	Minimum Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
722	2	Minimum Total Harmonic Distortion (THDV1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long	x	x	x
748	2	Maximum Delta-kVAr		VAr	Bit-Signed Long	x	x	x
750	2	Minimum Delta kVAr		VAr	Bit-Signed Long	x	x	x
752	2	Average Delta-kVAr		VAr	Bit-Signed Long	x	x	x
754	2	Maximum Average Delta-kVAr		VAr	Bit-Signed Long	x	x	x
756	2	Daily Average Delta-kVAr		VAr	Bit-Signed Long	x	x	x
758	2	Weekly Average Delta-kVAr		VAr	Bit-Signed Long	x	x	x
760	2	Monthly Average Delta-kVAr		VAr	Bit-Signed Long	x	x	x
762	2	Alarms status	(*2)	Bit-field	Unsigned Long	x	x	x
764	2	Battery Breakage Status	(*3)	Bit-field	Unsigned Long	x	x	x
766	2	Maximum Battery Insertion Status	(*5)	Bit-field	Unsigned Long	x	x	x
768	2	Battery Status	(*4)	Bit-field	Unsigned Long	x	x	x
770	2	Physical relays status	(*6)	Bit-field	Unsigned Long	x	x	x
794	2	Average Total Harmonic Distortion (THDV1) voltage line 1		% (thousandths of fundamental harmonic)	Unsigned Long			x
848	2	Average Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long			x
854	2	Maximum Average Total Harmonic Distortion (THDV1) voltage line 1		% (thousandths of fundamental harmonic)	Unsigned Long			x
860	2	Maximum Average Total Harmonic Distortion (THDI1) current line 1		% (thousandths of fundamental harmonic)	Unsigned Long			x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
866	2	IL4		Hundredths of A	Unsigned Long			x
868	2	IL5		Hundredths of A	Unsigned Long			x
870	2	Maximum IL4		Hundredths of A	Unsigned Long			x
872	2	Maximum IL5		Hundredths of A	Unsigned Long			x
874	2	Minimum IL4		Hundredths of A	Unsigned Long			x
876	2	Minimum IL5		Hundredths of A	Unsigned Long			x
882	2	Analog input1 4-20 mA		-	Float			x
884	2	Maximum Analog input1 4-20 mA		-	Float			x
886	2	Minimum Analog input1 4-20 mA		-	Float			x
888	2	Analog input2 PT100/PT1000		Tens of °C	Bit-Signed Long			x
890	2	Maximum Analog input2 PT100/PT1000		Tens of °C	Bit-Signed Long			x
892	2	Minimum Analog input2 PT100/PT1000		Tens of °C	Bit-Signed Long			x
1002	1	Harmonic Module H2 current line 1		%	Unsigned Int		x	x
1003	1	Harmonic Module H3 current line 1		%	Unsigned Int		x	x
1004	1	Harmonic Module H4 current line 1		%	Unsigned Int		x	x
1005	1	Harmonic Module H5 current line 1		%	Unsigned Int		x	x
1006	1	Harmonic Module H6 current line 1		%	Unsigned Int		x	x
1007	1	Harmonic Module H7 current line 1		%	Unsigned Int		x	x
1008	1	Harmonic Module H8 current line 1		%	Unsigned Int		x	x
1009	1	Harmonic Module H9 current line 1		%	Unsigned Int		x	x
1010	1	Harmonic Module H10 current line 1		%	Unsigned Int		x	x
1011	1	Harmonic Module H11 current line 1		%	Unsigned Int		x	x
1012	1	Harmonic Module H12 current line 1		%	Unsigned Int		x	x
1013	1	Harmonic Module H13 current line 1		%	Unsigned Int		x	x
1014	1	Harmonic Module H14 current line 1		%	Unsigned Int		x	x
1015	1	Harmonic Module H15 current line 1		%	Unsigned Int		x	x
1016	1	Harmonic Module H16 current line 1		%	Unsigned Int		x	x
1017	1	Harmonic Module H17 current line 1		%	Unsigned Int		x	x
1018	1	Harmonic Module H18 current line 1		%	Unsigned Int		x	x
1019	1	Harmonic Module H19 current line 1		%	Unsigned Int		x	x
1020	1	Harmonic Module H20 current line 1		%	Unsigned Int		x	x
1021	1	Harmonic Module H21 current line 1		%	Unsigned Int		x	x
1022	1	Harmonic Module H22 current line 1		%	Unsigned Int		x	x
1023	1	Harmonic Module H23 current line 1		%	Unsigned Int		x	x
1024	1	Harmonic Module H24 current line 1		%	Unsigned Int		x	x
1025	1	Harmonic Module H25 current line 1		%	Unsigned Int		x	x
1026	1	Harmonic Module H26 current line 1		%	Unsigned Int		x	x
1027	1	Harmonic Module H27 current line 1		%	Unsigned Int		x	x
1028	1	Harmonic Module H28 current line 1		%	Unsigned Int		x	x
1029	1	Harmonic Module H29 current line 1		%	Unsigned Int		x	x
1030	1	Harmonic Module H30 current line 1		%	Unsigned Int		x	x
1031	1	Harmonic Module H31 current line 1		%	Unsigned Int		x	x
1032	1	Harmonic Module H32 current line 1		%	Unsigned Int		x	x
1033	1	Harmonic Module H33 current line 1		%	Unsigned Int		x	x
1034	1	Harmonic Module H34 current line 1		%	Unsigned Int		x	x
1035	1	Harmonic Module H35 current line 1		%	Unsigned Int		x	x
1036	1	Harmonic Module H36 current line 1		%	Unsigned Int		x	x
1037	1	Harmonic Module H37 current line 1		%	Unsigned Int		x	x
1038	1	Harmonic Module H38 current line 1		%	Unsigned Int		x	x
1039	1	Harmonic Module H39 current line 1		%	Unsigned Int		x	x
1040	1	Harmonic Module H40 current line 1		%	Unsigned Int		x	x
1041	1	Harmonic Module H41 current line 1		%	Unsigned Int		x	x
1042	1	Harmonic Module H42 current line 1		%	Unsigned Int		x	x
1043	1	Harmonic Module H43 current line 1		%	Unsigned Int		x	x
1044	1	Harmonic Module H44 current line 1		%	Unsigned Int		x	x
1045	1	Harmonic Module H45 current line 1		%	Unsigned Int		x	x
1046	1	Harmonic Module H46 current line 1		%	Unsigned Int		x	x
1047	1	Harmonic Module H47 current line 1		%	Unsigned Int		x	x
1048	1	Harmonic Module H48 current line 1		%	Unsigned Int		x	x
1049	1	Harmonic Module H49 current line 1		%	Unsigned Int		x	x
1050	1	Harmonic Module H50 current line 1		%	Unsigned Int		x	x
1051	1	Harmonic Module H51 current line 1		%	Unsigned Int		x	x
1052	1	Harmonic Module H52 current line 1		%	Unsigned Int		x	x
1053	1	Harmonic Module H53 current line 1		%	Unsigned Int		x	x
1054	1	Harmonic Module H54 current line 1		%	Unsigned Int		x	x
1055	1	Harmonic Module H55 current line 1		%	Unsigned Int		x	x
1056	1	Harmonic Module H56 current line 1		%	Unsigned Int		x	x
1057	1	Harmonic Module H57 current line 1		%	Unsigned Int		x	x
1058	1	Harmonic Module H58 current line 1		%	Unsigned Int		x	x
1059	1	Harmonic Module H59 current line 1		%	Unsigned Int		x	x
1060	1	Harmonic Module H60 current line 1		%	Unsigned Int		x	x
1102	1	Harmonic Module H2 voltage line 1		%	Unsigned Int		x	x
1103	1	Harmonic Module H3 voltage line 1		%	Unsigned Int		x	x
1104	1	Harmonic Module H4 voltage line 1		%	Unsigned Int		x	x
1105	1	Harmonic Module H5 voltage line 1		%	Unsigned Int		x	x
1106	1	Harmonic Module H6 voltage line 1		%	Unsigned Int		x	x
1107	1	Harmonic Module H7 voltage line 1		%	Unsigned Int		x	x
1108	1	Harmonic Module H8 voltage line 1		%	Unsigned Int		x	x
1109	1	Harmonic Module H9 voltage line 1		%	Unsigned Int		x	x
1110	1	Harmonic Module H10 voltage line 1		%	Unsigned Int		x	x
1111	1	Harmonic Module H11 voltage line 1		%	Unsigned Int		x	x
1112	1	Harmonic Module H12 voltage line 1		%	Unsigned Int		x	x
1113	1	Harmonic Module H13 voltage line 1		%	Unsigned Int		x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
1114	1	Harmonic Module H14 voltage line 1		%	Unsigned Int		x	x
1115	1	Harmonic Module H15 voltage line 1		%	Unsigned Int		x	x
1116	1	Harmonic Module H16 voltage line 1		%	Unsigned Int		x	x
1117	1	Harmonic Module H17 voltage line 1		%	Unsigned Int		x	x
1118	1	Harmonic Module H18 voltage line 1		%	Unsigned Int		x	x
1119	1	Harmonic Module H19 voltage line 1		%	Unsigned Int		x	x
1120	1	Harmonic Module H20 voltage line 1		%	Unsigned Int		x	x
1121	1	Harmonic Module H21 voltage line 1		%	Unsigned Int		x	x
1122	1	Harmonic Module H22 voltage line 1		%	Unsigned Int		x	x
1123	1	Harmonic Module H23 voltage line 1		%	Unsigned Int		x	x
1124	1	Harmonic Module H24 voltage line 1		%	Unsigned Int		x	x
1125	1	Harmonic Module H25 voltage line 1		%	Unsigned Int		x	x
1126	1	Harmonic Module H26 voltage line 1		%	Unsigned Int		x	x
1127	1	Harmonic Module H27 voltage line 1		%	Unsigned Int		x	x
1128	1	Harmonic Module H28 voltage line 1		%	Unsigned Int		x	x
1129	1	Harmonic Module H29 voltage line 1		%	Unsigned Int		x	x
1130	1	Harmonic Module H30 voltage line 1		%	Unsigned Int		x	x
1131	1	Harmonic Module H31 voltage line 1		%	Unsigned Int		x	x
1132	1	Harmonic Module H32 voltage line 1		%	Unsigned Int		x	x
1133	1	Harmonic Module H33 voltage line 1		%	Unsigned Int		x	x
1134	1	Harmonic Module H34 voltage line 1		%	Unsigned Int		x	x
1135	1	Harmonic Module H35 voltage line 1		%	Unsigned Int		x	x
1136	1	Harmonic Module H36 voltage line 1		%	Unsigned Int		x	x
1137	1	Harmonic Module H37 voltage line 1		%	Unsigned Int		x	x
1138	1	Harmonic Module H38 voltage line 1		%	Unsigned Int		x	x
1139	1	Harmonic Module H39 voltage line 1		%	Unsigned Int		x	x
1140	1	Harmonic Module H40 voltage line 1		%	Unsigned Int		x	x
1141	1	Harmonic Module H41 voltage line 1		%	Unsigned Int		x	x
1142	1	Harmonic Module H42 voltage line 1		%	Unsigned Int		x	x
1143	1	Harmonic Module H43 voltage line 1		%	Unsigned Int		x	x
1144	1	Harmonic Module H44 voltage line 1		%	Unsigned Int		x	x
1145	1	Harmonic Module H45 voltage line 1		%	Unsigned Int		x	x
1146	1	Harmonic Module H46 voltage line 1		%	Unsigned Int		x	x
1147	1	Harmonic Module H47 voltage line 1		%	Unsigned Int		x	x
1148	1	Harmonic Module H48 voltage line 1		%	Unsigned Int		x	x
1149	1	Harmonic Module H49 voltage line 1		%	Unsigned Int		x	x
1150	1	Harmonic Module H50 voltage line 1		%	Unsigned Int		x	x
1151	1	Harmonic Module H51 voltage line 1		%	Unsigned Int		x	x
1152	1	Harmonic Module H52 voltage line 1		%	Unsigned Int		x	x
1153	1	Harmonic Module H53 voltage line 1		%	Unsigned Int		x	x
1154	1	Harmonic Module H54 voltage line 1		%	Unsigned Int		x	x
1155	1	Harmonic Module H55 voltage line 1		%	Unsigned Int		x	x
1156	1	Harmonic Module H56 voltage line 1		%	Unsigned Int		x	x
1157	1	Harmonic Module H57 voltage line 1		%	Unsigned Int		x	x
1158	1	Harmonic Module H58 voltage line 1		%	Unsigned Int		x	x
1159	1	Harmonic Module H59 voltage line 1		%	Unsigned Int		x	x
1160	1	Harmonic Module H60 voltage line 1		%	Unsigned Int		x	x
2000	2	CT primary		A	Unsigned Long	x	x	x
2002	2	CT secondary		A	Unsigned Long	x	x	x
2004	2	CT phase insertion		Unit	Unsigned Long	x	x	x
2006	2	Enable I1 CT inversion		Unit	Unsigned Long	x	x	x
2008	2	Enable cogeneration		Unit	Unsigned Long	x	x	x
2010	2	Frequency mode		Unit	Unsigned Long	x	x	x
2012	2	VT primary		Volt	Unsigned Long	x	x	x
2014	2	VT secondary		Volt	Unsigned Long	x	x	x
2016	2	VT phase insertion		Unit	Unsigned Long	x	x	x
2018	2	Step voltage		Volt	Unsigned Long	x	x	x
2020	2	Enable manual mode		Unit	Unsigned Long	x	x	x
2022	2	Target cosfi		Thousandths	Bit-Signed Long	x	x	x
2024	2	Cosfi tolerance		Thousandths	Unsigned Long	x	x	x
2026	2	Capacitor discharge time		sec	Unsigned Long	x	x	x
2028	2	Connection time		sec	Unsigned Long	x	x	x
2030	2	Relay Output 1 function		Unit	Unsigned Long	x	x	x
2032	2	Step C1 power		VAR	Unsigned Long	x	x	x
2034	2	Alarm type for output 1		Unit	Unsigned Long	x	x	x
2036	2	Relay Output 2 function		Unit	Unsigned Long	x	x	x
2038	2	Step C2 power		VAR	Unsigned Long	x	x	x
2040	2	Alarm type for output 2		Unit	Unsigned Long	x	x	x
2042	2	Relay Output 3 function		Unit	Unsigned Long	x	x	x
2044	2	Step C3 power		VAR	Unsigned Long	x	x	x
2046	2	Alarm type for output 3		Unit	Unsigned Long	x	x	x
2048	2	Relay Output 4 function		Unit	Unsigned Long	x	x	x
2050	2	Step C4 power		VAR	Unsigned Long	x	x	x
2052	2	Alarm type for output 4		Unit	Unsigned Long	x	x	x
2054	2	Relay Output 5 function		Unit	Unsigned Long	x	x	x
2056	2	Step C5 power		VAR	Unsigned Long	x	x	x
2058	2	Alarm type for output 5		Unit	Unsigned Long	x	x	x
2060	2	Relay Output 6 function		Unit	Unsigned Long		x	x
2062	2	Step C6 power		VAR	Unsigned Long		x	x
2064	2	Alarm type for output 6		Unit	Unsigned Long		x	x
2066	2	Relay Output 7 function		Unit	Unsigned Long		x	x
2068	2	Step C7 power		VAR	Unsigned Long		x	x
2070	2	Alarm type for output 7		Unit	Unsigned Long		x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
2072	2	Relay Output 8 function		Unit	Unsigned Long		x	x
2074	2	Step C8 power		VAR	Unsigned Long		x	x
2076	2	Alarm type for output 8		Unit	Unsigned Long		x	x
2078	2	Relay Output 9 function		Unit	Unsigned Long		x	x
2080	2	Step C9 power		VAR	Unsigned Long		x	x
2082	2	Alarm type for output 9		Unit	Unsigned Long		x	x
2084	2	Relay Output 10 function		Unit	Unsigned Long		x	x
2086	2	Step C10 power		VAR	Unsigned Long		x	x
2088	2	Alarm type for output 10		Unit	Unsigned Long		x	x
2090	2	Relay Output 11 function		Unit	Unsigned Long		x	x
2092	2	Step C11 power		VAR	Unsigned Long		x	x
2094	2	Alarm type for output 11		Unit	Unsigned Long		x	x
2096	2	Relay Output 12 function		Unit	Unsigned Long			x
2098	2	Step C12 power		VAR	Unsigned Long			x
2100	2	Alarm type for output 12		Unit	Unsigned Long			x
2102	2	Relay Output 13 function		Unit	Unsigned Long			x
2104	2	Step C13 power		VAR	Unsigned Long			x
2106	2	Alarm type for output 13		Unit	Unsigned Long			x
2108	2	Relay Output 14 function		Unit	Unsigned Long			x
2110	2	Step C14 power		VAR	Unsigned Long			x
2112	2	Alarm type for output 14		Unit	Unsigned Long			x
2114	2	Relay Output 15 function		Unit	Unsigned Long			x
2116	2	Step C15 power		VAR	Unsigned Long			x
2118	2	Alarm type for output 15		Unit	Unsigned Long			x
2120	2	Relay Output 16 function		Unit	Unsigned Long			x
2122	2	Step C16 power		VAR	Unsigned Long			x
2124	2	Alarm type for output 16		Unit	Unsigned Long			x
2126	2	Relay Output 17 function		Unit	Unsigned Long			x
2128	2	Step C17 power		VAR	Unsigned Long			x
2130	2	Alarm type for output 17		Unit	Unsigned Long			x
2132	2	Relay Output 18 function		Unit	Unsigned Long			x
2134	2	Step C18 power		VAR	Unsigned Long			x
2136	2	Alarm type for output 18		Unit	Unsigned Long			x
2138	2	Relay Output 19 function		Unit	Unsigned Long			x
2140	2	Step C19 power		VAR	Unsigned Long			x
2142	2	Alarm type for output 19		Unit	Unsigned Long			x
2144	2	Relay Output 20 function		Unit	Unsigned Long			x
2146	2	Step C20 power		VAR	Unsigned Long			x
2148	2	Alarm type for output 20		Unit	Unsigned Long			x
2150	2	Relay Output 21 function		Unit	Unsigned Long			x
2152	2	Step C21 power		VAR	Unsigned Long			x
2154	2	Alarm type for output 21		Unit	Unsigned Long			x
2156	2	Relay Output 22 function		Unit	Unsigned Long			x
2158	2	Step C22 power		VAR	Unsigned Long			x
2160	2	Alarm type for output 22		Unit	Unsigned Long			x
2162	2	Relay Output 23 function		Unit	Unsigned Long			x
2164	2	Step C23 power		VAR	Unsigned Long			x
2166	2	Alarm type for output 23		Unit	Unsigned Long			x
2168	2	Relay Output 24 function		Unit	Unsigned Long			x
2170	2	Step C24 power		VAR	Unsigned Long			x
2172	2	Alarm type for output 24		Unit	Unsigned Long			x
2174	2	Relay Output 25 function		Unit	Unsigned Long			x
2176	2	Step C25 power		VAR	Unsigned Long			x
2178	2	Alarm type for output 25		Unit	Unsigned Long			x
2180	2	Relay Output 26 function		Unit	Unsigned Long			x
2182	2	Step C26 power		VAR	Unsigned Long			x
2184	2	Alarm type for output 26		Unit	Unsigned Long			x
2186	2	Relay Output 27 function		Unit	Unsigned Long			x
2188	2	Step C27 power		VAR	Unsigned Long			x
2190	2	Alarm type for output 27		Unit	Unsigned Long			x
2192	2	Relay Output 28 function		Unit	Unsigned Long			x
2194	2	Step C28 power		VAR	Unsigned Long			x
2196	2	Alarm type for output 28		Unit	Unsigned Long			x
2198	2	Relay Output 29 function		Unit	Unsigned Long			x
2200	2	Step C29 power		VAR	Unsigned Long			x
2202	2	Alarm type for output 29		Unit	Unsigned Long			x
2210	2	Integration time for average values		min	Unsigned Long	x	x	x
2212	2	Communication protocol		Unit	Unsigned Long	x	x	x
2214	2	Serial communication address		Unit	Unsigned Long	x	x	x
2216	2	Serial communication baudrate		Unit	Unsigned Long	x	x	x
2218	2	High voltage alarm threshold		% of VT primary	Unsigned Long	x	x	x
2220	2	High voltage alarm delay		sec	Unsigned Long	x	x	x
2222	2	High current alarm threshold		% of CT primary	Unsigned Long	x	x	x
2224	2	High current alarm delay		sec	Unsigned Long	x	x	x
2226	2	Low voltage alarm threshold		% of VT primary	Unsigned Long	x	x	x
2228	2	Low voltage alarm delay		sec	Unsigned Long	x	x	x
2230	2	Low current alarm threshold		(% of CT primary) x 2	Unsigned Long	x	x	x
2232	2	Low current alarm delay		sec	Unsigned Long	x	x	x
2234	2	THDV% alarm threshold		%	Unsigned Long	x	x	x
2236	2	THDV% alarm delay		sec	Unsigned Long	x	x	x
2238	2	THDI% alarm threshold		%	Unsigned Long	x	x	x
2240	2	THDI% alarm delay		sec	Unsigned Long	x	x	x
2242	2	Temperature alarm threshold		°C	Unsigned Long	x	x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
2244	2	Temperature alarm delay		sec	Unsigned Long	x	x	x
2246	2	Enable disconnection time		Unit	Unsigned Long	x	x	x
2248	2	Disconnection time		Unit	Unsigned Long	x	x	x
2250	2	PFC algorithm evaluation time		Unit	Unsigned Long	x	x	x
2252	2	Transient exhaustion time for disinsertion		Unit	Unsigned Long	x	x	x
2254	2	Transient exhaustion time for insertion		Unit	Unsigned Long	x	x	x
2256	2	Enable stability control for sliding win. avg.		Unit	Unsigned Long	x	x	x
2258	2	Percentage deviation for sliding win. avg.		Unit	Unsigned Long	x	x	x
2260	2	Inductors presence		Unit	Unsigned Long	x	x	x
2262	2	Degradation threshold 1 (without inductors)		Unit	Unsigned Long	x	x	x
2264	2	Breakage threshold 1(without inductors)		Unit	Unsigned Long	x	x	x
2266	2	Degradation threshold 2 (with inductors)		Unit	Unsigned Long	x	x	x
2268	2	Breakage threshold 2 (with inductors)		Unit	Unsigned Long	x	x	x
2270	2	Enable alarm reset		Unit	Unsigned Long	x	x	x
2272	2	Enable harmonic analisys		Unit	Unsigned Long	x	x	x
2274	2	Autodiagnostic threshold		Unit	Unsigned Long	x	x	x
2276	2	868MHz address		Unit	Unsigned Long	x	x	x
2278	2	868MHz channel		Unit	Unsigned Long	x	x	x
2280	2	868MHz power		Unit	Unsigned Long	x	x	x
2282	2	Network type		Unit	Unsigned Long	x	x	x
2284	2	Instrument ID		Unit	Unsigned Long	x	x	x
2286	2	Serial number: week		Unit	Unsigned Long	x	x	x
2288	2	Serial number: year		Unit	Unsigned Long	x	x	x
2290	2	Serial number: sequential number		Unit	Unsigned Long	x	x	x
2292	2	FW version: major		Unit	Unsigned Long	x	x	x
2294	2	FW version: sub		Unit	Unsigned Long	x	x	x
2296	2	Bootloader version: major		Unit	Unsigned Long	x	x	x
2298	2	Bootloader version: sub		Unit	Unsigned Long	x	x	x
2300	2	Log period		sec	Unsigned Long		x	x
2302	2	log 1st measure		Unit	Unsigned Long		x	x
2304	2	log 2nd measure		Unit	Unsigned Long		x	x
2306	2	Voltage dip duration		msec	Unsigned Long		x	x
2308	2	Manual status C1		Unit	Unsigned Long	x	x	x
2310	2	Manual status C2		Unit	Unsigned Long	x	x	x
2312	2	Manual status C3		Unit	Unsigned Long	x	x	x
2314	2	Manual status C4		Unit	Unsigned Long	x	x	x
2316	2	Manual status C5		Unit	Unsigned Long	x	x	x
2318	2	Manual status C6		Unit	Unsigned Long		x	x
2320	2	Manual status C7		Unit	Unsigned Long		x	x
2322	2	Manual status C8		Unit	Unsigned Long		x	x
2324	2	Manual status C9		Unit	Unsigned Long		x	x
2326	2	Manual status C10		Unit	Unsigned Long		x	x
2328	2	Manual status C11		Unit	Unsigned Long		x	x
2330	2	Manual status C12		Unit	Unsigned Long			x
2332	2	Manual status C13		Unit	Unsigned Long			x
2334	2	Manual status C14		Unit	Unsigned Long			x
2336	2	Manual status C15		Unit	Unsigned Long			x
2338	2	Manual status C16		Unit	Unsigned Long			x
2340	2	Manual status C17		Unit	Unsigned Long			x
2342	2	Manual status C18		Unit	Unsigned Long			x
2344	2	Manual status C19		Unit	Unsigned Long			x
2346	2	Manual status C20		Unit	Unsigned Long			x
2348	2	Manual status C21		Unit	Unsigned Long			x
2350	2	Manual status C22		Unit	Unsigned Long			x
2352	2	Manual status C23		Unit	Unsigned Long			x
2354	2	Manual status C24		Unit	Unsigned Long			x
2356	2	Manual status C25		Unit	Unsigned Long			x
2358	2	Manual status C26		Unit	Unsigned Long			x
2360	2	Manual status C27		Unit	Unsigned Long			x
2362	2	Manual status C28		Unit	Unsigned Long			x
2364	2	Manual status C29		Unit	Unsigned Long			x
2390	2	Phase offset		°	Bit-Signed Long		x	x
2392	2	Setpoint cosfi 2		thousandths	Bit-Signed Long		x	x
2394	2	Setpoint cosfi 3		thousandths	Bit-Signed Long		x	x
2396	2	Setpoint cosfi 4		thousandths	Bit-Signed Long		x	x
2398	2	Band B1		Unit	Unsigned Long		x	x
2400	2	Band B2		Unit	Unsigned Long		x	x
2402	2	Band B3		Unit	Unsigned Long		x	x
2404	2	Band B4		Unit	Unsigned Long		x	x
2406	2	Step disconnection		Unit	Unsigned Long		x	x
2420	2	Fan control threshold		°C	Unsigned Long		x	x
2422	2	Fan control delay		sec	Unsigned Long		x	x
2424	2	High cosfi alarm delay		min	Unsigned Long	x	x	x
2426	2	Low cosfi alarm delay		min	Unsigned Long	x	x	x
2428	2	Language		Unit	Unsigned Long		x	x
2430	2	Temperature measurement unit		Unit	Unsigned Long		x	x
2436	2	Backlight level		Unit	Unsigned Long		x	x
2438	2	Automatic backlight turn-off		Unit	Unsigned Long		x	x
2440	2	LCD display contrast		Unit	Unsigned Long		x	x
2442	2	Summertime		Unit	Unsigned Long		x	
2444	2	Imax harmonic		mA	Unsigned Long	x	x	x
2446	2	Alarm mask		Unit	Unsigned Long	x	x	x
2448	2	Language version: major		Unit	Unsigned Long		x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
2450	2	Language version: minor		Unit	Unsigned Long		x	x
2452	2	Maximum step connection time		hours	Unsigned Long	x	x	x
2718	2	Min / max hyst.		Unit	Unsigned Long			x
2720	2	N.moving average		Unit	Unsigned Long			x
2722	2	N.moving average Hz		Unit	Unsigned Long			x
2724	2	N. of harmonics		Unit	Unsigned Long			x
2726	2	I RMS thres.		mA	Unsigned Long			x
2728	2	Log 3rd measure		Unit	Unsigned Long			x
2730	2	Log 4th measure		Unit	Unsigned Long			x
2876	2	Hostname		Unit	Unsigned Long			x
2878	2	Log activation		Unit	Unsigned Long			x
2936	2	Analog input 1 minimum		-	Float			x
2938	2	Analog input 1 maximum		-	Float			x
2980	2	Analog input 1 span		Unit	Unsigned Long			x
2984	2	Thermistor precision		Unit	Unsigned Long			x
2986	2	Analog CT primary		A	Unsigned Long			x
2988	2	Analog CT secondary		A	Unsigned Long			x
3010	2	Fan control sensor		Unit	Unsigned Long			x
3012	2	Temperature alarm sensor		Unit	Unsigned Long			x
4000	2	Three-phase equivalent active power DFT		W	Float			x
4008	2	Three-phase equivalent reactive power DFT		VAR	Float			x
4016	2	Three-phase equivalent apparent power DFT		VA	Float			x
4024	2	Maximum three-phase equivalent active power DFT		W	Float			x
4032	2	Maximum three-phase equivalent reactive power DFT		VAR	Float			x
4040	2	Maximum three-phase equivalent apparent power DFT		VA	Float			x
4048	2	Minimum three-phase equivalent active power DFT		W	Float			x
4056	2	Minimum three-phase equivalent reactive power DFT		VAR	Float			x
4064	2	Minimum three-phase equivalent apparent power DFT		VA	Float			x
4072	2	Average three-phase equivalent active power DFT		W	Float			x
4080	2	Average three-phase equivalent reactive power DFT		VAR	Float			x
4088	2	Average three-phase equivalent apparent power DFT		VA	Float			x
4096	2	Maximum average three-phase equivalent active power DFT		W	Float			x
4104	2	Maximum average three-phase equivalent reactive power DFT		VAR	Float			x
4112	2	Maximum average three-phase equivalent apparent power DFT		VA	Float			x
10002	2	Frequency		Hz	Float	x	x	x
10004	2	Three-phase Equivalent Voltage		V	Float	x	x	x
10018	2	Three-phase Equivalent Current		A	Float	x	x	x
10026	2	Three-phase equivalent power factor		Unit	Float	x	x	x
10034	2	Three-phase equivalent active power		W	Float	x	x	x
10036	2	Average three-phase equivalent active power		W	Float	x	x	x
10038	2	Maximum three-phase equivalent active power		W	Float	x	x	x
10058	2	Three-phase equivalent apparent power		VA	Float	x	x	x
10060	2	Average three-phase equivalent apparent power		VA	Float	x	x	x
10062	2	Maximum three-phase equivalent apparent power		VA	Float	x	x	x
10082	2	Three-phase equivalent reactive power		VAR	Float	x	x	x
10084	2	Average three-phase equivalent reactive power		VAR	Float	x	x	x
10086	2	Maximum three-phase equivalent reactive power		VAR	Float	x	x	x
10122	2	Maximum average three-phase active power		W	Float	x	x	x
10142	2	Maximum average three-phase Apparent Power		VA	Float	x	x	x
10150	2	VT transformation ratio		Unit	Float	x	x	x
10152	2	CT transformation ratio		Unit	Float	x	x	x
10154	2	Time of Average		Minute	Float	x	x	x
10212	2	Total Harmonic Distortion (THDI1) current line 1		%	Float	x	x	x
10218	2	Total Harmonic Distortion (THDV1) voltage line 1		%	Float	x	x	x
10224	2	Maximum frequency		Hz	Float	x	x	x
10226	2	Minimum frequency		Hz	Float	x	x	x
10228	2	Maximum Three-phase Equivalent Current		A	Float	x	x	x
10230	2	Minimum Three-phase Equivalent Current		A	Float	x	x	x
10232	2	Average Three-phase Equivalent Current		A	Float	x	x	x
10234	2	Maximum Average Three-phase Equivalent Current		A	Float	x	x	x
10264	2	Maximum Three-phase Equivalent Voltage		V	Float	x	x	x
10266	2	Minimum Three-phase Equivalent Voltage		V	Float	x	x	x
10292	2	Minimum Three-phase equivalent apparent power		VA	float	x	x	x
10300	2	Minimum Three-phase equivalent active power		W	Float	x	x	x
10308	2	Minimum Three-phase equivalent reactive power		VAR	Float	x	x	x
10310	2	Maximum average three-phase reactive power		VAR	Float	x	x	x
10324	2	Maximum Three-phase equivalent power factor		Unit	Float	x	x	x
10326	2	Minimum Three-phase equivalent power factor		Unit	Float	x	x	x
10328	2	Average Three-phase equivalent power factor		Unit	Float	x	x	x
10330	2	Daily Average Three-phase equivalent power factor		Unit	Float	x	x	x
10332	2	Weekly Average Three-phase equivalent power factor		Unit	Float	x	x	
10334	2	Monthly Average Three-phase equivalent power factor		Unit	Float	x	x	x
10354	2	Three-phase equivalent Cosphi		Unit	Float	x	x	x
10356	2	Maximum Three-phase equivalent Cosphi		Unit	Float	x	x	x
10358	2	Minimum Three-phase equivalent Cosphi		Unit	Float	x	x	x
10360	2	Average Three-phase equivalent Cosphi		Unit	Float	x	x	x
10362	2	Daily Average Three-phase equivalent Cosphi		Unit	Float	x	x	x
10364	2	Weekly Average Three-phase equivalent Cosphi		Unit	Float	x	x	
10366	2	Monthly Average Three-phase equivalent Cosphi		Unit	Float	x	x	x
10392	2	Delta-KVAR		VAR	Float	x	x	x
10394	2	Total Harmonic Distortion (THDI1) current line 1		%	Float	x	x	x
10396	2	Total Harmonic Distortion (THDV1) voltage line 1		%	Float	x	x	x
10398	2	Temperature		°C	Float	x	x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
10400	2	Maximum temperature		°C	Float	x	x	x
10402	2	Minimum temperature		°C	Float	x	x	x
10404	2	Maximum Total Harmonic Distortion (THDI1) current line 1		%	Float	x	x	x
10406	2	Maximum Total Harmonic Distortion (THDV1) current line 1		%	Float	x	x	x
10410	2	Number of insertion C1		Unit	Float	x	x	x
10412	2	Number of insertion C2		Unit	Float	x	x	x
10414	2	Number of insertion C3		Unit	Float	x	x	x
10416	2	Number of insertion C4		Unit	Float	x	x	x
10418	2	Number of insertion C5		Unit	Float	x	x	x
10420	2	Number of insertion C6		Unit	Float		x	x
10422	2	Number of insertion C7		Unit	Float		x	x
10424	2	Number of insertion C8		Unit	Float		x	x
10426	2	Number of insertion C9		Unit	Float		x	x
10428	2	Number of insertion C10		Unit	Float		x	x
10430	2	Number of insertion C11		Unit	Float		x	x
10432	2	Number of insertion C12		Unit	Float			x
10434	2	Number of insertion C13		Unit	Float			x
10436	2	Number of insertion C14		Unit	Float			x
10438	2	Number of insertion C15		Unit	Float			x
10440	2	Number of insertion C16		Unit	Float			x
10442	2	Number of insertion C17		Unit	Float			x
10444	2	Number of insertion C18		Unit	Float			x
10446	2	Number of insertion C19		Unit	Float			x
10448	2	Number of insertion C20		Unit	Float			x
10450	2	Number of insertion C21		Unit	Float			x
10452	2	Number of insertion C22		Unit	Float			x
10454	2	Number of insertion C23		Unit	Float			x
10456	2	Number of insertion C24		Unit	Float			x
10458	2	Number of insertion C25		Unit	Float			x
10460	2	Number of insertion C26		Unit	Float			x
10462	2	Number of insertion C27		Unit	Float			x
10464	2	Number of insertion C28		Unit	Float			x
10466	2	Number of insertion C29		Unit	Float			x
10470	2	Contact operation C1		Unit	Float	x	x	x
10472	2	Contact operation C2		Unit	Float	x	x	x
10474	2	Contact operation C3		Unit	Float	x	x	x
10476	2	Contact operation C4		Unit	Float	x	x	x
10478	2	Contact operation C5		Unit	Float	x	x	x
10480	2	Contact operation C6		Unit	Float		x	x
10482	2	Contact operation C7		Unit	Float		x	x
10484	2	Contact operation C8		Unit	Float		x	x
10486	2	Contact operation C9		Unit	Float		x	x
10488	2	Contact operation C10		Unit	Float		x	x
10490	2	Contact operation C11		Unit	Float		x	x
10492	2	Contact operation C12		Unit	Float			x
10494	2	Contact operation C13		Unit	Float			x
10496	2	Contact operation C14		Unit	Float			x
10498	2	Contact operation C15		Unit	Float			x
10500	2	Contact operation C16		Unit	Float			x
10502	2	Contact operation C17		Unit	Float			x
10504	2	Contact operation C18		Unit	Float			x
10506	2	Contact operation C19		Unit	Float			x
10508	2	Contact operation C20		Unit	Float			x
10510	2	Contact operation C21		Unit	Float			x
10512	2	Contact operation C22		Unit	Float			x
10514	2	Contact operation C23		Unit	Float			x
10516	2	Contact operation C24		Unit	Float			x
10518	2	Contact operation C25		Unit	Float			x
10520	2	Contact operation C26		Unit	Float			x
10522	2	Contact operation C27		Unit	Float			x
10524	2	Contact operation C28		Unit	Float			x
10526	2	Contact operation C29		Unit	Float			x
10530	2	Real power step C1		VAR	Float	x	x	x
10532	2	Real power step C2		VAR	Float	x	x	x
10534	2	Real power step C3		VAR	Float	x	x	x
10536	2	Real power step C4		VAR	Float	x	x	x
10538	2	Real power step C5		VAR	Float	x	x	x
10540	2	Real power step C6		VAR	Float		x	x
10542	2	Real power step C7		VAR	Float		x	x
10544	2	Real power step C8		VAR	Float		x	x
10546	2	Real power step C9		VAR	Float		x	x
10548	2	Real power step C10		VAR	Float		x	x
10550	2	Real power step C11		VAR	Float		x	x
10552	2	Real power step C12		VAR	Float			x
10554	2	Real power step C13		VAR	Float			x
10556	2	Real power step C14		VAR	Float			x
10558	2	Real power step C15		VAR	Float			x
10560	2	Real power step C16		VAR	Float			x
10562	2	Real power step C17		VAR	Float			x
10564	2	Real power step C18		VAR	Float			x
10566	2	Real power step C19		VAR	Float			x
10568	2	Real power step C20		VAR	Float			x
10570	2	Real power step C21		VAR	Float			x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
10572	2	Real power step C22		VAr	Float			x
10574	2	Real power step C23		VAr	Float			x
10576	2	Real power step C24		VAr	Float			x
10578	2	Real power step C25		VAr	Float			x
10580	2	Real power step C26		VAr	Float			x
10582	2	Real power step C27		VAr	Float			x
10584	2	Real power step C28		VAr	Float			x
10586	2	Real power step C29		VAr	Float			x
10590	2	Working time C1		hours	Float	x	x	x
10592	2	Working time C2		hours	Float	x	x	x
10594	2	Working time C3		hours	Float	x	x	x
10596	2	Working time C4		hours	Float	x	x	x
10598	2	Working time C5		hours	Float	x	x	x
10600	2	Working time C6		hours	Float		x	x
10602	2	Working time C7		hours	Float		x	x
10604	2	Working time C8		hours	Float		x	x
10606	2	Working time C9		hours	Float		x	x
10608	2	Working time C10		hours	Float		x	x
10610	2	Working time C11		hours	Float		x	x
10612	2	Working time C12		hours	Float			x
10614	2	Working time C13		hours	Float			x
10616	2	Working time C14		hours	Float			x
10618	2	Working time C15		hours	Float			x
10620	2	Working time C16		hours	Float			x
10622	2	Working time C17		hours	Float			x
10624	2	Working time C18		hours	Float			x
10626	2	Working time C19		hours	Float			x
10628	2	Working time C20		hours	Float			x
10630	2	Working time C21		hours	Float			x
10632	2	Working time C22		hours	Float			x
10634	2	Working time C23		hours	Float			x
10636	2	Working time C24		hours	Float			x
10638	2	Working time C25		hours	Float			x
10640	2	Working time C26		hours	Float			x
10642	2	Working time C27		hours	Float			x
10644	2	Working time C28		hours	Float			x
10646	2	Working time C29		hours	Float			x
10650	2	High voltage alarm number		Unit	Float	x	x	x
10652	2	High current alarm number		Unit	Float	x	x	x
10654	2	Low voltage alarm number		Unit	Float	x	x	x
10656	2	Low current alarm number		Unit	Float	x	x	x
10658	2	THDI% alarm number		Unit	Float	x	x	x
10660	2	THDV% alarm number		Unit	Float	x	x	x
10662	2	Temperature alarm number		Unit	Float	x	x	x
10664	2	High cosfi alarm number		Unit	Float	x	x	x
10666	2	Low cosfi alarm number		Unit	Float	x	x	x
10668	2	Voltage dip alarm number		Unit	Float	x	x	x
10670	2	1° mix list value		Unit	Float	x	x	x
10672	2	2° mix list value		Unit	Float	x	x	x
10674	2	3° mix list value		Unit	Float	x	x	x
10676	2	4° mix list value		Unit	Float	x	x	x
10678	2	5° mix list value		Unit	Float	x	x	x
10680	2	6° mix list value		Unit	Float	x	x	x
10682	2	7° mix list value		Unit	Float	x	x	x
10684	2	8° mix list value		Unit	Float	x	x	x
10686	2	9° mix list value		Unit	Float	x	x	x
10688	2	10° mix list value		Unit	Float	x	x	x
10690	2	11° mix list value		Unit	Float	x	x	x
10692	2	12° mix list value		Unit	Float	x	x	x
10694	2	13° mix list value		Unit	Float	x	x	x
10696	2	14° mix list value		Unit	Float	x	x	x
10698	2	15° mix list value		Unit	Float	x	x	x
10700	2	16° mix list value		Unit	Float	x	x	x
10702	2	17° mix list value		Unit	Float	x	x	x
10704	2	18° mix list value		Unit	Float	x	x	x
10706	2	19° mix list value		Unit	Float	x	x	x
10708	2	20° mix list value		Unit	Float	x	x	x
10710	2	21° mix list value		Unit	Float	x	x	x
10712	2	22° mix list value		Unit	Float	x	x	x
10714	2	23° mix list value		Unit	Float	x	x	x
10716	2	24° mix list value		Unit	Float	x	x	x
10718	2	Number of fan alarm		Unit	Float			x
10720	2	Minimum Total Harmonic Distortion (THDI1) current line 1		%	Float	x	x	x
10722	2	Minimum Total Harmonic Distortion (THDV1) current line 1		%	Float	x	x	x
10748	2	Maximum Delta-kVAr		VAr	Float	x	x	x
10750	2	Minimum Delta kVAr		VAr	Float	x	x	x
10752	2	Average Delta-kVAr		VAr	Float	x	x	x
10754	2	Maximum Average Delta-kVAr		VAr	Float	x	x	x
10756	2	Daily Average Delta-kVAr		VAr	Float	x	x	x
10758	2	Weekly Average Delta-kVAr		VAr	Float	x	x	
10760	2	Monthly Average Delta-kVAr		VAr	Float	x	x	x
10794	2	Average Total Harmonic Distortion (THDV1) voltage line 1		%	Float	x	x	x
10848	2	Average Total Harmonic Distortion (THDI1) current line 1		%	Float	x	x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
10854	2	Maximum Average Total Harmonic Distortion (THDV1) voltage line 1		%	Float	x	x	x
10860	2	Maximum Average Total Harmonic Distortion (THD1) current line 1		%	Float	x	x	x
10866	2	IL4		A	Float			x
10868	2	IL5		A	Float			x
10870	2	Maximum IL4		A	Float			x
10872	2	Maximum IL5		A	Float			x
10874	2	Minimum IL4		A	Float			x
10876	2	Minimum IL5		A	Float			x
10888	2	Analog input2 PT100/PT1000		°C	Float			x
10890	2	Maximum Analog input2 PT100/PT1000		°C	Float			x
10892	2	Minimum Analog input2 PT100/PT1000		°C	Float	x	x	x
12000	2	CT primary		A	Float	x	x	x
12002	2	CT secondary		A	Float	x	x	x
12004	2	CT phase insertion		Unit	Float	x	x	x
12006	2	Enable I1 CT inversion		Unit	Float	x	x	x
12008	2	Enable cogeneration		Unit	Float	x	x	x
12010	2	Frequency mode		Unit	Float	x	x	x
12012	2	VT primary		Volt	Float	x	x	x
12014	2	VT secondary		Volt	Float	x	x	x
12016	2	VT phase insertion		Unit	Float	x	x	x
12018	2	Step voltage		Volt	Float	x	x	x
12020	2	Enable manual mode		Unit	Float	x	x	x
12022	2	Target cosfi		Thousandths	Float	x	x	x
12024	2	Cosfi tolerance		Thousandths	Float	x	x	x
12026	2	Capacitor discharge time		sec	Float	x	x	x
12028	2	Connection time		sec	Float	x	x	x
12030	2	Relay Output 1 function		Unit	Float	x	x	x
12032	2	Step C1 power		VAR	Float	x	x	x
12034	2	Alarm type for output 1		Unit	Float	x	x	x
12036	2	Relay Output 2 function		Unit	Float	x	x	x
12038	2	Step C2 power		VAR	Float	x	x	x
12040	2	Alarm type for output 2		Unit	Float	x	x	x
12042	2	Relay Output 3 function		Unit	Float	x	x	x
12044	2	Step C3 power		VAR	Float	x	x	x
12046	2	Alarm type for output 3		Unit	Float	x	x	x
12048	2	Relay Output 4 function		Unit	Float	x	x	x
12050	2	Step C4 power		VAR	Float	x	x	x
12052	2	Alarm type for output 4		Unit	Float	x	x	x
12054	2	Relay Output 5 function		Unit	Float	x	x	x
12056	2	Step C5 power		VAR	Float	x	x	x
12058	2	Alarm type for output 5		Unit	Float	x	x	x
12060	2	Relay Output 6 function		Unit	Float		x	x
12062	2	Step C6 power		VAR	Float		x	x
12064	2	Alarm type for output 6		Unit	Float		x	x
12066	2	Relay Output 7 function		Unit	Float		x	x
12068	2	Step C7 power		VAR	Float		x	x
12070	2	Alarm type for output 7		Unit	Float		x	x
12072	2	Relay Output 8 function		Unit	Float		x	x
12074	2	Step C8 power		VAR	Float		x	x
12076	2	Alarm type for output 8		Unit	Float		x	x
12078	2	Relay Output 9 function		Unit	Float		x	x
12080	2	Step C9 power		VAR	Float		x	x
12082	2	Alarm type for output 9		Unit	Float		x	x
12084	2	Relay Output 10 function		Unit	Float		x	x
12086	2	Step C10 power		VAR	Float		x	x
12088	2	Alarm type for output 10		Unit	Float		x	x
12090	2	Relay Output 11 function		Unit	Float		x	x
12092	2	Step C11 power		VAR	Float		x	x
12094	2	Alarm type for output 11		Unit	Float		x	x
12096	2	Relay Output 12 function		Unit	Float			x
12098	2	Step C12 power		VAR	Float			x
12100	2	Alarm type for output 12		Unit	Float			x
12102	2	Relay Output 13 function		Unit	Float			x
12104	2	Step C13 power		VAR	Float			x
12106	2	Alarm type for output 13		Unit	Float			x
12108	2	Relay Output 14 function		Unit	Float			x
12110	2	Step C14 power		VAR	Float			x
12112	2	Alarm type for output 14		Unit	Float			x
12114	2	Relay Output 15 function		Unit	Float			x
12116	2	Step C15 power		VAR	Float			x
12118	2	Alarm type for output 15		Unit	Float			x
12120	2	Relay Output 16 function		Unit	Float			x
12122	2	Step C16 power		VAR	Float			x
12124	2	Alarm type for output 16		Unit	Float			x
12126	2	Relay Output 17 function		Unit	Float			x
12128	2	Step C17 power		VAR	Float			x
12130	2	Alarm type for output 17		Unit	Float			x
12132	2	Relay Output 18 function		Unit	Float			x
12134	2	Step C18 power		VAR	Float			x
12136	2	Alarm type for output 18		Unit	Float			x
12138	2	Relay Output 19 function		Unit	Float			x
12140	2	Step C19 power		VAR	Float			x
12142	2	Alarm type for output 19		Unit	Float			x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
12144	2	Relay Output 20 function		Unit	Float			x
12146	2	Step C20 power		VAR	Float			x
12148	2	Alarm type for output 20		Unit	Float			x
12150	2	Relay Output 21 function		Unit	Float			x
12152	2	Step C21 power		VAR	Float			x
12154	2	Alarm type for output 21		Unit	Float			x
12156	2	Relay Output 22 function		Unit	Float			x
12158	2	Step C22 power		VAR	Float			x
12160	2	Alarm type for output 22		Unit	Float			x
12162	2	Relay Output 23 function		Unit	Float			x
12164	2	Step C23 power		VAR	Float			x
12166	2	Alarm type for output 23		Unit	Float			x
12168	2	Relay Output 24 function		Unit	Float			x
12170	2	Step C24 power		VAR	Float			x
12172	2	Alarm type for output 24		Unit	Float			x
12174	2	Relay Output 25 function		Unit	Float			x
12176	2	Step C25 power		VAR	Float			x
12178	2	Alarm type for output 25		Unit	Float			x
12180	2	Relay Output 26 function		Unit	Float			x
12182	2	Step C26 power		VAR	Float			x
12184	2	Alarm type for output 26		Unit	Float			x
12186	2	Relay Output 27 function		Unit	Float			x
12188	2	Step C27 power		VAR	Float			x
12190	2	Alarm type for output 27		Unit	Float			x
12192	2	Relay Output 28 function		Unit	Float			x
12194	2	Step C28 power		VAR	Float			x
12196	2	Alarm type for output 28		Unit	Float			x
12198	2	Relay Output 29 function		Unit	Float			x
12200	2	Step C29 power		VAR	Float			x
12202	2	Alarm type for output 29		Unit	Float			x
12210	2	Integration time for average values		min	Float	x	x	x
12212	2	Communication protocol		Unit	Float	x	x	x
12214	2	Serial communication address		Unit	Float	x	x	x
12216	2	Serial communication baudrate		Unit	Float	x	x	x
12218	2	High voltage alarm threshold		% of VT primary	Float	x	x	x
12220	2	High voltage alarm delay		sec	Float	x	x	x
12222	2	High current alarm threshold		% of CT primary	Float	x	x	x
12224	2	High current alarm delay		sec	Float	x	x	x
12226	2	Low voltage alarm threshold		% of VT primary	Float	x	x	x
12228	2	Low voltage alarm delay		sec	Float	x	x	x
12230	2	Low current alarm threshold		(% of CT primary) x 2	Float	x	x	x
12232	2	Low current alarm delay		sec	Float	x	x	x
12234	2	THDV% alarm threshold		%	Float	x	x	x
12236	2	THDV% alarm delay		sec	Float	x	x	x
12238	2	THDI% alarm threshold		%	Float	x	x	x
12240	2	THDI% alarm delay		sec	Float	x	x	x
12242	2	Temperature alarm threshold		°C	Float	x	x	x
12244	2	Temperature alarm delay		sec	Float	x	x	x
12246	2	Enable disconnection time		Unit	Float	x	x	x
12248	2	Disconnection time		Unit	Float	x	x	x
12250	2	PFC algorithm evaluation time		Unit	Float	x	x	x
12252	2	Transient exhaustion time for disinsertion		Unit	Float	x	x	x
12254	2	Transient exhaustion time for insertion		Unit	Float	x	x	x
12256	2	Enable stability control for sliding win. avg.		Unit	Float	x	x	x
12258	2	Percentage deviation for sliding win. avg.		Unit	Float	x	x	x
12260	2	Inductors presence		Unit	Float	x	x	x
12262	2	Degradation threshold 1 (without inductors)		Unit	Float	x	x	x
12264	2	Breakage threshold 1(without inductors)		Unit	Float	x	x	x
12266	2	Degradation threshold 2 (with inductors)		Unit	Float	x	x	x
12268	2	Breakage threshold 2 (with inductors)		Unit	Float	x	x	x
12270	2	Enable alarm reset		Unit	Float	x	x	x
12272	2	Enable harmonic analisys		Unit	Float	x	x	x
12274	2	Autodiagnostic threshold		Unit	Float	x	x	x
12276	2	868MHz address		Unit	Float	x	x	x
12278	2	868MHz channel		Unit	Float	x	x	x
12280	2	868MHz power		Unit	Float	x	x	x
12282	2	Network type		Unit	Float	x	x	x
12284	2	Instrument ID		Unit	Float	x	x	x
12286	2	Serial number: week		Unit	Float	x	x	x
12288	2	Serial number: year		Unit	Float	x	x	x
12290	2	Serial number: sequential number		Unit	Float	x	x	x
12292	2	FW version: major		Unit	Float	x	x	x
12294	2	FW version: sub		Unit	Float	x	x	x
12296	2	Bootloader version: major		Unit	Float	x	x	x
12298	2	Bootloader version: sub		Unit	Float	x	x	x
12300	2	Log period		sec	Float		x	x
12302	2	Log 1st measure		Unit	Float		x	x
12304	2	Log 2nd measure		Unit	Float		x	x
12306	2	Voltage dip duration		msec	Float		x	x
12308	2	Manual status C1		Unit	Float	x	x	x
12310	2	Manual status C2		Unit	Float	x	x	x
12312	2	Manual status C3		Unit	Float	x	x	x
12314	2	Manual status C4		Unit	Float	x	x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
12316	2	Manual status C5		Unit	Float	x	x	x
12318	2	Manual status C6		Unit	Float		x	x
12320	2	Manual status C7		Unit	Float		x	x
12322	2	Manual status C8		Unit	Float		x	x
12324	2	Manual status C9		Unit	Float		x	x
12326	2	Manual status C10		Unit	Float		x	x
12328	2	Manual status C11		Unit	Float		x	x
12330	2	Manual status C12		Unit	Float			x
12332	2	Manual status C13		Unit	Float			x
12334	2	Manual status C14		Unit	Float			x
12336	2	Manual status C15		Unit	Float			x
12338	2	Manual status C16		Unit	Float			x
12340	2	Manual status C17		Unit	Float			x
12342	2	Manual status C18		Unit	Float			x
12344	2	Manual status C19		Unit	Float			x
12346	2	Manual status C20		Unit	Float			x
12348	2	Manual status C21		Unit	Float			x
12350	2	Manual status C22		Unit	Float			x
12352	2	Manual status C23		Unit	Float			x
12354	2	Manual status C24		Unit	Float			x
12356	2	Manual status C25		Unit	Float			x
12358	2	Manual status C26		Unit	Float			x
12360	2	Manual status C27		Unit	Float			x
12362	2	Manual status C28		Unit	Float			x
12364	2	Manual status C29		Unit	Float			x
12390	2	Phase offset		°	Float		x	x
12392	2	Setpoint cosfi 2		thousandths	Float		x	x
12394	2	Setpoint cosfi 3		thousandths	Float		x	x
12396	2	Setpoint cosfi 4		thousandths	Float		x	x
12398	2	Band B1		Unit	Float		x	x
12400	2	Band B2		Unit	Float		x	x
12402	2	Band B3		Unit	Float		x	x
12404	2	Band B4		Unit	Float		x	x
12406	2	Step disconnection		Unit	Float		x	x
12420	2	Fan control threshold		°C	Float		x	x
12422	2	Fan control delay		sec	Float		x	x
12424	2	High cosfi alarm delay		min	Float	x	x	x
12426	2	Low cosfi alarm delay		min	Float	x	x	x
12428	2	Language		Unit	Float		x	x
12430	2	Temperature measurement unit		Unit	Float		x	x
12436	2	Backlight level		Unit	Float		x	x
12438	2	Automatic backlight turn-off		Unit	Float		x	x
12440	2	LCD display contrast		Unit	Float		x	x
12442	2	Summertime		Unit	Float		x	x
12444	2	Imax harmonic		mA	Float	x	x	x
12446	2	Alarm mask		Unit	Float	x	x	x
12448	2	Language version: major		Unit	Float		x	x
12450	2	Language version: minor		Unit	Float		x	x
12452	2	Maximum step connection time		hours	Float	x	x	x
12718	2	Min / max hyst.		Unit	Float			x
12720	2	N.moving average		Unit	Float			x
12722	2	N.moving average Hz		Unit	Float			x
12724	2	N. of harmonics		Unit	Float			x
12726	2	I RMS thres.		mA	Float			x
12728	2	Log 3rd measure		Unit	Float			x
12730	2	Log 4th measure		Unit	Float			x
12876	2	Hostname		Unit	Float			x
12878	2	Log activation		Unit	Float			x
12936	2	Analog input 1 minimum		-	Float			x
12938	2	Analog input 1 maximum		-	Float			x
12980	2	Analog input 1 span		Unit	Float			x
12984	2	Thermistor precision		Unit	Float			x
12986	2	Analog CT primary		A	Float			x
12988	2	Analog CT secondary		A	Float			x
13010	2	Fan control sensor		Unit	Float			x
13012	2	Temperature alarm sensor		Unit	Float			x
14004	2	Harmonic Module H2 current line 1		%	Float		x	x
14006	2	Harmonic Module H3 current line 1		%	Float		x	x
14008	2	Harmonic Module H4 current line 1		%	Float		x	x
14010	2	Harmonic Module H5 current line 1		%	Float		x	x
14012	2	Harmonic Module H6 current line 1		%	Float		x	x
14014	2	Harmonic Module H7 current line 1		%	Float		x	x
14016	2	Harmonic Module H8 current line 1		%	Float		x	x
14018	2	Harmonic Module H9 current line 1		%	Float		x	x
14020	2	Harmonic Module H10 current line 1		%	Float		x	x
14022	2	Harmonic Module H11 current line 1		%	Float		x	x
14024	2	Harmonic Module H12 current line 1		%	Float		x	x
14026	2	Harmonic Module H13 current line 1		%	Float		x	x
14028	2	Harmonic Module H14 current line 1		%	Float		x	x
14030	2	Harmonic Module H15 current line 1		%	Float		x	x
14032	2	Harmonic Module H16 current line 1		%	Float		x	x
14034	2	Harmonic Module H17 current line 1		%	Float		x	x
14036	2	Harmonic Module H18 current line 1		%	Float		x	x

Address	Word	Description	Notes	Unit	Format	R5	R8	R14
14286	2	Harmonic Module H43 voltage line 1		%	Float		x	x
14288	2	Harmonic Module H44 voltage line 1		%	Float		x	x
14290	2	Harmonic Module H45 voltage line 1		%	Float		x	x
14292	2	Harmonic Module H46 voltage line 1		%	Float		x	x
14294	2	Harmonic Module H47 voltage line 1		%	Float		x	x
14296	2	Harmonic Module H48 voltage line 1		%	Float		x	x
14298	2	Harmonic Module H49 voltage line 1		%	Float		x	x
14300	2	Harmonic Module H50 voltage line 1		%	Float		x	x
14302	2	Harmonic Module H51 voltage line 1		%	Float		x	x
14304	2	Harmonic Module H52 voltage line 1		%	Float		x	x
14306	2	Harmonic Module H53 voltage line 1		%	Float		x	x
14308	2	Harmonic Module H54 voltage line 1		%	Float		x	x
14310	2	Harmonic Module H55 voltage line 1		%	Float		x	x
14312	2	Harmonic Module H56 voltage line 1		%	Float		x	x
14314	2	Harmonic Module H57 voltage line 1		%	Float		x	x
14316	2	Harmonic Module H58 voltage line 1		%	Float		x	x
14318	2	Harmonic Module H59 voltage line 1		%	Float		x	x
14320	2	Harmonic Module H60 voltage line 1		%	Float		x	x

(*1) For what concerns PF and Cosphi, please note that:

1. in case of inductive PF or Cosphi quantities are positive; in case of capacitive PF or Cosphi quantities are negative;
2. when PF and Cosphi are not defined (zero current), 200 is the returned value indicating this particular situation (the device screen shows three hypens ""---"").

(*2) Reading the Alarms status, please note that:

the value is to convert in bit-field (1 = ON and 0 = OFF) and the meaning of the bit are shown in the table below.

For R8 and R14:

- Bit0: High voltage alarm status
- Bit1: High current alarm status
- Bit2: Low voltage alarm status
- Bit3: Low current alarm status
- Bit4: THDI% alarm status
- Bit5: THDV% alarm status
- Bit6: Temperature alarm status
- Bit7: Fan alarm status
- Bit8: High cosfi alarm status
- Bit9: Low cosfi alarm status
- Bit10: Voltage dip alarm status

For R5:

- Bit0: High voltage alarm status
- Bit1: High current alarm status
- Bit2: Low voltage alarm status
- Bit3: Low current alarm status
- Bit4: THDI% alarm status
- Bit5: THDV% alarm status
- Bit6: Temperature alarm status
- Bit7: High cosfi alarm status
- Bit8: Low cosfi alarm status
- Bit9: Voltage dip alarm status

(*3) Reading the battery breakage status, please note that:

the value is to convert in bit-field (1 = BROKEN and 0 = OK) and the meaning of the bit are shown in the table below.

- Bit0: C1 step breakage status
- Bit1: C2 step breakage status
- Bit2: C3 step breakage status
- Bit3: C4 step breakage status
- Bit4: C5 step breakage status
- Bit5: C6 step breakage status
- Bit6: C7 step breakage status
- Bit7: C8 step breakage status
- Bit8: C9 step breakage status
- Bit9: C10 step breakage status
- Bit10: C11 step breakage status
- Bit11: C12 step breakage status
- Bit12: C13 step breakage status
- Bit13: C14 step breakage status
- Bit14: C15 step breakage status
- Bit15: C16 step breakage status
- Bit16: C17 step breakage status
- Bit17: C18 step breakage status
- Bit18: C19 step breakage status
- Bit19: C20 step breakage status
- Bit20: C21 step breakage status
- Bit21: C22 step breakage status
- Bit22: C23 step breakage status
- Bit23: C24 step breakage status
- Bit24: C25 step breakage status
- Bit25: C26 step breakage status
- Bit26: C27 step breakage status
- Bit27: C28 step breakage status

Bit28: C29 step breakage status

- (*4) Reading the battery status, please note that:
the value is to convert in bit-field (1 = INSERTED and 0 = NOT INSERTED) and the meaning of the bit are shown in the table below.

According to device model:

Bit0: C1 step status
 Bit1: C2 step status
 Bit2: C3 step status
 Bit3: C4 step status
 Bit4: C5 step status
 Bit5: C6 step status
 Bit6: C7 step status
 Bit7: C8 step status
 Bit8: C9 step status
 Bit9: C10 step status
 Bit10: C11 step status
 Bit11: C12 step status
 Bit12: C13 step status
 Bit13: C14 step status
 Bit14: C15 step status
 Bit15: C16 step status
 Bit16: C17 step status
 Bit17: C18 step status
 Bit18: C19 step status
 Bit19: C20 step status
 Bit20: C21 step status
 Bit21: C22 step status
 Bit22: C23 step status
 Bit23: C24 step status
 Bit24: C25 step status
 Bit25: C26 step status
 Bit26: C27 step status
 Bit27: C28 step status
 Bit28: C29 step status

- (*5) Reading the maximum battery insertion status, please note that the value is to convert in bit-field (1 = EXCEEDED and 0 = OK) and the meaning of the bit are shown below, according to device model:

Bit0: C1 Maximum battery insertions exceeded
 Bit1: C2 Maximum battery insertions exceeded
 Bit2: C3 Maximum battery insertions exceeded
 Bit3: C4 Maximum battery insertions exceeded
 Bit4: C5 Maximum battery insertions exceeded
 Bit5: C6 Maximum battery insertions exceeded
 Bit6: C7 Maximum battery insertions exceeded
 Bit7: C8 Maximum battery insertions exceeded
 Bit8: C9 Maximum battery insertions exceeded
 Bit9: C10 Maximum battery insertions exceeded
 Bit10: C11 Maximum battery insertions exceeded
 Bit11: C12 Maximum battery insertions exceeded
 Bit12: C13 Maximum battery insertions exceeded
 Bit13: C14 Maximum battery insertions exceeded
 Bit14: C15 Maximum battery insertions exceeded
 Bit15: C16 Maximum battery insertions exceeded
 Bit16: C17 Maximum battery insertions exceeded
 Bit17: C18 Maximum battery insertions exceeded
 Bit18: C19 Maximum battery insertions exceeded
 Bit19: C20 Maximum battery insertions exceeded
 Bit20: C21 Maximum battery insertions exceeded
 Bit21: C22 Maximum battery insertions exceeded
 Bit22: C23 Maximum battery insertions exceeded
 Bit23: C24 Maximum battery insertions exceeded
 Bit24: C25 Maximum battery insertions exceeded
 Bit25: C26 Maximum battery insertions exceeded
 Bit26: C27 Maximum battery insertions exceeded
 Bit27: C28 Maximum battery insertions exceeded
 Bit28: C29 Maximum battery insertions exceeded

- (*6) When reading the relay status, please note that the value is to convert in bit-field (1 = CLOSED and 0 = OPEN) and the meaning of the bit are shown in the table below, according to device model:

Bit0: Status of relay 1
 Bit1: Status of relay 2
 Bit2: Status of relay 3
 Bit3: Status of relay 4
 Bit4: Status of relay 5
 Bit5: Status of relay 6
 Bit6: Status of relay 7
 Bit7: Status of relay 8
 Bit8: Status of relay 9
 Bit9: Status of relay 10
 Bit10: Status of relat 11
 Bit11: Status of relat 12
 Bit12: Status of relat 13
 Bit13: Status of relat 14

- Bit14: Status of relat 15
- Bit15: Status of relat 16
- Bit16: Status of relat 17
- Bit17: Status of relat 18
- Bit18: Status of relat 19
- Bit19: Status of relat 20
- Bit20: Status of relat 21
- Bit21: Status of relat 22
- Bit22: Status of relat 23
- Bit23: Status of relat 24
- Bit24: Status of relat 25
- Bit25: Status of relat 26
- Bit26: Status of relat 27
- Bit27: Status of relat 28
- Bit28: Status of relat 29

PRESET SINGLE REGISTER FUNCTION (0x03h)

Address	Word	Description	Note	Min	Max	Unit	Format	R5	R8	R14
6	1	Average period		1	60	Minutes	Unsigned Int	x	x	x
8	1	Reset	(*1)	-	-	Unit	Unsigned Int	x	x	x
12	1	Modbus address		0	247	Unit	Unsigned Int	x	x	x
154	1	Average period		1	60	Minutes	Unsigned Int	x	x	x
200	1	CT primary		1	10000	A	Unsigned Int	x	x	x
202	1	CT secondary		1	5	A	Unsigned Int	x	x	x
204	1	CT phase insertion 0 = L1 (R); 1 = L2 (S); 2 = L3 (T);		0	2	Unit	Unsigned Int	x	x	x
206	1	Enable CT inversion 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int	x	x	x
208	1	Enable cogeneration 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int	x	x	x
210	1	Frequency mode 0 = 50Hz; 1 = 60Hz; 2 = Auto;		0	2	Unit	Unsigned Int	x	x	x
212	1	VT primary (MSW)	(*2)	50	200000	V	Unsigned Int	x	x	x
214	1	VT primary (LSW)					Unsigned Int	x	x	x
216	1	VT secondary	(*3)	50	525	V	Unsigned Int	x	x	x
218	1	Voltage phase 0 = L1n; 1 = L2n; 2 = L3n; 3 = L12; 4 = L23; 5 = L31;		0	5	Unit	Unsigned Int	x	x	x
220	1	Step nominal voltage		50	5000	V	Unsigned Int	x	x	x
222	1	Enable manual mode 0 = Disabled; 1 = Enabled;		0	1	Thousandths	Unsigned Int	x	x	x
224	1	Target cosfi		(-500;-999) e (500;1000)		Thousandths	Signed Int	x	x	x
226	1	Cosfi tolerance		10	100	sec	Unsigned Int	x	x	x
228	1	Capacitor discharge time		1	600	sec	Unsigned Int	x	x	x
230	1	Connection time: connection/disconnection time between consecutive switching		1	30000	sec	Unsigned Int	x	x	x
232	1	Relay Output 1 function	(*4)		6	Unit	Unsigned Int	x	x	x
234	1	Step C1 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
236	1	Step C1 power (LSW)					Unsigned Int	x	x	x
238	1	Alarm type for output 1	(*5)	0	10	Unit	Unsigned Int	x	x	x
240	1	Relay Output 2 function	(*4)	0	6	Unit	Unsigned Int	x	x	x
242	1	Step C2 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
244	1	Step C2 power (LSW)					Unsigned Int	x	x	x
246	1	Alarm type for output 2	(*5)	0	10	Unit	Unsigned Int	x	x	x
248	1	Relay Output 3 function	(*4)	0	6	Unit	Unsigned Int	x	x	x
250	1	Step C3 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
252	1	Step C3 power (LSW)					Unsigned Int	x	x	x
254	1	Alarm type for output 3	(*5)	0	10	Unit	Unsigned Int	x	x	x
256	1	Relay Output 4 function	(*4)	0	6	Unit	Unsigned Int	x	x	x
258	1	Step C4 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
260	1	Step C4 power (LSW)					Unsigned Int	x	x	x
262	1	Alarm type for output 4	(*5)	0	10	Unit	Unsigned Int	x	x	x
264	1	Relay Output 5 function	(*4)	0	6	Unit	Unsigned Int	x	x	x
266	1	Step C5 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
268	1	Step C5 power (LSW)					Unsigned Int	x	x	x
270	1	Alarm type for output 5	(*5)	0	10	Unit	Unsigned Int	x	x	x
272	1	Relay Output 6 function	(*7)	0	6	Unit	Unsigned Int	x	x	x
274	1	Step C6 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
276	1	Step C6 power (LSW)					Unsigned Int	x	x	x
278	1	Alarm type for output 6	(*6)	0	10	Unit	Unsigned Int	x	x	x
280	1	Relay Output 7 function	(*7)	0	6	Unit	Unsigned Int	x	x	x
282	1	Step C7 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
284	1	Step C7 power (LSW)					Unsigned Int	x	x	x
286	1	Alarm type for output 7	(*6)	0	10	Unit	Unsigned Int	x	x	x
288	1	Relay Output 8 function	(*7)	0	6	Unit	Unsigned Int	x	x	x
290	1	Step C8 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
292	1	Step C8 power (LSW)					Unsigned Int	x	x	x
294	1	Alarm type for output 8	(*6)	0	10	Unit	Unsigned Int	x	x	x
296	1	Relay Output 9 function	(*7)	0	6	Unit	Unsigned Int	x	x	x
298	1	Step C9 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
300	1	Step C9 power (LSW)					Unsigned Int	x	x	x
302	1	Alarm type for output 9	(*6)	0	10	Unit	Unsigned Int	x	x	x
304	1	Relay Output 10 function	(*7)	0	6	Unit	Unsigned Int	x	x	x
306	1	Step C10 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
308	1	Step C10 power (LSW)					Unsigned Int	x	x	x
310	1	Alarm type for output 10	(*6)	0	10	Unit	Unsigned Int	x	x	x
312	1	Relay Output 11 function	(*8)	0	7	Unit	Unsigned Int	x	x	x
314	1	Step C11 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
316	1	Step C11 power (LSW)					Unsigned Int	x	x	x
318	1	Alarm type for output 11	(*6)	0	10	Unit	Unsigned Int	x	x	x
320	1	Relay Output 12 function	(*9)	0	6	Unit	Unsigned Int	x	x	x
322	1	Step C12 power (MSW)		0	999000	VAr	Unsigned Int	x	x	x
324	1	Step C12 power (LSW)					Unsigned Int	x	x	x

Address	Word	Description	Note	Min	Max	Unit	Format	R5	R8	R14
326	1	Alarm type for output 12	(*6)	0	10	Unit	Unsigned Int			x
328	1	Relay Output 13 function	(*9)	0	6	Unit	Unsigned Int			x
330	1	Step C13 power (MSW)		0	999000	VAr	Unsigned Int			x
332	1	Step C13 power (LSW)					Unsigned Int			x
334	1	Alarm type for output 13	(*6)	0	10	Unit	Unsigned Int			x
336	1	Relay Output 14 function	(*9)	0	6	Unit	Unsigned Int			x
338	1	Step C14 power (MSW)		0	999000	VAr	Unsigned Int			x
340	1	Step C14 power (LSW)					Unsigned Int			x
342	1	Alarm type for output 14	(*6)	0	10	Unit	Unsigned Int			x
344	1	Relay Output 15 function	(*10)	0	7	Unit	Unsigned Int			x
346	1	Step C15 power (MSW)		0	999000	VAr	Unsigned Int			x
348	1	Step C15 power (LSW)					Unsigned Int			x
350	1	Alarm type for output 15	(*6)	0	10	Unit	Unsigned Int			x
352	1	Relay Output 16 function	(*9)	0	6	Unit	Unsigned Int			x
354	1	Step C16 power (MSW)		0	999000	VAr	Unsigned Int			x
356	1	Step C16 power (LSW)					Unsigned Int			x
358	1	Alarm type for output 16	(*6)	0	10	Unit	Unsigned Int			x
360	1	Relay Output 17 function	(*9)	0	6	Unit	Unsigned Int			x
362	1	Step C17 power (MSW)		0	999000	VAr	Unsigned Int			x
364	1	Step C17 power (LSW)					Unsigned Int			x
366	1	Alarm type for output 17	(*6)	0	10	Unit	Unsigned Int			x
368	1	Relay Output 18 function	(*9)	0	6	Unit	Unsigned Int			x
370	1	Step C18 power (MSW)		0	999000	VAr	Unsigned Int			x
372	1	Step C18 power (LSW)					Unsigned Int			x
374	1	Alarm type for output 18	(*6)	0	10	Unit	Unsigned Int			x
376	1	Relay Output 19 function	(*9)	0	6	Unit	Unsigned Int			x
378	1	Step C19 power (MSW)		0	999000	VAr	Unsigned Int			x
380	1	Step C19 power (LSW)					Unsigned Int			x
382	1	Alarm type for output 19	(*6)	0	10	Unit	Unsigned Int			x
384	1	Relay Output 20 function	(*9)	0	6	Unit	Unsigned Int			x
386	1	Step C20 power (MSW)		0	999000	VAr	Unsigned Int			x
388	1	Step C20 power (LSW)					Unsigned Int			x
390	1	Alarm type for output 20	(*6)	0	10	Unit	Unsigned Int			x
392	1	Relay Output 21 function	(*9)	0	6	Unit	Unsigned Int			x
394	1	Step C21 power (MSW)		0	999000	VAr	Unsigned Int			x
396	1	Step C21 power (LSW)					Unsigned Int			x
398	1	Alarm type for output 21	(*6)	0	10	Unit	Unsigned Int			x
400	1	Relay Output 22 function	(*9)	0	6	Unit	Unsigned Int			x
402	1	Step C22 power (MSW)		0	999000	VAr	Unsigned Int			x
404	1	Step C22 power (LSW)					Unsigned Int			x
406	1	Alarm type for output 22	(*6)	0	10	Unit	Unsigned Int			x
408	1	Relay Output 23 function	(*9)	0	6	Unit	Unsigned Int			x
410	1	Step C23 power (MSW)		0	999000	VAr	Unsigned Int			x
412	1	Step C23 power (LSW)					Unsigned Int			x
414	1	Alarm type for output 23	(*6)	0	10	Unit	Unsigned Int			x
416	1	Relay Output 24 function	(*9)	0	6	Unit	Unsigned Int			x
418	1	Step C24 power (MSW)		0	999000	VAr	Unsigned Int			x
420	1	Step C24 power (LSW)					Unsigned Int			x
422	1	Alarm type for output 24	(*6)	0	10	Unit	Unsigned Int			x
424	1	Relay Output 25 function	(*9)	0	6	Unit	Unsigned Int			x
426	1	Step C25 power (MSW)		0	999000	VAr	Unsigned Int			x
428	1	Step C25 power (LSW)					Unsigned Int			x
430	1	Alarm type for output 25	(*6)	0	10	Unit	Unsigned Int			x
432	1	Relay Output 26 function	(*9)	0	6	Unit	Unsigned Int			x
434	1	Step C26 power (MSW)		0	999000	VAr	Unsigned Int			x
436	1	Step C26 power (LSW)					Unsigned Int			x
438	1	Alarm type for output 26	(*6)	0	10	Unit	Unsigned Int			x
440	1	Relay Output 27 function	(*9)	0	6	Unit	Unsigned Int			x
442	1	Step C27 power (MSW)		0	999000	VAr	Unsigned Int			x
444	1	Step C27 power (LSW)					Unsigned Int			x
446	1	Alarm type for output 27	(*6)	0	10	Unit	Unsigned Int			x
448	1	Relay Output 28 function	(*9)	0	6	Unit	Unsigned Int			x
450	1	Step C28 power (MSW)		0	999000	VAr	Unsigned Int			x
452	1	Step C28 power (LSW)					Unsigned Int			x
454	1	Alarm type for output 28	(*6)	0	10	Unit	Unsigned Int			x
456	1	Relay Output 29 function	(*10)	0	7	Unit	Unsigned Int			x
458	1	Step C29 power (MSW)		0	999000	VAr	Unsigned Int			x
460	1	Step C29 power (LSW)					Unsigned Int			x
462	1	Alarm type for output 29	(*6)	0	10	Unit	Unsigned Int			x
472	1	Average period		1	60	Minutes	Unsigned Int	x	x	x
474	1	Communication protocol 0 = Modbus; 1 = Ducbus;		0	1	Unit	Unsigned Int	x	x	x
476	1	Serial communication address		0	247	Unit	Unsigned Int	x	x	x
478	1	Serial communication baudrate 0= 9600; 1= 19200; 2= 38400; 3= 57600; 4= 115200;		0	4	bps	Unsigned Int	x	x	x
480	1	High voltage alarm threshold		90	110 (111 = disab.)	% of VT primary	Unsigned Int	x	x	x
482	1	High voltage alarm delay		1	255	sec	Unsigned Int	x	x	x
484	1	High current alarm threshold		90	120 (121 = disab.)	% of CT primary	Unsigned Int	x	x	x
486	1	High current alarm delay		1	255	sec	Unsigned Int	x	x	x
488	1	Low voltage alarm threshold		90	110 (111 = disab.)	% of VT primary	Unsigned Int	x	x	x

Address	Word	Description	Note	Min	Max	Unit	Format	R5	R8	R14
490	1	Low voltage alarm delay		1	255	sec	Unsigned Int	x	x	x
492	1	Low current alarm threshold	(*11)	1	21	Unit	Unsigned Int	x	x	x
494	1	Low current alarm delay		1	255	sec	Unsigned Int	x	x	x
496	1	THDV% alarm threshold		0	100 (999 = disab.)	%	Unsigned Int	x	x	x
498	1	THDV% alarm delay		1	255	sec	Unsigned Int	x	x	x
500	1	THDI% alarm threshold		0	100 (999 = disab.)	%	Unsigned Int	x	x	x
502	1	THDI% alarm delay		1	255	sec	Unsigned Int	x	x	x
504	1	Temperature alarm threshold		0	80 (999 = disab.)	%	Unsigned Int	x	x	x
506	1	Temperature alarm delay		1	255	sec	Unsigned Int	x	x	x
508	1	Enable disconnection time 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int	x	x	x
510	1	Disconnection time		1	30000	sec	Unsigned Int	x	x	x
512	1	PFC algorithm evaluation time		10	1500	network cycles	Unsigned Int	x	x	x
514	1	Transient exhaustion time for disinsertion		5	250	network cycles	Unsigned Int	x	x	x
516	1	Transient exhaustion time for insertion		5	250	network cycles	Unsigned Int	x	x	x
518	1	Enable stability control for sliding win. avg. 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int	x	x	x
520	1	Percentage deviation for sliding win. avg.		1	50	Unit	Unsigned Int	x	x	x
522	1	Inductors presence 0= Not present; 1 = Present;		0	1	Unit	Unsigned Int	x	x	x
524	1	Degradation threshold 1 (without inductors)	(*12)	1	20	Unit	Unsigned Int	x	x	x
526	1	Breakage threshold 1(without inductors)	(*12)	1	20	Unit	Unsigned Int	x	x	x
528	1	Degradation threshold 2 (with inductors)	(*12)	1	20	Unit	Unsigned Int	x	x	x
530	1	Breakage threshold 2 (with inductors)	(*12)	1	20	Unit	Unsigned Int	x	x	x
532	1	Enable alarm reset 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int	x	x	x
534	1	Enable harmonic analysys 0= RMS visualization; 1= DFT visualization;		0	1	Unit	Unsigned Int	x	x	x
536	1	Autodiagnostic threshold		0	200	Unit	Unsigned Int	x	x	x
538	1	868MHz address		1	247	Unit	Unsigned Int	x	x	x
540	1	868MHz channel		0	10	Unit	Unsigned Int	x	x	x
542	1	Log period		1	9999	sec	Unsigned Int	x	x	x
544	1	Fisrt measure log address	(*13)	-	-	-	Unsigned Int		x	x
546	1	Fisrt measure log address	(*13)	-	-	-	Unsigned Int		x	x
548	1	1° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
550	1	2° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
552	1	3° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
554	1	4° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
556	1	5° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
558	1	6° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
560	1	7° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
562	1	8° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
564	1	9° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
566	1	10° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
568	1	11° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
570	1	12° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
572	1	13° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
574	1	14° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
576	1	15° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
578	1	16° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
580	1	17° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
582	1	18° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
584	1	19° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
586	1	20° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
588	1	21° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
590	1	22° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
592	1	23° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
594	1	24° mix list value address	(*14)	-	-	-	Unsigned Int	x	x	x
596	1	Network type 0= Three-phase; 1 = Single-phase;		0	1	Unit	Unsigned Int	x	x	x
598	1	Voltage dip duration		5	40	msec	Unsigned Int	x	x	x
600	1	Manual status C1 0= Off; 1= On;		0	1	Unit	Unsigned Int	x	x	x
602	1	Manual status C2 0= Off; 1= On;		0	1	Unit	Unsigned Int	x	x	x
604	1	Manual status C3 0= Off; 1= On;		0	1	Unit	Unsigned Int	x	x	x
606	1	Manual status C4 0= Off; 1= On;		0	1	Unit	Unsigned Int	x	x	x
608	1	Manual status C5 0= Off; 1= On;		0	1	Unit	Unsigned Int	x	x	x
610	1	Manual status C6 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x

Address	Word	Description	Note	Min	Max	Unit	Format	R5	R8	R14
612	1	Manual status C7 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x
614	1	Manual status C8 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x
616	1	Manual status C9 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x
618	1	Manual status C10 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x
620	1	Manual status C11 0= Off; 1= On;		0	1	Unit	Unsigned Int		x	x
622	1	Manual status C12 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
624	1	Manual status C13 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
626	1	Manual status C14 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
628	1	Manual status C15 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
630	1	Manual status C16 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
632	1	Manual status C17 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
634	1	Manual status C18 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
636	1	Manual status C19 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
638	1	Manual status C20 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
640	1	Manual status C21 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
642	1	Fan control threshold		0	80 (999 = disab.)	%	Unsigned Int		x	x
644	1	Fan control delay		1	255	sec	Unsigned Int		x	x
646	1	High cosfi alarm delay		1	255	Minutes	Unsigned Int	x	x	x
648	1	Low cosfi alarm delay		1	255	Minutes	Unsigned Int	x	x	x
650	1	Phase offset		-180	180	°	Signed Int		x	x
652	1	Target cosfi 2		(-500;-999) e (500;1000)		Thousandths	Signed Int		x	x
654	1	Target cosfi 3		(-500;-999) e (500;1000)		Thousandths	Signed Int		x	x
656	1	Target cosfi 4		(-500;-999) e (500;1000)		Thousandths	Signed Int		x	x
658	1	Band B1	(*15)	-	-		Unsigned Int		x	x
660	1	Band B2	(*15)	-	-		Unsigned Int		x	x
662	1	Band B3	(*15)	-	-		Unsigned Int		x	x
664	1	Band B4	(*15)	-	-		Unsigned Int		x	x
666	1	Step disconnection 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int		x	x
680	1	Language 0 = ENGLISH; 1 = ITALIAN; 2 = FRENCH; 3 = SPANISH; 4 = GERMAN; 5 = PORTOGUISE; 6 = RUSSIAN; 7 = ARABIC; 8 = CHINESE;	(*16)	0	8	Unit	Unsigned Int		x	x
682	1	Temperature measurement unit 0= Celsius; 1 = Fahrenheit		0	1	Unit	Unsigned Int		x	x
690	1	Backlight 0 = Off; 2= Max level;		0	2	Unit	Unsigned Int		x	x
692	1	Automatic backlight turn-off 0 = Disabled; 1 = Enabled;		0	1	Unit	Unsigned Int		x	x
694	1	LCD display contrast		0	10	Unit	Unsigned Int		x	x
696	1	Summertime 0 = Standard time; 1 = Daylight saving time		0	1	Unit	Unsigned Int		x	
698	1	THDI invalid threshold		35	5000	Unit	Unsigned Int	x	x	x
700	1	Alarm mask		0	3	Unit	Unsigned Int	x	x	x
702	1	Max connection time		0	999	hours	Unsigned Int	x	x	x
1128	1	Log activation		0	1	Unit	Unsigned Int			x

Address	Word	Description	Note	Min	Max	Unit	Format	R5	R8	R14
1150	1	Manual status C22 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1152	1	Manual status C23 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1154	1	Manual status C24 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1156	1	Manual status C25 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1158	1	Manual status C26 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1160	1	Manual status C27 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1162	1	Manual status C28 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1164	1	Manual status C29 0= Off; 1= On;		0	1	Unit	Unsigned Int			x
1190	1	Aanalog input 1 span 0 = 4-20 mA; 1 = 0-20 mA;		0	1	Unit	Unsigned Int			x
1194	1	Thermistor accuracy 0 = PT100; 1 = PT1000;		0	1	Unit	Unsigned Int			x
1196	1	Analog CT primary		5	10000	A	Unsigned Int			x
1198	1	Analog CT secondary		1	5	A	Unsigned Int			x
1216	1	Fan control sensor 0 = internal sensor; 1 = external sensor; 2 = both;		0	2	Unit	Unsigned Int			x
1218	1	Temperature alarm sensor 0 = internal sensor; 1 = external sensor; 2 = both;		0	2	Unit	Unsigned Int			x

(*1) For R5 possible values are
 "5" resets max, min and avg measure;
 "20" reset to factory;
 "30" reset C1;
 "31" reset C2;
 "32" reset C3;
 "33" reset C4;
 "34" reset C5;
 "60" reset contact operation C1;
 "61" reset contact operation C2;
 "62" reset contact operation C3;
 "63" reset contact operation C4;
 "64" reset contact operation C5;
 "90" reset ACQ;

For R8 possible values are:
 "5" resets max, min and avg measure;
 "20" reset to factory;
 "30" reset C1;
 "31" reset C2;
 "32" reset C3;
 "33" reset C4;
 "34" reset C5;
 "35" reset C6;
 "36" reset C7;
 "37" reset C8;
 "38" reset C9;
 "39" reset C10;
 "40" reset C11;
 "60" reset contact operation C1;
 "61" reset contact operation C2;
 "62" reset contact operation C3;
 "63" reset contact operation C4;
 "64" reset contact operation C5;
 "65" reset contact operation C6;
 "66" reset contact operation C7;
 "67" reset contact operation C8;
 "68" reset contact operation C9;
 "69" reset contact operation C10;
 "70" reset contact operation C11;
 "90" reset ACQ;

For R14 possible values are:
 "5" resets max, min and avg measure;
 "6" alarm counters;
 "20" reset to factory;
 "26" resets daily-weekly avg;
 "30" reset C1;

"31" reset C2;
 "32" reset C3;
 "33" reset C4;
 "34" reset C5;
 "35" reset C6;
 "36" reset C7;
 "37" reset C8;
 "38" reset C9;
 "39" reset C10;
 "40" reset C11;
 "41" reset C12;
 "42" reset C13;
 "43" reset C14;
 "44" reset C15;
 "45" reset C16;
 "46" reset C17;
 "47" reset C18;
 "48" reset C19;
 "49" reset C20;
 "50" reset C21;
 "51" reset C22;
 "52" reset C23;
 "53" reset C24;
 "54" reset C25;
 "55" reset C26;
 "56" reset C27;
 "57" reset C28;
 "58" reset C29;
 "60" reset contact operations C1;
 "61" reset contact operations C2;
 "62" reset contact operations C3;
 "63" reset contact operations C4;
 "64" reset contact operations C5;
 "65" reset contact operations C6;
 "66" reset contact operations C7;
 "67" reset contact operations C8;
 "68" reset contact operations C9;
 "69" reset contact operations C10;
 "70" reset contact operations C11;
 "71" reset contact operations C12;
 "72" reset contact operations C13;
 "73" reset contact operations C14;
 "74" reset contact operations C15;
 "75" reset contact operations C16;
 "76" reset contact operations C17;
 "77" reset contact operations C18;
 "78" reset contact operations C19;
 "79" reset contact operations C20;
 "80" reset contact operations C21;
 "81" reset contact operations C22;
 "82" reset contact operations C23;
 "83" reset contact operations C24;
 "84" reset contact operations C25;
 "85" reset contact operations C26;
 "86" reset contact operations C27;
 "87" reset contact operations C28;
 "88" reset contact operations C29;
 "90" reset ACQ;

(*2) For R5 max and min value are 210 and 160000.

(*3) VT secondary max e min for R5 has to possible range (210;250) and (370; 430);

(*4) For R5 the available values are:

0 = Step;
 1 = Always off step;
 2 = Always on step;
 3 = N.O. contact alarm;

For R8 and R14 the available values are:

0 = Step;
 1 = Always off step;
 2 = Always on step;
 3 = N.O. contact alarm;
 4 = N.C. contact alarm;
 5 = FAN output;
 6 = MAN/AUTO output;

(*5) For R8 and R14 the available values are:

0 = High voltage;
 1 = High current;
 2 = Low voltage;
 3 = Low current;
 4 = High THDV%;
 5 = High THDI%;
 6 = High temperature;
 7 = Not used
 8 = High Cosfi ;

9 = Low Cosfi;
10 = Generic;

For R5 the available values are:

0 = High voltage;
1 = High current;
2 = Low voltage;
3 = Low current;
4 = High THDV%;
5 = High THDI%;
6 = High temperature;
7 = High Cosfi;
8 = Low Cosfi;
9 = Generic;

(*6) For R8 and R14 the available values are:

0 = High voltage;
1 = High current;
2 = Low voltage;
3 = Low current;
4 = High THDV%;
5 = High THDI%;
6 = High temperature;
7 = Not used
8 = High Cosfi ;
9 = Low Cosfi;
10 = Generic;

(*7) For R8 and R14 the available values are:

0 = Step;
1 = Always off step;
2 = Always on step;
3 = N.O. contact alarm;
4 = N.C. contact alarm;
5 = FAN output;
6 = MAN/AUTO output;

(*8) For R8 the available values are:

0 = Step;
1 = Always off step;
2 = Always on step;
3 = N.O. contact alarm;
4 = N.C. contact alarm;
5 = FAN output;
6 = MAN/AUTO output;
7 = R8 running (RUN);

For R14 the available values are:

0 = Step;
1 = Always off step;
2 = Always on step;
3 = N.O. contact alarm;
4 = N.C. contact alarm;
5 = FAN output;
6 = MAN/AUTO output;

(*9) For R14 the available values are:

0 = Step;
1 = Always off step;
2 = Always on step;
3 = N.O. contact alarm;
4 = N.C. contact alarm;
5 = FAN output;
6 = MAN/AUTO output;

(*10) For R14 the available values are:

0 = Step;
1 = Always off step;
2 = Always on step;
3 = N.O. contact alarm;
4 = N.C. contact alarm;
5 = FAN output;
6 = MAN/AUTO output;
7 = R14 running (RUN);

(*11) For R5, R8 and R14 the available values are:

1 = 0,7% of CT primary;
2 = 1,0 % of CT primary;
3 = 1,5 % of CT primary;
4 = 2,0 % of CT primary;
5 = 2,5 % of CT primary;
6 = 3,0 % of CT primary;
7 = 3,5 % of CT primary;
8 = 4,0 % of CT primary;
9 = 4,5 % of CT primary;
10 = 5,0 % of CT primary;
11 = 5,5 % of CT primary;
12 = 6,0 % of CT primary;

- 13 = 6,5 % of CT primary;
- 14 = 7,0 % of CT primary;
- 15 = 7,5 % of CT primary;
- 16 = 8,0 % of CT primary;
- 17 = 8,5 % of CT primary;
- 18 = 9,0 % of CT primary;
- 19 = 9,5 % of CT primary;
- 20 = 10,0 % of CT primary;
- 21 = 10,5 % of CT primary;

(*12) For R5, R8 and R14 the available values are:

- 1= 5% of degradation;
- 2= 10% of degradation;
- 3= 15% of degradation;
- 4= 20% of degradation;
- 5= 25% of degradation;
- 6= 30% of degradation;
- 7= 35% of degradation;
- 8= 40% of degradation;
- 9= 45% of degradation;
- 10= 50% of degradation;
- 11= 55% of degradation;
- 12= 60% of degradation;
- 13= 65% of degradation;
- 14= 70% of degradation;
- 15= 75% of degradation;
- 16= 80% of degradation;
- 17= 85% of degradation;
- 18= 90% of degradation;
- 19= 95% of degradation;
- 20= 100% of degradation;

(*13) For R8 must be a valid address of the Read Holding Register map.

For R14 the available values are:

- 0 = DISABLED
- 1 = V 3F RMS
- 2 = I 3F RMS
- 3 = I 3F RMS AVG
- 4 = W 3F
- 5 = W 3F AVG
- 6 = VAr 3F
- 7 = VAr 3F AVG
- 8 = VA 3F
- 9 = VA 3F AVG
- 10 = W 3F DFT
- 11 = W 3F AVG DFT
- 12 = VAr 3F DFT
- 13 = VAr 3F AVG DFT
- 14 = VA 3F DFT
- 15 = VA 3F AVG DFT
- 16 = PF 3F
- 17 = PF 3F AVG
- 18 = COSFI 3F
- 19 = COSFI 3F AVG
- 20 = THDI L1
- 21 = THDV L1
- 22 = FRQ.
- 23 = TEMP.
- 24 = ANALOG 1
- 25 = ANALOG 2

(*14) The list value address must be an address available in the memory map for the READ HOLDING REGISTER.

(*15) The B1, B2, B3 and B4 bands value must be specified using this formula

$$Bn_value = hour * 256 + minute$$

(*16) For R14 the available values are:

- 0 = ENGLISH;
- 1 = ITALIAN;