XT1000 (XT1)
XT2000 (XT2)
XT3000 (XT3)

WEIGHING INDICATOR AND HIGH SPEED TRANSMITTER

FIELDBUS CONFIGURATION MANUAL

Ethernet/IP, PROFIBUS, PROFINET

ENGLISH

Thames Side Sensors Ltd.

www.thames-side.com

www.thames-side.eu

www.thames-side.in

Software version: ver.1.x12X
Revision date: 28/11/2025

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1 Fieldbus options

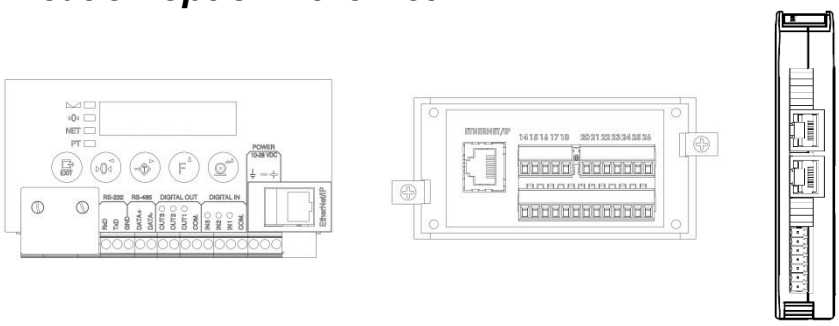
The XT1000 / XT2000 / XT3000 indicators have three different fieldbus options;

- Ethernet/IP
- PROFIBUS
- PROFINET

Each of these hardware options uses the same memory map and the same mechanisms to access the data in the indicator. This means that irrespective of the type of interface and cable used, the Master device (PLC) can access the data in the same way.

When the field bus is activated and there is no communication with the Master device (PLC), a “NO COM” message will flash on the display, alternating with the weight value.

1.1 Communication option Ethernet/IP



Ethernet/IP connector location on XT1000, XT2000 and XT3000

1.1.1 Indicator configuration

The Ethernet/IP option is configured in the **ETH_IP** section of the XT1000 / XT2000 / XT3000 SETUP menu. In this menu, we have three submenus with the following parameters:

- **ACTIuE**: Selects whether to use the fieldbus (ON / OFF).
- **IP con**: Sets the IP address.
- **Sn Con**: Configures the subnet mask.
-

For more information, see the document:
“ *Manual_XT1000_XT2000_XT3000_v1.x12X_EN_Jul_2023.pdf* ”

1.1.2 PLC configuration

To access the two data areas (input / output), you can use I / O data area of the Ethernet/IP. This input / output zone is accessed with Class 1 (cyclic) messages. The properties to access these two areas are given as follows:

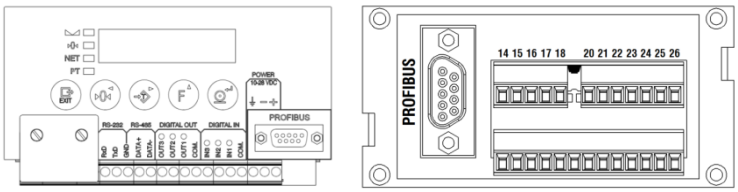
Address
Input area from the PLC side. These are the output data that the XT1000 / XT2000 / XT3000 "produces" ("produced data") to the PLC:
Class: 4 Instance: 100 Attribute: 3

Output area from the PLC side. These are the data that the PLC writes and the XT1000 / XT2000 / XT3000 "consumes" ("consumed data"):
Class: 4 Instance: 150 Attribute: 3

Size

Both input and output areas have a size of 46 bytes (23 registers of 16 bits). Access to this memory can be gained using implicit commands to increase the speed and allow communication in real time.

1.2 Communication option PROFIBUS

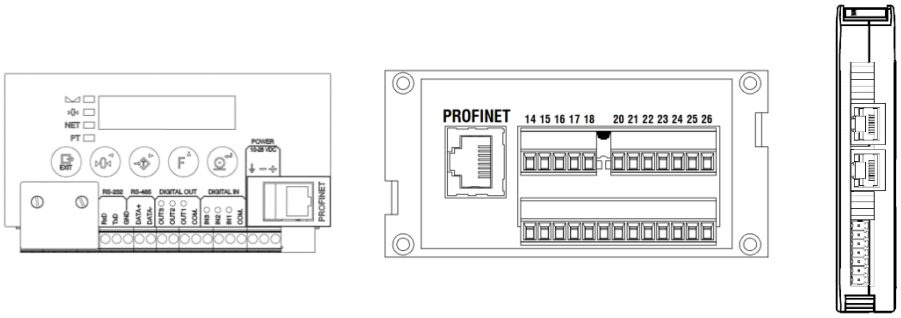


PROFIBUS connector location on XT1000 and XT2000

It incorporates a PROFIBUS-DP interface working as a slave node to communicate with a PROFIBUS-DP Master device. It implements the PROFIBUS DP-V0 variant.

The identification of the different devices on a PROFIBUS network is made by the address. To see how to configure the address, see:
“ *Manual_XT1000_XT2000_XT3000_v1.x12X_EN_Jul_2023* ”

1.3 Communication option PROFINET



PROFINET connector location on XT1000, XT2000 and XT3000

The PROFINET interface provides real time (RT) PROFINET I/O communication with the device (equipment that works as a “slave”) to communicate with a controller (equipment that works as a “Master”).
The device must have a unique name across the network to be able to communicate.

The configuration of this name can be set from the indicator’s menu or through the PLC configuration software.

For more information, see: **“ *Manual_XT1000_XT2000_XT3000_v1.x12X_EN_Jul_2023* ”.**

A PROFINET network uses three different addresses to communicate: MAC address, IP address and the device name (a logic name for the module that is unique across the total configuration):

- The MAC address must be unique for each device and cannot be changed.
- The IP address must be unique and can be assigned by the Master. The XT1000 / XT2000 / XT3000 device doesn’t allow the IP address configuration from the menu, so the IP address must be assigned from the Master when initializing the connection.
- The name of the device must be unique. This name is the parameter that identifies the device across the network. When there is a need to replace a

damaged device, the new device must be configured with the same name as the old one to be able to be recognized by the PLC.

2 Configuration files

The versions of the XT1000, XT2000 and XT3000 with fieldbus communication use configuration files to indicate to the programming software of the PLC the communication parameters required. The files can be requested through Thames Side's website on the XT1000/XT2000/XT3000 product information page.

The filenames of these files are as follows;

PLC configuration files	
Fieldbus	**File name**
Ethernet/IP	005A000C00020300.eds *(for units manufactured before 2024)* UT_NRP90-EIS-144_3.eds *(for units manufactured from 2024 onwards)*
PROFIBUS	hms_1810.gsd
PROFINET	GSDML-V2.3-HMS-ABICPRT-20130219.xml GSDML-V2.42-HILSCHER-NRP 90-RE PNS-20221108.xml

3 Communication format

The Weight and the status are sent to the Master across the fieldbus. Also, it's possible to access the parameters and calibration settings of the device.

To communicate with the Master, the device uses an Input section (write from the Master) and an Output section (read from the Master). These sections appear as **input/output blocks** for the Ethernet/IP / PROFIBUS / PROFINET network and there is a cyclic interchange of information between the Master and the Slave. In our case, **these two sections have a size of 46 bytes each.**

To execute functions in the device you need to use a command register that receives the orders from the Master.

Due to the quantity of configurable parameters for the device, we have divided the input/output sections in a non-paged section and a paged section. By selecting different pages, you have access to the different parameters of the device. This configuration is represented in the table below.

	Address (BYTES)	OUTPUT AREA (read from Master)	INPUT AREA (write from Master)
NON-PAGED SECTION	0 - 1 … … … 26 - 27	Output section Non-paged	Input section Non-paged
PAGED SECTION	28 - 29 … … … 44 - 45	Output section Paged	Input section paged

The memory registers from 0 to 27 are the non-paged section and contain the input and output data that are always accessible from the Master.

Registers from 28 to 45 are the paged section and their content depends on the selection of the *Command Register* (write addresses 12,13) and the page selection register to read or write (write addresses 16,17).

The paged section consists of two distinct types of pages:

1- Read/write pages: it's possible to read and write the content of these pages. These pages are numbered starting from 1, but always lower than 100.

2- Read-only pages: these pages contain information that can only be read. These pages are numbered starting from 100.

3.1 Memory mapping

3.1.1 Non-paged Output Section (read from Master)

READ			
Bytes Input area			
Address	**Nº bytes**	**Description**	**Range Value**
0	2	SetPoint1(High)	
2	2	SetPoint1(Low)	
4	2	SetPoint2(High)	
6	2	SetPoint2(Low)	
8	2	SetPoint3(High)	
10	2	SetPoint3(Low)	
12	2	Gross weight(High)	
14	2	Gross weight(Low)	
16	2	Net weight (High)	
18	2	Net weight (Low)	
20	2	Status weight	See table “1-A”
22	2	Input/output status	See table “1-B”
24	2	**Command Status Register**	See table "1-D"
26	2	Number of last page read	

3.1.2 Non-paged Input Section (write from Master)

WRITE			
Bytes Output area			
Address	**Nº bytes**	**Description**	**Range Value**
0	2	SetPoint1(High) (1-2)	-CAP…CAP (1-3)
2	2	SetPoint1(Low) (1-2)	
4	2	SetPoint2(High) (1-2)	-CAP…CAP (1-3)
6	2	SetPoint2(Low) (1-2)	
8	2	SetPoint3(High) (1-2)	-CAP…CAP (1-3)
10	2	SetPoint3(Low) (1-2)	
12	2	**Command Register**	See table "1-C"
14	2	Digital outputs	0…7 (1-1)
16	2	Page number to read or to write	
18	2	DataWrValue(High)	
20	2	DataWrValue(Low)	
22	2	Reserved…	
24	2	Reserved…	
26	2	Reserved…	

(1-1) To enable the modification of the status of a digital output it must be configured as "PC_Ctr".
Bit 0 corresponds to relay 1, bit 1 to relay 2, bit 2 to relay 3.

(1-2) To update a setpoint in the equipment it is necessary to write the corresponding command in the Command Register (commands CMD_WR_SETP or CMD_WR_SETP_E2P).

(1-3) This value must be a multiple of the digital division and the decimal point of the equipment. It can never be lower than -99999.

3.1.2.1 ***Using command registers and status command registers***

To send an order to the device and check the execution of the order we need to use two registers of 16 bits, one to write: *Command register* and another to read: *Command Status register.* With the first command, we send the order; by reading the second command we can check the response of the device.

Due to the way that the information is exchanged between the master and the slave (cyclic transmission of data) it's necessary to use one bit to indicate when we want to execute a new command. This is bit 15 of the *Command register* (write address 12 and 13). The device executes a command when there is a transition from "0" to "1" of this bit, so we need to write the command with this bit at "0" and then switch this bit to "1". The format of this register is as follows:

Command register															
Bit15	Bit14	Bit13	Bit12	Bit11	Bit10	Bit9	Bit8	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Exec	- not used -							Command							

Example: To set a semi-automatic tare, we will send the command: CMD_TARE (code 2). We need to write in the *Command register* the value 2:

In hexadecimal is: (16 bits) 0x0002: Register 12: 0x00 Register 13: 0x02

Now we will write in the bit Exec (bit 15) a "1" to order to execute the command; to do this we need to write the value 0x80 in the register 12. Therefore, it will be:

Register 12: 0x80 Register 13: 0x02 → *Command register* = 0x8002

By reading the *Command Status Register* we can see the response of the device. This register has the following format:

Command Status Register															
Bit15	Bit14	Bit13	Bit12	Bit11	Bit10	Bit9	Bit8	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Counter		Status code						Command							

Counter: this is a cyclic counter of 2 bits that increases each time the device accepts a command.

Status code: These bits show the numerical value that corresponds to the state of the command execution. See table "1-D".

Command: this is the same command code that is written in the *Command register*, except for the command CMD_CANCEL. In that case, you will see the command code that was cancelled.

When the status code shows *Device busy* the device will not answer any command. This indicates that the device needs to finish executing an action before accepting any further commands.

3.1.2.2 ***Command performance detail***

The list of commands available is shown in table 1-C.

3.1.2.2.1 CMD_PTARE

Command to set a pre-set tare.
This command must be executed with the *DataWrValue* registers of the non-paged section.

Procedure:
1. Write on *DataWrValue registers* (18…21 non-paged input section) the value of the pre-set tare. This value must be compatible with the device's scale divisions.
2. Execute CMD_PTARE command.

3.1.2.2.2 CMD_ZERO_CAL

This command sets the calibration of the zero point of the scale.
To execute this command, the device must be in REMOTE mode with the calibration switch in the UNPROTECTED position.
Be sure that the scale is empty before sending this command.

Procedure:
1. Set the device to REMOTE mode and set the calibration switch to UNPROTECTED.
2. Be sure that the scale is empty.
3. Send command CMD_ZERO_CAL to calibrate.
4. Read the ***Command Status Register*** to see the result of the execution.
5. This adjustment is saved in the non-volatile memory without the need to execute the command CMD_SAVE_E2P.

3.1.2.2.3 CMD_SPAN_CAL

This command sets the calibration of the span point of the scale using a known mass.
To execute this command, the device must be in REMOTE mode with the calibration switch in the UNPROTECTED position.
Before sending this command, we must write in the *DataWrValue* registers (registers 18…21 of the non-paged input section) the value of the weight that is on the scale.

Procedure:
1. Set the device in REMOTE mode and set the calibration switch to UNPROTECTED.
2. Write in *DataWrValue* registers the value of the calibration mass.
3. Put the calibration weight on the scale and check that the weight is stable.
4. Send command CMD_SPAN_CAL to calibrate.
5. Read ***Command Status Register*** to see the result of the execution.
6. This adjustment is saved in the non-volatile memory without the need of executing the command CMD_SAVE_E2P.

3.1.2.2.4 CMD_NUM_CAL

This sets the numerical calibration of the span (Ref. CAL 2 in the document **"*Manual_XT1000_XT2000_XT3000_v1.x12X_EN_Jul_2023*".**
To execute this command, the device must be in REMOTE mode with the calibration switch in the UNPROTECTED position.
Before sending this command, we must write in the variables on page 19 the correct values using CMD_WR_PAGE command.

Procedure:
1. Set the device in REMOTE mode and set the calibration switch to UNPROTECTED.
2. Write the correct values of the following variables: **LCAP** (load cell capacity), **Lno** (number of load cells), **LSn** (average mV/V sensitivity of load cells), **Dead Load** (dead load).
3. Send the command CMD_NUM_CAL.

3.1.2.2.5 CMD_FORCE_BLIND

This 'blind' function allows you to turn off the display, leaving only a blinking dot (see ***" Manual_XT1000_XT2000_XT3000_v1.x12X_EN_Jul_2023 "*** to configure this function). Apart from the automatic function that works with the timer, it is possible to set the device in BLIND mode independently of the configuration of this function on the Setup's device.
This option can only be activated when the device is on the main screen. To exit this BLIND mode, press the EXIT key.

3.1.2.2.6 CMD_EXIT_BLIND

This command disables the BLIND function. If the function was not enabled, it does nothing. If the display is already off due to the BLIND function (it doesn't matter whether it was enabled automatically with the timer or by executing the CMD_FORCE_BLIND command), when we send the command CMD_EXIT_BLIND the display will turn on again. If the BLIND function was enabled with the timer, when the set time has passed the display will turn off again.

3.1.2.2.7 CMD_RD_PAGE

This is the command to read a page.
This command must be used with register 16 of the non-paged input section.

Procedure:
1. We must write the number of the page we want to read in the register 16.
2. Execute command CMD_RD_PAGE. When executing this command, the paged output section is updated with the content of the selected page.

3.1.2.2.8 CMD_WR_PAGE

This is the command to write a page.
This command must be used with register 16 of the non-paged input section.

Procedure:
1. Write in the paged input section (registers 28...45) the content of the data to write.
2. Write in the register 16 of the non-paged input section the number of the page where the data will be copied.
3. Execute the command CMD_WR_PAGE.
4. Read the ***Command Status Register*** (register 24 of the non-paged output section) to determine if the writing was correct or not.

The write command will fail if the range of values written is not compatible with the corresponding variable. To write the values of the variables successfully, there must not be any mistakes. If there is a mistake in one of the variables of the page, the rest of the variables will not be written.

3.1.2.2.9 CMD_SAVE_E2P

This writes in the non-volatile memory (E2PROM) the modified variables with the last CMD_WR_PAGE command sent.

Be aware: this command only saves the variables of the last CMD_WR_PAGE command; so if you are going to write in more than one page, you will need to send the CMD_SAVE_E2P command before writing in the next page. If you do not follow these steps, the modification of the variables will be only done in RAM and will be lost when the device is turned off.

3.1.2.2.10 CMD_CALSWITCH_SW

Command that changes the State of software calibration seal.
This command must be used with DataWrValue registers of the non-paged zone.

Procedure:
- Write the PIN code in DataWrValue(High) register (Register 18).
- Write the new desired value for the software calibration seal. (0: opened, 1: closed) on DataWrValue(Low) register (Register 20).
- Execute the command CMD_CALSWITCH_SW.

3.1.2.2.11 CMD_SETUP_MODE

This is the command to put the Device in Remote Setup Mode.
The command should be used with the DataWrValue registers in the input section non-paged.

Procedure:
1. Write in the DataWrValue (High) register (registers 18,19 input section non-paged) the PIN.
2. Execute the command CMD_SETUP_MODE (99d)

3.1.2.2.12 CMD_EXIT_SETUP

This is the command to exit the Setup Mode.
The XT1000 / XT2000 / XT3000 will accept this command only if it is running in remote setup mode. In case it is not running in this mode, it will return the error code ST_NAK (code 2) in the status register.

Once the command is received, the device will exit the remote mode, going back to the weighing mode using with the newly set parameters. This change will take about 2 seconds, and the device will not respond to new commands

3.1.2.2.13 CMD_START_DATA

This command will Start the dosing application indicating the Target weight.

Procedure:
1. Write the weight to be dosed in the DataWrValue registers.
2. Execute the command CMD_START_DATA
3. Read the Command Status Register to check if the device has accepted the command.

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3.1.2.2.13.1 Status code depending on the command

When the execution of a command is completed correctly, the device will return ST_ACK (0x01).

The following list shows the different responses of the device depending on the command sent when the response is not ST_ACK.

CMD_ZERO command:
- ST_RUNNING: Operation in execution.
- ST_ERROR: Command ended with errors. It has not been possible to set the zero.
- ST_CANCELLED: Command cancelled (requires the sending of CMD_CANCEL).

CMD_TARE command:
- ST_RUNNING: Operation in execution.
- ST_ERROR: Command ended with errors. It has not been possible to set a semi-automatic tare.
- ST_CANCELLED: Command cancelled (requires the sending of CMD_CANCEL).
-

CMD_PTARE command:
- ST_INVALID_DATA: The tare value introduced is not valid.

CMD_PRINT command:
- ST_RUNNING: Operation in execution.
- ST_ERROR: Command ended with errors. The ticket cannot be created.
- ST_CANCELLED: Command cancelled (requires the sending of CMD_CANCEL).

CMD_START command:
- ST_NAK: The device is not in Checkweigher/Dosing mode or the Block signal in dosing is activate.
- ST_ERROR: Device is busy or Start by command is not permitted.

CMD_START_DATA command:
- ST_NAK: The device is not in Dosing mode or the Block signal in dosing is activate.
- ST_ERROR: Device is busy or Start by command is not permitted.
- ST_INVALID_DATA: The weight written in DataWrValue does not meet the requirements to start dosing: the weight must be greater than 0, less than MAX scale and comply with the scale division.

CMD_CTOTAL command:
- ST_NAK: Accumulation option is not enabled, or there are no accumulated operations.
- ST_ERROR: Weighing in execution, it is not possible to close the accumulation.

CMD_ZERO_CAL command:
- ST_PROTECTED: Device is not in UNPROTECTED mode.
- ST_E2P_ERROR: Error while writing on E2P.
- ST_BUSY: Operation in execution, device is busy (indicator is not accepting commands).

CMD_SPAN_CAL command:
- ST_PROTECTED: Device is not in UNPROTECTED mode.
- ST_E2P_ERROR: Error while writing on E2P.
- ST_INVALID_DATA: The weight introduced to calibrate the device is not valid.
- ST_BUSY: Operation in execution, device is busy (indicator is not accepting commands).

CMD_NUM_CAL command:
- ST_PROTECTED: Device is not in UNPROTECTED mode.

CMD_RESET command:
- ST_RUNNING: Operation in execution.

CMD_SAVE_E2P command:
- ST_NAK: There is not an active page to save in E2P.
- ST_ERROR: There are no data to save (there has not been any writing on the page since the last time it was saved).
- ST_E2P_ERROR: Error while writing on E2P.

CMD_PAGE_RD_SEL command:
- ST_NAK: The requested page does not exist.
- ST_BUSY: Operation in execution, device is busy (indicator is not accepting commands).

CMD_PAGE_WR_SEL command:
- ST_INVALID_DATA: On **PAGE 15** (Scale definition) this error appears if the division introduced is not correct or if the division number of the SPAN (CAPACITY/DIVISION) is above 100 000.
- ST_NAK: There is a parameter that is out-of-range.

CMD_WR_SETPOINTS command:
- ST_INVALID_DATA: The set point value is not valid.

CMD_WR_SETPOINTS_E2P command:
- ST_INVALID_DATA: The set point value is not valid.
- ST_E2P_ERROR: Error while writing on E2P.

CMD_CALSWITCH_SW command:
- ST_PROTECTED: Incorrect PIN or calibration number is already equal to 9999.
- ST_INVALID_DATA: Incorrect new state value for software calibration seal.
- ST_E2P_ERROR: Error while writing on E2P.

CMD_SETUP_MODE command
- ST_NAK: Command not accepted. The device couldn’t go to the remote setup mode from the present state.
-

CMD_EXIT_SETUP command
- ST_NAK: Command not accepted. The device is not in remote setup mode.

3.1.3 Parameter tables of the non-paged Read and Write section

Table "1-A"			
Register “Weight status”			
Bit	**Description**	**Meaning**	
		0	1
0	Weight stability	Off	On
1	Zero indication	Off	On
2	Net LED	Off	On
3	Pre-set Tare LED	Off	On
4	Underload	No	Yes
5	Overload	No	Yes
6	Error Ref.	No	Yes
7	ADC error	No	Yes
8...10	Weight decimal point (3bits)	...	...
11	Instrument On-Line	No	Yes
12	ADC Fault	No	Yes
13	LowBat	No	Yes
14	Reserved		
15	Reserved		

Table "1-B"			
Input/Output Status			
Bit	**Description**	**Meaning**	
		0	1
0	Digital input 1	Off	On
1	Digital input 2	Off	On
2	Digital input 3	Off	On
3	Relay 1	Off	On
4	Relay 2	Off	On
5	Relay 3	Off	On
6	Relay 4 (1)	Off	On

(1) Only available with devices with 4 output relays

Table "1-C"				
Command Registers (Write)				
Bit	**Description**		**Code**	
	Command		Dec.	Hex.
	Name	*Command description*		
0…7	CMD_ZERO	Semi-automatic zero	1	0x01
	CMD_TARE	Semi-automatic tare	2	0x02
	CMD_PTARE	Pre-set tare	3	0x03
	CMD_CTARE	Exit tare	6	0x06
	CMD_PRINT	Print ticket	7	0x07
	CMD_START	Start application	10	0x0A
	CMD_CTOTAL	Exit accumulation	11	0x0B
	CMD_PAUSE	Pause	12	0x0C
	CMD_START_DATA	Start command data (application)	13	0x0D
	CMD_CONTINUE	Continue	14	0x0E
	CMD_STOP	Stop	15	0x0F
	CMD_ZERO_CAL	Zero calibration	16	0x10
	CMD_SPAN_CAL	SPAN calibration	17	0x11
	CMD_NUM_CAL	Execute numerical calibration	18	0x12
	CMD_RESET	Reset indicator	30	0x1E
	CMD_CALSWITCH_SW	Change software calibration seal state (1-9)	20	0x16
	CMD_SAVE_E2P	Save page to E2P (1-4)	32	0x20
	CMD_FORCE_BLIND	Force BLIND mode	40	0x28
	CMD_EXIT_BLIND	Exit BLIND mode	41	0x29
	CMD_CHKW_TESTON (1-8)	CheckWeigher mode TEST ON	42	0x2A
	CMD_CHKW_TESTOFF	CheckWeigher mode TEST OFF	43	0x2B
	CMD_EXIT_SETUP	Exit from remote setup mode (1-11)	98	0x62
	CMD_SETUP_MODE	Go into remote setup mode (1-10)	99	0x63
	CMD_CANCEL	Cancel a command in execution	100	0x64
	CMD_RD_PAGE	Read of the selected page	101	0x65
	CMD_WR_PAGE	Write on the selected page	102	0x66
	CMD_WR_SETP	Setpoints update (1-5)	103	0x67
	CMD_WR_SETP_E2P	Setpoints update write on E2P (1-5)	104	0x68
8...14	Not used			
15	The change from 0 to 1 of this bit executes the command specified in bit 0 to 7			

Table "1-D"			
Status command register (Read)			
Bit	**Description**		**Value**
0…7	Command received		0…255
8…13	Status code		
	ST_ACK	*Command accepted*	1
	ST_NAK	*Command not accepted*	2
	ST_RUNNING	*Command in execution*	3
	ST_CANCELLED	*Command cancelled* (1-6)	4
	ST_BUSY	*Indicator busy*	5
	ST_INVALID_DATA	*Invalid data command*	6
	ST_ERROR	*Error while executing command*	7
	ST_E2P_ERROR	*Error saving on E2PROM*	8
	ST_PROTECTED	*Protected parameter*	9
14,15	Cyclic counter of 2 bits (1-7)		0…3

(1-4) Command CMD_SAVE_E2P saves the data on the page written by CMD_WR_PAGE command, to do this it's necessary to send the command just after writing the page. If we change the page, the page written previously will not be saved with the CMD_SAVE_E2P command.

(1-5) By sending that command, the three setpoints written in the write registers from 0 to 11 will be copied to the indicator's setpoints. If you use command 103 (CMD_WR_SETP) they will not be saved on E2PROM, such that they will be lost when turning off the device. If you use command 104 (CMD_WR_SETP_E2P) the values will be saved in the E2PROM. The E2PROM memory has a writing limit of 1,000,000 writing cycles so you should avoid writing constantly in that memory. Systems that need to send the set point constantly should use the CMD_WR_SETP command, which modifies only the RAM.

(1-6) This code indicates that the command on bits 0…7 has been cancelled with command **Cancel** (code 100. See table "1-C").

(1-7) The cyclic counter increments each time that the device receives a new command.

(1-8) This parameter is not saved in the NVM, after a reset of the indicator the TEST option turns OFF.

(1-9) To change the software calibration seal status, write the PIN code in DataWrValue(High) register, the desired value in DataWrValue(LOW) register and execute command 20d.

(1-10) To go into the remote mode, the PIN must be written in the DataWrValue(High) register, before sending the command. If the PIN is not properly written, the device will go into "protected" Remote Setup Mode, which means that no metrological parameter can be modified.

(1-11) After sending the command to exit the remote setup mode, you will need to wait for a minimum of two seconds to access the FIELDBUS & MODBUS parameters due to internal processes of the device.

3.1.4 Paged read/write section

This section has 28 pages, from page 1 to page 28:

PAGE 1 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
RS-485 menu					
28	2	28	2	Type	0: Off, 1: dE, 2: St, 4: ASCII, 5: RTU, 6: DAT
30	2	30	2	Format	0…13 (2-6)
32	2	32	2	Baud rate	0…5 (2-7) see table "2-F"
34	2	34	2	Parity	0…2 → 0: None, 1: Even, 2: Odd
36	2	36	2	Transmission rate (Output rate)	0…8 (2-8) see table "2-G"
38	2	38	2	Termination	0…3 (2-9) see table "2-H"
40	2	40	2	Protocol	0: None, 1: RS485
42	2	42	2	Address	1…99

Changes to RS-485 parameters will be available after restarting the indicator.

PAGE 2 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
RS-232 menu					
28	2	28	2	Type	0: Off, 1: dE, 2: St, 3: Ti, 4: ASCII, 5: RTU, 6: DAT
30	2	30	2	Format	0…13 (2-6)
32	2	32	2	Baud rate	0…5 (2-7) see table “2-F"
34	2	34	2	Parity	0…2 → 0: None, 1: Even, 2: Odd
36	2	36	2	Transmission rate (Output rate)	0…8 (2-8) see table “2-G"
38	2	38	2	Termination	0…3 (2-9) see table “2-H"
40	2	40	2	Empty (2-25)	
42	2	42	2	Address	1…99

Changes to RS-232 parameters will be available after restarting the indicator.

PAGE 3 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
A_Out menu – Analog output					
28	2	28	2	Type	0: Gross, 1: Net
30	2	30	2	Output	0: 4-20mA, 1: 0-20mA, 2: 0-5V, 3: 0-10V
32	2	32	2	Error	0: FULL, 1: HOLD, 2: MIN
34	2	34	2	Aout_0 (H)	0…CAP (2-13)
36	2	36	2	Aout_0 (L)	
38	2	38	2	Aout_F (H)	0…CAP (2-13)
40	2	40	2	Aout_F (L)	

42	2	42	2	Aout.F0	0…0x1999
44	2	44	2	Aout.FF	0…0x1999

PAGE 4 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_Out menu – Digital output 1 (1/2)					
28	2	28	2	UL1 Setpoint 1 (H)	–CAP…CAP (2-20) (also available in PAGE 43, Adress 28)
30	2	30	2	UL1 Setpoint 1 (L)	
32	2	32	2	Type 1	0…14 (2-10) see table “2-I"
34	2	34	2	Rel 1	0…3 0: Setpoint 1 1: Setpoint 2 2: Setpoint 3 3: Setpoint 4 (2-31)
36	2	36	2	Trip 1	0…3 (2-11) see table “2-J"
38	2	38	2	Band 1 (H)	0…CAP (2-13)
40	2	40	2	Band 1 (L)	
42	2	42	2	Hy 1 (H)	0…CAP (2-13)
44	2	44	2	Hy 1 (L)	

PAGE 5 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Menu D_Out - Digital output 1 (2/2)					
28	2	28	2	d_Loc 1	0: OFF, 1: ON
30	2	30	2	Timer 1	0…200 200 is the equivalent of 20.0s
32	2	32	2	Delay 1	0…200 200 is the equivalent of 20.0s

PAGE 6 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_Out menu - Digital output 2 (1/2)					
28	2	28	2	UL2 Setpoint 2 (H)	–CAP…CAP (2-20) (also available in PAGE 43, Adress 28)
30	2	30	2	UL2 Setpoint 2 (L)	
32	2	32	2	Type 2	0…14 (2-10) see table “2-I"
34	2	34	2	Rel 2	0…3 0: Setpoint 1 1: Setpoint 2 2: Setpoint 3 3: Setpoint 4 (2-31)
36	2	36	2	Trip 2	0…3 (2-11) see table “2-J"
38	2	38	2	Band 2 (H)	0…CAP (2-13)
40	2	40	2	Band 2 (L)	
42	2	42	2	Hy 2 (H)	0…CAP (2-13)
44	2	44	2	Hy 2 (L)	

PAGE 7 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_Out menu - Digital output 2 (2/2)					
28	2	28	2	d_Loc 2	0: OFF, 1: ON
30	2	30	2	Timer 2	0…200 200 is the equivalent of 20.0s
32	2	32	2	Delay 2	0…200 200 is the equivalent of 20.0s

PAGE 8 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_Out menu - Digital output 3 (1/2)					
28	2	28	2	UL3 Setpoint 3 (H)	–CAP…CAP (2-20) (also available in PAGE 43, Adress 28)
30	2	30	2	UL3 Setpoint 3 (L)	
32	2	32	2	Type 3	0…14 (2-10) see table “2-I"
34	2	34	2	Rel 3	0…3 0: Setpoint 1 1: Setpoint 2 2: Setpoint 3 3: Setpoint 4 (2-31)
36	2	36	2	Trip 3	0…3 (2-11) see table “2-J"
38	2	38	2	Band 3 (H)	0…CAP (2-13)
40	2	40	2	Band 3 (L)	
42	2	42	2	Hy 3 (H)	0…CAP (2-13)
44	2	44	2	Hy 3 (L)	

PAGE 9 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_Out menu - Digital output 3 (2/2)					
28	2	28	2	d_Loc 3	0: OFF, 1: ON
30	2	30	2	Timer 3	0…200 200 is the equivalent of 20.0s
32	2	32	2	Delay 3	0…200 200 is the equivalent of 20.0s

For Menu D_Out – Digital output 4: See **PAGE 40 & PAGE 41**

PAGE 10 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_In menu – *Digital input 1*					
28	2	27	2	Type 1	0: OFF, 1: TARE, 2: CLR TARE, 3: ZERO, 4: PRINT, 5: START, 6: CLRTOTAL, 7: APP, 8: GROSS/NET
30	2	28	2	Func 1	0: LOW 1: HIGH

PAGE 11 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_In menu – *Digital input 2*					
28	2	27	2	Type 2	0: OFF, 1: TARE, 2: CLR TARE, 3: ZERO, 4: PRINT, 5: START, 6: CLRTOTAL, 7: APP, 8: GROSS/NET
30	2	28	2	Func 2	0: LOW 1: HIGH

PAGE 12 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
D_In menu – *Digital input 3*					
28	2	27	2	Type 3	0: OFF, 1: TARE, 2: CLR TARE, 3: ZERO, 4:PRINT, 5: START, 6: CLRTOTAL, 7: APP, 8: GROSS/NET
30	2	28	2	Func 3	0: LOW 1: HIGH

PAGE 13 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Binary setpoints 1…4					
28	2	28	2	Binary mode status	0: OFF, 1: ON (2-24)
30	2	30	2	Setpoint 1 BINOUT (H) (2-23)	–CAP…CAP (2-20)
32	2	32	2	Setpoint 1 BINOUT (L) (2-23)	
34	2	34	2	Setpoint 2 BINOUT (H) (2-23)	–CAP…CAP (2-20)
36	2	36	2	Setpoint 2 BINOUT (L) (2-23)	
38	2	38	2	Setpoint 3 BINOUT (H) (2-23)	–CAP…CAP (2-20)
40	2	40	2	Setpoint 3 BINOUT (L) (2-23)	
42	2	42	2	Setpoint 4 BINOUT (H) (2-23)	–CAP…CAP (2-20)
44	2	44	2	Setpoint 4 BINOUT (L) (2-23)	

PAGE 14 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Binary setpoints 5…7					
28	2	28	2	Setpoint 5 BINOUT (H) (2-23)	–CAP…CAP (2-20)
30	2	30	2	Setpoint 5 BINOUT (L) (2-23)	
32	2	32	2	Setpoint 6 BINOUT (H) (2-23)	–CAP…CAP (2-20)
34	2	34	2	Setpoint 6 BINOUT (L) (2-23)	
36	2	36	2	Setpoint 7 BINOUT (H) (2-23)	–CAP…CAP (2-20)
38	2	38	2	Setpoint 7 BINOUT (L) (2-23)	

PAGE 15 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
DEF menu – Scale definition					
28	2	28	2	CAP (CAP high)	1…999999 (2-12)
30	2	30	2	(CAP Low)	
32	2	32	2	Digital division	1, 2, 5, 10, 20, 50
34	2	34	2	DP	0…4
36	2	36	2	0-Track	0…6 (2-1) see table “2-A"
38	2	38	2	0-toP	**0: 1.9%** 1: 100%
40	2	40	2	0-Start	**0: OFF** 1: ON
42	2	42	2	UNIT	0…5 see table “2-N"
44	2	44	2	UNLIM	**0: -OVERLOAD, 1**: -20d

PAGE 16 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Option menu - Options					
28	2	28	2	Filter	0…15 (2-2) see table "2-B"
30	2	30	2	Band	0…5 (2-3) see table “2-C"
32	2	32	2	Period (settling time)	0…7 (2-21) see table “2-M"

PAGE 17 (read/write) REMOTE ONLY					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Option menu - Options					
28	2	28	2	Tare LC	0: ON, 1: OFF
30	2	30	2	Lang	0…5 (2-4) see table “2-D"
32	2	32	2	LOC	0…31 (2-5) see table “2-E"
34	2	34	2	PRT	0…255
36	2	36	2	Prt_t1	0: Off,1: Standard
38	2	38	2	t.ID	0…65535
40	2	40	2	BLIND	**0**…7: **OFF**, 2, 5, 10, 20, 30, 45, 60 seconds

PAGE 18 (read/write) PROTECTED-REMOTE ONLY					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
CAL 1 menu – Calibration coefficient					
28	2	28	2	Zero Coefficient (H)	0…0x00FFFFFF
30	2	30	2	Zero Coefficient (L)	
32	2	32	2	SPAN Coefficient (H)	
34	2	34	2	SPAN Coefficient (L)	
36	2	36	2	LIN_C (H)	0…CAPx10 (2-19)
38	2	38	2	LIN_C (L)	
40	2	40	2	LIN_I (H)	0…CAPx10 (2-19)
42	2	42	2	LIN_I (L)	
44	2	44	2	LIN	0: OFF, 1: ON **(2-15)**, 2: RESET **(2-16)**

PAGE 19 (read/write) PROTECTED-REMOTE ONLY					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
CAL 2 menu – Numerical calibration					
28	2	28	2	LCAP (H)	
30	2	30	2	LCAP (L)	
32	2	32	2	Lno (No. of load cells)	0…8
34	2	34	2	LSn (Average sensitivity)	0… 35000 (2-17)
36	2	36	2	Dead_Load (H)	–CAP…CAP (2-22)
38	2	38	2	Dead_Load (L)	

PAGE 20 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu – Active application					
28	2	28	2	APP	0: None, 1: CHECK, 2: FILL

PAGE 21 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu – Checkweigher Application (1/3)					
28	2	28	2	START	0: KEY, 1: INP, 2: KEY. INP, 3: NET
30	2	30	2	TRIG (H)	1div. ≤ TRIG ≤ MAX
32	2	32	2	TRIG (L)	
34	2	34	2	BAND (H)	1div. ≤ BAND ≤ MAX
36	2	36	2	BAND (L)	
38	2	38	2	T_DEL	0.000 … 50.000 seconds
40	2	40	2	T_ACC	0.000 … 50.000 seconds
42	2	42	2	T_DIS	0.000 … 50.000 seconds
44	2	44	2	CANCEL	0: OFF, 1: ON

PAGE 22 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Checkweigher Application (2/3)					
28	2	28	2	TOTAL	0: OFF, 1: ON, 2: Store
30	2	30	2	PC	0: OFF, 1: RS232, 2: RS485, 3: RS232 and RS485
32	2	32	2	Filter	0…15 (2-2) see table "2-B"
34	2	34	2	PASS FUNCTION	**0: OFF,** 1: DELAY, 2: INPUT
36	2	36	2	LOW LIMIT (H) (L1)	0…CAP **(2-13)**
38	2	38	2	LOW LIMIT (L)	
40	2	40	2	HIGH LIMIT (H) (L2)	0…CAP **(2-13)**
42	2	42	2	HIGH LIMIT (L)	
44	2	44	2	PASS DISPLAY (DIS)	**0: Net,** 1: IN/OUT, 2: 50/50

PAGE 23 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (1/6)					
28	2	28	2	TYPE	0: Charge net, 1: Charge gross, 2: Discharge (net)
30	2	30	2	TRIGGER	**0: Key**, 1: Input, 2: Key or Input, 3: Auto
32	2	32	2	START_TARE_L (L)	–CAP…CAP (2-20)
34	2	34	2	START_TARE_L (H)	
36	2	36	2	START_TARE_H (L)	–CAP…CAP (2-20)
38	2	38	2	START_TARE_H (H)	
40	2	40	2	START_DELAY	**0**…655 (2-26)
42	2	42	2	INITIAL FUNCTION	**0: OFF,** 1: TARE, 2: CLEAR TARE, 3: RELAY A, 4: RELAY B
44	2	44	2	PARAMETER INITIAL FUNC.	1…655 (2-26) Default: **5**

PAGE 24 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (2/6)					
28	2	28	2	DOSAGE SPEEDS	**0: 1 speed,** 1: 2 speeds
30	2	30	2	DOSAGE SEQUENCE	**0: ON,** 1: OFF
32	2	32	2	ASK (TARGET)	0: NO, **1: LAST,** 2: QUERY
34	2	34	2	TARGET(L)	–CAP…CAP (2-20)
36	2	36	2	TARGET (H)	
38	2	38	2	FINE(L)	–CAP…CAP (2-20)
40	2	40	2	FINE (H)	
42	2	42	2	CONTROL DELAY 1	**0**…999 (2-27)
44	2	44	2	CONTROL DELAY 2	**0**…999 (2-27)

PAGE 25 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (3/6)					
28	2	28	2	IN FLIGHT WEIGHT (L)	0…CAPx10 (2-19)
30	2	30	2	IN FLIGHT WEIGHT (H)	
32	2	32	2	IN FLIGHT CORRECTION	**0**…100
34	2	34	2	IN FLIGHT LIMIT (L)	0…CAP (2-20)
36	2	36	2	IN FLIGHT LIMIT (H)	
38	2	38	2	LACKMAT_TIME (feed check)	**0**…65 (seconds)
40	2	40	2	WAIT TIME (waiting time)	**0**…655 (2-26)
42	2	42	2	END FUNCTION	**0: OFF,** 1: TARE, 2: CLEAR TARE, 3: RELAY A, 4: RELAY B
44	2	44	2	PARAMETER END FUNCTION	1…655 (2-26) Default: **5**

PAGE 26 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (4/6)					
28	2	28	2	ERROR TYPE	0: WEIGHT, 1: PERCENT
30	2	30	2	ERROR POS (L)	(2-28)
32	2	32	2	ERROR POS (H)	
34	2	34	2	ERROR NEG (L)	(2-28)
36	2	36	2	ERROR NEG (H)	
38	2	38	2	SEND PC AUTO	**0: OFF,** 1: RS232, 2: RS485, 3: BOTH
40	2	40	2	END INDICATION	0…655 (2-26); **Default: 20**

PAGE 27 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (5/6)					
28	2	28	2	COARSE RELAY	**0**…3 (2-29)
30	2	30	2	FINE RELAY	**0**…3 (2-29)
32	2	32	2	ACTIVE RELAY	**0**…3 (2-29)
34	2	34	2	PAUSE RELAY	**0**…3 (2-29)
36	2	36	2	ERROR RELAY	**0**…3 (2-29)
38	2	38	2	A RELAY	**0**…3 (2-29)
40	2	40	2	B RELAY	**0**…3 (2-29)
42	2	42	2	START INPUT	**0**…3 (2-30)
44	2	44	2	PAUSE INPUT	**0**…3 (2-30)

PAGE 28 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Dosing Application (6/6)					
28	2	28	2	CANCEL INPUT	**0**…3 (2-30)
30	2	30	2	CONTINUE INPUT	**0**…3 (2-30)
32	2	32	2	BLOCK INPUT	**0**…3 (2-30)
34	2	34	2	START_CHECK	**0: OFF,** 1: ON
36	2	36	2	PLUS (Supplement)	**0**…1000 (Equivalent to 0.0…100.0 %)

PAGE 35 (read/write)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
APPLI menu - Checkweigher Application (3/3)					
28	2	28	2	RELAY DELAY TIME	**0**…200 **(2-26)** 200 equivalent to 20.0s
30	2	30	2	RELAY HOLD TIME	**1**…200 **(2-26)** 200 equivalent to 20.0s
32	2	32	2	REJECTION INPUT	**0: NONE,** 1, 2, 3
34	2	34	2	REJECTION RELAY	**0: NONE,** 1, 2, 3
36	2	36	2	BUSY RELAY	**0: NONE,** 1, 2, 3
38	2	38	2	SYNC ERROR RELAY	**0: NONE,** 1, 2, 3

PAGE 40 (read/write) (2-31)					
Bytes input area		Bytes output area			
Address	Nº bytes	Address	Nº bytes	Description	Value ranges
Menu D_Out – Digital output 4 (1/2)					
28	2	28	2	UL4 Setpoint 4 (H)	-CAP…CAP (2-20) (also available in PAGE 43, Address 40)
30	2	30	2	UL4 Setpoint 4 (L)	
32	2	32	2	Type 4	0…13 (2-10) See table “2-I”
34	2	34	2	Rel 4	0…3 (2-31) 0: Setpoint 1, 1: Setpoint 2, 2: Setpoint 3, 3: Setpoint 4
36	2	36	2	Trip 4	0…3 (2-11) See table “2-J”
38	2	38	2	Band 4 (H)	0…CAP (2-13)
40	2	40	2	Band 4 (L)	

42	2	42	2	Hy 4 (H)	0…CAP (2-13)
44	2	44	2	Hy 4 (L)	

PAGE 41 (read/write) (2-31)					
Bytes input area		**Bytes output area**			
Address	**Nº bytes**	**Address**	**Nº bytes**	**Description**	**Value ranges**
Menu D_Out – Digital output 4 (2/2)					
28	2	28	2	d_Loc 4	0: OFF, 1: ON
30	2	30	2	Timer 4	0…200 200 equivalent to 20.0s
32	2	32	2	Delay 4	0…200 200 equivalent to 20.0s

PAGE 43 (read/write) (2-31)					
Bytes input area		**Bytes output area**			
Address	**Nº bytes**	**Address**	**Nº bytes**	**Description**	**Value ranges**
Setpoints					
28	2	28	2	UL1 Setpoint 1 (H)	–CAP…CAP (2-20)
30	2	30	2	UL1 Setpoint 1 (L)	
32	2	32	2	UL2 Setpoint 2 (H)	–CAP…CAP (2-20)
34	2	34	2	UL2 Setpoint 2 (L)	
36	2	36	2	UL3 Setpoint 3 (H)	–CAP…CAP (2-20)
38	2	38	2	UL3 Setpoint 3 (L)	
40	2	40	2	UL4 Setpoint 4 (H)	–CAP…CAP (2-20) (2-31)
42	2	42	2	UL4 Setpoint 4 (L)	

3.1.5 Write / read section parameter tables

Table "2-A"	
Identification code for parameter: 0-Track	
Code	**Division**
0	OFF
1	**0.5d**
2	1d
3	2d
4	3d
5	4d
6	5d

Table "2-B"	
Identification code for parameter: Filter	
Code	**Filter**
0	OFF
1	2
2	4
3	6
4	8
5	10
6	12
7	14
8	15
9	**16**
10	17
11	18
12	19
13	20
14	22
15	24

Table "2-C"	
Identification code for parameter: Band	
Code	**Band (divisions)**
0	OFF
1	**0.5d**
2	1d
3	2d
4	5d
5	10d

Table "2-D"	
Identification code for parameter: Lang (language)	
Code	**Language**
0	**SPA**
1	POR
2	FRE
3	ENG
4	GER
5	CAT

Table "2-E"	
LOC parameter (keyboard block). Each bit has a lock function. Bit at '1' means function locked.	
Bit	**Function locked**
0	Whole keyboard
1	Print key
2	Tare key
3	Zero key
4	F key

Table "2-F"	
Identification code for parameter: Baud rate	
Code	**Baud rate**
0	4800
1	9600
2	19200
3	38400
4	57600
5	115200

Table "2-G"	
Identification code for parameter:Transmission rate	
Code	**Rate (/s)**
0	1
1	5
2	10
3	25
4	**50**
5	75
6	150
7	300
8	600

Table "2-H"	
Identification code for parameter:Termination	
Code	**Termination**
0	CR LF
1	CR
2	ETX
3	NONE

Table "2-I"	
Identification code for parameter: Type (digital output)	
Code	**Function**
0	OFF
1	GROSS
2	NET
3	P_REL
4	N_REL
5	P_PREL
6	N_PREL
7	ZERO
8	ZERO NET
9	SS
10	INRANG
11	NEG
12	TARE
13	PRINT
14	PC_CTRL
15	APP

Table "2-J"	
Identification code for parameter: TRIP (digital output)	
Code	**TRIP**
0	HIGH
1	LOW
2	INBAND
3	OUTBAND

Table "2-M"	
Identification code for parameter: Period (time for settling time)	
Code	**Period (ms)**
0	25
1	50
2	100
3	150
4	200
5	250
6	**500**
7	1000

Table "2-N"	
Identification code for parameter UNIT	
Code	**Division**
0	**kilograms**
1	tonnes
2	grams
3	pounds
4	ounces
5	No unit

(2-1) This refers to the 7 possible values: OFF-0.5d-1d-2d-3d-4d-5d.
(2-2) This refers to the 16 possible values: OFF-2-4-6-8-10-12-14-15-16-17-18-19-20-22-24.
(2-3) This refers to the 6 possible values: OFF-0.5d-1d-2d-5d-10d.
(2-4) This refers to the 6 possible values: SPA-POR-FRE-ENG-GER-CAT.
(2-5) Each bit of this variable has a lock function. See table “2-E".
(2-6) This refers to the 14 possible values 0…13 that correspond to formats F1 to F15 (value 13 = F15, F14 is not yet implemented).
(2-7) This refers to the 6 possible values of baud rate: 4800-9600-19200-38400-57600-115200.
(2-8) This refers to the 9 possible values: 1-5-10-25-50-75-150-300-600.
(2-9) This refers to the 4 possible values: CRLF-CR-ETX-NONE.
(2-10) This refers to the 16 possible values: see table “2-I".
(2-11) This refers to the 4 possible values: HIGH-LOW-INBAND-OUTBAND.

(2-12) The capacity cannot exceed 999 999. The digital division, combined with the decimal point, cannot exceed 100 000 divisions.
(2-13) This value must be a multiple of the digital division without considering the decimal point (if one exists). CAP is the scale capacity. This value never can be lower than -99 999.
(2-15) When writing value 1 to the LIN register; it calculates and enables the linearity correction while saving both parameters LIN_C and LIN_I in the E2PROM.
(2-16) When writing value 2 in the LIN (RESET) parameter, it makes a reset of the linearity and parameter LIN turns automatically to 0 (OFF). The value is saved in the E2PROM.
(2-17) This value is the sensitivity in mV/V multiplied by 10 000. For example, the value 20 500 indicates a sensitivity of 2.05 mV/V.
(2-19) This value is introduced with a precision of 10 (without considering the decimal point). It's the maximum capacity value x 10. For example, if CAP=6000 the maximum value = 60000.
(2-20) This value must be a multiple of the digital division without considering the decimal point (if one exists). It can never be lower than -99 999.
(2-21) This refers to the 8 possible values for settling time 25-50-100-150-200-250-500-1000.
(2-22) This value is programmed without considering the decimal point. For example, to introduce 2.500 you must send 2 500.
(2-23) These set points are not saved in the non-volatile memory.
(2-24) When setting register 41150 (*Binary mode status*) to '1' the digital outputs start working in binary mode. This erases the existing D_OUT configuration.
(2-25) An empty register that can be read or written, but its content doesn't affect the program. Anyway, it is recommended not to write in those registers because they could be used in future applications.
(2-26) This value is set in tenths of a second, for example 105 equals 10.5 seconds.
(2-27) This value is set in hundredths of a second, for example 650 equals 6.50 seconds.
(2-28) This value represents a weight or a percentage depending on the configuration of the ERROR TYPE parameter. If it is configured as weight, it is configured in the same units as the display (DI, DP) and the limit is the capacity of the scale. If it is configured as percentage, the introduced value is set with a resolution of tenths, the range will be 0 ... 1000 which represents 0% to 100.0%.
(2-29) Digital output number. 0 indicates none (no assigned output).
(2-30) Digital input number. 0 indicates none (no assigned input).
(2-31) Pages or registers only available in XT3000 model.

3.1.6 **Read Only paged section**

This section is formed of pages 100 to 199 and these can only be read.

PAGE 100 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Tare value + generic indicator data			
28	2	Tare (High)	
30	2	Tare (Low)	
32	1	Software version "A"	Software version "ABCDEFGH" Example: "1.00204" H digit is always 0x00
33	1	Software version "B"	
34	1	Software version "C"	
35	1	Software version "D"	
36	1	Software version "E"	
37	1	Software version "F"	
38	1	Software version "G"	
39	1	Software version "H"	
40	2	Indicator serial number (High)	
42	2	Indicator serial number (Low)	

PAGE 101 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Checkweigher application data			
28	2	Last weighing (High) (3-3)	
30	2	Last weighing (Low)	
32	2	Weight status read	0: Empty (There were no weighings) 1: New (unread) weighing 2: Weighing has been read 3: Error during weighing
34	2	Present Weight status	0: OFF (3-1) 1: Rest 2: Phase 1 (Wait) 3: Phase 2 (Read) 4: Phase 3 (Display) 5: Error
36	2	Accumulation status	0: Disabled (3-2) 1: Closed 2: Opened
38	2	Number of Weighings	
40	2	Total (High)	
42	2	Total (Low)	

PAGE 102 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Checkweigher application data			
28	2	Last weighing x10 (High) (3-4)	
30	2	Last weighing x10 (Low)	
32	2	Weight status read	See table “M” (3-15)
34	2	Present Weight status	0: OFF (3-1) 1: Rest 2: Phase 1 (Wait) 3: Phase 2 (Read) 4: Phase 3 (Display) 5: Error
36	2	Input/Output Status digital rejection	See table “N” (3-16)

PAGE 103 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Dosing application data (1/2)			
28	2	Weight of last dosing (High) (3-8)	
30	2	Weight of last dosing (Low)	
32	2	Weight of last dosing x10 (High) (3-8)	
34	2	Weight of last dosing x10 (Low)	
36	1	Status of last Weight read	See table "3-K" (3-10)
37	1	Status of present weight	0: OFF (3-5) 1: OFFLINE 2: Rest 3: Pause 4: Error 5: Blocked 6: Ask weight 7: Initial phase 8: Gross dosing 9: Fine dosing 10: Final phase 11: Showing result 12: Waiting for stability 13: Cancelled 14: Rearm
38	2	Status of digital outputs used in dosing application	See table "3-I" (3-6)
40	2	Status of digital inputs used in dosing application	See table "3-J" (3-7)
42	2	Present Weight dosed (High) (3-9)	
44	2	Present Weight dosed (Low)	

PAGE 104 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Dosing application data (2/2)			
28	2	Error code for dosing application	See table "3-L" (3-11)

PAGE 199 (Read only)			
Address	**Nº bytes**	**Description**	**Value range**
Indicator application data (2/2)			
28	2	Data format version	See table "3-G"
30	2	Indicator status	See table "3-F"
32	2	Hardware version	See table "3-H"
34	2	Number of calibrations	
36	2	Software calibration seal status	0: Opened 1: Closed (protected)

(3-1) Status weighing shows OFF when the indicator is not configured in the Check-weigher mode. *Error* status is shown when there is a failure on the weighing signal during the reading time (phase 2).

(3-2) Accumulation status is always 0 (disabled) if the parameter TOTAL of the checkweigher application is OFF.

(3-3) This is the last result of the Check-weigher mode. It's necessary to read the weighing status during the weighing to know if the weighing is valid.

(3-4) It's the last result of the Check-weigher mode with a resolution x10. It's necessary to read it together with the weighing status (register P102/32) to know if the weighing is valid.

(3-5) OFF when the device is not configured in dosing mode and OFFLINE when it's configured in dosing mode but is not in weighing mode.

(3-6) This register shows the status of the digital outputs of the dosing application. See table "3-I" to see the assignment of each bit.

(3-7) This register shows the status of the digital inputs of the dosing application. See table "3-J" to see the assignment of each bit.

(3-8) This is the weight of the last dosing. It is necessary to read the status of the weighing (register 30064) at the same time as the weight to know if it is valid.

(3-9) The indication of the dosed weight is only valid during the dosing process. When the dosing process has finished, this value is reset.

(3-10) This indicates if the value is new and its status. The two parameters are coded with 4 bits per parameter as indicated in table "3-K".

(3-11) This error code is only valid if the dosing status (P103 / 37) is in error mode.

(3-15) Indicates if the value is new and if the weighing result is within or outside the programmed ranges. See table "M" with meaning of each bit.

(3-16) Indicates the status of the digital outputs of the checkweigher application and of the rejection detection input if configured.

Table "M"		
Last Weighing Status in Checkweigher		
Bit	**Description**	**Value and meaning**
0…7	Weighing status	**0:** Empty (There is no weighings) **1:** New weighing **2:** Weighing read **3:** Error during weighing
8…11	Function result pass / fail	**0:** Empty (There is no weighings or checkweigher function not activated) **1:** Correct weighing (within the margins) **2:** Correct weighing (out of the margins) **3:** Error during weighing
12...15	*Reserved*	

Table "N"	
Digital Input/Output Status Checkweigher	
Bit	**Description**
0	Rejection output
1	*Busy Output*
2	*Error Sync Output*
3	*Reserved*
4	*Reserved*
5	*Reserved*
6	*Reserved*
7	*Reserved*
8	*Input product rejection*
9	*Reserved*
10	*Reserved*
11	*Reserved*
12	*Reserved*
13	*Reserved*
14	*Reserved*
15	*Reserved*

Table "3-G"	
Parameter version	
Value	**Meaning**
0x0101	First version parameters of PROFIBUS. Software version 1.0020.
0x0102	Change on filter (Table "2-B"). Software version 1.0040

Table "3-F"			
Bits used in Mode Register			
Bit	**Description**	**Meaning**	
		0	1
0	Remote mode	No	Yes
1	Present position of the calibration switch	Unprotected	Protected
2	Calibration mode*	Unprotected	Protected
3	Remoted access**	No	Yes
4	Software cal. switch position	Unprotected	Protected
5..15	Reserved (do not use)		

* The calibration mode is determined by the position of the calibration switch in the moment that you enter the SETUP mode, but only if the entered PIN is correct. If the switch position is changed while you are in the SETUP mode, the calibration mode does not change.

** This shows that the device has entered Remote mode due to a serial command, instead of from the keyboard.

Table "3-H"		
Bits used in the hardware registration		
Bit	**Description**	**Meaning**
0	RS485 terminator	0: Not fitted 1: Fitted
1	Analog output	0: Not fitted 1: Fitted
2...6	Fieldbuses	0: Any one 1: PROFIBUS 2: PROFINET 5: Ethernet/IP
7	Device Type	0: Standard 1: COM Version (not used)
8...15	Reserved	All are set to zero

Table "3-I"	
Digital output dosing status	
Bit	**Description**
0	Gross
1	Fine
2	Active
3	Pause
4	Error
5	Relay A
6	Relay B
7	*Reserved*
8	*Reserved*
9	*Reserved*
10	*Reserved*
11	*Reserved*
12	*Reserved*
13	*Reserved*
14	*Reserved*
15	*Reserved*

Table "3-J"	
Digital input dosing status	
Bit	**Description**
0	Start
1	Pause
2	Cancel
3	Continue
4	*Blocked*
5	*Reserved*
6	*Reserved*
7	*Reserved*
8	*Reserved*
9	*Reserved*
10	*Reserved*
11	*Reserved*
12	*Reserved*
13	*Reserved*
14	*Reserved*
15	*Reserved*

Table "3-L"	
Dosing application error code	
Code	**Error**
0	No error
1	Final weight is too high
2	Target weight to dose is too low
3	Not enough material is available for dosing
4	Configuration error
5	Dosing is out of margins
6	Lack of material
7	Scale error: signal > max. range
8	Scale error: signal < min. range
9	Scale error: Error Ref
10	Scale error: ADC error
11	Scale error: ADC Fault

Table "3-K"			
Last weight dosed status			
Bits 4 to 7 (high level)		**Bits 0 to 3 (low level)**	
0x0	0: Empty (No weight has been dosed)	0x0	0: Empty (No weight has been dosed)
0x1	Correct weighing	0x1	1: New (unread) weighing
0x2	Weighing is out of margins	0x2	2: Weighing has been read