EWCM 4120-4180
- Serial Communication Protocol –
Compact controller for compressor plants

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CONTENTS

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**	• 0=1200 baud • 1=2400 baud • 2=4800 baud • 3=9600 baud • 4=19200 baud • 5=38400 baud • 6=58600 baud • 7=115200 baud
CF65	**Modbus parity protocol**	• 1= EVEN • 2= NONE • 3= ODD

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)

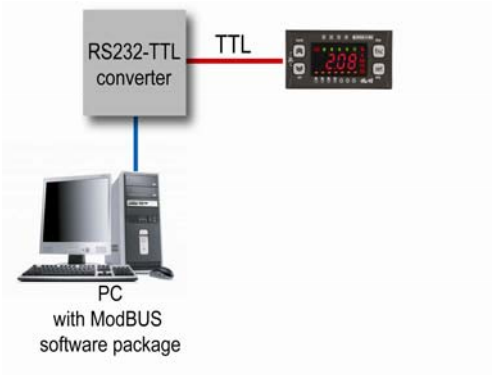
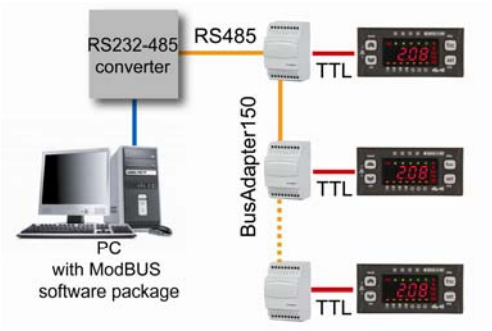
The data coding model used defines the structure of messages sent to the network and the way in which the information is decoded. The type of coding selected is generally based on specific parameters (baud rate, parity, etc)*** and some devices only support specific code models. However, the same model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

ModBus - device connection diagram Single via TTL	**ModBus - multiple devices connection diagram via RS485**
	

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

1.1.2 Modbus commands available and data areas

The commands implemented are:

Modbus command	***Description of command***
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:

Field Code	***Field Description***
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		
	6	Bit 0	End of alarm minute	0÷59 = minutes >59 = undefined value
	7	Bit 1		
2	0	Bit 2		
	1	Bit 3		
	2	Bit 4		
	3	Bit 5		
	4	Bit 0	Start of alarm hour	0÷23 = hours >23 = undefined value
	5	Bit 1		
	6	Bit 2		
	7	Bit 3		
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		
4	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		
5	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		
6	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:
Address EU01 = Address EU00 - 7 = 50698 - 7 = 50691

To read EU02, continue by 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 h0064
Write the seconds byte last!

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

Field	Address	Decimal	Hex	Dimension
0: second	H0064	0	0x0000	byte
1: minutes	H0065	33	0x0021	byte
2: hour	H0066	11	0x000B	byte
3: dayweek	H0067	-	-	byte
4: daymonth	H0068	28	0x001C	byte
5: month	H0069	3	0x0003	byte
6: year	H006A	7	0x0007	byte

N.B.: Write the seconds byte last!

Write sequence:
Write a word of 33 at the address H0065
Write a word of 11 at the address H0066

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 H0068
Write a word of 3 at the address H0069
Write a word of 7 at the address H006A

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 H0064

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 2 hardware models (EWCM4120 e 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.
Particularly we will have that the following parameters will be present on EWCM4180 model and not on EWCM4120 model:
CF27, CF30, CF33, CF35, CF36, CF38, CF39, CF41, CF42, CF44, CF50

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:**

FOLDER This indicates the *label* of the *folder* containing the parameter in question

LABEL This indicates the *label* used to display the **parameters** in the instrument's menu.

VALUE PAR ADDRESS 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 *DATA SIZE* colum 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**01000110**)
8806,8	Byte	5	1350	(**00000101**01000110)
8806,14	1 bit	0	1350	(0**0**000010101000110)
8806,7	4 bit	10	1350	(00000**1010**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	----------(**11**1111111111111)
49482	2 bit	3	65535	(1111111**11**1111111)
49482,2	2 bit	3	65535	(1111**11**1111111111)
49482,4	2 bit	3	65535	(11**11**111111111111)
49482,6	2 bit	3	65535	(**11**1111111111111)

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	(**00**1111111111111)

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).

RANGE 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 *label*).

DEFAULT Indicates the factory setting for the standard model of the instrument.

EXP If = -1 the value read from the register is divided by 10 (value/10) to convert it to the values given in the *RANGE* and *DEFAULT* column and the unit of measure specified in the ***U.M.*** column.
Example: parameter CF04 = 50.0. Column *EXP* = -1:

- The value read by the device/ParamManager is 50.0.
- The value read from the register is 500 --> 500/10 = 50.0.

U.M. Measurement unit for values converted according to the rules indicated in the *CPL* and *EXP* 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	U.M.
CF	**CF02**	**49204**	**49477,4**	RW	Type of analogue input AI3	BYTE		0 ... 5	3		num
CF	**CF03**	**49205**	**49477,6**	RW	Type of analogue input AI4	BYTE		0 ... 5	3		num
CF	**CF04**	**16442**	**49478**	RW	Last value analogue input AI3 scale	WORD	Y	P10 ... 1450	700		Bar/100 - Psi/10
CF	**CF05**	**16450**	**49478,2**	RW	First value analogue input AI3 scale	WORD	Y	-145 ... P9	-100		Bar/100 - Psi/10
CF	**CF06**	**16444**	**49478,4**	RW	Last value analogue input AI4 scale	WORD	Y	P12 ... 1450	300		Bar/10 - Psi
CF	**CF07**	**16452**	**49478,6**	RW	First value analogue input AI4 scale	WORD	Y	-14 ... P11	0		Bar/10 - Psi
CF	**CF10**	**16458**	**49479,4**	RW	Analogue input AI3 differential	WORD	Y	-180 ... 180	0		°C/10 - °F/10 Bar/100 - Psi/10
CF	**CF11**	**16460**	**49479,6**	RW	Analogue input AI4 differential	WORD	Y	-180 ... 180	0		°C/10 - °F/10 Bar/10 - Psi
CF	**CF14**	**49298**	**49480,4**	RW	Analogue input AI3 configuration	BYTE		0 ... 3	1		num
CF	**CF15**	**49299**	**49480,6**	RW	Analogue input AI4 configuration	BYTE		0 ... 3	0		num
CF	**CF16**	**49300**	**49481**	RW	Digital input DI1 configuration	BYTE	Y	-21 ... 21	3		num
CF	**CF17**	**49301**	**49481,2**	RW	Digital input DI2 configuration	BYTE	Y	-21 ... 21	4		num
CF	**CF18**	**49302**	**49481,4**	RW	Digital input DI3 configuration	BYTE	Y	-21 ... 21	5		num
CF	**CF19**	**49303**	**49481,6**	RW	Digital input DI4 configuration	BYTE	Y	-21 ... 21	6		num
CF	**CF20**	**49304**	**49482**	RW	Digital input DI5 configuration	BYTE	Y	-21 ... 21	13		num
CF	**CF23**	**49307**	**49482,6**	RW	Analogue input AI1 configuration when configured as digital input	BYTE	Y	-21 ... 21	1		num
CF	**CF24**	**49308**	**49483**	RW	Analogue input AI2 configuration when configured as digital input	BYTE	Y	-21 ... 21	2		num
CF	**CF25**	**49309**	**49483,2**	RW	Analogue input AI3 configuration when configured as digital input	BYTE	Y	-21 ... 21	0		num
CF	**CF26**	**49310**	**49483,4**	RW	Analogue input AI4 configuration when configured as digital input	BYTE	Y	-21 ... 21	0		num
CF	**CF27**(1)	**49232**	**49483,6**	RW	Type of analogue output AO3	BYTE		0 ... 2	0		num
CF	**CF30**(1)	**49312**	**49484,4**	RW	Analogue output AO3 configuration	BYTE	Y	-22 ... 24	0		num
CF	**CF33**(1)	**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		num
CF	**CF35**(1)	**49238**	**49485,6**	RW	Enable analogue output AO2	BYTE		0 ... 1	0		num
CF	**CF36**(1)	**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		num
CF	**CF38**(1)	**49241**	**49486,4**	RW	Analogue output AO2 phase displacement	BYTE		0 ... 90	27		num
CF	**CF39**(1)	**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		num
CF	**CF41**(1)	**49244**	**49487,2**	RW	Analogue output AO2 pulse time	BYTE		5 ... 40	10		num
CF	**CF42**(1)	**49316**	**49487,4**	RW	Analogue TC output configuration	BYTE	Y	-22 ... 24	23		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
CF	**CF43**	**49317**	**49487,6**	RW	Analogue output AO1 configuration	BYTE	Y	-22 ... 24	23		num
CF	**CF44**(1)	**49318**	**49488**	RW	Analogue output AO2 configuration	BYTE	Y	-22 ... 24	0		num
CF	**CF45**	**49324**	**49488,2**	RW	Digital output DO1 configuration	BYTE	Y	-22 ... 22	1		num
CF	**CF46**	**49325**	**49488,4**	RW	Digital output DO2 configuration	BYTE	Y	-22 ... 22	2		num
CF	**CF47**	**49326**	**49488,6**	RW	Digital output DO3 configuration	BYTE	Y	-22 ... 22	4		num
CF	**CF48**	**49327**	**49489**	RW	Digital output DO4 configuration	BYTE	Y	-22 ... 22	3		num
CF	**CF49**	**49328**	**49489,2**	RW	Digital output DO5 configuration	BYTE	Y	-22 ... 22	15		num
CF	**CF50**(1)	**49329**	**49489,4**	RW	Digital output DO6 configuration	BYTE	Y	-22 ... 22	0		num
CF	**CF51**	**49330**	**49489,6**	RW	Configuration of digital AO output1	BYTE	Y	-22 ... 22	0		num
CF	**CF54**	**49169**	**49490,4**	RW	Select COM1 protocol	BYTE		0 ... 1	0		num
CF	**CF55**	**49176**	**49490,6**	RW	Eliwell protocol controller address	BYTE		0 ... 14	0		num
CF	**CF56**	**49177**	**49491**	RW	Eliwell protocol controller family	BYTE		0 ... 14	0		num
CF	**CF63**	**49178**	**49492,6**	RW	Modbus protocol controller address	BYTE		1 ... 255	1		num
CF	**CF64**	**49179**	**49493**	RW	Modbus baud rate protocol	BYTE		0 ... 7	3		num
CF	**CF65**	**49180**	**49493,2**	RW	Modbus parity protocol	BYTE		1 ... 3	1		num
CF	**CF66**	**49182**	**49493,4**	RW	Customer code 1	BYTE		0 ... 255	0		num
CF	**CF67**	**49183**	**49493,6**	RW	Customer code 2	BYTE		0 ... 255	0		num
CF	**CF68**	**49600**	**49494**	RW	Firmware version	BYTE		0 ... 255	0		-
CF	**CF71**	**16428**	**49494,6**	RW	Tab (map code)	WORD		0 ... 999	1		num
CF	**CF72**	**49359**	**49495**	RW	RTC present	BYTE		0 ... 1	1		num
UI	**UI00**	**49440**	**49496,6**	RW	LED1 configuration	BYTE		0 ... 30	1		num
UI	**UI01**	**49441**	**49497**	RW	LED2 configuration	BYTE		0 ... 30	2		num
UI	**UI02**	**49442**	**49497,2**	RW	LED3 configuration	BYTE		0 ... 30	3		num
UI	**UI03**	**49443**	**49497,4**	RW	LED4 configuration	BYTE		0 ... 30	4		num
UI	**UI04**	**49444**	**49497,6**	RW	LED5 configuration	BYTE		0 ... 30	0		num
UI	**UI05**	**49445**	**49498**	RW	LED6 configuration	BYTE		0 ... 30	0		num
UI	**UI06**	**49446**	**49498,2**	RW	LED7 configuration	BYTE		0 ... 30	0		num
UI	**UI07**	**49447**	**49498,4**	RW	LED8 configuration	BYTE		0 ... 30	23		num
UI	**UI08**	**49448**	**49498,6**	RW	LED9 configuration	BYTE		0 ... 30	25		num
UI	**UI09**	**49449**	**49499**	RW	LED10 configuration	BYTE		0 ... 30	26		num
UI	**UI10**	**49450**	**49499,2**	RW	LED11 configuration	BYTE		0 ... 30	27		num
UI	**UI12**	**49452**	**49499,6**	RW	Select main set point display	BYTE		0 ... 1	0		num
UI	**UI13**	**49453**	**49500**	RW	Select main display	BYTE		0 ... 6	2		num
UI	**UI20**	**16694**	**49501,6**	RW	Installation engineer password	WORD		0 ... 255	1		num
UI	**UI21**	**16696**	**49502**	RW	Manufacturer password	WORD		0 ... 255	2		num
UI	**UI22**	**49466**	**49502,2**	RW	Temperature unit (C/F)	BYTE		0 ... 1	0		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
UI	**UI23**	**49467**	**49502,4**	RW	Unit of pressure measurement	BYTE		0 ... 1	0		num
ST	**St00**	**49664**	**49506,4**	RW	Select type of device	BYTE		0 ... 1	1		num
ST	**St01**	**49665**	**49506,6**	RW	Centrale/lateral set point	BYTE		0 ... 1	1		num
ST	**St02**	**49666**	**49507**	RW	Select Hot/cold operating modes	BYTE		0 ... 1	1		num
ST	**St03**	**49667**	**49507,2**	RW	Absolute/relative alarms	BYTE		0 ... 1	0		num
CP	**CP00**	**16912**	**49507,6**	RW	Regulation set point	WORD	Y	P116 ... P117	45		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP01**	**16914**	**49508**	RW	Setpoint bottom limit	WORD	Y	-999 ... P117	-100		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP02**	**16916**	**49508,2**	RW	Setpoint upper limit	WORD	Y	P116 ... 9999	700		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP03**	**16918**	**49508,4**	RW	Proportional band	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP04**	**16920**	**49508,6**	RW	Delta minimum cut-off	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP05**	**16922**	**49509**	RW	Delta saturation cut-off	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP06**	**16924**	**49509,2**	RW	Hysteresis minimum cut-off	WORD	Y	0 ... 9999	10		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP07**	**16926**	**49509,4**	RW	Hysteresis saturation cut-off	WORD	Y	0 ... 9999	10		°C/10 - °F/10 Bar/100 - Psi/10
CP	**CP08**	**49696**	**49509,6**	RW	Enable minimum cut-off	BYTE		0 ... 1	1		num
CP	**CP09**	**49697**	**49510**	RW	Enable saturation cut-off	BYTE		0 ... 1	1		num
CP	**CP10**	**49698**	**49510,2**	RW	Activation policy	BYTE		0 ... 2	1		num
CP	**CP11**	**49699**	**49510,4**	RW	Enable/disable sequence of relays associated to compressor power stages, suction section	BYTE		0 ... 2	2		num
CP	**CP12**	**49700**	**49510,6**	RW	OFF-ON compressor delay	BYTE		0 ... 255	1		min
CP	**CP13**	**49701**	**49511**	RW	ON-ON compressor delay	BYTE		0 ... 255	1		min
CP	**CP14**	**49702**	**49511,2**	RW	ON-OFF compressor delay	BYTE		0 ... 255	15		sec
CP	**CP15**	**49703**	**49511,4**	RW	Interstep up time	BYTE		0 ... 255	30		sec
CP	**CP16**	**49704**	**49511,6**	RW	Interstep down time	BYTE		0 ... 255	10		sec
CP	**CP17**	**16938**	**49512**	RW	Maximum hours of use for compressor	WORD		0 ... 6500	0		ore*10
CP	**CP18**	**49708**	**49512,2**	RW	Minimum speed	BYTE		0 ... 100	20		%
CP	**CP19**	**49709**	**49512,4**	RW	Maximum speed	BYTE		0 ... 100	80		%
CP	**CP20**	**49710**	**49512,6**	RW	Saturation speed	BYTE		0 ... 100	100		%
CP	**CP21**	**49711**	**49513**	RW	*Default* power for non-allocated probe/probe error	BYTE		0 ... 100	0		%
CP	**CP22**	**49712**	**49513,2**	RW	Number of compressor steps per circuit	BYTE		0 ... 4	4		num
CP	**CP23**	**49713**	**49513,4**	RW	Number of compressor steps 1	BYTE		1 ... 4	1		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
CP	**CP24**	**49714**	**49513,6**	RW	Number of compressor steps 2	BYTE		1 ... 3	1		num
CP	**CP25**	**49715**	**49514**	RW	Number of compressor steps 3	BYTE		1 ... 2	1		num
FN	**Fn00**	**17040**	**49514,2**	RW	Regulation set point	WORD	Y	P142 ... P143	90		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn01**	**17042**	**49514,4**	RW	Setpoint bottom limit	WORD	Y	-999 ... P143	-500		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn02**	**17044**	**49514,6**	RW	Setpoint upper limit	WORD	Y	P142 ... 9999	999		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn03**	**17046**	**49515**	RW	Proportional band	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn04**	**17048**	**49515,2**	RW	Delta minimum cut-off	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn05**	**17050**	**49515,4**	RW	Delta saturation cut-off	WORD	Y	0 ... 9999	20		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn06**	**17052**	**49515,6**	RW	Hysteresis minimum cut-off	WORD	Y	0 ... 9999	10		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn07**	**17054**	**49516**	RW	Hysteresis saturation cut-off	WORD	Y	0 ... 9999	10		°C/10 - °F/10 Bar/10 - Psi
FN	**Fn08**	**49824**	**49516,2**	RW	Enable minimum cut-off	BYTE		0 ... 1	1		num
FN	**Fn09**	**49825**	**49516,4**	RW	Enable saturation cut-off	BYTE		0 ... 1	1		num
FN	**Fn10**	**49826**	**49516,6**	RW	Compressor operation on request	BYTE		0 ... 1	0		num
FN	**Fn11**	**49827**	**49517**	RW	Enable fan rotation	BYTE		0 ... 1	0		num
FN	**Fn12**	**49828**	**49517,2**	RW	Mode for reaching maximum pick-up speed	BYTE		0 ... 1	0		num
FN	**Fn13**	**49829**	**49517,4**	RW	Fan pickup time	BYTE		0 ... 255	2		sec
FN	**Fn14**	**49830**	**49517,6**	RW	Bypass cut-off time	BYTE		0 ... 255	80		sec
FN	**Fn15**	**49831**	**49518**	RW	Pre-ventilation	BYTE		0 ... 255	0		sec
FN	**Fn16**	**49832**	**49518,2**	RW	Interstep up time	BYTE		0 ... 255	15		sec
FN	**Fn17**	**49833**	**49518,4**	RW	Interstep down time	BYTE		0 ... 255	5		sec
FN	**Fn18**	**17066**	**49518,6**	RW	Maximum off time for all fans	WORD		0 ... 500	500		ore
FN	**Fn19**	**17068**	**49519**	RW	Maximum hours of use for fan	WORD		0 ... 6500	0		ore*10
FN	**Fn20**	**49838**	**49519,2**	RW	Minimum speed	BYTE		0 ... 100	40		%
FN	**Fn21**	**49839**	**49519,4**	RW	Maximum silent speed	BYTE		0 ... 100	100		%
FN	**Fn22**	**49840**	**49519,6**	RW	Maximum speed	BYTE		0 ... 100	100		%
FN	**Fn23**	**49841**	**49520**	RW	Maximum pick-up speed	BYTE		0 ... 100	100		%
FN	**Fn24**	**49842**	**49520,2**	RW	*Default* power for non-allocated probe/probe error	BYTE		0 ... 100	100		%
FN	**Fn25**	**49843**	**49520,4**	RW	Number of fans per step for fan coil	BYTE	Y	-1 ... 4	0		num
AL	**AL00**	**50064**	**49520,6**	RW	Time interval in which alarm events are counted	BYTE		1 ... 99	60		min
AL	**AL01**	**50065**	**49521**	RW	Number of inlet pressure switch events	BYTE		0 ... 33	0		num

FOLDER	LABEL	VALUE PAR. ADDRESS	VIS. PAR. ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
AL	**AL02**	**50066**	**49521,2**	RW	Inlet pressure switch alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL03**	**50067**	**49521,4**	RW	Number of outlet pressure switch events	BYTE		0 ... 33	0		num
AL	**AL04**	**50068**	**49521,6**	RW	Outlet pressure switch alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL05**	**50069**	**49522**	RW	Number of inlet low analogue alarm events	BYTE		0 ... 33	0		num
AL	**AL06**	**50070**	**49522,2**	RW	Inlet low analogue alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL07**	**50071**	**49522,4**	RW	Number of inlet high analogue alarm events	BYTE		0 ... 33	0		num
AL	**AL08**	**50072**	**49522,6**	RW	Inlet high analogue alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL09**	**50073**	**49523**	RW	Number of outlet low analogue alarm events	BYTE		0 ... 33	0		num
AL	**AL10**	**50074**	**49523,2**	RW	Outlet low analogue alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL11**	**50075**	**49523,4**	RW	Number of outlet high analogue alarm events	BYTE		0 ... 33	0		num
AL	**AL12**	**50076**	**49523,6**	RW	Outlet high analogue alarm bypass time	BYTE		0 ... 255	0		sec
AL	**AL13**	**50077**	**49524**	RW	Number of compressor shut-down alarm events	BYTE		0 ... 33	0		num
AL	**AL14**	**50078**	**49524,2**	RW	Compressor shut-down alarms bypass time	BYTE		0 ... 255	0		sec
AL	**AL15**	**50079**	**49524,4**	RW	Number of fan thermal switch alarm events	BYTE		0 ... 33	0		num
AL	**AL16**	**50080**	**49524,6**	RW	Fan thermal switch alarms bypass time	BYTE		0 ... 255	0		sec
AL	**AL17**	**17314**	**49525**	RW	Inlet probe maximum alarm switch-on threshold	WORD	Y	-999 ... 9999	700		°C/10 - °F/10 Bar/100 – Psi/10
AL	**AL18**	**17316**	**49525,2**	RW	Hysteresis for switching off inlet probe maximum alarm	WORD		0 ... 9999	10		°C/10 - °F/10 Bar/100 – Psi/10
AL	**AL19**	**17318**	**49525,4**	RW	Inlet probe minimum alarm switch-on threshold	WORD	Y	-999 ... 9999	-10		°C/10 - °F/10 Bar/100 – Psi/10
AL	**AL20**	**17320**	**49525,6**	RW	Hysteresis for switching off inlet probe minimum alarm	WORD		0 ... 9999	10		°C/10 - °F/10 Bar/100 – Psi/10
AL	**AL21**	**17322**	**49526**	RW	Outlet probe maximum alarm switch-on threshold	WORD	Y	-999 ... 9999	160		°C/10 - °F/10 Bar/10 - Psi
AL	**AL22**	**17324**	**49526,2**	RW	Hysteresis for switching off outlet probe maximum alarm	WORD		0 ... 9999	10		°C/10 - °F/10 Bar/10 - Psi
AL	**AL23**	**17326**	**49526,4**	RW	Outlet probe minimum alarm switch-on threshold	WORD	Y	-999 ... 9999	0		°C/10 - °F/10 Bar/10 - Psi
AL	**AL24**	**17328**	**49526,6**	RW	Hysteresis for switching off outlet probe minimum alarm	WORD		0 ... 9999	10		°C/10 - °F/10 Bar/10 - Psi
AL	**AL25**	**50098**	**49527**	RW	Maximum number of historical events per alarm message	BYTE		0 ... 99	0		num

(1) see paragraph "Visibility and Value of parameters"

1.4.2 Tabella Client

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
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_Al	**33323,6**	R	General alarm	1 bit		0 ... 1	0		flag
DI_AlSeq1	**33323,7**	R	Sequencer resource 1 protection	1 bit		0 ... 1	0		flag
DI_AlSeq2	**33324**	R	Sequencer resource 2 protection	1 bit		0 ... 1	0		flag
DI_AlSeq3	**33324,1**	R	Sequencer resource 3 protection	1 bit		0 ... 1	0		flag
DI_AlSeq4	**33324,2**	R	Sequencer resource 4 protection	1 bit		0 ... 1	0		flag
DI_AlSeq5	**33324,3**	R	Sequencer resource 5 protection	1 bit		0 ... 1	0		flag
DI_AlSeq6	**33324,4**	R	Sequencer resource 6 protection	1 bit		0 ... 1	0		flag
DI_AlSeq7	**33324,5**	R	Sequencer resource 7 protection	1 bit		0 ... 1	0		flag
DO_CP1	**33332,1**	R	Compressor on 1	1 bit		0 ... 1	0		flag
DO_CP2	**33332,2**	R	Compressor on 2	1 bit		0 ... 1	0		flag
DO_CP3	**33332,3**	R	Compressor on 3	1 bit		0 ... 1	0		flag
DO_CP4	**33332,4**	R	Compressor on 4	1 bit		0 ... 1	0		flag
DO_Pz1CP1	**33332,5**	R	Compressor 1 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz1CP2	**33332,6**	R	Compressor 2 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz1CP3	**33332,7**	R	Compressor 3 splitter 1 relay	1 bit		0 ... 1	0		flag
DO_Pz2CP1	**33333**	R	Compressor 1 splitter 2 relay	1 bit		0 ... 1	0		flag
DO_Pz2CP2	**33333,1**	R	Compressor 2 splitter 2 relay	1 bit		0 ... 1	0		flag
DO_Pz3CP1	**33333,2**	R	Compressor 1 splitter 3 relay	1 bit		0 ... 1	0		flag
DO_Fan1	**33333,3**	R	Fan state 1	1 bit		0 ... 1	0		flag
DO_Fan2	**33333,4**	R	Fan state 2	1 bit		0 ... 1	0		flag
DO_Fan3	**33333,5**	R	Fan state 3	1 bit		0 ... 1	0		flag
DO_Fan4	**33333,6**	R	Fan state 4	1 bit		0 ... 1	0		flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
DO_Al	33333,7	R	Alarm	1 bit		0 ... 1	0		flag
DO_Seq1	33334	R	Sequencer resource 1 status	1 bit		0 ... 1	0		flag
DO_Seq2	33334,1	R	Sequencer resource 2 status	1 bit		0 ... 1	0		flag
DO_Seq3	33334,2	R	Sequencer resource 3 status	1 bit		0 ... 1	0		flag
DO_Seq4	33334,3	R	Sequencer resource 4 status	1 bit		0 ... 1	0		flag
DO_Seq5	33334,4	R	Sequencer resource 5 status	1 bit		0 ... 1	0		flag
DO_Seq6	33334,5	R	Sequencer resource 6 status	1 bit		0 ... 1	0		flag
DO_Seq7	33334,6	R	Sequencer resource 7 status	1 bit		0 ... 1	0		flag
AO_FanIn	33334,7	R	Continuous fan status	1 bit		0 ... 1	0		flag
AO_CPIn	33335	R	Continuous compressor status	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
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
AI_Seq	535	R	Sequencer probe value	WORD	Y	-580 ... 2200	0	-1	bar
AI_Seq	535	R	Sequencer probe value	WORD	Y	-580 ... 2200	0		PSI
AI_Seq	535	R	Sequencer probe value	WORD	Y	-580 ... 2200	0	-1	°C
AI_Seq	535	R	Sequencer probe value	WORD	Y	-580 ... 2200	0	-1	°F
AI_Seq	535	R	Sequencer 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

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
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		%
DI_DI1	**33094**	R	Digital ID input1	1 bit		0 ... 1	0		flag
DI_DI2	**33094,1**	R	Digital ID input2	1 bit		0 ... 1	0		flag
DI_DI3	**33094,2**	R	Digital ID input3	1 bit		0 ... 1	0		flag
DI_DI4	**33094,3**	R	Digital ID input4	1 bit		0 ... 1	0		flag
DI_DI5	**33094,4**	R	Digital ID input5	1 bit		0 ... 1	0		flag
Er01	**33037,1**	R	Low pressure switch, suction section	1 bit		0 ... 1	0		flag
Er02	**33037,2**	R	High pressure switch, suction section	1 bit		0 ... 1	0		flag
Er03	**33037,3**	R	Low pressure switch, delivery section	1 bit		0 ... 1	0		flag
Er04	**33037,4**	R	High pressure switch, delivery section	1 bit		0 ... 1	0		flag
Er05	**33037,5**	R	Inlet probe maximum	1 bit		0 ... 1	0		flag
Er06	**33037,6**	R	Inlet probe minimum	1 bit		0 ... 1	0		flag
Er07	**33037,7**	R	Outlet probe maximum	1 bit		0 ... 1	0		flag
Er08	**33038**	R	Outlet probe minimum	1 bit		0 ... 1	0		flag
Er09	**33038,1**	R	Stop compressor 1	1 bit		0 ... 1	0		flag
Er10	**33038,2**	R	Stop compressor 2	1 bit		0 ... 1	0		flag
Er11	**33038,3**	R	Stop compressor 3	1 bit		0 ... 1	0		flag
Er12	**33038,4**	R	Stop compressor 4	1 bit		0 ... 1	0		flag
Er13	**33038,5**	R	Continuous compressor shut-down	1 bit		0 ... 1	0		flag

LABEL	ADDRESS	R/W	DESCRIPTION	DATA SIZE	CPL	RANGE	DEFAULT	EXP	U.M.
Er14	**33038,6**	R	Thermal protection fan 1 (manual reset)	1 bit		0 ... 1	0		flag
Er15	**33038,7**	R	Thermal protection fan 2 (manual reset)	1 bit		0 ... 1	0		flag
Er16	**33039**	R	Thermal protection fan 3 (manual reset)	1 bit		0 ... 1	0		flag
Er17	**33039,1**	R	Thermal protection fan 4 (manual reset)	1 bit		0 ... 1	0		flag
Er18	**33039,2**	R	Continuous fan/shared fans thermal switch	1 bit		0 ... 1	0		flag
Er19	**33039,3**	R	Compressor 1 operating hours exceeded warning	1 bit		0 ... 1	0		flag
Er20	**33039,4**	R	Compressor 2 operating hours exceeded warning	1 bit		0 ... 1	0		flag
Er21	**33039,5**	R	Compressor 3 operating hours exceeded warning	1 bit		0 ... 1	0		flag
Er22	**33039,6**	R	Compressor 4 operating hours exceeded warning	1 bit		0 ... 1	0		flag
Er23	**33039,7**	R	Continuous compressor running time exceeded signal	1 bit		0 ... 1	0		flag
Er24	**33040**	R	Fan exceeded running time 1	1 bit		0 ... 1	0		flag
Er25	**33040,1**	R	Fan exceeded running time 2	1 bit		0 ... 1	0		flag
Er26	**33040,2**	R	Fan exceeded running time 3	1 bit		0 ... 1	0		flag
Er27	**33040,3**	R	Fan exceeded running time 4	1 bit		0 ... 1	0		flag
Er28	**33040,4**	R	Continuous fan running time exceeded signal	1 bit		0 ... 1	0		flag
Er29	**33040,5**	R	General alarm	1 bit		0 ... 1	0		flag
Er30	**33040,6**	R	Inlet probe error	1 bit		0 ... 1	0		flag
Er31	**33040,7**	R	Delivery probe error	1 bit		0 ... 1	0		flag
Er32	**33041**	R	Sequencer probe error	1 bit		0 ... 1	0		flag
Er33	**33041,1**	R	RTC communication error alarm	1 bit		0 ... 1	0		flag
Er34	**33041,2**	R	Alarm RTC register value not consistent	1 bit		0 ... 1	0		flag
Er35	**33041,3**	R	Configuration error alarm	1 bit		0 ... 1	0		flag
Er36	**33041,4**	R	Not used	1 bit		0 ... 1	0		flag
Er37	**33041,5**	R	Alarm log full warning	1 bit		0 ... 1	0		flag
Er38	**33041,6**	R	Sequencer resource 1 protection	1 bit		0 ... 1	0		flag
Er39	**33041,7**	R	Sequencer resource 2 protection	1 bit		0 ... 1	0		flag
Er40	**33042**	R	Sequencer resource 3 protection	1 bit		0 ... 1	0		flag
Er41	**33042,1**	R	Sequencer resource 4 protection	1 bit		0 ... 1	0		flag
Er42	**33042,2**	R	Sequencer resource 5 protection	1 bit		0 ... 1	0		flag
Er43	**33042,3**	R	Sequencer resource 6 protection	1 bit		0 ... 1	0		flag
Er44	**33042,4**	R	Sequencer resource 7 protection	1 bit		0 ... 1	0		flag
ALARM_RST	**33357,2**	W	Alarm manual reset	1 bit		0 ... 1	0		flag
ONOFF_TOG	**33357,3**	W	Instrument On/Off	1 bit		0 ... 1	0		flag
ON	**33357,4**	W	Instrument On	1 bit		0 ... 1	0		flag
OFF	**33357,5**	W	Instrument Off	1 bit		0 ... 1	0		flag
VAR_RST	**33357,6**	W	Reset changed parameters indicator	1 bit		0 ... 1	0		flag

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3 ANALITIC INDEX

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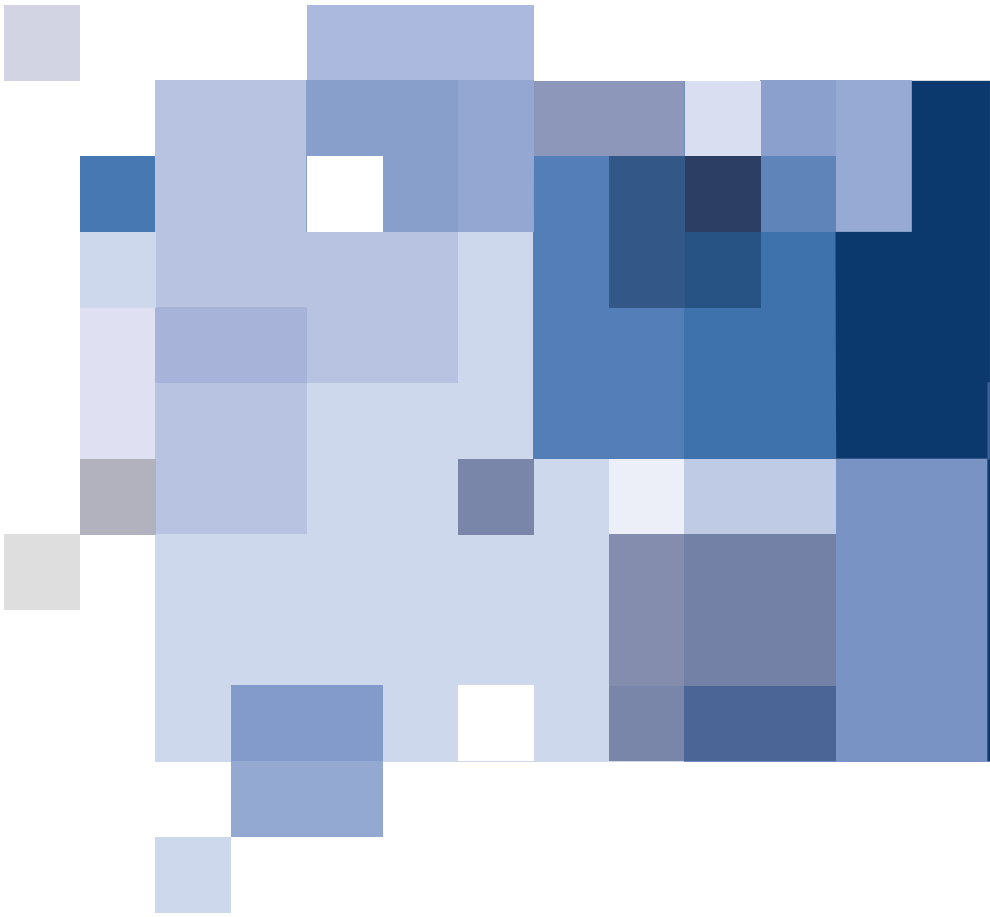

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