



TITLE: MODBUS/J-BUS Protocol for CN2120

ENG. 826E

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MODBUS/J-BUS PROTOCOL FOR CN2120

Valid from Version nr. 19 of product's firmware
(code 50.32500A.19.25)

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ENG.826E – Rev 6

MODBUS/J-BUS PROTOCOL FOR CN2120

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INTRODUCTION

This half duplex protocol accepts one master and one or more slaves.
The physical interface should be of the RS-485 type.

A single multidrop link can take up to 128 devices having the same "High input impedance" as the transceiver used.

The computer should be programmed to serve as a master controlling which slave has access to the link. All other slaves are in waiting state. Each slave has a unique address ranging from 1 to 255.

Address "0" is a broadcast one. When the master sends a message with address "0", all slaves receive it and no one replies.

TRANSMISSION FORMAT

The protocol uses the RTU (Remote terminal unit) mode of transmission.
RTU is a binary method with byte format composed as follows:

1 start bit, 8 data bit, 1 parity bit (optional), 1 stop bit.

The communication speed is selectable among 600, 1200, 2400, 4800, 9600 and 19200 baud.

COMMUNICATION PROCEDURE

The communication can be initiated only by the master unit; the slave units can transmit only after a query has been received from the master.

The general format for the transmission from master to slave is the following:

RANGE	BYTE
Slave address	1
Function code	1
Data	n
Error check (CRC-16) (low byte)	1
Error check (CRC-16) (high byte)	1

The slave detects the start of a query frame when the delay time between two characters is greater than 3.5 T.U. (Time Unit = Time necessary to transmit one character).

ERROR CHECK(CRC-16 Cyclical Redundancy Check)

The CRC-16 value is calculated by the transmitting device. This value is appended to the message. The receiving device recalculates a CRC-16 and compares the calculated value to the received value. The two values must be equal.

The CRC-16 is started by first pre-loading a 16-bit register to all 1's. Then a process begins of applying successive the bytes of the message to the current contents of the register.

Only the eight bits of data in each character are used for generating the CRC-16. Start and stop bits, and the parity bit if one is used, do not apply to the CRC-16.

During generation of the CRC-16, each byte is exclusive ORed with the register contents. Then the result is shifted to the right , with a zero filled into the most significant bit (MSB) position. If the LSB was a 1, the register is then exclusive ORed with a preset, fixed value. If the LSB was a 0, no exclusive OR takes place.

This process is repeated until eight shifts have been performed. After the last shift, the next byte is exclusive ORed with the register's current value, and the process repeats for eight more shifts as described above. The final contents of the register, after all the characters of the message have been applied, is the CRC-16 value.

A procedure for generating a CRC-16 is:

- 1) Load a 16-bit register (CRC-16 register) with FFFFh (all 1's).
- 2) Exclusive OR the first byte of the message with the low byte of the CRC-16 register. Put the result in the CRC-16 register.
- 3) Shift the CRC-16 register one bit to the right (toward the LSB), zero-filling the MSB. Extract and examine the LSB.
4) (If the LSB was 0): Repeat Step 3 (another shift).
(If the LSB was 1): Exclusive OR the CRC-16 register with the polynomial value A001h (1010 0000 0000 0001b).
- 5) Repeat Steps 3 and 4 until 8 shifts have been performed. When this is done, a complete byte will have been processed.
- 6) Repeat Steps 2 through 5 for the next byte of the message.
Continue doing this until all bytes have been processed.
- 7) The final contents of the CRC-16 register is the CRC-16 value.

When the CRC-16 (16 bytes) is transmitted in the message, the low byte will be transmitted first, followed by the high byte.

An example of a C language function performing CRC generation is shown below.

```
/*
-----*
crc_16      calculate the crc_16 error check field

Input parameters:
    buffer: string to calculate CRC
    length: bytes number of the string

This function returns the CRC value.
----- */
unsigned int crc_16 (unsigned char *buffer, unsigned int length)
{
    unsigned int i, j, temp_bit, temp_int, crc;

    crc = 0xFFFF;

    for ( i = 0; i < length; i++ ) {
        temp_int = (unsigned char) *buffer++;

        crc ^= temp_int;

        for ( j = 0; j < 8; j++ ) {
            temp_bit = crc & 0x0001;

            crc >>= 1;

            if ( temp_bit != 0 )
                crc ^= 0xA001;
        }
    }
    return (crc);
}
```

NOTE

the numerical value present in this text are expressed as:
binary value if they are followed by b
decimal value if they are not followed by any letter
hexadecimal value if they are followed by h

Function code 1 and 2: Bits reading

These function codes are used by the master unit to request the value of a consecutive group of bits (max 24) which are representing the status of the slave unit.

Request from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (1-255)	1	Slave address (1-255)	1
Function code (01-02)	1	Function code (01-02)	1
Bit starting address (high byte)	1	Byte count (n)	1
Bit starting address (low byte)	1	Data	n
Number of bits (high byte)	1	Error check (CRC-16) (low byte)	1
Number of bits (low byte)	1	Error check (CRC-16) (high byte)	1
Error check (CRC-16) (low byte)	1		
Error check (CRC-16) (high byte)	1		

The "Data" field indicates the bits requested: the bit with lower address is in the bit 0 of the first byte, the next is in the bit 1, and so on.

The eventual don't care bits necessary to complete the last byte are equal to 0.

Example

Ask to slave at address 100 (64h) the status of 14 (Eh) bits starting from bit 201 (C9h).

Request from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	64h	Slave address	64h
Function code	01h	Function code	01h
Bit starting address (high byte)	00h	Byte count	02h
Bit starting address (low byte)	C9h	Data	A7h
Number of bits (high byte)	00h	Data	04h
Number of bits (low byte)	0Eh	Error check (CRC-16) (low byte)	8Eh
Error check (CRC-16) (low byte)	64h	Error check (CRC-16) (high byte)	07h
Error check (CRC-16) (high byte)	05h		

The 2 bytes in "Data" field (A7h=10100111b, 04h=00000100b) mean:

bit 201 status = 1	bit 209 status = 0
bit 202 status = 1	bit 210 status = 0
bit 203 status = 1	bit 211 status = 1
bit 204 status = 0	bit 212 status = 0
bit 205 status = 0	bit 213 status = 0
bit 206 status = 1	bit 214 status = 0
bit 207 status = 0	Don't care = 0
bit 208 status = 1	Don't care = 0

Function code 3 and 4: Words reading

These function codes are used by the master unit to read a consecutive group of words (16 bit) which contain the value of the variable of the slave unit.
The master can require a maximum of 20 words at a time.

Request from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (1-255)	1	Slave address (1-255)	1
Function code (03-04)	1	Function code (03-04)	1
Word starting address (high byte)	1	Byte count (n)	1
Word starting address (low byte)	1	Data	n
Number of word (high byte)	1	Error check (CRC-16) (low byte)	1
Number of word (low byte)	1	Error check (CRC-16) (high byte)	1
Error check (CRC-16) (low byte)	1		
Error check (CRC-16) (high byte)	1		

The "Data" field contains the requested words in the following format: high byte of the first word, low byte of the first word, high byte of the second word, and so on.

The "Data" field contains 8000h for not implemented addresses or for information not relevant in the actual device configuration.

Example:

Ask to slave at address 29 (1Dh) the value of 3 words (3h) starting from word 178 (B2h)

Request from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	1Dh	Slave address	1Dh
Function code	03h	Function code	03h
Word starting address (high byte)	00h	Byte count	06h
Word starting address (low byte)	B2h	Data	FFh
Number of words (high byte)	00h	Data	9Ch
Number of words (low byte)	03h	Data	80h
Error check (CRC-16) (low byte)	A7h	Data	00h
Error check (CRC-16) (high byte)	B0h	Data	05h
		Data	5Ah
		Error check (CRC-16) (low byte)	D7h
		Error check (CRC-16) (high byte)	0Dh

The 6 bytes in "Data" field (FFh, 9Ch, 80h, 00h, 05h, 5Ah) are 3 words whose meaning is:

word 178 value = -100 (FF9Ch)

word 179 value = not implemented or not relevant (8000h)

word 180 value = 1370 (55Ah)

Function code 5: Single bit writing

By using this command, the master unit can change the state of one bit of the slave unit.

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (0*-255)	1	Slave address (1-255)	1
Function code (05)	1	Function code (05)	1
Bit address (high byte)	1	Bit address (high byte)	1
Bit address (low byte)	1	Bit address (low byte)	1
Data	2	Data	2
Error check (CRC-16) (low byte)	1	Error check (CRC-16) (low byte)	1
Error check (CRC-16) (high byte)	1	Error check (CRC-16) (high byte)	1

* To use the address 0, see note 1 at page 13: "Broadcast address".

"Data" field = 0h to reset the bit
= FF00h to set the bit

Example:

Set bit 219 (DBh) of slave at address 35 (23h)

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	23h	Slave address	23h
Function code	05h	Function code	05h
Bit address (high byte)	00h	Bit address (high byte)	00h
Bit address (low byte)	DBh	Bit address (low byte)	DBh
Data	FFh	Data	FFh
Data	00h	Data	00h
Error check (CRC-16) (low byte)	FAh	Error check (CRC-16) (low byte)	FAh
Error check (CRC-16) (high byte)	83h	Error check (CRC-16) (high byte)	83h

Function code 6: Single word writing

By using this command, the master unit can change the value of one word (16 bit) of the slave unit.

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (0*-255)	1	Slave address (1-255)	1
Function code (06)	1	Function code (06)	1
Word address (high byte)	1	Word address (high byte)	1
Word address (low byte)	1	Word address (low byte)	n
Data	2	Data	2
Error check (CRC-16) (low byte)	1	Error check (CRC-16) (low byte)	1
Error check (CRC-16) (high byte)	1	Error check (CRC-16) (high byte)	1

* To use the address 0, see note 1 at page 13: "Broadcast address".

The 8000h value, present in the "data" field, should be considered as a don't care value, that is, the value present in the device at this address will not be modified.

Example:

Set word 2006 (7D6h) of slave at address 5 (5h) with value 1250 (4E2h)

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	05h	Slave address	05h
Function code	06h	Function code	06h
Word address (high byte)	07h	Word address (high byte)	07h
Word address (low byte)	D6h	Word address (low byte)	D6h
Data	04h	Data	04h
Data	E2h	Data	E2h
Error check (CRC-16) (low byte)	EAh	Error check(CRC-16) (low byte)	EAh
Error check (CRC-16) (high byte)	4Bh	Error check (CRC-16) (high byte)	4Bh

Function code 15: Multiple bits writing

This function code is used by master unit to set/reset a consecutive group of bits (Max 24).

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (0*-255)	1	Slave address (1-255)	1
Function code (15)	1	Function code (15)	1
Bit starting address (high byte)	1	Bit starting address (high byte)	1
Bit starting address (low byte)	1	Bit starting address (low byte)	1
Number of bits (high byte)	1	Number of bits (high byte)	1
Number of bits (low byte)	1	Number of bits (low byte)	1
Byte counter	1	Error check (CRC-16) (low byte)	1
Data	n	Error check (CRC-16) (high byte)	1
Error check (CRC-16) (low byte)	1		
Error check (CRC-16) (high byte)	1		

* To use the address 0, see note 1 at page 13: "Broadcast address".

The desired status of each bit is packed in the "Data" field (1 = ON, 0 = OFF).

The status imposed for read only bits will be ignored.

The command will be processed starting from the first bit and it will be executed or not executed depending on the actual device status.

At the first error found, the command will be aborted and the slave will answer with an error.

Example:

Send to slave, at address 2 (2h), the following set of 9 bits:

bit 224 status = 0 (bit 0)	bit 232 status = 1 (bit 0)
bit 225 status = 1 (bit 1)	Don't care = 0 (bit 1)
bit 226 status = 1 (bit 2)	Don't care = 0 (bit 2)
bit 227 status = 0 (bit 3)	Don't care = 0 (bit 3)
bit 228 status = 1 (bit 4)	Don't care = 0 (bit 4)
bit 229 status = 0 (bit 5)	Don't care = 0 (bit 5)
bit 230 status = 1 (bit 6)	Don't care = 0 (bit 6)
bit 231 status = 1 (bit 7)	Don't care = 0 (bit 7)

NOTE: 2 bytes with 9 bits and 7 don't care bits must be sent

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	02h	Slave address	02h
Function code	0Fh	Function code	0Fh
Bit starting address (high byte)	00h	Bit starting address (high byte)	00h
Bit starting address (low byte)	E0h	Bit starting address (low byte)	E0h
Number of bits (high byte)	00h	Number of bits (high byte)	00h
Number of bits (low byte)	09h	Number of bits (low byte)	09h
Byte counter	02h	Error check (CRC-16) (low byte)	94h
Data	D6h	Error check (CRC-16) (high byte)	08h
Data	01h		
Error check (CRC-16) (low byte)	78h		
Error check (CRC-16) (high byte)	4Ch		

Function code 16: Multiple words writing

This function code is used by the master unit to write a consecutive group of words .
 The master unit can change a maximum of 20 words at a time.

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address (0*-255)	1	Slave address (1-255)	1
Function code (16)	1	Function code (16)	1
Word starting address (high byte)	1	Word starting address (high byte)	1
Word starting address (low byte)	1	Word starting address (low byte)	1
Number of words (high byte)	1	Number of words (high byte)	1
Number of words (low byte)	1	Number of words (low byte)	1
Byte counter	1	Error check (CRC-16) (low byte)	1
Data	n	Error check (CRC-16) (high byte)	1
Error check (CRC-16) (low byte)	1		
Error check (CRC-16) (high byte)	1		

* To use the address 0, see note 1 at page 13: "Broadcast address".

The data imposed for read only words will be ignored.

The command will be processed starting from the first word and it will be executed or not executed depending on the actual device status.

At the first error found, the command will be aborted and the slave will answer with an error.
 The 8000h value, present in the "data" field, should be considered as a don't care value, this is, the value present in the device at this address will not be modified.

Example:

Set words 1301 (515h), 1302 (516h), 1303 (517h) of slave at address 10 (Ah) with 300 (12Ch), don't care (8000h) and 200 (C8h) values.

Command from master to slave		Reply from slave to master	
Range	Byte	Range	Byte
Slave address	0Ah	Slave address	0Ah
Function code	10h	Function code	10h
Word starting address(high byte)	05h	Word starting address (high byte)	05h
Word starting address (low byte)	15h	Word starting address (low byte)	15h
Number of words (high byte)	00h	Number of words (high byte)	00h
Number of words (low byte)	03h	Number of words (low byte)	03h
Byte counter	06h	Error check (CRC-16) (low byte)	90h
Data	01h	Error check (CRC-16) (high byte)	7Bh
Data	2Ch		
Data	80h		
Data	00h		
Data	00h		
Data	C8h		
Error check (CRC-16) (low byte)	44h		
Error check (CRC-16) (high byte)	03h		

NOTES:**1. "Broadcast" address**

When using the writing codes (5, 6, 15 and 16) the slave address 0 is permitted: in this case all the slaves connected accept the command but do not give any reply.

2. Words format

Every time the information transfer is performed by using 2 bytes (1 word of 16 bits), the first byte transmitted is the most significant one. For the negative numbers the "two complement" format is used.

3. Reply time

The slave will start to send a reply from 2 ms to 400 ms after the end of the request detected by counting the received bytes.

The slave will start to send a reply from 2 ms to 700 ms after the end of the set detected by counting the received bytes.

4. Decimal digits

The decimal point that may be present in the value is ignored.

Example:

The value 204.6 is transmitted as 2046 (07FEh)

The value -12.50 is transmitted as -1250 (FB1Eh)

5. Local/remote status

At power up, the slave will be in local mode if it was in control mode at power off. In the other cases, it will maintain the condition it was at the power off.

In order to enable a slave to be controlled from the master, it is necessary to set the local/remote status bit (ModBus bit 218).

For a slave to remain in remote status, it is sufficient to detect line activity.

If there is no line activity for more than 3 sec. every slave will automatically return to local mode.

Local mode: the communication between master and slave is limited to transferring data from slave to master without possibility of modifying any parameter from the master itself (with the exception of the local/remote status bit). Therefore from the local keyboard, parameters can be displayed and modified.

Remote mode: the instrument parameters can be modified by the master. Therefore, from the instrument front the parameters can be only displayed but not modified.

6. Control mode

"Control mode" indicates the normal functioning status of the device (indicator/controller).

In control mode there are parameters (menu groups), variables and status.

The parameters (Menu groups) are represented by words only.

The variables and the status are represented by bits and words.

Reading:

The parameters (menu groups) are available only if they are meaningful in the present contest.

The variables and the status are available only if the device is in control mode and if they are meaningful in the present contest.

Writing:

All the addresses are available only if the device is in control mode, in remote mode, in unlock condition (see note 9) and if they are meaningful in the present contest.

Menu group 8 - "Feedback potentiometer calibration" is not managed.

7. Configuration mode

The configuration parameters (Menu conf.) are represented by words only.

They are available as read only if they are meaningful in the present contest.

They are available as writing only if the device is in configuration mode, and they are meaningful in the present contest.

At the end of the parameters programming of a configuration menu it is opportune to send the "end of configuration menu" command (ModBus words 3000 ÷ 3005). The congruence of the programmed data compared with the data of the other configuration menus is checked. In case of non compatibility, the reply will include a 1xx error message where xx represents the number of the menus whose closure has caused the error.

The end of the group programming is anyway automatically sent if data of a different menu are programmed or read and if the output of the configuration mode is imposed.

To modify the configuration parameters via serial link, it is necessary to set the slave in remote (ModBus bit 218). Then, set the slave in configuration mode (send the safety lock combination value for configuration mode to ModBus word 347 *).

The display will show:

SEr
COnF

To return in control mode condition, send 1 to Modbus word 3051. The slave will reset and restart in control mode condition.

8. Security code mode

The security code parameters are represented by words only.

They are always available as read.

They are available as writing only if the device is in security code mode.

The present key value does not affect the modification.

To modify the security code parameters via serial link, it is necessary to set the slave in remote (ModBus bit 218). Then, set the slave in security code mode (send the safety lock combination value for configuration mode to ModBus word 348 *).

The display will show:

Scrt
COnF

To return in control mode condition, send 1 to ModBus word 3051. The slave will reset and restart in control mode condition.

* If the value of safety lock combination for configuration mode is 0, all values will be accepted. If the value is 1, no value will be accepted.

9. Software key for lock/unlock

The modification of the parameters can be protected by software keys.

There is a key to protect the access to configuration mode and security code mode.

There is a second key to protect the modification of control mode parameters.

Once the control mode key is programmed, it is possible to decide which menus will be protected and which menus will not be protected.

Keys management via serial link

Set the slave in remote (ModBus bit 218).

Set the slave in security code mode (send the present safety lock combination value for configuration mode at ModBus word 348).

Set the new safety lock combination value for configuration mode at ModBus word 4000.

Set the new safety lock combination value for control mode at ModBus word 4001.

To protect control mode menus with the key, write 1 (key protected) in Modbus words 4002÷4010. Write 0 (free) if no key protection is needed.

N.B.:

- Safety lock combination = 0: No security code (all parameters can always be modified).
If safety lock combination is for control mode, ModBus word 4002÷4010 are forced to 0.
- Safety lock combination = 1: No security code (all parameters cannot be modified).
If safety lock combination is for control mode, ModBus word 4002÷4010 are forced to 1.
- Safety lock combination=2÷250: Security code for parameters protection.
In order to remove the protection for the control mode parameters, it is necessary to write the safety lock combination value for control mode at ModBus word 349. It is sufficient to do this once only.
In order to protect the control mode parameters, it is necessary to write a value different from the safety lock combination value for control mode at ModBus word 349.
- In order to modify the configuration parameters, it is necessary to set the configuration mode by writing the safety lock combination value for configuration mode at ModBus word 347.
In order to modify the security code parameters, it is necessary to set security code mode by writing the safety lock combination value for configuration mode at ModBus word 348.

10. How to create, modify, delete a simple program

The serial communication protocol allows to create, visualise, modify or cancel programs.

The following data are available:

one simple program only (ModBus 600/624 addresses)
one timer event only (ModBus 625/630 addresses)
one program segment only (ModBus 700/721 addresses)

Program selection:

Write the number of the desired program at ModBus 600 address. Numbers from 1 to 90 are valid.

ModBus 601/624 addresses will include the general data related to the selected program. If the program does not exist, the data will have no sense.

If timer events are provided, write the desired number of timer event at ModBus 625 address. Numbers from 1 to 4 and from 10 to 19 are valid. ModBus 626/630 addresses will include the data related to the selected timer event if it exists; otherwise, the data will have no sense.

In case not all of the 5 available steps of the timer event are utilised, it will be necessary to program the first one of the non desired steps as timer end (7ffffh). If the timer event does not exist, no programs are accepted.

Segment selection:

Write the number of the desired segment which belongs to the ModBus 600 address selected program, at ModBus 700 address.

Numbers from 1 to 99 are valid.

ModBus 702/721 addresses will include the data related to the selected segment. If the program or the segment does not exist, the data will have no sense.

The general data of the program and of the timer can be modified following the normal rules of the protocol. For the data related to the segment, ModBus 701 address has a relevant importance.

How to modify a selected segment:

the selected segment must already exist
value 1 must be written at ModBus 701 address
data can be now modified

How to create a new segment:

the selected segment must already exist or it must be the first one or it must be preceded from an existing segment

value 2 must be written at ModBus 701 address (once value 2 is written, the new segment is created)

the new segment addresses must be completely programmed

How to delete a segment:

the selected segment must already exist
value 3 must be written at ModBus 701 address. Once value 3 is written, the segment is deleted. If the segment is the first and unique one, the program is also deleted.

All of the above mentioned programming follow the same rules observed by keyboard programming.

ModBus 701 address is forced to 0 (no action) when:

the device is in remote mode,
a program is selected,
a segment is selected.

11. How to create, modify, delete a linked program

The serial communication protocol allows to create, visualise, modify or delete linked programs.

The data of a linked program only are available (ModBus 801/811 addresses).

The first operation consists of writing at ModBus 800 address the number of the desired linked program.

Numbers from 1 to 9 are valid.

ModBus 801/810 addresses will include the number, the repetitions and the simple programs which compose the selected program. If the program does not exist, the data will have no sense.

In case less than 9 simple programs must be linked, it will be necessary to program the first one of the non desired programs as linked program end (7ffffh). Each simple program must be preceded by a simple program except for the first one.

ERROR REPLY

If the "error check" is wrong or the function code is not implemented or a buffer over flows has been received, the slave does not send any reply to the master.

If other errors are detected in the request or command frame, or the slave cannot reply with the requested values or it cannot accept the requested sets because it is in error condition, the slave replies by forcing at "1" the bit 7 of the "Function code" byte followed by an error code.

Error reply (from slave to master)

RANGE	BYTE
Slave address	1
Function code (+80h)	1
Error code	1
Error check (CRC-16) (low byte)	1
Error check (CRC-16) (high byte)	1

List of error codes

ERROR Nr.	DESCRIPTION
2	Illegal data address
3	Illegal data value
9	Illegal number of data required
10	The bit or word indicated cannot be modified
50	Simple program not existing
51	Error on time ramp selection
52	Error on initial set point
53	Error on number of program repetitions
54	Error on control output at the end of the program
55	Error on set point at the end of the program
56	Error on PID group selection at the end of the program
57	Error on timer events
60	Error on final set point of one segment
61	Error on one segment duration
62	Error on one segment gradient
63	Error on PID group selection of one segment
64	Error on tracking group selection of one segment
70	Error on one PID group
71	Error on one tracking group
101	Error on configuration group 1
102	Error on configuration group 2
103	Error on configuration group 3
104	Error on configuration group 4
105	Error on configuration group 5
106	Error on configuration group 6
152	Error on control mode group 2
153	Error on control mode group 3
154	Error on control mode group 4
155	Error on control mode group 5
156	Error on control mode group 6
158	Error on control mode group 8
160	Error on control mode group Hidden
200	Error on main input TC (0÷60mV) calibration
201	Error on main input CJ calibration
202	Error on main input RTD (0÷375Ω) calibration
203	Error on main input current (0÷20mA) calibration
204	Error on main input voltage (0÷5V) calibration
205	Error on main input voltage (0÷10V) calibration
206	Error on auxiliary input current (0÷20mA) calibration
207	Error on auxiliary input voltage (0÷5V) calibration
208	Error on auxiliary input voltage (0÷10V) calibration
209	Error on current transformer input (0÷50mA rms) calibration
210	Error on feedback input (0÷1,25V) calibration
211	Error on OUT5 (0÷20mA output) calibration
212	Error on OUT6 (0÷20mA output) calibration

Note: The errors from 50 to 71 are the replies to the program check (Modbus word 88)

On configuration error condition (101÷106), the device will not reply with error message but it will reply with the requested value in the following cases:

- request of configuration mode menu addresses
- request of control mode menu addresses
- request of security code mode addresses

It will accept the following sets:

- set in remote (ModBus bit 218)
- set in configuration mode (ModBus word 347)
- set in security code mode (ModBus word 348)
- set of all of configuration addresses
- set of all of security code mode addresses

On control mode error condition (151÷160), the device will not reply with error message but it will reply with the requested value in the following cases:

- request of configuration mode menu addresses
- request of control mode menu addresses
- request of security code mode addresses

It will accept the following sets:

- set in remote (ModBus bit 218)
- set in configuration mode (ModBus word 347)
- set in security code mode (ModBus word 348)
- set of all of configuration addresses
- set of all of control mode menu addresses
- load of control mode default parameters (ModBus bits 223÷231)
- set of all of security code mode addresses

On calibration error condition (200÷212), the device will not reply with error message but it will reply with the requested value in the following cases:

- request of configuration mode menu addresses
- request of control mode menu addresses
- request of security code mode menu addresses

It will accept the following sets:

- set in remote (ModBus bit 218)
- set in configuration mode (ModBus word 347)
- set in security code mode (ModBus word 348)
- set of all of configuration mode addresses
- set of all of security code mode addresses

If a configuration or control mode or calibration error occurs at start up and no action is taken, the device will reset after a 30 second time-out.

In configuration mode, the time-out will be disable.

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

"Edit" - Menu group P - EDIT PROGRAM

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
601	600	Simple program selection	("SE.x")	x			x		
602	601	Segment number of simple program	("SE.x")	x					
603	602	Time soak selection Range: 0 = Hours and minutes 1 = Minutes and seconds	("t.Sok")	x			x		
604	603	Time ramp selection Range: 0 = Hours and minutes 1 = Minutes and seconds 2 = Gradient in digit / hour	("t.rnP")	x			x		
605	604	Event 1 enabling Range: 0 = Event not utilized by the selected program 1 = Event utilized by the selected program	("Ev. 1")	x			x		
606	605	Event 2 enabling Note: See "Event 1 enabling"	("Ev. 2")	x			x		
607	606	Event 3 enabling Note: See "Event 1 enabling"	("Ev. 3")	x			x		
608	607	Event 4 enabling Note: See "Event 1 enabling"	("Ev. 4")	x			x		
609	608	Event 10 enabling Note: See "Event 1 enabling"	("Ev. 10")	x			x		
610	609	Event 11 enabling Note: See "Event 1 enabling"	("Ev. 11")	x			x		
611	610	Event 12 enabling Note: See "Event 1 enabling"	("Ev. 12")	x			x		
612	611	Event 13 enabling Note: See "Event 1 enabling"	("Ev. 13")	x			x		
613	612	Event 14 enabling Note: See "Event 1 enabling"	("Ev. 14")	x			x		
614	613	Event 15 enabling Note: See "Event 1 enabling"	("Ev. 15")	x			x		

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W
JBus	Mod Bus			E A D	R I T E
615	614	Event 16 enabling Note: See "Event 1 enabling"	("Ev.16")	x	x
616	615	Event 17 enabling Note: See "Event 1 enabling"	("Ev.17")	x	x
617	616	Event 18 enabling Note: See "Event 1 enabling"	("Ev.18")	x	x
618	617	Event 19 enabling Note: See "Event 1 enabling"	("Ev.19")	x	x
619	618	Initial set point Note: The value 7FFFh means that the program execution starts from measured variable value.	("ItSP")	x	x
620	619	Number of program repetitions Note: The value 7FFFh means that the program will repeated indefinitely.	("rPt")	x	x
621	620	Break events reset Range: 0 = The break events resets after the end of the program 1 = The break events maintain their status after the end of the program	("b.E.On")	x	x
622	621	Output at the end of the profile Range: 0 = At the end of the program the value of the output is fixed by "Maintenance output" Modbus word 622 1 = At the end of the program the device will continue to control with a set point fixed by "Maintenance set point" Modbus word 623 2 = At the end of the program the device goes in Output Power Off mode	("End")	x	x
623	622	Maintenance output	("ñout")	x	x
624	623	Maintenance set point	("ñSP")	x	x
625	624	Maintenance Pid group selection	("ñPld")	x	x
626	625	Timer event selection		x	x
627	626	Timer event selected step 1 Note: The value 7FFFh means that the timer event 1 programming is ended	("t. xx.1")	x	x

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	I	T	E
628	627	Timer event selected step 2 Note: The value 7FFFh means that the timer event 1 programming is ended	("t. xx.2")	x		x		
629	628	Timer event selected step 3 Note: The value 7FFFh means that the timer event 1 programming is ended	("t. xx.3")	x		x		
630	629	Timer event selected step 4 Note: The value 7FFFh means that the timer event 2 programming is ended	("t. xx.4")	x		x		
631	630	Timer event selected step 5 Note: The value 7FFFh means that the timer event 2 programming is ended	("t. xx.5")	x		x		
701	700	Segment selection		x		x		
702	701	Action Range: 0 = No action 1 = Modify selected segment 2 = Insert selected segment 3 = Delete selected segment		x		x		
703	702	Segment initial set point Note: If the segment selected is the first of the program, the value 7FFFh means that the program execution starts from measured variable.	("ItSP") or ("F.SP")	x				
704	703	Final set point Note: The value 7FFFh means that the program is ended. In an existing program all of the next segment will be erased.	("F.SP")	x		x		
705	704	Segment duration	("hh. nn") or ("nn.nn")	x		x		
706	705	Gradient	("GrAd")	x		x		
707	706	Pid group selection	("Pid.G")	x		x		
708	707	Tracking group selection	("trkG")	x		x		
709	708	Break event 1 status Range: 0 = Off 1 = On	("b.E. 1")	x		x		
710	709	Break event 2 status Range: 0 = Off 1 = On	("b.E. 2")	x		x		

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
711	710	Break event 3 status Range: 0 = Off 1 = On	("b.E.3")	x	x
712	711	Break event 4 status Range: 0 = Off 1 = On	("b.E.4")	x	x
713	712	Break event 10 status Range: 0 = Off 1 = On	("b.E.10")	x	x
714	713	Break event 11 status Range: 0 = Off 1 = On	("b.E.11")	x	x
715	714	Break event 12 status Range: 0 = Off 1 = On	("b.E.12")	x	x
716	715	Break event 13 status Range: 0 = Off 1 = On	("b.E.13")	x	x
717	716	Break event 14 status Range: 0 = Off 1 = On	("b.E.14")	x	x
718	717	Break event 15 status Range: 0 = Off 1 = On	("b.E.15")	x	x
719	718	Break event 16 status Range: 0 = Off 1 = On	("b.E.16")	x	x
720	719	Break event 17 status Range: 0 = Off 1 = On	("b.E.17")	x	x
721	720	Break event 18 status Range: 0 = Off 1 = On	("b.E.18")	x	x
722	721	Break event 19 status Range: 0 = Off 1 = On	("b.E.19")	x	x

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
801	800	Linked program selection	("P.L.Lx")	x			x		
802	801	Simple programs number of linked program	("P.L.x")	x					
803	802	Linked program repetitions Note: The value 7FFFh means that the linked program will repeated indefinitely.	("rPt")	x			x		
804	803	Simple program 1 of Linked program Note: The value 7FFFh means that the linked program will be erased.	("PrG.1")	x			x		
805	804	Simple program 2 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.2")	x			x		
806	805	Simple program 3 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.3")	x			x		
807	806	Simple program 4 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.4")	x			x		
808	807	Simple program 5 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.5")	x			x		
809	808	Simple program 6 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.6")	x			x		
810	809	Simple program 7 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.7")	x			x		
811	810	Simple program 8 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.8")	x			x		
812	811	Simple program 9 of Linked program Note: The value 7FFFh means that the linked program is ended.	("PrG.9")	x			x		

WORDS FOR DEVICE IN CONTROL MODE – PARAMETERS
"Cnd" - Menu group 2 - COMMAND

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	I	T	E
139	138	Main set point	("SP")	x		x		
143	142	Selection of program for the automatic start Range: From 1 to 90 for simple program From 91 to 99 for linked program	("Pr.St.")	x		x		
144	143	Day of automatic start Range: 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday 8 = All the days from Monday to Friday 9 = All the days from Monday to Saturday 10 = All the days	("St.dY")	x		x		
145	144	Time of automatic start (in minutes)	("St.tñ")	x		x		

"Alrñ" - Menu group 3 - ALARM THRESHOLD AND HYSTERESIS VALUE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	I	T	E
178	177	Alarm 1 threshold	("AL1")	x		x		
179	178	Alarm 2 threshold	("AL2")	x		x		
180	179	Alarm 3 threshold	("AL3")	x		x		
181	180	Alarm 4 threshold	("AL4")	x		x		
182	181	Band alarm 1 threshold low	("bA1.L")	x		x		
183	182	Band alarm 1 threshold high	("bA1.h")	x		x		
184	183	Band alarm 2 threshold low	("bA2.L")	x		x		
185	184	Band alarm 2 threshold high	("bA2.h")	x		x		
186	185	Band alarm 3 threshold low	("bA3.L")	x		x		
187	186	Band alarm 3 threshold high	("bA3.h")	x		x		
188	187	Band alarm 4 threshold low	("bA4.L")	x		x		
189	188	Band alarm 4 threshold high	("bA4.h")	x		x		
190	189	OFD low alarm threshold	("A.L.Fd")	x		x		

WORDS FOR DEVICE IN CONTROL MODE – PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
191	190	OFD high alarm threshold	("A.H.Fd")	x	x
192	191	Alarm 1 hysteresis	("HSA1")	x	x
193	192	Alarm 2 hysteresis	("HSA2")	x	x
194	193	Alarm 3 hysteresis	("HSA3")	x	x
195	194	Alarm 4 hysteresis	("HSA4")	x	x

"Cntr" - Menu group 4 - CONTROL PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
149	148	Proportional band	("Pb")	x	x
150	149	Hysteresis for on/off control mode	("HYS")	x	x
151	150	Integral time (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti")	x	x
152	151	Derivative time (in seconds)	("td")	x	x
153	152	Integral pre-load	("IP")	x	x
154	153	Relative secondary output gain	("r.Gn")	x	x
155	154	Dead band/overlap between main/secondary output	("OLAP")	x	x
156	155	Control action Range: 0 = Rev 1 = Dir	("Cn.Ac")	x	x
201	200	Proportional band 1	("Pb.1")	x	x
202	201	Hysteresis 1 for on/off control mode	("HYS.1")	x	x
203	202	Integral time 1 (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti.1")	x	x
204	203	Derivative time 1 (in seconds)	("td.1")	x	x
205	204	Integral pre-load 1	("IP.1")	x	x
206	205	Relative secondary output gain 1	("r.Gn.1")	x	x
207	206	Dead band/overlap between main/secondary output 1	("OLP.1")	x	x
208	207	Proportional band 2	("Pb.2")	x	x

WORDS FOR DEVICE IN CONTROL MODE – PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
209	208	Hysteresis 2 for on/off control mode	("HYS.2")	x	x
210	209	Integral time 2 (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti.2")	x	x
211	210	Derivative time 2 (in seconds)	("td.2")	x	x
212	211	Integral pre-load 2	("IP.2")	x	x
213	212	Relative secondary output gain 2	("r.Gn.2")	x	x
214	213	Dead band/overlap between main/secondary output 2	("OLP.2")	x	x
215	214	Proportional band 3	("Pb.3")	x	x
216	215	Hysteresis 3 for on/off control mode	("HYS.3")	x	x
217	216	Integral time 3 (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti.3")	x	x
218	217	Derivative time 3 (in seconds)	("td.3")	x	x
219	218	Integral pre-load 3	("IP.3")	x	x
220	219	Relative secondary output gain 3	("r.Gn.3")	x	x
221	220	Dead band/overlap between main/secondary output 3	("OLP.3")	x	x
222	221	Proportional band 4	("Pb.4")	x	x
223	222	Hysteresis 4 for on/off control mode	("HYS.4")	x	x
224	223	Integral time 4 (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti.4")	x	x
225	224	Derivative time 4 (in seconds)	("td.4")	x	x
226	225	Integral pre-load 4	("IP.4")	x	x
227	226	Relative secondary output gain 4	("r.Gn.4")	x	x
228	227	Dead band/overlap between main/secondary output 4	("OLP.4")	x	x
229	228	Proportional band 5	("Pb.5")	x	x
230	229	Hysteresis 5 for on/off control mode	("HYS.5")	x	x
231	230	Integral time 5 (in seconds) Note: The value 7FFFh means that the integral action is excluded	("ti.5")	x	x
232	231	Derivative time 5 (in seconds)	("td.5")	x	x
233	232	Integral pre-load 5	("IP.5")	x	x
234	233	Relative secondary output gain 5	("r.Gn.5")	x	x
235	234	Dead band/overlap between main/secondary output 5	("OLP.5")	x	x

WORDS FOR DEVICE IN CONTROL MODE – PARAMETERS

"A.Ctr" - Menu group 5 - AUXILIARY CONTROL PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W		
JBus	Mod Bus			E	A	I	R
1001	1000	Anti-reset windup	("ArU")	x		x	
1002	1001	Motor valve travel time (in seconds)	("S.tt")	x		x	
1003	1002	Motor valve dead band	("S.db")	x		x	
1004	1003	Main control output low limit	("n.OLL")	x		x	
1005	1004	Main control output high limit	("n.OLH")	x		x	
1006	1005	Main control output max rate of rise Note: The value 7FFFh means that no ramp limitation is imposed.	("n.rnP")	x		x	
1007	1006	Proportional cycle time on main control output	("nC.CY")	x		x	
1008	1007	Secondary control output low limit	("S.OLL")	x		x	
1009	1008	Secondary control output high limit	("S.OLH")	x		x	
1010	1009	Secondary control output max rate of rise Note: The value 7FFFh means that no ramp limitation is imposed	("S.rnP")	x		x	
1011	1010	Proportional cycle time on secondary control output	("SC.CY")	x		x	
1012	1011	Set point low limit	("rL")	x		x	
1013	1012	Set point high limit	("rH")	x		x	
1014	1013	Rate of change for positive set point variation Note: The value 7FFFh means that the transfer is done as a step change.	("Grd1")	x		x	
1015	1014	Rate of change for negative set point variation Note: The value 7FFFh means that the transfer is done as a step change	("Grd2")	x		x	
1016	1015	Time-out for soft start Note: The value 7FFFh means that the limiting action is always on	("tOL")	x		x	
1017	1016	External control of auto/man function Range: 0 = Off 1 = On	("E.Añ")	x		x	
1019	1018	External control of reverse/direct function Range: 0 = Off 1 = On	("E.rd")	x		x	

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS
"A.SEt" - Menu group 6 - ALARM SETTING

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
1101	1100	Alarm 1 type Range: 0 = Alarm on process variable 1 = Band alarm on process variable 2 = Deviation alarm on process variable 3 = Alarm on main control output value 4 = Alarm on secondary control output value	("A1.tP")	x			x		
1102	1101	Alarm 1 configuration Range: 0 = High alarm with automatic reset 1 = Low alarm with automatic reset 2 = High alarm with automatic reset and acknowledge 3 = Low alarm with automatic reset and acknowledge 4 = High alarm with manual reset 5 = Low alarm with manual reset	("A1.Cn")	x			x		
1103	1102	Alarm 1 action Range: 0 = Rev 1 = Dir	("A1.Ac")	x			x		
1104	1103	Alarm 1 standby function Range: 0 = Off 1 = On	("A1.St")	x			x		
1105	1104	Alarm 2 type Note: See "Alarm 1 type"	("A2.tP")	x			x		
1106	1105	Alarm 2 configuration Note: See "Alarm 1 configuration"	("A2.Cn")	x			x		
1107	1106	Alarm 2 action Range: 0 = Rev 1 = Dir	("A2.Ac")	x			x		
1108	1107	Alarm 2 standby function Range: 0 = Off 1 = On	("A2.St")	x			x		

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
1109	1108	Alarm 3 type Note: See "Alarm 1 type"	("A3.tP")	x			x		
1110	1109	Alarm 3 configuration Note: See "Alarm 1 configuration"	("A3.Cn")	x			x		
1111	1110	Alarm 3 action Range: 0 = Rev 1 = Dir	("A3.Ac")	x			x		
1112	1111	Alarm 3 standby function Range: 0 = Off 1 = On	("A3.St")	x			x		
1113	1112	Alarm 4 type Note: See "Alarm 1 type"	("A4.tP")	x			x		
1114	1113	Alarm 4 configuration Note: See "Alarm 1 configuration"	("A4.Cn")	x			x		
1115	1114	Alarm 4 action Range: 0 = Rev 1 = Dir	("A4.Ac")	x			x		
1116	1115	Alarm 4 standby function Range: 0 = Off 1 = On	("A4.St")	x			x		
1117	1116	Alarm OFD configuration Range: 0 = Alarm with automatic reset 1 = Alarm with automatic reset and acknowledge 2 = Alarm with manual reset	("Fd.Cn")	x			x		
1118	1117	Alarm OFD action Range: 0 = Rev 1 = Dir	("Fd.Ac")	x			x		

WORDS FOR DEVICE IN CONTROL MODE - PARAMETERS

"Sr.Ln" - Menu group 7 - SERIAL LINK PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R E A D	W R I T E
JBus	Mod Bus				
527	526	Serial interface protocol Range: 0 = No serial interface 1 = Modbus 2 = Jbus Note: The new data will be activated after the device answer	("S.L.Pr")	x	x
528	527	Serial link device address Note: The new data will be activated after the device answer	("S.L.Ac")	x	x
529	528	Baud rate for serial link Range: 0 = 600 Baud 1 = 1200 Baud 2 = 2400 Baud 3 = 4800 Baud 4 = 9600 Baud 5 = 19200 Baud Note: The new data will be activated after the device answer	("S.L.bd")	x	x
530	529	Byte format for serial link Range: 0 = 8 bits + even parity 1 = 8 bits + odd parity 2 = 8 bits without parity Note: The new data will be activated after the device answer	("S.L.bF")	x	x

WORDS FOR DEVICE IN CONTROL MODE - NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	D	R	I
86	85	Hours remaining at the end of the segment			x			
87	86	Minutes remaining at the end of the segment			x			
88	87	Seconds remaining at the end of the segment			x			
89	88	Check program Note: The set value corresponds to the number of the program to be checked					x	
90	89	Status device Range: 0 = Controller 1 = Edit 2 = Run 3 = Hold 4 = Wait * 5 = Fast forward 6 = Fast backward 7 = Jump to the beginning of the next seg- ment 8 = Jump to the end of the previous segment * only in reading			x		x	
91	90	Active program Range: From 1 to 90 for simple program From 91 to 99 for linked program	("P.xx")		x		x	
92	91	Simple program in running			x			
93	92	Segment in running			x			
94	93	Type of segment in running Range: 0 = Soak 1 = Ramp up 2 = Ramp down			x			
95	94	Final set point			x			
96	95	Time remaining at the end of the segment			x			
97	96	Number of cycles to complete the profile	("r.xx")		x			
98	97	Number of cycles to complete the linked profile	("L.xx")		x			
99	98	Active PID group	("P.i.d.x")		x			
100	99	Active tracking group	("t.G.xx")		x			
101	100	Active tracking above value Note: The value 0 means that the tracking above ac- tion is disabled	("u.xxx")		x			

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
Jbus	Mod Bus				
102	101	Active tracking below value Note: The value 0 means that the tracking below action is disabled	("d.xxx")	x	
103	102	Segment number still available	("F.xxx")	x	
104	103	Status event 10 Range: 0 = Off 1 = On		x	
105	104	Status event 11 Range: 0 = Off 1 = On		x	
106	105	Status event 12 Range: 0 = Off 1 = On		x	
107	106	Status event 13 Range: 0 = Off 1 = On		x	
108	107	Status event 14 Range: 0 = Off 1 = On		x	
109	108	Status event 15 Range: 0 = Off 1 = On		x	
110	109	Status event 16 Range: 0 = Off 1 = On		x	
111	110	Status event 17 Range: 0 = Off 1 = On		x	
112	111	Status event 18 Range: 0 = Off 1 = On		x	
113	112	Status event 19 Range: 0 = Off 1 = On		x	

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W			
Jbus	Mod Bus			E	A	D	R	I
114	113	Status led alarm 1/event 1 Range: 0 = Off 1 = On 2 = Flashing (only for alarm)			x			
115	114	Status led alarm 2/event 2 Range: 0 = Off 1 = On 2 = Flashing (only for alarm)			x			
116	115	Status led alarm 3/event 3 Range: 0 = Off 1 = On 2 = Flashing (only for alarm)			x			
117	116	Status led alarm 4/event 4 Range: 0 = Off 1 = On 2 = Flashing (only for alarm)			x			
118	117	Status mnemonic code output failure de- tection low alarm Range: 0 = Off (no alarm) 1 = On (acknowledge alarm) 2 = Flashing (alarm)	("Fd.")		x			
119	118	Status mnemonic code output failure de- tection high alarm Range: 0 = Off (no alarm) 1 = On acknowledge alarm) 2 = Flashing (alarm)	("Fd.")		x			
120	119	Variation on alarm status Note: Alarm status information is on D8: (1 for entrance, 0 for exit) Number of alarm is on low byte (D2-D0) (OFD low alarm = 5 / OFD high alarm = 6)			x			
121	120	Manufactured trade mark Range: 50 (32h)			x			
122	121	Device identification code Note: Nr. of software revision x 100 + identification code (42 for CN2120)			x			

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
Jbus	Mod Bus			E	A	D	R	I
123	122	<p>Input variable without filter</p> <p>Note:</p> <p>When an error is detected on measure, the "Data field" contains one of these error codes:</p> <ul style="list-style-type: none"> 30002 (7532h) = Input open 30004 (7534h) = Under-range 30005 (7535h) = Over-range 30014 (753Eh) = Error on reference junction (t.a.<-25 °C or t.a.>75 °C) 30018 (7542h) = Short circuit (RTD input) 30050 (7562h) = Error on internal auto-zero 30051 (7563h) = Error on internal zero integrator 			x			
124	123	<p>Filtered input variable</p> <p>Note:</p> <p>See "Input Variable Without Filter"</p>			x			
125	124	<p>Auxiliary input variable without filter</p> <p>Note:</p> <p>When an error is detected on measure, the "Data field" contains one of these error codes:</p> <ul style="list-style-type: none"> 30002 (7532h) = Input open 30004 (7534h) = Under-range 30005 (7535h) = Over-range 30050 (7562h) = Error on internal auto-zero 30051 (7563h) = Error on internal zero integrator 			x			
126	125	<p>Filtered auxiliary input value</p> <p>Note:</p> <p>See "Auxiliary Input Variable Without Filter"</p>			x			
127	126	Leakage current value	("b.xxx")	x				
128	127	<p>Leakage Current Value Updating Flag</p> <p>Range:</p> <ul style="list-style-type: none"> 0 = Measure updated 1 = Measure non updated 			x			
129	128	Load current value	("A.xxx")	x				
130	129	<p>Load current value updating flag</p> <p>Range:</p> <ul style="list-style-type: none"> 0 = Measure updated 1 = Measure non updated 			x			

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
Jbus	Mod Bus			E	A	D	R	I
131	130	Main control output value Note: Reading: This word is shown on the lower display in "Normal display mode". When output is configured as servomotor control drive this word contains the potentiometer feedback value (if provided). Writing: If the output is an open loop valve motor drive type, the limits are -1001 ÷ 1001. -1001 means that the "Out4" relay contact is always closed. 1001 means that the "Out3" relay contact is always closed. 0 stops the valve motor drive. Any other value must be considered as a travel to be covered by the valve motor drive.		x			x	
132	131	Secondary control output value Note: Reading: This word is shown on the lower display in "Normal display mode". When output is configured as servomotor control drive this word contains the potentiometer feedback value.			x		x	
133	132	Pid out value Note: Not available if there is only one output and this output is configured as servomotor control drive			x		x	
134	133	Main control output display value	("ñ.xxx")	x				
135	134	Secondary control output display value	("S.xxx")	x				
136	135	Device status mode Range: 0 = Control mode 1 = Configuration mode 2 = Security code mode			x			
137	136	Type of operative set point Range: 0 = The set-point utilized is a value set by serial link ("Operative Set Point Value") 1 = Main set-point 6 = Main set-point + bias			x			

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
Jbus	Mod Bus				
138	137	Operative set point value Note: It is utilized by the device for the PID as well as for the SMART algorithms. Any change will not be influenced by the gradient mechanism. This set-point value is not going to be stored in Earom and it will be lost at power down.		x	x
301	300	Decimals related to: 94, 122, 123, 124, 125, 137, 138, 618, 702, 703, 1011, 1012, 1013, 1014, 2004, 2005, 2006, 2010, 2011, 2108, 2109, 2113, 2114, 2502, 2503, 2508 ModBus words Note: See "Decimal point position for main input" Modbus word 2002.		x	
302	301	Decimals related to: 130, 131, 132, 152, 622, 1003, 1004, 1005, 1007, 1008, 1009, 2202, 2204, 2303, 2307 ModBus words		x	
303	302	Decimals related to: 177, 181, 182, 191 ModBus words		x	
304	303	Decimals related to: 178, 183, 184, 192 ModBus words		x	
305	304	Decimals related to: 179, 185, 186, 193 ModBus words		x	
306	305	Decimals related to: 180, 187, 188, 194 ModBus words		x	
307	306	Decimals related to: 126, 128 189, 190 ModBus words		x	
308	307	Decimals related to: 148, 200, 207, 214, 221, 228, 1200, 1201 ModBus words		x	
309	308	Decimals related to: 1006 ModBus word		x	
310	309	Decimals related to: 1010 ModBus word		x	
311	310	Decimals related to: 133, 2208, 2209 ModBus words		x	
312	311	Decimals related to: 134, 2214, 2215 ModBus words		x	
313	312	Decimals related to: 149, 201, 208, 215, 222, 229 ModBus words		x	
314	313	Decimals related to: 153, 205, 212, 219, 226, 233 ModBus words		x	

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
Jbus	Mod Bus			E	A	D	R	I	T
315	314	Decimals related to: 154, 206, 213, 220, 227, 234 ModBus words		x					
316	315	Decimals related to: 1000 ModBus word			x				
317	316	Decimals related to: 1002 ModBus word			x				
318	317	Decimals related to: 2201, 2203 ModBus words			x				
319	318	Decimals related to: 2511 ModBus word			x				
348	347	Code for enable configuration mode Range : Reading: 0 = Configuration mode unlocked 1 = Configuration mode always locked 2 = Configuration mode locked by software key Writing: 0-250 Note: See Note 7 at page 14			x		x		
349	348	Code for enable security code mode Range : Reading: 0 = Security code mode unlocked 1 = Security code mode always locked 2 = Security code mode locked by software key Writing: 0-250 Note: See Note 8 at page 15			x		x		
350	349	Code for lock/unlock control parameters Range : Reading: 0 = Parameters always unlocked 1 = Parameters always locked 2 = Parameters can be locked by software key: Parameters locked 3 = Parameters can be locked by software key: Parameters unlocked. Writing: 0-250			x		x		
351	350	Lock/unlock status hidden Note: See "Code For Lock/Unlock Control Parameters"			x				

WORDS FOR DEVICE IN CONTROL MODE – NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
Jbus	Mod Bus			E	A	D	R	I
352	351	Lock/unlock status group P Note: See "Code For Lock/Unlock Control Parameters"			x			
353	352	Lock/unlock status group 2 Note: See "Code For Lock/Unlock Control Parameters"			x			
354	353	Lock/unlock status group 3 Note: See "Code For Lock/Unlock Control Parameters"			x			
355	354	Lock/unlock status group 4 Note: See "Code For Lock/Unlock Control Parameters"			x			
356	355	Lock/unlock status group 5 Note: See "Code For Lock/Unlock Control Parameters"			x			
357	356	Lock/unlock status group 6 Note: See "Code For Lock/Unlock Control Parameters"			x			
358	357	Lock/unlock status group 7 Note: See "Code For Lock/Unlock Control Parameters"			x			
359	358	Lock/unlock status group 8 Note: See "Code For Lock/Unlock Control Parameters"			x			
360	359	Lock/unlock status group 9 Note: See "Code For Lock/Unlock Control Parameters"			x			

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
171	170	Out 1 hardware type 0 = Relay 1 = SSR		x					
172	171	Out 2 hardware type 0 = Relay 1 = SSR		x					
173	172	Out 3/4 hardware presence 0 = Not present 1 = Present		x					
174	173	Servomotor lock hardware presence 0 = Not present 1 = Present		x					
175	174	Out 5 hardware presence 0 = Not present 1 = Present		x					
176	175	Out 6 hardware presence 0 = Not present 1 = Present		x					
177	176	Feedback hardware presence 0 = Not present 1 = Present		x					
178	177	OFD hardware presence 0 = Not present 1 = Present		x					
179	178	Bargraph hardware presence 0 = Not present 1 = Present		x					
180	179	Digital and auxiliary input hardware presence 0 = Not present 1 = Present		x					
181	180	First additional digital input and output hardware presence 0 = Not present 1 = Present		x					
182	181	Second additional digital input and output hardware presence 0 = Not present 1 = Present		x					
183	182	Clock calendar hardware presence 0 = Not present 1 = Present		x					
191	190	Status external digital input 1 Range: 0 = Off 1 = On		x					

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	I	T	E	
192	191	Status external digital input 2 Range: 0 = Off 1 = On		x					
193	192	Status external digital input 3 Range: 0 = Off 1 = On		x					
194	193	Status external digital input 4 Range: 0 = Off 1 = On		x					
195	194	Status external digital input 5 Range: 0 = Off 1 = On		x					
196	195	Status external digital input 6 Range: 0 = Off 1 = On		x					
197	196	Status external digital input 7 Range: 0 = Off 1 = On		x					
198	197	Status external digital input 8 Range: 0 = Off 1 = On		x					
201	200	Status external contact 1 Range: 0 = Off 1 = On		x					
202	201	Status external contact 2 Range: 0 = Off 1 = On		x					
203	202	Status external contact 3 Range: 0 = Off 1 = On		x					
205	204	Status relay alarm 1 Range: 0 = Off 1 = On		x					
206	205	Status relay alarm 2 Range: 0 = Off 1 = On		x					

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
207	206	Status relay alarm 3 Range: 0 = Off 1 = On		X	
208	207	Status relay alarm 4 Range: 0 = Off 1 = On		X	
211	210	Unsolicited request flag general Range: 0 = No Parameters change is occurred 1 = Parameters change is occurred Note: The bit is set also to signal the start up. Changes produced by serial link will not be flagged The bit resets after reading		X	
212	211	Status tune Range: 0 = No tune 1 = Tune		X	
213	212	Status adaptive Range: 0 = No adaptive 1 = Adaptive		X	
214	213	Lock/unlock status Range: 0 = Unlock device 1 = Lock device Note: See also ModBus word 349		X	
218	217	Output power off status Range: 0 = Disable 1 = Enable		X	X
219	218	Local/remote device status Range: 0 = Device in local 1 = Device in remote		X	X
220	219	Auto/manual function Range: 0 = Auto 1 = Manual		X	X
221	220	Local/remote set point Range: 0 = Local set point 1 = Bias for local set point		X	

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
222	221	Smart enable/disable Range: 0 = Disable 1 = Enable Note: Reading, this bit is logical OR between Tune (ModBus bit 211) and Adaptive status (ModBus bit 212)	("Srt")	x			x		
223	222	Manual reset/acknowledge of an alarm condition Range: 0 = No operation 1 = Reset alarm	("Rst")				x		
224	223	Load default control parameters value Range: 0 = No operation 1 = Load default Note: The command is accepted only if "Smart" (ModBus bit 221) is not active. The default value of group 7 (Serial link pa- rameters) are not loaded.					x		
225	224	Load default group hidden Range: 0 = No operation 1 = Load default					x		
227	226	Load default group 2 Range: 0 = No operation 1 = Load default					x		
228	227	Load default group 3 Range: 0 = No operation 1 = Load default					x		
229	228	Load default group 4 Range: 0 = No operation 1 = Load default Note: The command is accepted only if "Smart" (ModBus bit 221) is not active					x		
230	229	Load default group 5 Range: 0 = No operation 1 = Load default					x		
231	230	Load default group 6 Range: 0 = No operation 1 = Load default					x		

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	I	T	E	
232	231	Load default group 7 Range: 0 = No operation 1 = Load default				x			
234	233	Load default group 9 Range: 0 = No operation 1 = Load default				x			
251	250	Unsolicited request flag group hidden Range: 0 = No Parameters change is occurred 1 = Parameters change is occurred Note: The bit resets after reading			x				
252	251	Unsolicited request flag group P Note: See "Unsolicited Request Flag Group Hidden"			x				
253	252	Unsolicited request flag group 2 Note: See "Unsolicited Request Flag Group Hidden"			x				
254	253	Unsolicited request flag group 3 Note: See "Unsolicited Request Flag Group Hidden"			x				
255	254	Unsolicited request flag group 4 Note: See "Unsolicited Request Flag Group Hidden"			x				
256	255	Unsolicited request flag group 5 Note: See "Unsolicited Request Flag Group Hidden"			x				
257	256	Unsolicited request flag group 6 Note: See "Unsolicited Request Flag Group Hidden"			x				
258	257	Unsolicited request flag group 7 Note: See "Unsolicited Request Flag Group Hidden"			x				
260	259	Unsolicited request flag group 9 Note: See "Unsolicited Request Flag Group Hidden"			x				

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	D	R	I
301	300	Unsolicited request flag program 1 Range: 0 = No programs change is occurred 1 = Program change is occurred Note: The bit resets after reading			x			
302	301	Unsolicited request flag program 2 See "Unsolicited request flag program 1"			x			
303	302	Unsolicited request flag program 3 Note: See "Unsolicited request flag program 1"			x			
304	303	Unsolicited request flag program 4 Note: See "Unsolicited request flag program 1"			x			
305	304	Unsolicited request flag program 5 Note: See "Unsolicited request flag program 1"			x			
306	305	Unsolicited request flag program 6 Note: See "Unsolicited request flag program 1"			x			
307	306	Unsolicited request flag program 7 Note: See "Unsolicited request flag program 1"			x			
308	307	Unsolicited request flag program 8 Note: See "Unsolicited request flag program 1"			x			
309	308	Unsolicited request flag program 9 Note: See "Unsolicited request flag program 1"			x			
310	309	Unsolicited request flag program 10 Note: See "Unsolicited request flag program 1"			x			
311	310	Unsolicited request flag program 11 Note: See "Unsolicited request flag program 1"			x			
312	311	Unsolicited request flag program 12 Note: See "Unsolicited request flag program 1"			x			
313	312	Unsolicited request flag program 13 Note: See "Unsolicited request flag program 1"			x			
314	313	Unsolicited request flag program 14 Note: See "Unsolicited request flag program 1"			x			

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
315	314	Unsolicited request flag program 15 Note: See "Unsolicited request flag program 1"		x					
316	315	Unsolicited request flag program 16 Note: See "Unsolicited request flag program 1"		x					
317	316	Unsolicited request flag program 17 Note: See "Unsolicited request flag program 1"		x					
318	317	Unsolicited request flag program 18 Note: See "Unsolicited request flag program 1"		x					
319	318	Unsolicited request flag program 19 Note: See "Unsolicited request flag program 1"		x					
320	319	Unsolicited request flag program 20 Note: See "Unsolicited request flag program 1"		x					
321	320	Unsolicited request flag program 21 Note: See "Unsolicited request flag program 1"		x					
322	321	Unsolicited request flag program 22 Note: See "Unsolicited request flag program 1"		x					
323	322	Unsolicited request flag program 23 Note: See "Unsolicited request flag program 1"		x					
324	323	Unsolicited request flag program 24 Note: See "Unsolicited request flag program 1"		x					
325	324	Unsolicited request flag program 25 Note: See "Unsolicited request flag program 1"		x					
326	325	Unsolicited request flag program 26 Note: See "Unsolicited request flag program 1"		x					
327	326	Unsolicited request flag program 27 Note: See "Unsolicited request flag program 1"		x					
328	327	Unsolicited request flag program 28 Note: See "Unsolicited request flag program 1"		x					
329	328	Unsolicited request flag program 29 Note: See "Unsolicited request flag program 1"		x					

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
330	329	Unsolicited request flag program 30 Note: See "Unsolicited request flag program 1"		x	
331	330	Unsolicited request flag program 31 Note: See "Unsolicited request flag program 1"		x	
332	331	Unsolicited request flag program 32 Note: See "Unsolicited request flag program 1"		x	
333	332	Unsolicited request flag program 33 Note: See "Unsolicited request flag program 1"		x	
334	333	Unsolicited request flag program 34 Note: See "Unsolicited request flag program 1"		x	
335	334	Unsolicited request flag program 35 Note: See "Unsolicited request flag program 1"		x	
336	335	Unsolicited request flag program 36 Note: See "Unsolicited request flag program 1"		x	
337	336	Unsolicited request flag program 37 Note: See "Unsolicited request flag program 1"		x	
338	337	Unsolicited request flag program 38 Note: See "Unsolicited request flag program 1"		x	
339	338	Unsolicited request flag program 39 Note: See "Unsolicited request flag program 1"		x	
340	339	Unsolicited request flag program 40 Note: See "Unsolicited request flag program 1"		x	
341	340	Unsolicited request flag program 41 Note: See "Unsolicited request flag program 1"		x	
342	341	Unsolicited request flag program 42 Note: See "Unsolicited request flag program 1"		x	
343	342	Unsolicited request flag program 43 Note: See "Unsolicited request flag program 1"		x	
344	343	Unsolicited request flag program 44 Note: See "Unsolicited request flag program 1"		x	

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
345	344	Unsolicited request flag program 45 Note: See "Unsolicited request flag program 1"		x					
346	345	Unsolicited request flag program 46 Note: See "Unsolicited request flag program 1"		x					
347	346	Unsolicited request flag program 47 Note: See "Unsolicited request flag program 1"		x					
348	347	Unsolicited request flag program 48 Note: See "Unsolicited request flag program 1"		x					
349	348	Unsolicited request flag program 49 Note: See "Unsolicited request flag program 1"		x					
350	349	Unsolicited request flag program 50 Note: See "Unsolicited request flag program 1"		x					
351	350	Unsolicited request flag program 51 Note: See "Unsolicited request flag program 1"		x					
352	351	Unsolicited request flag program 52 Note: See "Unsolicited request flag program 1"		x					
353	352	Unsolicited request flag program 53 Note: See "Unsolicited request flag program 1"		x					
354	353	Unsolicited request flag program 54 Note: See "Unsolicited request flag program 1"		x					
355	354	Unsolicited request flag program 55 Note: See "Unsolicited request flag program 1"		x					
356	355	Unsolicited request flag program 56 Note: See "Unsolicited request flag program 1"		x					
357	356	Unsolicited request flag program 57 Note: See "Unsolicited request flag program 1"		x					
358	357	Unsolicited request flag program 58 Note: See "Unsolicited request flag program 1"		x					
359	358	Unsolicited request flag program 59 Note: See "Unsolicited request flag program 1"		x					

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
360	359	Unsolicited request flag program 60 Note: See "Unsolicited request flag program 1"		x	
361	360	Unsolicited request flag program 61 Note: See "Unsolicited request flag program 1"		x	
362	361	Unsolicited request flag program 62 Note: See "Unsolicited request flag program 1"		x	
363	362	Unsolicited request flag program 63 Note: See "Unsolicited request flag program 1"		x	
364	363	Unsolicited request flag program 64 Note: See "Unsolicited request flag program 1"		x	
365	364	Unsolicited request flag program 65 Note: See "Unsolicited request flag program 1"		x	
366	365	Unsolicited request flag program 66 Note: See "Unsolicited request flag program 1"		x	
367	366	Unsolicited request flag program 67 Note: See "Unsolicited request flag program 1"		x	
368	367	Unsolicited request flag program 68 Note: See "Unsolicited request flag program 1"		x	
369	368	Unsolicited request flag program 69 Note: See "Unsolicited request flag program 1"		x	
370	369	Unsolicited request flag program 70 Note: See "Unsolicited request flag program 1"		x	
371	370	Unsolicited request flag program 71 Note: See "Unsolicited request flag program 1"		x	
372	371	Unsolicited request flag program 72 Note: See "Unsolicited request flag program 1"		x	
373	372	Unsolicited request flag program 73 Note: See "Unsolicited request flag program 1"		x	
374	373	Unsolicited request flag program 74 Note: See "Unsolicited request flag program 1"		x	

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
375	374	Unsolicited request flag program 75 Note: See "Unsolicited request flag program 1"		x					
376	375	Unsolicited request flag program 76 Note: See "Unsolicited request flag program 1"		x					
377	376	Unsolicited request flag program 77 Note: See "Unsolicited request flag program 1"		x					
378	377	Unsolicited request flag program 78 Note: See "Unsolicited request flag program 1"		x					
379	378	Unsolicited request flag program 79 Note: See "Unsolicited request flag program 1"		x					
380	379	Unsolicited request flag program 80 Note: See "Unsolicited request flag program 1"		x					
381	380	Unsolicited request flag program 81 Note: See "Unsolicited request flag program 1"		x					
382	381	Unsolicited request flag program 82 Note: See "Unsolicited request flag program 1"		x					
383	382	Unsolicited request flag program 83 Note: See "Unsolicited request flag program 1"		x					
384	383	Unsolicited request flag program 84 Note: See "Unsolicited request flag program 1"		x					
385	384	Unsolicited request flag program 85 Note: See "Unsolicited request flag program 1"		x					
386	385	Unsolicited request flag program 86 Note: See "Unsolicited request flag program 1"		x					
387	386	Unsolicited request flag program 87 Note: See "Unsolicited request flag program 1"		x					
388	387	Unsolicited request flag program 88 Note: See "Unsolicited request flag program 1"		x					
389	388	Unsolicited request flag program 89 Note: See "Unsolicited request flag program 1"		x					

BITS FOR DEVICE IN CONTROL MODE

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W		
JBus	Mod Bus			E	A	D	R
390	389	Unsolicited request flag program 90 Note: See "Unsolicited request flag program 1"		x			
391	390	Unsolicited request flag linked program 1 Note: See "Unsolicited request flag program 1"		x			
392	391	Unsolicited request flag linked program 2 Note: See "Unsolicited request flag program 1"		x			
393	392	Unsolicited request flag linked program 3 Note: See "Unsolicited request flag program 1"		x			
394	393	Unsolicited request flag linked program 4 Note: See "Unsolicited request flag program 1"		x			
395	394	Unsolicited request flag linked program 5 Note: See "Unsolicited request flag program 1"		x			
396	395	Unsolicited request flag linked program 6 Note: See "Unsolicited request flag program 1"		x			
397	396	Unsolicited request flag linked program 7 Note: See "Unsolicited request flag program 1"		x			
398	397	Unsolicited request flag linked program 8 Note: See "Unsolicited request flag program 1"		x			
399	398	Unsolicited request flag linked program 9 Note: See "Unsolicited request flag program 1"		x			

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

"Inpt." - Menu Conf. 1 - MAIN/AUXILIARY INPUT CONFIGURATION

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
2001	2000	Line frequency Range: 0 = 50 Hz 1 = 60 Hz	("Ln.Fr")	x			x		
2002	2001	Input type and range value for main input Range: 1 = Tc L (-100 ÷ 900 °C) 2 = Tc J (-100 ÷ 1000 °C) 3 = Tc K (-100 ÷ 1370 °C) 4 = Tc T (-200 ÷ 400 °C) 5 = Tc U (-200 ÷ 600 °C) 6 = Tc E (-100 ÷ 800 °C) 7 = Tc N (-50 ÷ 1400 °C) 8 = Tc S (-50 ÷ 1760 °C) 9 = Tc R (-50 ÷ 1760 °C) 10 = Tc B (0 ÷ 1820 °C) 11 = Tc G (W) (0 ÷ 2300 °C) 12 = Tc D (W3) (0 ÷ 2300 °C) 13 = Tc C (W5) (0 ÷ 2300 °C) 14 = Tc Ni 18% Mo - Ni 0,8% Co (0 ÷ 1200 °C) 15 = Rtd Pt 100 (-200 ÷ 850 °C) 16 = Tc L (-150 ÷ 1650 °F) 17 = Tc J (-150 ÷ 1830 °F) 18 = Tc K (-150 ÷ 2500 °F) 19 = Tc T (-330 ÷ 750 °F) 20 = Tc U (-330 ÷ 1110 °F) 21 = Tc E (-150 ÷ 1470 °F) 22 = Tc N (-150 ÷ 2550 °F) 23 = Tc S (-60 ÷ 3200 °F) 24 = Tc R (-60 ÷ 3200 °F) 25 = Tc B (-32 ÷ 3300 °F) 26 = Tc G (W) (0 ÷ 4170 °F) 27 = Tc D (W3) (0 ÷ 4170 °F) 28 = Tc C (W5) (0 ÷ 4170 °F) 29 = Tc Ni 18% Mo - Ni 0,8% Co (0 ÷ 2190 °F) 30 = Rtd Pt 100 (-330 ÷ 1560 °F) 31 = Linear (0 ÷ 20 mA) 32 = Linear (4 ÷ 20 mA) 33 = Linear (0 ÷ 5 V) 34 = Linear (1 ÷ 5 V) 35 = Linear (0 ÷ 10 V) 36 = Linear (2 ÷ 10 V) 37 = Linear (0 ÷ 60 mV) 38 = Linear (12 ÷ 60 mV)	("ñ.In.t")	x		x			

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W		
JBus	Mod Bus			E	A	D	R
2003	2002	Decimal point position for main input Range: 0 = No decimal figure 1 = One decimal figure 2 = Two decimal figures 3 = Three decimal figures	("ñ.In.d")	x			x
2004	2003	Square root extraction for main input Range: 0 = Square root extraction disabled 1 = Square root extraction enabled	("ñ.In.S")	x			x
2005	2004	Low scale range value for main input	("ñ.In.L")	x			x
2006	2005	High scale range value for main input	("ñ.In.H")	x			x
2007	2006	Main input offset adjustment	("OFSt")	x			x
2008	2007	Time constant for filter on main input display value	("ds.FL")	x			x
2009	2008	Auxiliary input function Range: 0 = input not used 1 = input used as bias for local set point	("A.In.F")	x			x
2010	2009	Auxiliary input type Range: 0 = 0 ÷ 20 mA 1 = 4 ÷ 20 mA 2 = 0 ÷ 5 V 3 = 1 ÷ 5 V 4 = 0 ÷ 10 V 5 = 2 ÷ 10 V	("A.In.t")	x			x
2011	2010	Low scale range value for auxiliary input	("A.In.L")	x			x
2012	2011	High scale range value for auxiliary input	("A.In.H")	x			x
2013	2012	Time constant for filter on auxiliary input value	("A.I.FL")	x			x

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS
"Out." - Menu Conf. 2 - OUTPUT CONFIGURATION

ADDRESS (Decimal)		DESCRIPTION	Display MNE CODE	R	W				
Jbus	Mod Bus			E	A	D	R	I	T
2101	2100	Out 1 function Range: 0 = Output not used 1 = Time proportional main control output 2 = Time proportional secondary control output 3 = Output used as alarm 1 output 4 = Event 1 output	("O1.Fn")	x			x		
2102	2101	Out 2 function Range: 0 = Output not used 1 = Time proportional main control output 2 = Time proportional secondary control output 3 = Output used as alarm 2 output 4 = Event 2 output	("O2.Fn")	x			x		
2103	2102	Out 3 function Range: 0 = Output not used 1 = Time proportional main control output 2 = Time proportional secondary control output 3 = Output used as alarm 3 output 4 = Event 3 output 5 = Servomotor control drive as main control output 6 = servomotor control drive as secondary control output	("O3.Fn")	x			x		
2104	2103	Out 4 function Range: 0 = Output not used 1 = Time proportional main control output 2 = Time proportional secondary control output 3 = Output used as alarm 4 output 4 = Event 4 output	("O4.Fn")	x			x		
2105	2104	Servomotor type Range: 0 = Open 1 = Closed	("Sñ.tp")	x			x		
2106	2105	Display feedback Range: 0 = The feedback value is measured and displayed 1 = The feedback value is not measured	("FEEd")	x			x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (Decimal)		DESCRIPTION	Display MNEM CODE	R	W				
Jbus	Mod Bus			E	A	D	R	I	T
2107	2106	Out 5 function Range: 0 = Output not used 1 = Linear main control output 2 = Linear secondary control output 3 = Process variable retransmission 4 = Operative set point retransmission	("O5.Fn")	x			x		
2108	2107	Out 5 range Range: 0 = 0 ÷ 20 mA 1 = 4 ÷ 20 mA	("O5.rn")	x			x		
2109	2108	Retransmission low scale range value for out5	("O5.Lr")	x			x		
2110	2109	Retransmission high scale range value for out5	("O5.Hr")	x			x		
2111	2110	Time constant for filter on analog retransmission value	("O5.FL")	x			x		
2112	2111	Out 6 function Range: 0 = Output not used 1 = Linear main control output 2 = Linear secondary control output 3 = Process variable retransmission 4 = Operative set point retransmission	("O6.Fn")	x			x		
2113	2112	Out 6 range Range: 0 = 0 ÷ 20 mA 1 = 4 ÷ 20 mA	("O6.rn")	x			x		
2114	2113	Retransmission low scale range value for out 6	("O6.Lr")	x			x		
2115	2114	Retransmission high scale range value for out 6	("O6.Hr")	x			x		
2116	2115	Time constant for filter on analog retransmission value	("O6.FL")	x			x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS**"C.Cn." - Menu Conf. 3 - CONTROL OUTPUT CONFIGURATION**

ADDRESS (Decimal)		DESCRIPTION	Display MNEM CODE	R	W				
Jbus	Mod Bus			E	A	I	T	E	
2201	2200	Split range feature Range: 0 = Split range feature is not required 1 = Split range feature is required		("SPLt.")	x	x			
2202	2201	Main control output gain		("ñC.Gn")	x	x			
2203	2202	Main control output bias		("ñC.BS")	x	x			
2204	2203	Secondary control output gain		("SC.Gn")	x	x			
2205	2204	Secondary control output bias		("SC.BS")	x	x			
2206	2205	Main control output conditioning Range: 0 = The control output is calculated by the PID 1 = The control output is complemented (100-PID calculated value) 2 = The control output is conditioned to match a "Quick Opening" flow characteristic 3 = The control output is conditioned to match an "Equal Percentage" flow characteristic		("ñC.Cn")	x	x			
2207	2206	Main control output scalable for display in eng. unit Range: 0 = Scalable is not required 1 = Scalable is required		("ñ.SCL")	x	x			
2208	2207	Decimal point position for main control output display in eng. unit Range: 0 = No decimal figure 1 = One decimal figure 2 = Two decimal figures		("ñC.dP")	x	x			
2209	2208	Low scale range value for main control output display in eng. unit		("ñC.E.L.")	x	x			
2210	2209	High scale range value for main control output display in eng. unit		("ñC.E.H.")	x	x			
2211	2210	Main control output auxiliary conditioning Range: 0 = The functions described in the note are applied "Before" of the "Main control output conditioning" stage 1 = The functions described in the note are applied "After" of the "Main control out- put conditioning" stage Note: a - Control output limiter b - Control output max rate of rise c - Control output display value d - Threshold for alarm on control output value		("ñC.A.C.")	x	x			

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (Decimal)		DESCRIPTION	Display MNEM CODE	R	W
Jbus	Mod Bus			E	A
2212	2211	Secondary control output conditioning Note: See "Main control output conditioning"	("SC.Cn.")	x	x
2213	2212	Secondary control output scaleable for display in eng. unit Range: 0 = Scaleable is not required 1 = Scaleable is required	("S.SCL")	x	x
2214	2213	Decimal point position for secondary control output display in eng. Unit Range: 0 = No decimal figure 1 = One decimal figure 2 = Two decimal figures	("SC.dP")	x	x
2215	2214	Low scale range value for secondary control output display in eng. unit	("SC.E.L.")	x	x
2216	2215	High scale range value for secondary control output display in eng. unit	("SC.E.H")	x	x
2217	2216	Secondary control output auxiliary conditioning Range: 0 = The functions described in the note are applied "Before" of the "Secondary control output conditioning" stage 1 = The functions described in the note are applied "After" of the "Secondary control output conditioning" stage Note: a - Control output limiter b - Control output max rate of rise c - Control output display value d - Threshold for alarm on control output value	("SC.A.C")	x	x

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS**"AC.Cn." - Menu conf. 4 - AUXILIARY CONTROL OUTPUT CONFIGURATION**

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W		
JBus	Mod Bus			E	A	T	E
2301	2300	Smart function Range: 0 = Smart function disable 1 = Smart function may be enabled	("Sñ.Fn")	x		x	
2302	2301	Control action type Range: 0 = The process is controlled by PID actions 1 = The process is controlled by PI actions	("Cn.tP")	x		x	
2303	2302	Manual function Range: 0 = Manual function disabled 1 = Manual function enabled	("ñAn.F")	x		x	
2304	2303	Output value for transfer from auto to manual Note: The value 7FFFh means that the transfer from auto to manual is bumpless	("Añ.UL")	x		x	
2305	2304	Manual/auto transfer type Range: 0 = Bumpless balance transfer 1 = Bumpless balanceless transfer	("ñ.A.t.t")	x		x	
2306	2305	Device status at start up when works as controller Range: 0 = It starts always in auto mode 1 = It starts always in manual mode with power output set to 0 2 = It starts in the same way it was left prior to power shut down (if in manual mode the power output is set to 0) 3 = It starts in the same way it was left prior to power shut down (if in manual mode the power output will be the last value prior to power shut down)	("St.Fn")	x		x	
2307	2306	Condition for output safety value Range: 0 = No safety value (Standard setting) 1 = Safety value applied only when over-range or under-range condition is detected 2 = Safety value applied only when over-range condition is detected 3 = Safety value applied only when under-range condition is detected 4 = When over-range or under-range condition is detected the servomotor is driven to its high limit position 5 = When over-range or under-range condition is detected the servomotor is driven to its low limit position 6 = When over-range or under-range condition is detected the action on servomotor is the complement of "Standard setting"	("SF.Cn")	x		x	

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W		
JBus	Mod Bus			E	A	I	R
2308	2307	Output safety value	("SF.UL")	x		x	
2309	2308	Program restart after power supply failure Range: 0 = Program execution is stopped and the instrument reverts to Edit mode 1 = Program execution restarts from the point left of power supply failure 2 = program execution restarts from the program point where the set point is equal to the measured variable	("St.Pr")	x		x	
2310	2309	Program restart tracking band	("St.tk")	x		x	

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS
"In.Ot." - Menu conf. 5 - DIGITAL INPUT/OUTPUT CONFIGURATION

ADDRESS (decimal)		DESCRIPTION	Display MNE CODE	R	W				
JBus	Mod Bus			E	A	I	T	E	
2401	2400	External contact "DIG1" function Range: 0 = Input contact not used 1 = Input contact used for Run/Hold selection (Run when logic level is "1") 2 = Input contact used for Run/Hold selection (Run/Hold on level transition) 3 = Input contact used for Program abort (Abort when logic level is "1") 4 = Input contact used for Program selection binary. (Bit selected when logic level is "1") 5 = Reserved 6 = Input contact used for Auto/Manual selection (Manual when logic level is "1") 7 = Input contact used for output limiter activation (Output limited when logic level is "1") 8 = Input contact used to reset (acknowledge) alarm (Reset when logic level is "1") 9 = Input contact used for Reverse/Direct control action selection (Direct when logic level is "1")		("d1.Fn")	x		x		
2402	2401	External contact "DIG1" logic level Range: 0 = The input is at logic level "1" when contact is open 1 = The input is at logic level "1" when contact is closed		("d1.St")	x		x		
2403	2402	External contact "DIG2" function Note: See "External contact "DIG1" function"		("d2.Fn")	x		x		
2404	2403	External contact "DIG2" logic level Note: See "External contact "DIG1" logic level"		("d2.St")	x		x		
2405	2404	External contact "DIG3" function Note: See "External contact "DIG1" function"		("d3.Fn")	x		x		
2406	2405	External contact "DIG3" logic level Note: See "External contact "DIG1" logic level"		("d3.St")	x		x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
2407	2406	Event 1 selection Range: 1 = Break event 2 = Timer event 3 = End of cycle annunciator (Logic level "1" when cycle is ended) 4 = End of profile annunciator (Logic level "1" when profile is ended) 5 = Program in Run annunciator (Logic level "1" when program running) 6 = Program in Wait state annunciator (Logic level "1" when program in wait state) 7 = Program in Hold state annunciator (Logic level "1" when program in hold state) 8 = Output power off annunciator (Logic level "1" when device is in O.P.O. state) 9 = Error condition on main input 10 = Error condition on CJ measurement 11 = Error condition on auxiliary input 12 = Error condition on any measurement 13 = Auto/manual mode annunciator	("F.E.1")	x	x
2408	2407	Event 1 logic level Note: See "External contact "DIG1" logic level"	("S.E.1")	x	x
2409	2408	Event 2 selection Note: See "Event 1 selection"	("F.E.2")	x	x
2410	2409	Event 2 logic level Note: See "External contact "DIG1" logic level"	("S.E.2")	x	x
2411	2410	Event 3 selection Note: See "Event 1 selection"	("F.E.3")	x	x
2412	2411	Event 3 logic level Note: See "External contact "DIG1" logic level"	("S.E.3")	x	x
2413	2412	Event 4 selection Note: See "Event 1 selection"	("F.E.4")	x	x
2414	2413	Event 4 logic level Note: See "External contact "DIG1" logic level"	("S.E.4")	x	x

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R E A D	W R I T E
JBus	Mod Bus				
2415	2414	External digital input "IN 1" function Range: 0 = External digital input not used 1 = Input contact used for Run/Hold selection (Run when logic level is "1") 2 = Input contact used for Run/Hold selection (Run/Hold on level transition) 3 = Input contact used for Program abort (Abort when logic level is "1") 4 = Input contact used for Program selection binary. (Bit selected when logic level is "1")	("i1.Fn")	x	x
2416	2415	External digital input "IN 1" logic level Range: 0 = The input is at logic level "1" when contact is open 1 = The input is at logic level "1" when contact is closed	("i1.St")	x	x
2417	2416	External digital input "IN 2" function Note: See "External digital input "IN 1" function"	("i2.Fn")	x	x
2418	2417	External digital input "IN 2" logic level Note: See "External digital input "IN 1" logic level"	("i2.St")	x	x
2419	2418	External digital input "IN 3" function Note: See "External digital input "IN 1" function"	("i3.Fn")	x	x
2420	2419	External digital input "IN 3" logic level Note: See "External digital input "IN 1" logic level"	("i3.St")	x	x
2421	2420	External digital input "IN 4" function Note: See "External digital input "IN 1" function"	("i4.Fn")	x	x
2422	2421	External digital input "IN 4" logic level Note: See "External digital input "IN 1" logic level"	("i4.St")	x	x
2423	2422	External digital input "IN 5" function Note: See "External digital input "IN 1" function"	("i5.Fn")	x	x
2424	2423	External digital input "IN 5" logic level Note: See "External digital input "IN 1" logic level"	("i5.St")	x	x

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
2425	2424	External digital input "IN 6" function Note: See "External digital input "IN 1" function"	("i6.Fn")	x			x		
2426	2425	External digital input "IN 6" logic level Note: See "External digital input "IN 1" logic level"	("i6.St")	x			x		
2427	2426	External digital input "IN 7" function Note: See "External digital input "IN 1" function"	("i7.Fn")	x			x		
2428	2427	External digital input "IN 7" logic level Note: See "External digital input "IN 1" logic level"	("i7.St")	x			x		
2429	2428	External digital input "IN 8" function Note: See "External digital input "IN 1" function"	("i8.Fn")	x			x		
2430	2429	External digital input "IN 8" logic level Note: See "External digital input "IN 1" logic level"	("i8.St")	x			x		
2431	2430	Event 10 selection Range: 0 = Event not used 1 = Break event 2 = Timer event 3 = End of cycle annunciator (Logic level "1" when cycle is ended) 4 = End of profile annunciator (Logic level "1" when profile is ended) 5 = Program in Run annunciator (Logic level "1" when program running) 6 = Program in Wait state annunciator (Logic level "1" when program in wait state) 7 = Program in Hold state annunciator (Logic level "1" when program in hold state) 8 = Output power off annunciator (Logic level "1" when device is in O.P.O state) 9 = Error condition on main input 10 = Error condition on CJ measurement 11 = Error condition on auxiliary input 12 = Error condition on any measurement 13 = Auto/manual mode annunciator	("F.E.10")	x			x		
2432	2431	Event 10 logic level Note: See "External contact "DIG1" logic level"	("S.E.10")	x			x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W
JBus	Mod Bus			E	R
2433	2432	Event 11 selection Note: See "Event 10 selection"	("F.E.11")	x	x
2434	2433	Event 11 logic level Note: See "External contact "DIG1" logic level"	("S.E.11")	x	x
2435	2434	Event 12 selection Note: See "Event 10 selection"	("F.E.12")	x	x
2436	2435	Event 12 logic level Note: See "External contact "DIG1" logic level"	("S.E.12")	x	x
2437	2436	Event 13 selection Note: See "Event 10 selection"	("F.E.13")	x	x
2438	2437	Event 13 logic level Note: See "External contact "DIG1" logic level"	("S.E.13")	x	x
2439	2438	Event 14 selection Note: See "Event 10 selection"	("F.E.14")	x	x
2440	2439	Event 14 logic level Note: See "External contact "DIG1" logic level"	("S.E.14")	x	x
2441	2440	Event 15 selection Note: See "Event 10 selection"	("F.E.15")	x	x
2442	2441	Event 15 logic level Note: See "External contact "DIG1" logic level"	("S.E.15")	x	x
2443	2442	Event 16 selection Note: See "Event 10 selection"	("F.E.16")	x	x
2444	2443	Event 16 logic level Note: See "External contact "DIG1" logic level"	("S.E.16")	x	x
2445	2444	Event 17 selection Note: See "Event 10 selection"	("F.E.17")	x	x
2446	2445	Event 17 logic level Note: See "External contact "DIG1" logic level"	("S.E.17")	x	x
2447	2446	Event 18 selection Note: See "Event 10 selection"	("F.E.18")	x	x

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	I	T	E
2448	2447	Event 18 logic level Note: See "External contact "DIG1" logic level"	("S.E.18")	x		x		
2449	2448	Event 19 selection Note: See "Event 10 selection"	("F.E.19")	x		x		
2450	2449	Event 19 logic level Note: See "External contact "DIG1" logic level"	("S.E.19")	x		x		
2451	2450	Time for the "End of cycle" annunciator	("t.E.C.y")	x		x		
2452	2451	Time for the "End of profile" annunciator Note: The value 7FFFh means that at the end of program the digital output programmed ad "end of profile" annunciator is forced to ON condition till a new Run command is requested.	("t.E.Pr")	x		x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

"Othr." - Menu conf. 6 - OTHER CONFIGURATION PARAMETER

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
2501	2500	Green bargraph selection Range: 0 = On bargraph the process variable value is shown 1 = On bargraph the deviation error is shown Note: Available only on CN2120 device	("G.brG")	x			x		
2502	2501	Orange bargraph selection Range: 0 = On bargraph the operative set point value is shown 1 = On bargraph the process output value is shown Note: Available only on CN2120 device	("O.brG")	x			x		
2503	2502	Bargraph low scale range value Note: Available only on CN2120 device	("brG.L")	x			x		
2504	2503	Bargraph high scale range value Note: Available only on CN2120 device	("brG.H")	x			x		
2505	2504	Deviation bargraph resolution Range: 0 = 1 digit per segment 1 = 2 digits per segment 2 = 5 digits per segment 3 = 10 digits per segment 4 = 20 digits per segment 5 = 50 digits per segment Note: Available only on CN2120 device	("brG.d")	x			x		
2506	2505	Operative set point alignment at start up Range: 0 = At start up the operative set point is aligned to measure and then will reach the selected set point with programmed ramp (ModBus words 1013, 1014) 1 = At start up the operative set point is the selected set point	("SP.AL")	x			x		
2507	2506	Set point display type Range: 0 = the final set point will be shown 1 = the operative set point will be shown	("SP.dS")	x			x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
2508	2507	Servo behavior when PID is limited by "S.LL/S.HL" Range: 0 = The feedback value is balanced also when PID value is greater than n.OLH/S.OLH (ModBus words 1004, 1008) or less than n.OLL/S.OLL (ModBus words 1003, 1007) 1 = The "OUT 3"(INC) relay contact is always closed when PID value is greater than n.OLH/S.OLH (ModBus words 1004, 1008) The "OUT 4" (DEC) relay contact is always closed when PID value is less than n.OLL/S.OLL (ModBus words 1003, 1007)	("Sr.bH")	x			x		
2509	2508	Input threshold to enable the soft start	("SS.tH")	x			x		
2510	2509	Time-out selection Range: 0 = 10 seconds time-out 1 = 30 seconds time-out	("t.out")	x			x		
2511	2510	Output failure detection (OFD) Range: 0 = Function not provided 1 = Measure enabled when main control output is active (On status) 2 = Measure enabled when main control output is not active (Off status) 3 = Measure enabled when secondary control output is active (On status) 4 = Measure enabled when secondary control output is not active (Off status)	("Fd.Fn")	x			x		
2512	2511	Load current high scale	("Fd.HS")	x			x		
2513	2512	OFD alarm output assignment Range: 0 = The OFD alarm is signaled only on display 1 = The OFD alarm is signaled on Out1 2 = The OFD alarm is signaled on Out2 3 = The OFD alarm is signaled on Out3 4 = The OFD alarm is signaled on Out4	("Fd.Ou")	x			x		

WORDS FOR DEVICE IN CONFIGURATION MODE - PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W		
JBus	Mod Bus			E	A	I	R
2514	2513	Clock calendar enable Range: 0 = The clock calendar is not used. 1 = The automatic start of program occurs when the current time exactly matches the start time. 2 = The automatic start of program occurs when the current time is between the start time and the start time plus the hysteresis time (modbus address 2514).	("En.Ck")	x		x	
2515	2514	Hysteresis time	("HY.tñ")	x		x	
2516	2515	Current time	("tiñE")	x		x	
2517	2516	Current day Range: 1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday 6 = Saturday 7 = Sunday	("dAY")	x		x	

WORDS FOR DEVICE IN CONFIGURATION MODE - NON PARAMETERS

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W				
JBus	Mod Bus			E	A	D	R	I	T
3001	3000	The end of configuration menu 1 Range: 1 = end of configuration menu 1					x		
3002	3001	The end of configuration menu 2 Range: 1 = end of configuration menu 2					x		
3003	3002	The end of configuration menu 3 Range: 1 = end of configuration menu 3					x		
3004	3003	The end of configuration menu 4 Range: 1 = end of configuration menu 4					x		
3005	3004	The end of configuration menu 5 Range: 1 = end of configuration menu 5					x		
3006	3005	The end of configuration menu 6 Range: 1 = end of configuration menu 6					x		
3051	3050	Load default configuration value Range: 0 = Save user table 1 = Load default TB1=European table 2 = Load default TB2=American table 3 = Load user table	(TB1/TB2)				x		
3052	3051	Enable control mode Range: 1 = Enable control mode					x		

WORDS FOR DEVICE IN SECURITY CODE MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W			
JBus	Mod Bus			E	A	D	R	I
4001	4000	Safety lock combination for configuration mode Range : Reading: 0 = No parameters protection 1 = Parameters always protected 2 = Parameters protected by software key Writing: 0-250			x		x	
4002	4001	Safety lock combination for control mode Range : Reading: 0 = No parameters protection 1 = Parameters always protected 2 = Parameters protected by software key Writing: 0-250			x		x	
4003	4002	Group hidden protected Range : 0 = Group non protected 1 = Group protected			x			
4004	4003	Group P protected Range : 0 = Group non protected 1 = Group protected			x		x	
4005	4004	Group 2 protected Range : 0 = Group non protected 1 = Group protected			x		x	
4006	4005	Group 3 protected Range : 0 = Group non protected 1 = Group protected			x		x	
4007	4006	Group 4 protected Range : 0 = Group non protected 1 = Group protected			x		x	
4008	4007	Group 5 protected Range : 0 = Group non protected 1 = Group protected			x		x	
4009	4008	Group 6 protected Range : 0 = Group non protected 1 = Group protected			x		x	

WORDS FOR DEVICE IN SECURITY CODE MODE

ADDRESS (decimal)		DESCRIPTION	Display MNEM CODE	R	W		
JBus	Mod Bus			E	A	D	R
4010	4009	Group 7 protected Range : 0 = Group non protected 1 = Group protected		x			x
4011	4010	Group 8 protected Range : 0 = Group non protected 1 = Group protected		x			x
4012	4011	Group 9 protected Range : 0 = Group non protected 1 = Group protected		x			x

2006	Main input offset adjustment	("OFSt")	Page	55
2007	Time constant for filter on main input display value	("ds.FL")	Page	55
2008	Auxiliary input function	("A.In.F")	Page	55
2009	Auxiliary input type	("A.In.t")	Page	55
2010	Low scale range value for auxiliary input	("A.In.L")	Page	55
2011	High scale range value for auxiliary input	("A.In.H")	Page	55
2012	Time constant for filter on auxiliary input value	("A.I.FL")	Page	55

Menu Conf. 2 - OUTPUT CONFIGURATION

2100	Out 1 function	("O1.Fn")	Page	56
2101	Out 2 function	("O2.Fn")	Page	56
2102	Out 3 function	("O3.Fn")	Page	56
2103	Out 4 function	("O4.Fn")	Page	56
2104	Servomotor type	("Sñ.tp")	Page	56
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