

# EWCM 4120-4150-4180

## - Serial Communication Protocol – Compact controller for compressor plants



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# 1 MODBUS FUNCTIONS AND RESOURCES

The TTL serial - referred to also as COM1 – can be used to configure the device, parameters, states, and variables using the Modbus protocol.

See the following tables:

Parameter	Description	Value	
		0	1
CF54	Select COM1 (TTL) protocol	Eliwell	Modbus

IF CF54=0 is necessary to set the following parameters:

Parameter	Description	Range
CF55	Eliwell protocol controller address	0...14
CF56	Eliwell protocol controller family	

IF CF54=1 (MODBUS Protocol) is necessary to set the following parameters:

Parameter	Description	Range
CF63	Modbus protocol controller address	1...255
Parameter	Description	Value
CF64	Modbus baud rate protocol	<ul style="list-style-type: none"> <li>• 0=1200 baud</li> <li>• 1=2400 baud</li> <li>• 2=4800 baud</li> <li>• 3=9600 baud</li> <li>• 4=19200 baud</li> <li>• 5=38400 baud</li> <li>• 6=58600 baud</li> <li>• 7=115200 baud</li> </ul>
CF65	Modbus parity protocol	<ul style="list-style-type: none"> <li>• 1= EVEN</li> <li>• 2= NONE</li> <li>• 3= ODD</li> </ul>

## 1.1 Configuration with Modbus RTU

Modbus is a client/server protocol for communication between network linked devices.

Modbus devices communicate using a master-slave technique in which a single device (the master) can send messages. All other devices in the network (slaves) respond by returning the data required to the master or executing the action indicated in the message received. A slave is defined as a device connected to a network that processes information and sends the results to a master using the Modbus protocol.

The master can send messages to individual slaves or to the entire network (broadcast) whilst slaves can only reply to messages received individually from the master.

The Modbus standard used by Eliwell uses RTU coding for data transmission.

### 1.1.1 Data format (RTU)

The data coding model used defines the structure of messages sent to the network and the way in which the information is decoded. The type of coding selected is generally based on specific parameters (baud rate, parity, etc)\*\*\* and some devices only support specific code models. However, the same model must be used for all devices connected to a Modbus network.

The protocol uses the RTU binary method with the following bytes:

8 bits for data, even parity bit (not configurable), 1 stop bit.

\*\*\* configurable via parameters **CF64, CF65** – see table at beginning of this section.

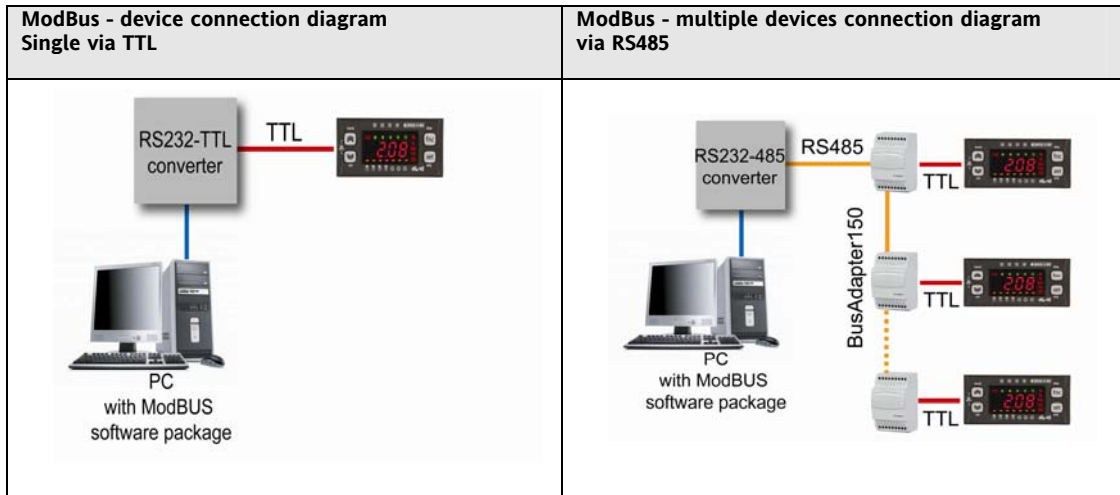
#### N.B.: transmission speed must be set at 9600 baud.

Every aspect of the device can be configured via parameters.

They can be modified by means of:

- Instrument keyboard
- Copy Card
- by sending data via the Modbus protocol straight to individual instruments, or via broadcast, using the address 0 (broadcast).

The connection diagram when using Modbus is shown below.



<b>PC connection / Interface</b>	RS232 cable
<b>Device / Bus Adapter connection</b>	5-wire TTL cable (30cm) in length (other measurements/lengths available).
<b>Bus Adapter</b>	BA150
<b>Bus Adapter / Interface connection</b>	RS485 cable shielded and twisted (example: Belden model 8762)

### 1.1.2 Modbus commands available and data areas

The commands implemented are:

<b>Modbus command</b>	<b>Description of command</b>								
3	Read 16 consecutive registers on Client side Read 1 single register for parameters.								
16	Write 15 consecutive registers on Client side Write 1 single register for parameters.								
43	Read device ID It is possible to read the following fields: <table border="1" data-bbox="759 1283 1445 1386"> <thead> <tr> <th data-bbox="759 1283 919 1312"><b>Field Code</b></th> <th data-bbox="919 1283 1445 1312"><b>Field Description</b></th> </tr> </thead> <tbody> <tr> <td data-bbox="759 1312 919 1341">0</td> <td data-bbox="919 1312 1445 1341">Manufacturer ID (= "Invensys")</td> </tr> <tr> <td data-bbox="759 1341 919 1370">1</td> <td data-bbox="919 1341 1445 1370">Model ID / Instrument Front panel ID</td> </tr> <tr> <td data-bbox="759 1370 919 1386">2</td> <td data-bbox="919 1370 1445 1386">Family (MSK) ID / Instrument version ID</td> </tr> </tbody> </table>	<b>Field Code</b>	<b>Field Description</b>	0	Manufacturer ID (= "Invensys")	1	Model ID / Instrument Front panel ID	2	Family (MSK) ID / Instrument version ID
<b>Field Code</b>	<b>Field Description</b>								
0	Manufacturer ID (= "Invensys")								
1	Model ID / Instrument Front panel ID								
2	Family (MSK) ID / Instrument version ID								

#### Length restrictions

maximum length in bytes of messages sent to device	30 BYTE
maximum length in bytes of messages received by device	30 BYTE



**ATTENTION!** It is necessary to require the reading of 2 registers (WORD) to obtaining 1 register on answer. The request of reading only one register cause the reading of the highest byte.



**ATTENTION!** In order to write values to WORD is necessary to send the request of writing with 2 registers, it will obtain an answer of dimension 2.

### Read Example

Multiple read of 2 real setpoints

Field	Decimal	Hex	Dimension
Device address (slave):	1	0x01	bytes
Read command code:	3	0x03	bytes
Start address:	740	0x02E4	Word
Number of registers (words) to read:	3	0x0003	Word

The full command to be sent to the device will therefore be:

**TX: 01, 03, 02, E4, 00, 03, 44, 44**

Where 44 44 is the packet CRC (check error field)

The reply from the device will be:

**RX: 01, 03, 06, 00, 78, 00, 00, 01, 90, 80, 83.**

Supposing that the data in registers identified in the device are (in hex):

Address 0x02E4 => data: 0x0078 = 120 = 12.0 °C Real setpoint for Cooling;  
Address 0x02E5 => data: 0x0000 address not used;  
Address 0x02E6 => data: 0x 0190 = 400 = 40.0 °C Real setpoint for Heating;

### Write example, 1

Write value 8 to word for remote commands at address h2BF

Field	Decimal	Hex	Dimension
Device address (slave):	1	0x01	bytes
Write command code:	10	0x0A	bytes
Write address:	703	0x02BF	Word
Number of words to write:	1	0x0001	Word
Number of bytes (No. words x 2):	2	0x02	Word
Value (word) to write:	8	0x0008	Word

The full command to be sent to the device will therefore be:

**TX: 01, 10, 02, BF, 00, 01, 02, 00, 08, 9E, 99.**

The reply from the device will be:

**RX: 01, 10, 02, BF, 00, 01, 31, 95.**

The Ram variables that can be monitored and commands available are listed below.

#### Commands available:

- Manual alarm reset
- Change operating mode (Heat, Cool and St-By)
- Switch device on/off

Additional operations can be performed by following specific procedures:

- Read alarm log
- Change/set time
- Rest running time of compressor and pump outputs

**Details to read alarm log**

The alarm log EEPROM is saved in a circular buffer composed of logical 7-byte records in the following formats:

Byte	bit	index	Data	Values		
0	0	Bit 0	Alarm record free flag	Must always be 0		
	1	Bit 1	Alarm state	0 = alarm reset; 1 = alarm current		
	2	Bit 2	Automatic reset alarm	0 = automatic reset; 1 = manual reset		
	3	-	Not used			
	4	-				
	5	-				
	6	-				
7	-					
1	0	Bit 0	Start of alarm minute	0÷59 = minutes >59 = undefined value		
	1	Bit 1				
	2	Bit 2				
	3	Bit 3				
	4	Bit 4				
	5	Bit 5				
2	6	Bit 0	End of alarm minute	0÷59 = minutes >59 = undefined value		
	7	Bit 1				
	0	Bit 2				
	1	Bit 3				
	2	Bit 4				
	3	Bit 5				
3	4	Bit 0	Start of alarm hour	0÷23 = hours >23 = undefined value		
	5	Bit 1				
	6	Bit 2				
	7	Bit 3				
	0	Bit 4				
	1	Bit 0			End of alarm hour	0÷23 = hours >23 = undefined value
2	Bit 1					
3	Bit 2					
4	Bit 3					
5	Bit 4					
6	Bit 0	Start of alarm day	1÷31 = day 0 o >31 = undefined value			
7	Bit 1					
0	Bit 2					
1	Bit 3					
2	Bit 4					
3	Bit 0			End of alarm day	1÷31 = day 0 o >31 = undefined value	
4	Bit 1					
5	Bit 2					
6	Bit 3					
7	Bit 4					
4	0	Bit 0	Start of alarm month			0÷23 = hours >23 = undefined value
	1	Bit 1				
	2	Bit 2				
	3	Bit 3				
	4	Bit 0		End of alarm month	0÷23 = hours >23 = undefined value	
	5	Bit 1				
6	Bit 2					
7	Bit 3					
5	0	Bit 0	Alarm code			0÷99 = alarm code >99 Not permitted
	1	Bit 1				
	2	Bit 2				
	3	Bit 3				
	4	Bit 4				
	5	Bit 5				
	6	Bit 6				
	7	Bit 7				

To identify the index of the first record present, read variable **PntStorAll** at the address h024F  
 To identify the number of records present, read variable **NumStorAll** at the address h0250

For example: if the address of PntStorAll=0x2C1 and the address of NumStorAll=0x2C2:

**TX: 01, 03, 82, C1, 00, 02, BD, 8F.**  
**RX: 01, 03, 04, 00, 27, 00, 27, 0A, 22.**

Address 0x82C1 => data: 0x0027 = index of first record (the most recent);  
 Address 0x82C2 => data: 0x0027 = number of records present (39);

To calculate the address of the most recent record:  
**Address EU00 = 50432 + (N-1)x7 = 50432 + 38x7 = 50698 (0xC60A)**

## Read EU00

**TX: 01, 03, C6, 0A, 00, 07, 18, 82.**

**RX: 01, 03, 0E, 00, 02, 00, D6, 00, EF, 00, BE, 00, 00, 00, 04, 00, 3C, C9, F3.**

Address 0xC60A => data: 0x0002 = Byte 0 of alarm log record;  
Address 0xC60B => data: 0x00D6 = Byte 1 of alarm log record;  
Address 0xC60C => data: 0x00EF = Byte 2 of alarm log record;  
Address 0xC60D => data: 0x00BE = Byte 3 of alarm log record;  
Address 0xC60E => data: 0x0000 = Byte 4 of alarm log record;  
Address 0xC60F => data: 0x0004 = Byte 5 of alarm log record;  
Address 0xC610 => data: 0x003C = Byte 6 of alarm log record;

Alarm record free flag = b 0 = 0  
Alarm state = b 1 = 1  
Automatic reset alarm = b 0 = 0  
Not used = b 00000 = 0  
Start of alarm minute = b 010110 = 22  
End of alarm minute = b 111111 = 63 (undefined)  
Start of alarm hour = b 01110 = 14  
End of alarm hour = b 11111 = 31 (undefined)  
Start of alarm day = b 00010 = 2  
End of alarm day = b 00000 = 0 (undefined)  
Start of alarm month = b 0100 = 4  
End of alarm month = b 0000 = 0 (undefined)  
Alarm code = b 00111100 = 60

The result shows that on EU00 there is an **Er60** that started on **02/04** at **14.22** and it is still active.

To read EU01, the address is determined as follows:

$$\text{Address EU01} = \text{Address EU00} - 7 = 50698 - 7 = 50691$$

To read EU02, continue subtracting 7 from the address EU01 and so on.

N.B.: The minimum limit is the address 50432 after which, any other alarms still to be read will start again from 51125 (the buffer is circular and after the 99th record, the oldest ones are rewritten).

## Details to read/set the time

To write the time, address the **DataWrite structure** to h0246  
Write the seconds byte last!

Example: configuring the time **11:33** on **28/03/2007**

Field	Address	Decimal	Hex	Dimension
0: second	H0246	0	0x0000	Byte
1: minutes	H0247	33	0x0021	byte
2: hour	H0248	11	0x000B	byte
3: dayweek	H0249	-	-	byte
4: daymonth	H024A	28	0x001C	byte
5: month	H024B	3	0x0003	byte
6: year	H024C	7	0x0007	byte

N.B.: Write the seconds byte last!

Write sequence:

Write a word of 33 at the address H0246

Write a word of 11 at the address H0247

**TX: 01, 10, 82, B9, 00, 02, 04, 00, 21, 00, 0B, 51, DA.**

**RX: 01, 10, 82, B9, 00, 02, B8, 55.**

Write a word of 28 at the address H024A

Write a word of 3 at the address H024B

Write a word of 7 at the address H024C

**TX: 01, 10, 82, BC, 00, 03, 06, 00, 1C, 00, 03, 00, 07, E3, D2.**

**RX: 01, 10, 82, BC, 00, 03, 69, 94.**

Write a word of 00 at the address H0246

**TX: 01, 10, 82, B8, 00, 01, 02, 00, 00, 1F, 20.**

**RX: 01, 10, 82, B8, 00, 01, A9, 94.**

### Details to reset running time

To read and/or clear running time, address the counters in the device's EEPROM and RAM

**STCPOreFunz[0]** to the address h0288 Running time CP1 (in Ram)  
**STCPOreFunz[1]** to the address h028A Running time CP2 (in Ram)  
**STCPOreFunz[2]** to the address h028C Running time CP3 (in Ram)  
**STCPOreFunz[3]** to the address h028E Running time CP4 (in Ram)

**EE\_OreFunzCP0** to the address h1460 Running time CP1 (in EEPROM)  
**EE\_OreFunzCP1** to the address h1462 Running time CP2 (in EEPROM)  
**EE\_OreFunzCP2** to the address h1464 Running time CP3 (in EEPROM)  
**EE\_OreFunzCP3** to the address h1466 Running time CP4 (in EEPROM)

Multiple reading of running time CP to the RAM address h0288  
The full command to be sent to the device will therefore be:

**TX: 01, 03, 02, F1, 00, 03, 55, 80.**  
**RX: 01, 03, 06, 00, 07, 00, 00, 00, 06, 14, B7.**

Address 0x0288 => data: 0x0007 = 7 hours running time CP1;  
Address 0x0289 => data: 0x0000 = not used  
Address 0x028A => data: 0x0006 = 6 hours running time CP2;

Clear time CP1 (in RAM and EEPROM)  
Write 0 for running time CP at RAM address h0288  
**TX: 01, 10, 02, F1, 00, 01, 02, 00, 00, 90, B1.**  
**RX: 01, 10 02, F1, 00, 01, 51, 82.**

Write 0 for running time CP at RAM address h1460  
**TX: 01, 10, 44, 61, 00, 01, 02, 00, 00, AA, 25.**  
**RX: 01, 10, 44, 61, 00, 01, 44, E7.**

## 1.2 Configuration of device address

The Device Number in a ModBus message is defined by the parameter **CF63 – see table at beginning of this section.**  
The address 0 is used for broadcast messages that all slaves recognize. Slaves do not reply to broadcast messages.

## 1.3 Visibility and Value of Parameters

There are 3 hardware models (EWCM4120, EWCM4150 and EWCM4180) with varying numbers Inputs/Outputs.  
Depending on the model, some configuration parameters may not (usually) be visible and/or be of no significance given that the associated resource is not present.  
In particular, depending on the model, the following parameters will not be available:

**EWCM4120:** CF27, CF30, CF35, CF38, CF41, CF44, CF50, CF52  
**EWCM4150:** CF33, CF36, CF39, CF42, UI12, FN00 ... FN26  
**EWCM4180:** CF33, CF36, CF39, CF42

When not indicated otherwise, the parameter is always visible and modifiable, unless customised settings have been configured via serial.

N.B.: If *folder* visibility is modified, the new setting will apply to all parameters in the *folder*.

## 1.4 Parameters/visibility table and Client table

The **tables below** list all information required to read, write and decode all accessible resources in the device.

There are two tables:

- the **parameters** table contains all device configuration parameters stored in the instrument's non-volatile memory and the visibility.
- the **client** table includes all I/O and alarm state resources available in the instrument's volatile memory.

### Description of columns:

<b>FOLDER</b>	This indicates the <i>label</i> of the <i>folder</i> containing the parameter in question
<b>LABEL</b>	This indicates the <i>label</i> used to display the <b>parameters</b> in the instrument's menu.
<b>VALUE PAR ADDRESS</b>	The whole part represents the address of the MODBUS register containing the value of the resource to be read or written to the instrument. The value after the point indicates the position of the most significant data bit in the register; if not indicated it is taken to be zero. This information is always provided when the register contains more than one information item, and it is necessary to distinguish which bits actually represent the data (the working size of the data indicated in the <i>DATA SIZE</i> column is also taken into consideration). Given that the modbus registers are the size of one WORD (16 bit), the index number after the point can vary from 0 (least significant bit –LSb–) to 15 (most significant bit –MSb–).



Examples (in binary form the least significant bit is the first on the right):

VAL PAR ADDRESS	DATA SIZE	Value	Content of register	
8806	WORD	1350	1350	(0000010101000110)
8806	Byte	70	1350	(00000101 <b>01000110</b> )
8806,8	Byte	5	1350	( <b>00000101</b> 01000110)
8806,14	1 bit	0	1350	(0000010101000110)
8806,7	4 bit	10	1350	(00000 <b>1010</b> 1000110)

Important: when the register contains more than one data item, during the write operation proceed as follows:

- read current register value
- modify the bits that represent the resource concerned
- write the register

**VIS PAR ADDRESS**

Same as above. In this case, the parameter visibility value is in the MODBUS register address. By *default*, all parameters have:

- *Data size* 2 bit
- *Range* 0...3
- *\*\*Visibilità* 3
- *U.M.* num

**\*\* Value Meaning**

- Value 3 = parameter or *folder* always visible
  - Value 2 = **manufacturer level**; these parameters can only be seen by entering the manufacturer's password (see parameter UI18) (all parameters specified as always visible, parameters that are visible at the installation level, and manufacturer level parameters will be visible).
  - Value 1 = **installation level**; these parameters can only be viewed by entering the installation password (see parameter UI17) (all parameters specified as always visible and parameters that are visible at the installation level will be visible)
  - Value 0 = parameter or *folder* NOT visible
1. Parameters and/or folders with visibility level <>3 (i.e. password protected) will only be visible if the correct password is entered (installation or manufacturer) following the procedure outlined below:
  2. Parameters and/or folders with visibility level =3 are always visible and no password is required; in this case, the procedure below is not required.

Examples (in binary form the least significant bit is the first on the right):

**Default visibility:**

VAL PAR ADDRESS	DATA SIZE	Value	Content of register	
49481,6	2 bit	3	65535	-----( <b>1111111111111111</b> )
49482	2 bit	3	65535	(11111 <b>111111111111</b> )
49482,2	2 bit	3	65535	(1111 <b>111111111111</b> )
49482,4	2 bit	3	65535	(1 <b>1111111111111111</b> )
49482,6	2 bit	3	65535	( <b>1111111111111111</b> )

To modify the visibility value of parameter CF23 (address 49482,6) from 3 to 0:

**Visibility modified**

VAL PAR ADDRESS	DATA SIZE	Value	Content of register	
49481,6	2 bit	0	16383	( <b>0011111111111111</b> )

**R/W**

Indicates if resources are read/write, read-only or write-only:

- R Read-only resource.
- W Write-only resource.
- RW Read / write resource.

**DESCRIPTION**

It is the *description* of the **parameters** meaning in the **LABEL** column.

**DATA SIZE**

Indicates the size of the data in bits.  
 WORD = 16 bits  
 Byte = 8 bits  
 "n" bit = 0...15 bits depending on value of "n"

**CPL**

When the field indicates "Y", the value read by the register must be converted, because the value represents a number with a sign. In the other cases the value is always positive or null.  
 To carry out conversion, proceed as follows:

- if the value in the register is between 0 and 32,767, the result is the value itself (zero and positive values).
- if the value in the register is between 32,768 and 65,535, the result is the value of the register - 65,536 (negative values).

<b>RANGE</b>	Describes the interval of values that can be assigned to the parameter. It can be correlated with other parameters in the instrument (indicated with the parameter <i>label</i> ).
<b>DEFAULT</b>	Indicates the factory setting for the standard model of the instrument.
<b>EXP</b>	<p>If = -1 the value read from the register is divided by 10 (value/10) to convert it to the values given in the <i>RANGE</i> and <i>DEFAULT</i> column and the unit of measure specified in the <i>U.M.</i> column.</p> <p>Example: parameter CF04 = 50.0. Column <i>EXP</i> = -1:</p> <ul style="list-style-type: none"> <li>• The value read by the device/ParamManager is 50.0.</li> <li>• The value read from the register is 500 --&gt; 500/10 = 50.0.</li> </ul>
<b>U.M.</b>	Measurement unit for values converted according to the rules indicated in the <i>CPL</i> and <i>EXP</i> columns.

#### 1.4.1 Parameters / visibility table

(See next page)

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT			EXP	M.U.
									4120	4150	4180		
CF	CF02	49204	49477,4	RW	Type of analogue input AI3	BYTE		0 ... 5	3	3	3		num
CF	CF03	49205	49477,6	RW	Type of analogue input AI4	BYTE		0 ... 5	3	3	3		num
CF	CF04	16442	49478	RW	Last value analogue input AI3 scale	WORD	Y	P10 ... 1450	700	700	700		Bar/100 - Psi/10
CF	CF05	16450	49478,2	RW	First value analogue input AI3 scale	WORD	Y	-145 ... P9	-50	-50	-50		Bar/100 - Psi/10
CF	CF06	16444	49478,4	RW	Last value analogue input AI4 scale	WORD	Y	P12 ... 1450	300	300	300		Bar/10 - Psi
CF	CF07	16452	49478,6	RW	First value analogue input AI4 scale	WORD	Y	-14 ... P11	0	0	0		Bar/10 - Psi
CF	CF10	16458	49479,4	RW	Analogue input AI3 differential	WORD	Y	-180 ... 180	0	0	0		°C/10 - °F/10 Bar/100 - Psi/10
CF	CF11	16460	49479,6	RW	Analogue input AI4 differential	WORD	Y	-180 ... 180	0	0	0		°C/10 - °F/10 Bar/10 - Psi
CF	CF14	49298	49480,4	RW	Analogue input AI3 configuration	BYTE		0 ... 3	1	1	1		num
CF	CF15	49299	49480,6	RW	Analogue input AI4 configuration	BYTE		0 ... 3	0	0	2		num
CF	CF16	49300	49481	RW	Digital input DI1 configuration	BYTE	Y	-21 ... 21	3	3	3		num
CF	CF17	49301	49481,2	RW	Digital input DI2 configuration	BYTE	Y	-21 ... 21	4	4	4		num
CF	CF18	49302	49481,4	RW	Digital input DI3 configuration	BYTE	Y	-21 ... 21	5	5	5		num
CF	CF19	49303	49481,6	RW	Digital input DI4 configuration	BYTE	Y	-21 ... 21	6	6	6		num
CF	CF20	49304	49482	RW	Digital input DI5 configuration	BYTE	Y	-21 ... 21	13	13	13		num
CF	CF23	49307	49482,6	RW	Analogue input AI1 configuration when configured as digital input	BYTE	Y	-21 ... 21	1	0	0		num
CF	CF24	49308	49483	RW	Analogue input AI2 configuration when configured as digital input	BYTE	Y	-21 ... 21	2	2	2		num
CF	CF25	49309	49483,2	RW	Analogue input AI3 configuration when configured as digital input	BYTE	Y	-21 ... 21	0	0	0		num
CF	CF26	49310	49483,4	RW	Analogue input AI4 configuration when configured as digital input	BYTE	Y	-21 ... 21	0	0	0		num
CF	CF27 <sup>(1)</sup>	49232	49483,6	RW	Type of analogue output AO3	BYTE		0 ... 2	-	0	0		num
CF	CF30 <sup>(1)</sup>	49312	49484,4	RW	Analogue output AO3 configuration	BYTE	Y	-24 ... 26	-	0	25		num
CF	CF33 <sup>(1)</sup>	49236	49485,2	RW	Enable analogue TC output	BYTE		0 ... 1	1	-	-		num
CF	CF34	49237	49485,4	RW	Enable analogue output AO1	BYTE		0 ... 1	1	0	0		num
CF	CF35 <sup>(1)</sup>	49238	49485,6	RW	Enable analogue output AO2	BYTE		0 ... 1	-	0	0		num
CF	CF36 <sup>(1)</sup>	49239	49486	RW	Analogue TC output phase shift	BYTE		0 ... 90	27	-	-		num
CF	CF37	49240	49486,2	RW	Analogue output AO1 phase displacement	BYTE		0 ... 90	27	27	27		num
CF	CF38 <sup>(1)</sup>	49241	49486,4	RW	Analogue output AO2 phase displacement	BYTE		0 ... 90	-	27	27		num
CF	CF39 <sup>(1)</sup>	49242	49486,6	RW	Analogue TC output pulse length	BYTE		5 ... 40	10	-	-		num
CF	CF40	49243	49487	RW	Analogue output AO1 pulse time	BYTE		5 ... 40	10	10	10		num
CF	CF41 <sup>(1)</sup>	49244	49487,2	RW	Analogue output AO2 pulse time	BYTE		5 ... 40	-	10	10		num
CF	CF42 <sup>(1)</sup>	49316	49487,4	RW	Analogue TC output configuration	BYTE	Y	-24 ... 26	25	-	-		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT			EXP	M.U.
									4120	4150	4180		
CF	CF43	49317	49487,6	RW	Analogue output AO1 configuration	BYTE	Y	-24 ... 26	25	0	0		num
CF	CF44 <sup>(1)</sup>	49318	49488	RW	Analogue output AO2 configuration	BYTE	Y	-24 ... 26	-	0	0		num
CF	CF45	49324	49488,2	RW	Digital output DO1 configuration	BYTE	Y	-24 ... 24	1	1	1		num
CF	CF46	49325	49488,4	RW	Digital output DO2 configuration	BYTE	Y	-24 ... 24	2	2	2		num
CF	CF47	49326	49488,6	RW	Digital output DO3 configuration	BYTE	Y	-24 ... 24	4	4	4		num
CF	CF48	49327	49489	RW	Digital output DO4 configuration	BYTE	Y	-24 ... 24	3	3	3		num
CF	CF49	49328	49489,2	RW	Digital output DO5 configuration	BYTE	Y	-24 ... 24	15	0	0		num
CF	CF50 <sup>(1)</sup>	49329	49489,4	RW	Digital output DO6 configuration	BYTE	Y	-24 ... 24	-	15	15		num
CF	CF51	49330	49489,6	RW	Configuration of digital AO output1	BYTE	Y	-24 ... 24	0	0	0		num
CF	CF52	49331	49490	RW	Configuration of digital AO output2	BYTE	Y	-24 ... 24	-	0	0		num
CF	CF54	49169	49490,4	RW	Select COM1 protocol	BYTE		0 ... 1	0	0	0		num
CF	CF55	49176	49490,6	RW	Eliwell protocol controller address	BYTE		0 ... 14	0	0	0		num
CF	CF56	49177	49491	RW	Eliwell protocol controller family	BYTE		0 ... 14	0	0	0		num
CF	CF63	49178	49492,6	RW	Modbus protocol controller address	BYTE		1 ... 255	1	1	1		num
CF	CF64	49179	49493	RW	Modbus baud rate protocol	BYTE		0 ... 7	3	3	3		num
CF	CF65	49180	49493,2	RW	Modbus parity protocol	BYTE		1 ... 3	1	1	1		num
CF	CF66	49182	49493,4	RW	Customer code 1	BYTE		0 ... 255	0	0	0		num
CF	CF67	49183	49493,6	RW	Customer code 2	BYTE		0 ... 255	0	0	0		num
CF	CF68	49600	49494	RW	Firmware version	BYTE		0 ... 999	0	0	0		-
CF	CF71	16428	49494,6	RW	Tab (map code)	WORD		0 ... 999	1	5	2		num
CF	CF72	49359	49495	RW	RTC present	BYTE		0 ... 1	1	1	1		num
CF	CF79	49600	49496,6	RW	Firmware screen	BYTE		0 ... 999	0	0	0		-
UI	UI00	49440	49497	RW	LED1 configuration	BYTE		0 ... 32	1	1	1		num
UI	UI01	49441	49497,2	RW	LED2 configuration	BYTE		0 ... 32	2	2	2		num
UI	UI02	49442	49497,4	RW	LED3 configuration	BYTE		0 ... 32	3	3	3		num
UI	UI03	49443	49497,6	RW	LED4 configuration	BYTE		0 ... 32	4	4	4		num
UI	UI04	49444	49498	RW	LED5 configuration	BYTE		0 ... 32	0	0	0		num
UI	UI05	49445	49498,2	RW	LED6 configuration	BYTE		0 ... 32	0	0	0		num
UI	UI06	49446	49498,4	RW	LED7 configuration	BYTE		0 ... 32	0	0	0		num
UI	UI07	49447	49498,6	RW	LED8 configuration	BYTE		0 ... 32	25	0	25		num
UI	UI08	49448	49499	RW	LED9 configuration	BYTE		0 ... 32	27	0	27		num
UI	UI09	49449	49499,2	RW	LED10 configuration	BYTE		0 ... 32	28	0	28		num
UI	UI10	49450	49499,4	RW	LED11 configuration	BYTE		0 ... 32	29	0	29		num
UI	UI12	49452	49500	RW	Select main set point display	BYTE		0 ... 1	0	-	0		num
UI	UI13	49453	49500,2	RW	Select main display	BYTE		0 ... 6	2	2	2		num
UI	UI20	16694	49502	RW	Installation engineer password	WORD		0 ... 255	1	1	1		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT			EXP	M.U.
									4120	4150	4180		
UI	UI21	16696	49502,2	RW	Manufacturer password	WORD		0 ... 255	2	2	2		num
UI	UI22	49466	49502,4	RW	Temperature unit (C/F)	BYTE		0 ... 1	0	0	0		num
UI	UI23	49467	49502,6	RW	Unit of pressure measurement	BYTE		0 ... 1	0	0	0		num
ST	St01	49665	49507	RW	Centrale/lateral set point	BYTE		0 ... 1	1	1	1		num
ST	St02	49666	49507,2	RW	Select Hot/cold operating modes	BYTE		0 ... 1	1	1	1		num
ST	St03	49667	49507,4	RW	Absolute/relative alarms	BYTE		0 ... 1	0	0	0		num
ST	St04	49668	49507,6	RW	Configure type of regulators	BYTE		0 ... 3	1	1	1		num
CP	CP00	16912	49508	RW	Regulation set point	WORD	Y	P116 ... P117	230	230	230		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP01	16914	49508,2	RW	Setpoint bottom limit	WORD	Y	-999 ... P117	-100	-100	-100		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP02	16916	49508,4	RW	Setpoint upper limit	WORD	Y	P116 ... 9999	700	700	700		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP03	16918	49508,6	RW	Proportional band	WORD	Y	0 ... 9999	50	50	50		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP04	16920	49509	RW	Delta minimum cut-off	WORD	Y	0 ... 9999	20	20	20		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP05	16922	49509,2	RW	Delta saturation cut-off	WORD	Y	0 ... 9999	20	20	20		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP06	16924	49509,4	RW	Hysteresis minimum cut-off	WORD	Y	0 ... 9999	10	10	10		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP07	16926	49509,6	RW	Hysteresis saturation cut-off	WORD	Y	0 ... 9999	10	10	10		°C/10 - °F/10 Bar/100 - Psi/10
CP	CP08	49696	49510	RW	Enable minimum cut-off	BYTE		0 ... 1	1	1	1		num
CP	CP09	49697	49510,2	RW	Enable saturation cut-off	BYTE		0 ... 1	1	1	1		num
CP	CP10	49698	49510,4	RW	Activation policy	BYTE		0 ... 2	1	1	1		num
CP	CP11	49699	49510,6	RW	Enable/disable sequence of relays associated to compressor power stages, suction section	BYTE		0 ... 2	2	2	2		num
CP	CP12	49700	49511	RW	OFF-ON compressor delay	BYTE		0 ... 255	1	1	1		min
CP	CP13	49701	49511,2	RW	ON-ON compressor delay	BYTE		0 ... 255	1	1	1		min
CP	CP14	49702	49511,4	RW	ON-OFF compressor delay	BYTE		0 ... 255	15	15	15		sec
CP	CP15	49703	49511,6	RW	Interstep up time	BYTE		0 ... 255	30	30	30		sec
CP	CP16	49704	49512	RW	Interstep down time	BYTE		0 ... 255	10	10	10		sec
CP	CP17	16938	49512,2	RW	Maximum hours of use for compressor	WORD		0 ... 6500	0	0	0		ore*10
CP	CP18	49708	49512,4	RW	Minimum speed	BYTE		0 ... 100	20	20	20		%
CP	CP19	49709	49512,6	RW	Maximum speed	BYTE		0 ... 100	80	80	80		%
CP	CP20	49710	49513	RW	Saturation speed	BYTE		0 ... 100	100	100	100		%
CP	CP21	49711	49513,2	RW	<i>Default</i> power for non-allocated probe/probe error	BYTE		0 ... 100	0	0	0		%

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT			EXP	M.U.
									4120	4150	4180		
CP	CP22	49712	49513,4	RW	Number of compressor steps per circuit	BYTE		0 ... 4	4	4	4		num
CP	CP23	49713	49513,6	RW	Number of compressor steps 1	BYTE		1 ... 4	1	1	1		num
CP	CP24	49714	49514	RW	Number of compressor steps 2	BYTE		1 ... 3	1	1	1		num
CP	CP25	49715	49514,2	RW	Number of compressor steps 3	BYTE		1 ... 2	1	1	1		num
FN	Fn00	17040	49514,4	RW	Regulation set point	WORD	Y	P142 ... P143	151	-	151		°C/10 - °F/10 Bar/10 - Psi
FN	Fn01	17042	49514,6	RW	Setpoint bottom limit	WORD	Y	-999 ... P143	-500	-	-500		°C/10 - °F/10 Bar/10 - Psi
FN	Fn02	17044	49515	RW	Setpoint upper limit	WORD	Y	P142 ... 9999	999	-	999		°C/10 - °F/10 Bar/10 - Psi
FN	Fn03	17046	49515,2	RW	Proportional band	WORD	Y	0 ... 9999	20	-	20		°C/10 - °F/10 Bar/10 - Psi
FN	Fn04	17048	49515,4	RW	Delta minimum cut-off	WORD	Y	0 ... 9999	20	-	20		°C/10 - °F/10 Bar/10 - Psi
FN	Fn05	17050	49515,6	RW	Delta saturation cut-off	WORD	Y	0 ... 9999	20	-	20		°C/10 - °F/10 Bar/10 - Psi
FN	Fn06	17052	49516	RW	Hysteresis minimum cut-off	WORD	Y	0 ... 9999	10	-	10		°C/10 - °F/10 Bar/10 - Psi
FN	Fn07	17054	49516,2	RW	Hysteresis saturation cut-off	WORD	Y	0 ... 9999	10	-	10		°C/10 - °F/10 Bar/10 - Psi
FN	Fn08	49824	49516,4	RW	Enable minimum cut-off	BYTE		0 ... 1	1	-	1		num
FN	Fn09	49825	49516,6	RW	Enable saturation cut-off	BYTE		0 ... 1	1	-	1		num
FN	Fn10	49826	49517	RW	Compressor operation on request	BYTE		0 ... 1	0	-	1		num
FN	Fn11	49827	49517,2	RW	Enable fan rotation	BYTE		0 ... 1	0	-	0		num
FN	Fn12	49828	49517,4	RW	Mode for reaching maximum pick-up speed	BYTE		0 ... 1	0	-	0		num
FN	Fn13	49829	49517,6	RW	Fan pickup time	BYTE		0 ... 255	2	-	5		sec
FN	Fn14	49830	49518	RW	Bypass cut-off time	BYTE		0 ... 255	80	-	80		sec
FN	Fn15	49831	49518,2	RW	Pre-ventilation	BYTE		0 ... 255	0	-	0		sec
FN	Fn16	49832	49518,4	RW	Interstep up time	BYTE		0 ... 255	15	-	15		sec
FN	Fn17	49833	49518,6	RW	Interstep down time	BYTE		0 ... 255	5	-	5		sec
FN	Fn18	17066	49519	RW	Maximum off time for all fans	WORD		0 ... 500	500	-	500		ore
FN	Fn19	17068	49519,2	RW	Maximum hours of use for fan	WORD		0 ... 6500	0	-	0		ore*10
FN	Fn20	49838	49519,4	RW	Minimum speed	BYTE		0 ... 100	40	-	40		%
FN	Fn21	49839	49519,6	RW	Maximum silent speed	BYTE		0 ... 100	100	-	90		%
FN	Fn22	49840	49520	RW	Maximum speed	BYTE		0 ... 100	100	-	100		%
FN	Fn23	49841	49520,2	RW	Maximum pick-up speed	BYTE		0 ... 100	100	-	100		%
FN	Fn24	49842	49520,4	RW	<i>Default</i> power for non-allocated probe/probe error	BYTE		0 ... 100	100	-	100		%
FN	Fn25	49843	49520,6	RW	Number of fans per step for fan coil	BYTE	Y	-1 ... 4	0	-	0		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT			EXP	M.U.
									4120	4150	4180		
FN	Fn26	49844	49521	RW	Forced fan start-up time after max fans' OFF time	BYTE	Y	0 ... 54	10	-	10		num
AL	AL00	50064	49521,2	RW	Time interval in which alarm events are counted	BYTE		1 ... 99	60	60	60		min
AL	AL01	50065	49521,4	RW	Number of inlet pressure switch events	BYTE		0 ... 33	0	0	0		num
AL	AL02	50066	49521,6	RW	Inlet pressure switch alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL03	50067	49522	RW	Number of outlet pressure switch events	BYTE		0 ... 33	0	0	0		num
AL	AL04	50068	49522,2	RW	Outlet pressure switch alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL05	50069	49522,4	RW	Number of inlet low analogue alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL06	50070	49522,6	RW	Inlet low analogue alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL07	50071	49523	RW	Number of inlet high analogue alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL08	50072	49523,2	RW	Inlet high analogue alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL09	50073	49523,4	RW	Number of outlet low analogue alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL10	50074	49523,6	RW	Outlet low analogue alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL11	50075	49524	RW	Number of outlet high analogue alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL12	50076	49524,2	RW	Outlet high analogue alarm bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL13	50077	49524,4	RW	Number of compressor shut-down alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL14	50078	49524,6	RW	Compressor shut-down alarms bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL15	50079	49525	RW	Number of fan thermal switch alarm events	BYTE		0 ... 33	0	0	0		num
AL	AL16	50080	49525,2	RW	Fan thermal switch alarms bypass time	BYTE		0 ... 255	0	0	0		sec
AL	AL17	17314	49525,4	RW	Inlet probe maximum alarm switch-on threshold	WORD	Y	-999 ... 9999	-999	-999	-999		°C/10 - °F/10 Bar/100 - Psi/10
AL	AL18	17316	49525,6	RW	Hysteresis for switching off inlet probe maximum alarm	WORD		0 ... 9999	0	0	0		°C/10 - °F/10 Bar/100 - Psi/10
AL	AL19	17318	49526	RW	Inlet probe minimum alarm switch-on threshold	WORD	Y	-999 ... 9999	-999	-999	-999		°C/10 - °F/10 Bar/100 - Psi/10
AL	AL20	17320	49526,2	RW	Hysteresis for switching off inlet probe minimum alarm	WORD		0 ... 9999	0	0	0		°C/10 - °F/10 Bar/100 - Psi/10
AL	AL21	17322	49526,4	RW	Outlet probe maximum alarm switch-on threshold	WORD	Y	-999 ... 9999	-999	-999	-999		°C/10 - °F/10 Bar/10 - Psi
AL	AL22	17324	49526,6	RW	Hysteresis for switching off outlet probe maximum alarm	WORD		0 ... 9999	0	0	0		°C/10 - °F/10 Bar/10 - Psi
AL	AL23	17326	49527	RW	Outlet probe minimum alarm switch-on threshold	WORD	Y	-999 ... 9999	-999	-999	-999		°C/10 - °F/10 Bar/10 - Psi
AL	AL24	17328	49527,2	RW	Hysteresis for switching off outlet probe minimum alarm	WORD		0 ... 9999	0	0	0		°C/10 - °F/10 Bar/10 - Psi
AL	AL25	50098	49527,4	RW	Maximum number of historical events per alarm message	BYTE		0 ... 99	0	0	0		num

<sup>(1)</sup> See Paragraph “*Visibility and Value of Parameters*”

1.4.2 Tabella Client

<i>LABEL</i>	<i>ADDRESS</i>	<i>R/W</i>	<i>DESCRIPTION</i>	<i>DATA SIZE</i>	<i>CPL</i>	<i>RANGE</i>	<i>DEFAULT</i>	<i>EXP</i>	<i>M.U.</i>
DI_PrDisc	33322,1	R	Outlet pressure switch	1 bit		0 ... 1	0		flag
DI_PrSuct	33322,2	R	Inlet pressure switch	1 bit		0 ... 1	0		flag
DI_ALCp1	33322,3	R	Stop compressor 1	1 bit		0 ... 1	0		flag
DI_ALCp2	33322,4	R	Stop compressor 2	1 bit		0 ... 1	0		flag
DI_ALCp3	33322,5	R	Stop compressor 3	1 bit		0 ... 1	0		flag
DI_ALCp4	33322,6	R	Stop compressor 4	1 bit		0 ... 1	0		flag
DI_ALCpIn	33322,7	R	Continuous compressor shut-down	1 bit		0 ... 1	0		flag
DI_TFan1	33323	R	Thermal protection fan 1 (manual reset)	1 bit		0 ... 1	0		flag
DI_TFan2	33323,1	R	Thermal protection fan 2 (manual reset)	1 bit		0 ... 1	0		flag
DI_TFan3	33323,2	R	Thermal protection fan 3 (manual reset)	1 bit		0 ... 1	0		flag
DI_TFan4	33323,3	R	Thermal protection fan 4 (manual reset)	1 bit		0 ... 1	0		flag
DI_TFans	33323,4	R	Continuous fan/shared fans thermal switch	1 bit		0 ... 1	0		flag
DI_OnOff	33323,5	R	Remote On/Off	1 bit		0 ... 1	0		flag
DI_AI	33323,6	R	General alarm	1 bit		0 ... 1	0		flag
DO_CP1	33452,1	R	Compressor on 1	1 bit		0 ... 1	0		flag
DO_CP2	33452,2	R	Compressor on 2	1 bit		0 ... 1	0		flag
DO_CP3	33452,3	R	Compressor on 3	1 bit		0 ... 1	0		flag
DO_CP4	33452,4	R	Compressor on 4	1 bit		0 ... 1	0		flag
DO_Pz1CP1	33452,5	R	Compressor 1 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz1CP2	33452,6	R	Compressor 2 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz1CP3	33452,7	R	Compressor 3 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz2CP1	33453	R	Compressor 1 splitter 2 relay	1 bit		0 ... 1	0		flag
DO_Pz2CP2	33453,1	R	Compressor 2 splitter 2 relay	1 bit		0 ... 1	0		flag
DO_Pz3CP1	33453,2	R	Compressor 1 splitter 3 relay	1 bit		0 ... 1	0		flag
DO_Fan1	33453,3	R	Fan state 1	1 bit		0 ... 1	0		flag
DO_Fan2	33453,4	R	Fan state 2	1 bit		0 ... 1	0		flag
DO_Fan3	33453,5	R	Fan state 3	1 bit		0 ... 1	0		flag
DO_Fan4	33453,6	R	Fan state 4	1 bit		0 ... 1	0		flag
DO_AI	33453,7	R	Alarm	1 bit		0 ... 1	0		flag
DO_EnalnvCp	33454,7	R	Compressor Inverter Enabling	1 bit		0 ... 1	0		flag
DO_EnalnvFn	33455	R	Fan Inverter Enabling	1 bit		0 ... 1	0		flag
AI_Suct	531	R	Inlet probe value	WORD	Y	-580 ... 2200	0	-2	bar
AI_Suct	531	R	Inlet probe value	WORD	Y	-580 ... 2200	0	-1	PSI
AI_Suct	531	R	Inlet probe value	WORD	Y	-580 ... 2200	0	-1	°C
AI_Suct	531	R	Inlet probe value	WORD	Y	-580 ... 2200	0	-1	°F



<b>LABEL</b>	<b>ADDRESS</b>	<b>R/W</b>	<b>DESCRIPTION</b>	<b>DATA SIZE</b>	<b>CPL</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>EXP</b>	<b>M.U.</b>
AI_Suct	531	R	Inlet probe value	WORD	Y	-580 ... 2200	0		flag
AI_Disc	533	R	Outlet probe value	WORD	Y	-580 ... 2200	0	-1	bar
AI_Disc	533	R	Outlet probe value	WORD	Y	-580 ... 2200	0		PSI
AI_Disc	533	R	Outlet probe value	WORD	Y	-580 ... 2200	0	-1	°C
AI_Disc	533	R	Outlet probe value	WORD	Y	-580 ... 2200	0	-1	°F
AI_Disc	533	R	Outlet probe value	WORD	Y	-580 ... 2200	0		flag
AO_FanIn	550	R	Power generated by continuous fan	WORD		0 ... 1000	0		%
AO_CPIn	552	R	Power generated by continuous compressor	WORD		0 ... 1000	0		%
AI_AI1DI6	344	R	Analogue input Ai1	WORD	Y	-580 ... 2200	0	-1	°C
AI_AI1DI6	344	R	Analogue input Ai1	WORD	Y	-580 ... 2200	0	-1	°F
AI_AI1DI6	344	R	Analogue input Ai1	WORD	Y	-580 ... 2200	0		flag
AI_AI2DI7	346	R	Analogue input Ai2	WORD	Y	-580 ... 2200	0	-1	°C
AI_AI2DI7	346	R	Analogue input Ai2	WORD	Y	-580 ... 2200	0	-1	°F
AI_AI2DI7	346	R	Analogue input Ai2	WORD	Y	-580 ... 2200	0		flag
AI_AI3DI8	348	R	Analogue input Ai3	WORD	Y	-580 ... 2200	0	-2	bar
AI_AI3DI8	348	R	Analogue input Ai3	WORD	Y	-580 ... 2200	0	-1	PSI
AI_AI3DI8	348	R	Analogue input Ai3	WORD	Y	-580 ... 2200	0	-1	°C
AI_AI3DI8	348	R	Analogue input Ai3	WORD	Y	-580 ... 2200	0	-1	°F
AI_AI3DI8	348	R	Analogue input Ai3	WORD	Y	-580 ... 2200	0		flag
AI_AI4DI9	350	R	Analogue input Ai4	WORD	Y	-580 ... 2200	0	-1	bar
AI_AI4DI9	350	R	Analogue input Ai4	WORD	Y	-580 ... 2200	0		PSI
AI_AI4DI9	350	R	Analogue input Ai4	WORD	Y	-580 ... 2200	0	-1	°C
AI_AI4DI9	350	R	Analogue input Ai4	WORD	Y	-580 ... 2200	0	-1	°F
AI_AI4DI9	350	R	Analogue input Ai4	WORD	Y	-580 ... 2200	0		flag
DO_DO4	33095	R	Digital output DO4	1 bit		0 ... 1	0		flag
DO_DO5	33095,1	R	Digital output DO5	1 bit		0 ... 1	0		flag
DO_DO1	33095,2	R	Digital output DO1	1 bit		0 ... 1	0		flag
DO_DO2	33095,3	R	Digital output DO2	1 bit		0 ... 1	0		flag
DO_DO3	33095,4	R	Digital output DO3	1 bit		0 ... 1	0		flag
DO_DO6TC	33095,5	R	Digital output DO6	1 bit		0 ... 1	0		flag
DO_DO7AO1	33095,6	R	Digital output AO1	1 bit		0 ... 1	0		flag
DO_DO8AO2	33095,7	R	Digital output AO2	1 bit		0 ... 1	0		flag
PWM_AO3	391	R	PWM AO output3	WORD		0 ... 1000	0	-1	%
PWM_AO4	393	R	PWM AO output4	WORD		0 ... 1000	0	-1	%
TC_TC	33149	R	Triac TC output	BYTE		0 ... 100	0		%
TC_AO1	33150	R	Triac AO output1	BYTE		0 ... 100	0		%
TC_AO2	33151	R	Triac AO output2	BYTE		0 ... 100	0		%

<b>LABEL</b>	<b>ADDRESS</b>	<b>R/W</b>	<b>DESCRIPTION</b>	<b>DATA SIZE</b>	<b>CPL</b>	<b>RANGE</b>	<b>DEFAULT</b>	<b>EXP</b>	<b>M.U.</b>
<b>DI_DI1</b>	<b>33094</b>	R	Digital ID input1	1 bit		0 ... 1	0		flag
<b>DI_DI2</b>	<b>33094,1</b>	R	Digital ID input2	1 bit		0 ... 1	0		flag
<b>DI_DI3</b>	<b>33094,2</b>	R	Digital ID input3	1 bit		0 ... 1	0		flag
<b>DI_DI4</b>	<b>33094,3</b>	R	Digital ID input4	1 bit		0 ... 1	0		flag
<b>DI_DI5</b>	<b>33094,4</b>	R	Digital ID input5	1 bit		0 ... 1	0		flag
<b>Er01</b>	<b>33037,1</b>	R	Low pressure switch, suction section	1 bit		0 ... 1	0		flag
<b>Er02</b>	<b>33037,2</b>	R	High pressure switch, suction section	1 bit		0 ... 1	0		flag
<b>Er03</b>	<b>33037,3</b>	R	Low pressure switch, delivery section	1 bit		0 ... 1	0		flag
<b>Er04</b>	<b>33037,4</b>	R	High pressure switch, delivery section	1 bit		0 ... 1	0		flag
<b>Er05</b>	<b>33037,5</b>	R	Inlet probe maximum	1 bit		0 ... 1	0		flag
<b>Er06</b>	<b>33037,6</b>	R	Inlet probe minimum	1 bit		0 ... 1	0		flag
<b>Er07</b>	<b>33037,7</b>	R	Outlet probe maximum	1 bit		0 ... 1	0		flag
<b>Er08</b>	<b>33038</b>	R	Outlet probe minimum	1 bit		0 ... 1	0		flag
<b>Er09</b>	<b>33038,1</b>	R	Stop compressor 1	1 bit		0 ... 1	0		flag
<b>Er10</b>	<b>33038,2</b>	R	Stop compressor 2	1 bit		0 ... 1	0		flag
<b>Er11</b>	<b>33038,3</b>	R	Stop compressor 3	1 bit		0 ... 1	0		flag
<b>Er12</b>	<b>33038,4</b>	R	Stop compressor 4	1 bit		0 ... 1	0		flag
<b>Er13</b>	<b>33038,5</b>	R	Continuous compressor shut-down	1 bit		0 ... 1	0		flag
<b>Er14</b>	<b>33038,6</b>	R	Thermal protection fan 1 (manual reset)	1 bit		0 ... 1	0		flag
<b>Er15</b>	<b>33038,7</b>	R	Thermal protection fan 2 (manual reset)	1 bit		0 ... 1	0		flag
<b>Er16</b>	<b>33039</b>	R	Thermal protection fan 3 (manual reset)	1 bit		0 ... 1	0		flag
<b>Er17</b>	<b>33039,1</b>	R	Thermal protection fan 4 (manual reset)	1 bit		0 ... 1	0		flag
<b>Er18</b>	<b>33039,2</b>	R	Continuous fan/shared fans thermal switch	1 bit		0 ... 1	0		flag
<b>Er19</b>	<b>33039,3</b>	R	Compressor 1 operating hours exceeded warning	1 bit		0 ... 1	0		flag
<b>Er20</b>	<b>33039,4</b>	R	Compressor 2 operating hours exceeded warning	1 bit		0 ... 1	0		flag
<b>Er21</b>	<b>33039,5</b>	R	Compressor 3 operating hours exceeded warning	1 bit		0 ... 1	0		flag
<b>Er22</b>	<b>33039,6</b>	R	Compressor 4 operating hours exceeded warning	1 bit		0 ... 1	0		flag
<b>Er23</b>	<b>33039,7</b>	R	Continuous compressor running time exceeded signal	1 bit		0 ... 1	0		flag
<b>Er24</b>	<b>33040</b>	R	Fan exceeded running time 1	1 bit		0 ... 1	0		flag
<b>Er25</b>	<b>33040,1</b>	R	Fan exceeded running time 2	1 bit		0 ... 1	0		flag
<b>Er26</b>	<b>33040,2</b>	R	Fan exceeded running time 3	1 bit		0 ... 1	0		flag
<b>Er27</b>	<b>33040,3</b>	R	Fan exceeded running time 4	1 bit		0 ... 1	0		flag
<b>Er28</b>	<b>33040,4</b>	R	Continuous fan running time exceeded signal	1 bit		0 ... 1	0		flag
<b>Er29</b>	<b>33040,5</b>	R	General alarm	1 bit		0 ... 1	0		flag
<b>Er30</b>	<b>33040,6</b>	R	Inlet probe error	1 bit		0 ... 1	0		flag
<b>Er31</b>	<b>33040,7</b>	R	Delivery probe error	1 bit		0 ... 1	0		flag
<b>Er33</b>	<b>33041,1</b>	R	RTC communication error alarm	1 bit		0 ... 1	0		flag

<i>LABEL</i>	<i>ADDRESS</i>	<i>R/W</i>	<i>DESCRIPTION</i>	<i>DATA SIZE</i>	<i>CPL</i>	<i>RANGE</i>	<i>DEFAULT</i>	<i>EXP</i>	<i>M.U.</i>
<b>Er34</b>	<b>33041,2</b>	R	Alarm RTC register value not consistent	1 bit		0 ... 1	0		flag
<b>Er35</b>	<b>33041,3</b>	R	Configuration error alarm	1 bit		0 ... 1	0		flag
<b>Er36</b>	<b>33041,4</b>	R	Not used	1 bit		0 ... 1	0		flag
<b>Er37</b>	<b>33041,5</b>	R	Alarm log full warning	1 bit		0 ... 1	0		flag
<b>Remote_Tacita</b>	<b>33357,2</b>	W	Alarm manual reset	1 bit		0 ... 1	0		flag
<b>Remote_OnOff</b>	<b>33357,3</b>	W	Instrument On/Off	1 bit		0 ... 1	0		flag
<b>RemoteOn</b>	<b>33357,4</b>	W	Instrument On	1 bit		0 ... 1	0		flag
<b>RemoteOff</b>	<b>33357,5</b>	W	Instrument Off	1 bit		0 ... 1	0		flag
<b>RemoteResetVarPar</b>	<b>33357,6</b>	W	Reset changed parameters indicator	1 bit		0 ... 1	0		flag
<b>RemoteFormatStorAll</b>	<b>33357,7</b>	W	Reset alarm history	1 bit		0 ... 1	0		flag
<b>CMD_LOCK_DISP_ON</b>	<b>33026,2</b>	W	Keyboard Locked	1 bit		0 ... 1	0		num
<b>CMD_LOCK_DISP_OFF</b>	<b>33026,2</b>	W	Keyboard Unlocked	1 bit		0 ... 1	0		num

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ISO 9001



EWCM4000 Modbus MANUAL - Msk 401  
2009/07/00  
Cod: 9MA10033