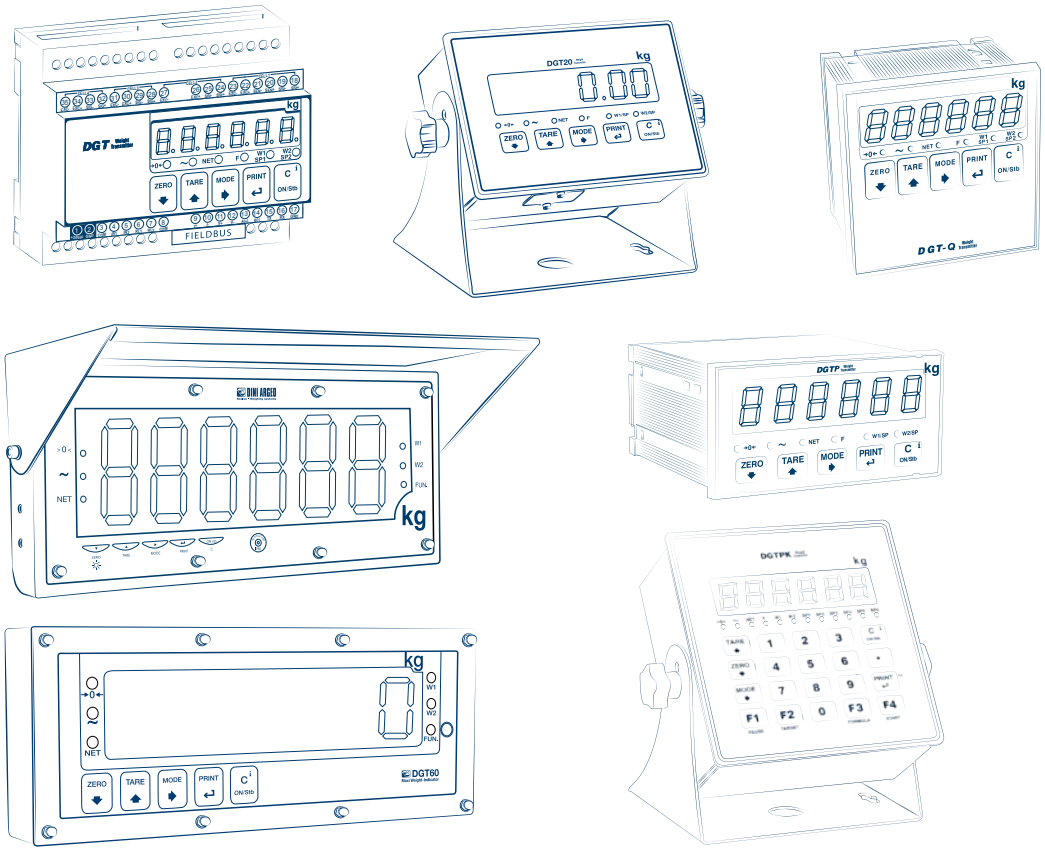
DINI ARGEO
Scales - Weighing systems

DGT FIELDBUS

Communication protocol for 4 channel DGT

TECHNICAL MANUAL **ENGLISH**



DeviceNet
EtherNet/IP
PROFINET
PROFIBUS
EtherCAT Technology Group
CANopen

For DGT4, DGT20, DGT60, DGT100, DGTP, DGTPK and DGTQ with 08.03.02 minimum firmware version

www.diniargeo.com

Contents

CONNECTION 4

OPERATING MODES 6

FIELDBUS AND DATA FORMAT CONFIGURATION 8

DATA READING (INPUT AREA) 10

Specific data for MODE 1 "DEP.CH" and MODE 2 "IND.CH" 11

Weight Data and Alibi Memory "**Page 1000**" (0x03E8) 11

Weight Data and Microvolt of each channel "**Page 3001**" (0x0BB9) 12

Weight Data and ADC Points of each channel "**Page 3000**" (0x0BB8) 13

Specific data for MODE 3 "TRANSM" 14

Tares, Net and Gross weights "**Page 2000 - 2001 - 2002**" (0x07D0 - 0x07D1 - 0x07D2) 14

Tares and Net weights "**Page 2003**" (0x07D3) 15

Shared data for all MODES 16

Weight Data and Calibration Status "**Page 5001**" (0x1389) 16

Descriptive charts 17

*Chart 1 - **Input Status Register*** 17

*Chart 2 - **Output Status Register*** 17

*Chart 3 - **Command Status Register*** 18

*Chart 4 - **Alibi Status Register*** 18

*Chart 5 - **Single scale Status Register (only MODE 3 "TRANSM")*** 19

COMMAND SENDING (OUTPUT AREA) 20

List of available commands 21

TRANSMITTER CONFIGURATION VIA FIELDBUS 23

Operating Mode 24

Calibration Parameters 24

Calibration Linearisation 25

Filter / Metric Parameters 1 26

Optimized layout for A4 print.

Metric Parameters 2 27

Digital inputs 28

Digital output 1 29

Digital output 2 30

CALIBRATION VIA FIELDBUS 31

SCALE ZEROING VIA FIELDBUS 32

MECHANICAL TARE ZEROING VIA FIELDBUS 32

WEIGHING FILTER SETUP VIA FIELDBUS 33

SETUP BACKUP AND RESTORE VIA FIELDBUS 34

Backup 34

Restore 34

DIAGNOSTIC MESSAGES 35

EXAMPLES 36

Weight storage or reading in Alibi memory 36

FIELDBUS calibration 37

Output setup 40

Input setup 40

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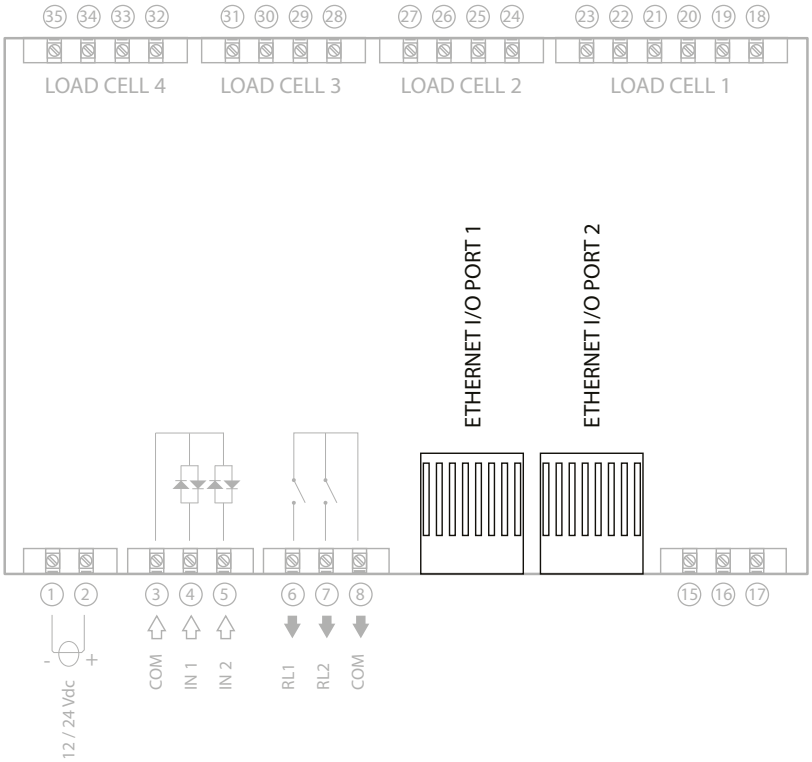
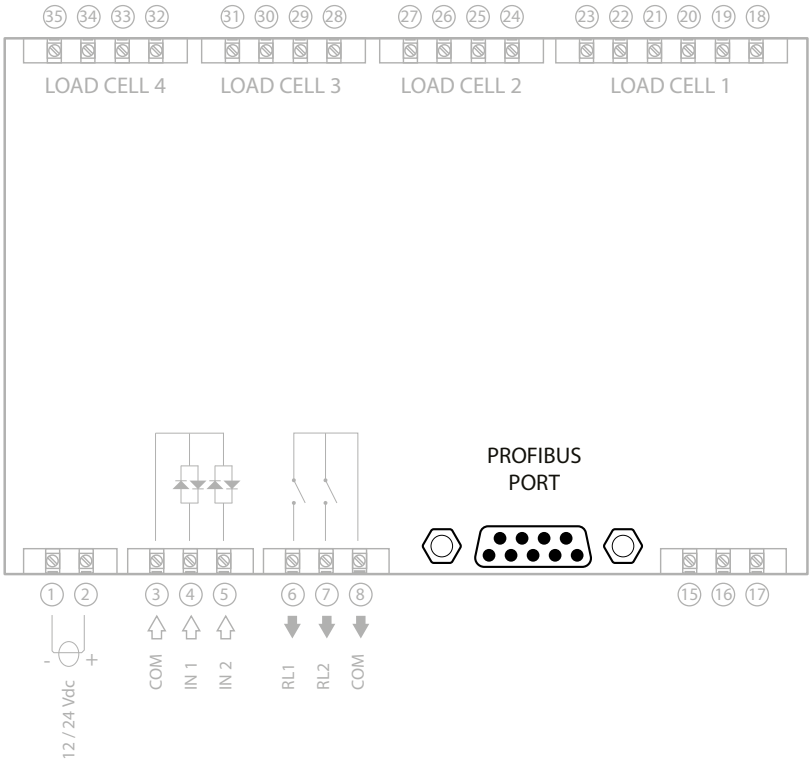
ETHERCAT, ETHERNET/IP, PROFINET, MODBUS-TCP



i The connection to the Fieldbus goes through one of the two **ETHERNET** standard connectors of the device.

PROFIBUS



i The connection to the Fieldbus goes through the **PROFIBUS** port of the device.

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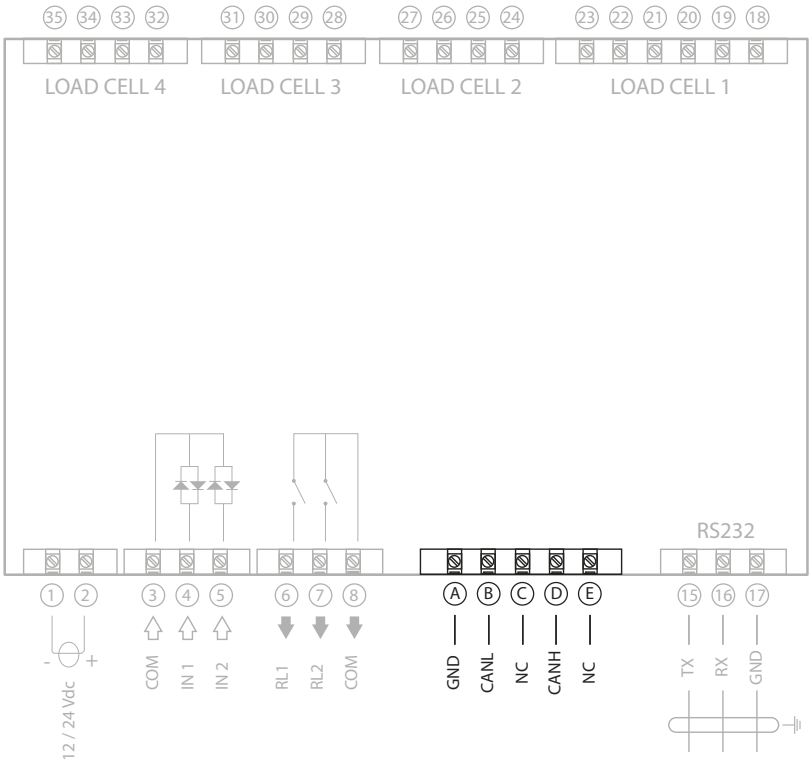
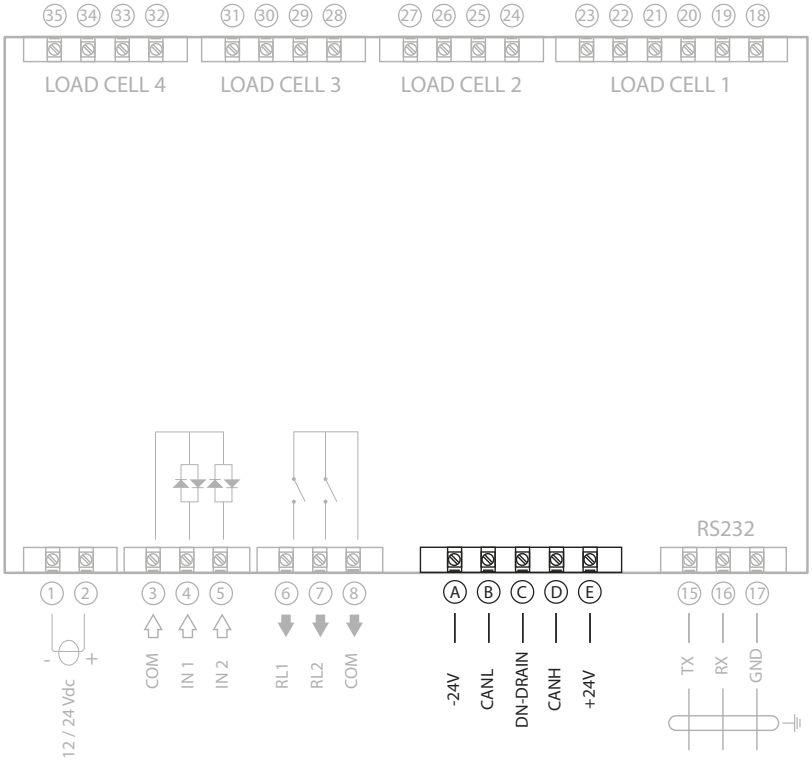
CANOPEN



i

The connection to the Fieldbus goes through the **A, B, C, D, E** screw terminals of the device.

DEVICENET



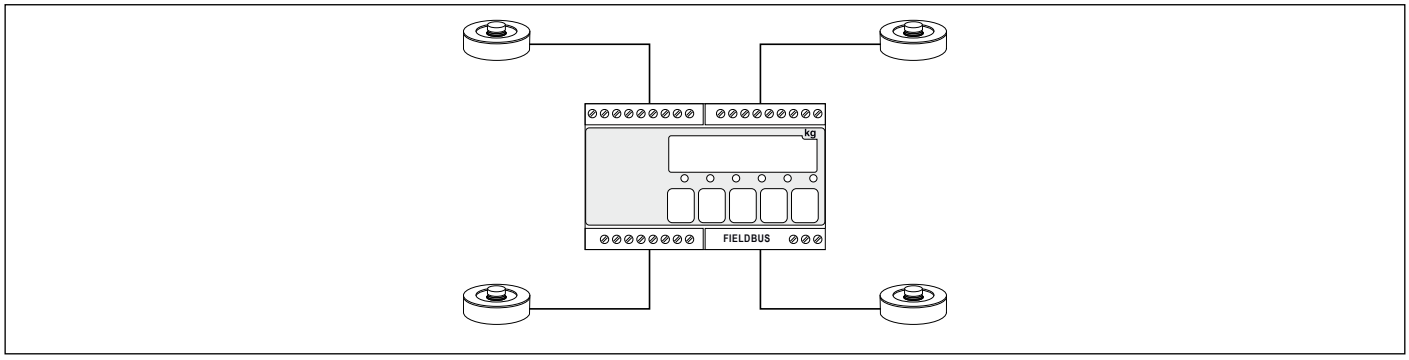
i

The connection to the Fieldbus goes through **A, B, C, D, E** screw terminals of the device.

Optimized layout for A4 print.

MODE 1 "DEP.CH": SMART JUNCTION BOX

It allows for direct connection among the load cells, their equalisation (if necessary) and trasmission of each load cell data and total weight via Fieldbus.



Configuration:

1. Access to Quick Menu:

- Restart the device.
- Press the key ▶ when 888888 is displayed.

2. Access to parameter tYPE and select dEP.Ch.

3. Access to parameter nChAn and select the number of connected load cells.

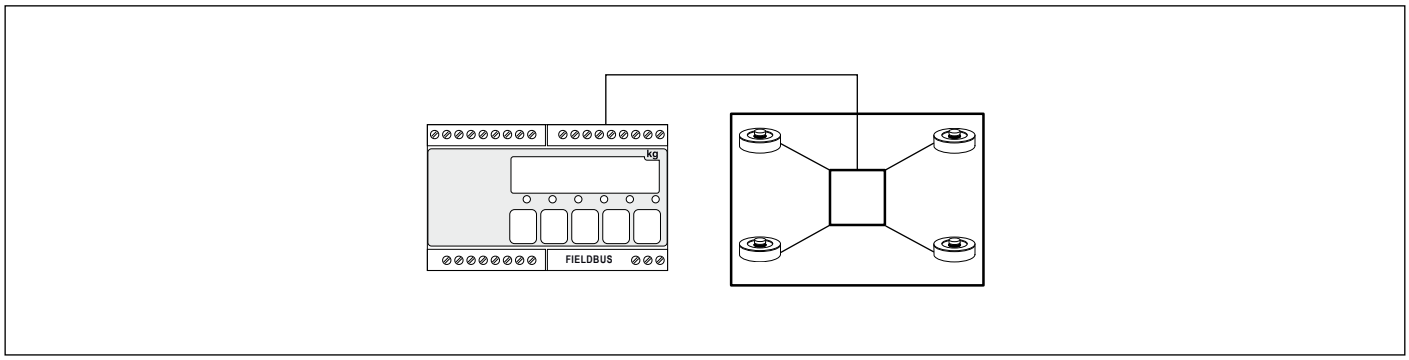
888888 ▶ tYPE = dEP.Ch

▼

nChAn = 2 to 4.

MODE 2 "IND.CH": SINGLE SCALE SYSTEM

Fieldbus.



Configuration:

1. Access to Quick Menu:

- Restart the device.
- Press the key ▶ when 888888 is displayed.

2. Access to parameter tYPE and select ind.Ch.

3. Access to parameter nChAn and select "1".

888888 ▶ tYPE = ind.Ch

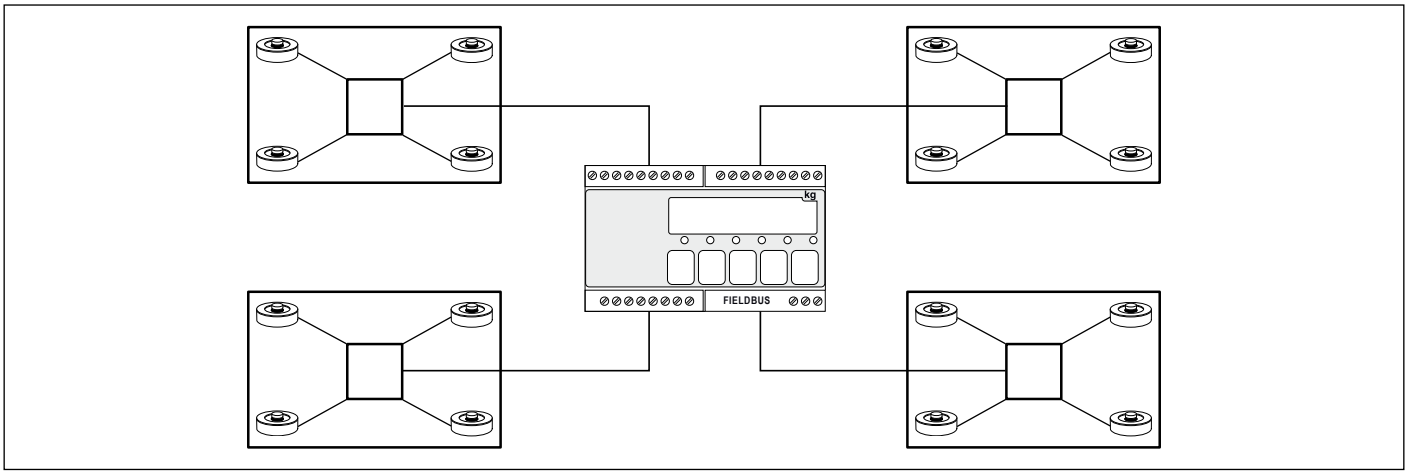
▼

nChAn = 1.

Optimized layout for A4 print.

MODE 3 "TRANSM": MULTI-SCALE SYSTEM (up to 4)

It allows for the management of up to 4 independent scales and transmission of all data of each scale via Fieldbus.



Configuration:

1. Access to Quick Menu:

- Restart the device.
- Press the key ▶ when 888888 is displayed.

2. Access to parameter tYPE and select trAnSM.

3. Access parameter nChAn and select the number of scales (2 to 4).

888888 ▶ tYPE = trAnSM

▼

nChAn = 2 to 4.

Optimized layout for A4 print.

FIELDBUS AND DATA FORMAT CONFIGURATION

The Fieldbus can be set through a configuration menu, following the procedure below:

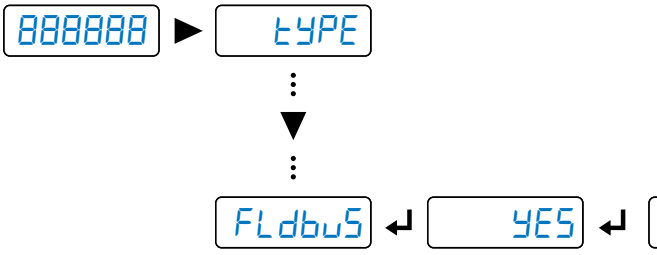
1. Access to Quick Menu:

- Restart the device.
- Press the key ▶ when 888888 is displayed.

2. Scroll the menu with the key ▼ until FLdbuS is displayed and press ↵.

3. Select with the key ▼ parameter YES and press ↵.

4. Start the Fieldbus.
The device detects automatically the type of integrated Fieldbus and suggests the parameters for its configuration:



Fieldbus configuration. The parameters of this menu change depending on the Fieldbus.

Others parameters are also available in technical menu:

t.in.out	Timeout error displaying.
End.An	Format of the order of data.

MENU OVERVIEW Fb.SEt

Depending on the selected Fieldbus, set the appropriate configuration parameters:

For Profibus:

Fb.SEt ↵	nodE.id	Node ID (0 ÷ 98).

For DeviceNet:

Fb.SEt ↵	MAC.id	MAC ID (0 ÷ 63).
	bAud.r	Baud rate (500 kB, 250 kB, 125 kB).

For CanOpen:

Fb.SEt ↵	nod.Add	Node address (1 ÷ 127).
	bAud.r	Baud rate (1 MB, 800 kB, 500 kB, 250 kB, 125 kB, 100 kB, 50 kB, 20 kB, 10 kB).

For Ethercat:
No configuration parameters required.

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For Profinet:

Fb.SEt ↵ AUt.CFG Dynamic IP configuration.

iP.Add Static IP address.

nEt.MSK Subnet mask.

GAt.WAY Gateway.

> The name of the Profinet node to use in the project linked to the network master node is provided by **dini <IP4>**, <IP4> being the last Byte of the IP address incorporated in the device configuration, also when dynamic IP is used.
> Ex. IP - 192.168.1.10, the node name will be **dini-010**.

For Ethernet/IP:

Fb.SEt ↵ AUt.CFG Dynamic IP configuration.

iP.Add Static IP address.

nEt.MSK Subnet mask.

GAt.WAY Gateway.

For Modbus TCP:

Fb.SEt ↵ AUt.CFG Dynamic IP configuration.

iP.Add Static IP address.

nEt.MSK Subnet mask.

GAt.WAY Gateway.

MENU OVERVIEW t iM.out

Set the timeout error displaying mode.
The error occurs whenever the communication with the master module is interrupted.

888888 ▲ x2 ▼ SEtuP ↵ x2 ▼ SEr iAL ↵ x2 ▼ CoM.PC ↵ PC.ModE ↵ FLd.buS ↵ ▼

t iM.out ↵ no Error message displayed only once.

YES Repeated error message.

MENU OVERVIEW End iAn

Set the format of the order of data:

888888 ▲ x2 ▼ SEtuP ↵ x2 ▼ SEr iAL ↵ x2 ▼ CoM.PC ↵ PC.ModE ↵ FLd.buS ↵ x2 ▼

End iAn ↵ bIG Big Endian.

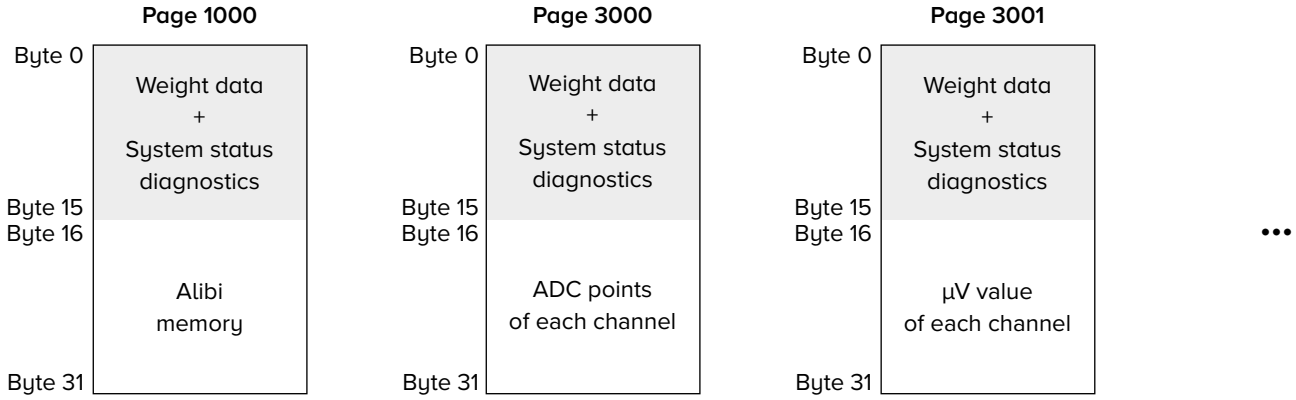
LittLE Little Endian.

Optimized layout for A4 print.

DATA READING (INPUT AREA)

- The available data depend on the selected operating mode (see page 6).
- The available data are divided into pages.
- Depending on the Fieldbus, the data area size can be up to 128 Bytes.
- The size of each DGT page is 32 Bytes (therefore, even if the page size is 64 or 128 Bytes, only the first 32 available Bytes are used).
- The first 16 Bytes of each page always include the data concerning weight and weighing system status.
- Bytes 16 to 31 contain additional information, depending on the selected page (setup data, alibi memory etc.)
- The page selected by default is 3001 (0x0BB9).
- In factory configuration the data format is Big Endian. To change the format, follow the procedure at page 8.
- Weight data are expressed with positive integers. (Ex. 12,345 ⟶ 0x3039).
- µV and ADC points are expressed with positive and negative integers. (Ex. -12,345 ⟶ 0xCFC7).

Model of the pages in the Input Area:



MODE	NAME	PAGE	DESCRIPTION
MODE 1 "DEP.CH"	Weight data and ADC values.	**3000** (0x0BB8)	See page 13.
MODE 1 "DEP.CH"	Weight data and Microvolt of each channel. (*)	**3001** (0x0BB9)	See page 12.
MODE 2 "IND.CH"	Weight data and Alibi memory.	**1000** (0x03E8)	See page 11.
MODE 3 "TRANSM"	Tares, gross and net weights.	**2000 - 2001 - 2002** (0x07D0 - 0x07D1 - 0x07D2)	See page 14.
MODE 3 "TRANSM"	Net weights and tares.	**2003** (0x07D3)	See page 15.
All MODES	Backup / Configuration reset.	**da 0** (0x00) **a 63** (0x3F)	See page 34.
All MODES	Calibration status.	**5001** (0x1389)	See page 16.

(*) page selected by default at power-up.

Optimized layout for A4 print.

Weight Data and Alibi Memory "Page 1000" (0x03E8)

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	30001	B3	H	Gross weight.	*B0*	*L*
1		B2			*B1*	
2	30002	B1	L		*B2*	*H*
3		B0			*B3*	
4	30003	B3	H	Net weight.	*B0*	*L*
5		B2			*B1*	
6	30004	B1	L		*B2*	*H*
7		B0			*B3*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).	*B1*	-
9		B0			*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).	*B0*	-
11		B0			*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).	*B0*	-
13		B0			*B1*	
14	30008	B1	-	Selected data page.	*B0*	-
15		B0			*B1*	
16	30009	B3	H	Gross weight of the requested alibi ID with **30** control (0x1E) **"ALIBI MEMORY READING"**.	*B0*	*L*
17		B2			*B1*	
18	30010	B1	L		*B2*	*H*
19		B0			*B3*	
20	30011	B3	H	Tare weight of the requested alibi ID.	*B0*	*L*
21		B2			*B1*	
22	30012	B1	L		*B2*	*H*
23		B0			*B3*	
24	30013	B3	H	Alibi ID.	*B0*	*L*
25		B2			*B1*	
26	30014	B1	L		*B2*	*H*
27		B0			*B3*	
28	30015	B1	-	Alibi Status Register (see Chart 4 page 18).	*B0*	-
29		B0			*B1*	
30	-	-	-	Not used.	-	-
31						

Optimized layout for A4 print.

Weight Data and Microvolt of each channel "Page 3001" (0x0BB9)

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	30001	B3	H	Gross weight.	*B0*	*L*
1		B2			*B1*	
2	30002	B1	L		*B2*	*H*
3		B0			*B3*	
4	30003	B3	H	Net weight.	*B0*	*L*
5		B2			*B1*	
6	30004	B1	L		*B2*	*H*
7		B0			*B3*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).	*B1*	-
9		B0			*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).	*B0*	-
11		B0			*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).	*B0*	-
13		B0			*B1*	
14	30008	B1	-	Selected data page.	*B0*	-
15		B0			*B1*	
16	30009	B1	-	µV Channel 1.	*B0*	-
17		B0			*B1*	
18	30010	B1	-	µV Channel 2.	*B0*	-
19		B0			*B1*	
20	30011	B1	-	µV Channel 3.	*B0*	-
21		B0			*B1*	
22	30012	B1	-	µV Channel 4.	*B0*	-
23		B0			*B1*	
24	-	-	-	Not used.	-	-
25		-			-	
26	-	-	-		-	-
27		-			-	
28	-	-	-		-	-
29		-			-	
30	-	-	-		-	-
31		-			-	

Optimized layout for A4 print.

Weight Data and ADC Points of each channel "Page 3000" (0x0BB8)

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	30001	B3	H	Gross weight.	*B0*	*L*
1		B2			*B1*	
2	30002	B1	L		*B2*	*H*
3		B0			*B3*	
4	30003	B3	H	Net weight.	*B0*	*L*
5		B2			*B1*	
6	30004	B1	L		*B2*	*H*
7		B0			*B3*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).	*B1*	-
9		B0			*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).	*B0*	-
11		B0			*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).	*B0*	-
13		B0			*B1*	
14	30008	B1	-	Selected data page.	*B0*	-
15		B0			*B1*	
16	30103	B3	H	ADC points of Channel 1.	*B0*	*L*
17		B2			*B1*	
18	30104	B1	L		*B2*	*H*
19		B0			*B3*	
20	30105	B3	H	ADC points of Channel 2.	*B0*	*L*
21		B2			*B1*	
22	30106	B1	L		*B2*	*H*
23		B0			*B3*	
24	30107	B3	H	ADC points of Channel 3.	*B0*	*L*
25		B2			*B1*	
26	30108	B1	L		*B2*	*H*
27		B0			*B3*	
28	30109	B3	H	ADC points of Channel 4.	*B0*	*L*
29		B2			*B1*	
30	30110	B1	L		*B2*	*H*
31		B0			*B3*	

Optimized layout for A4 print.

Tares, Net and Gross weights "Page 2000 - 2001 - 2002" (0x07D0 - 0x07D1 - 0x07D2)

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	30001	B1	-	Status Register Scale 1 (see Chart 5 page 19).	*B0*	-
1		B0			*B1*	
2	30002	B1	-	Status Register Scale 2 (see Chart 5 page 19).	*B0*	-
3		B0			*B1*	
4	30003	B1	-	Status Register Scale 3 (see Chart 5 page 19).	*B0*	-
5		B0			*B1*	
6	30004	B1	-	Status Register Scale 4 (see Chart 5 page 19).	*B0*	-
7		B0			*B1*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).	*B1*	-
9		B0			*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).	*B0*	-
11		B0			*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).	*B0*	-
13		B0			*B1*	
14	30008	B1	-	Selected data page.	*B0*	-
15		B0			*B1*	

				Page 2000 (0x07D0)	**Page 2001** (0x07D1)	**Page 2002** (0x07D2)		
16	30009	B3	H	Gross weight scale 1.	Net weight scale 1.	Tare scale 1.	*B0*	*L*
17		B2					*B1*	
18	30010	B1	L				*B2*	*H*
19		B0					*B3*	
20	30011	B3	H	Gross weight scale 2.	Net weight scale 2.	Tare scale 2.	*B0*	*L*
21		B2					*B1*	
22	30012	B1	L				*B2*	*H*
23		B0					*B3*	
24	30013	B3	H	Gross weight scale 3.	Net weight scale 3.	Tare scale 3.	*B0*	*L*
25		B2					*B1*	
26	30014	B1	L				*B2*	*H*
27		B0					*B3*	
28	30015	B3	H	Gross weight scale 4.	Net weight scale 4.	Tare scale 4.	*B0*	*L*
29		B2					*B1*	
30	30016	B1	L				*B2*	*H*
31		B0					*B3*	

Optimized layout for A4 print.

Tares and Net weights "Page 2003" (0x07D3)

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	30001	B1	-	Status Register Scale 1 (see Chart 5 page 19).	*B0*	-
1		B0			*B1*	
2	30002	B1	-	Status Register Scale 2 (see Chart 5 page 19).	*B0*	-
3		B0			*B1*	
4	30003	B1	-	Status Register Scale 3 (see Chart 5 page 19).	*B0*	-
5		B0			*B1*	
6	30004	B1	-	Status Register Scale 4 (see Chart 5 page 19).	*B0*	-
7		B0			*B1*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).	*B1*	-
9		B0			*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).	*B0*	-
11		B0			*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).	*B0*	-
13		B0			*B1*	
14	30008	B1	-	Selected data page.	*B0*	-
15		B0			*B1*	
16	30009	B1	-	Net weight scale 1.	*B1*	-
17		B0			*B0*	
18	30010	B1	-	Tare scale 1.	*B0*	-
19		B0			*B1*	
20	30011	B1	-	Net weight scale 2.	*B0*	-
21		B0			*B1*	
22	30012	B1	-	Tare scale 2.	*B0*	-
23		B0			*B1*	
24	30013	B1	-	Net weight scale 3.	*B0*	-
25		B0			*B1*	
26	30014	B1	-	Tare scale 3.	*B0*	-
27		B0			*B1*	
28	30015	B1	-	Net weight scale 4.	*B0*	-
29		B0			*B1*	
30	30016	B1	-	Tare scale 4.	*B0*	-
31		B0			*B1*	

Optimized layout for A4 print.

Weight Data and Calibration Status "Page 5001" (0x1389)

Byte	*Modbus TCP Register*	Big Endian		Data		*Little Endian*	
0	30001	B3	H	Gross weight.		*B0*	*L*
1		B2				*B1*	
2	30002	B1	L			*B2*	*H*
3		B0				*B3*	
4	30003	B3	H	Net weight.		*B0*	*L*
5		B2				*B1*	
6	30004	B1	L			*B2*	*H*
7		B0				*B3*	
8	30005	B1	-	Input Status Register (see Chart 1 page 17).		*B1*	-
9		B0				*B0*	
10	30006	B1	-	Command Status Register (see Chart 3 page 18).		*B0*	-
11		B0				*B1*	
12	30007	B1	-	Output Status Register (see Chart 2 page 17).		*B0*	-
13		B0				*B1*	
14	30008	B1	-	Selected data page.		*B0*	-
15		B0				*B1*	
16	-	-	-	Not suitable for reading.		-	-
...		-				-	
29		-				-	
30	30116	B1	-	Calibration status.	0 (0x00) = Calibration not started.	*B0*	-
					1 (0x01) = Acquisition in progress.		
					2 (0x02) = Acquisition OK.		
					3 (0x03) = Acquisition error.		
31		B0			4 (0x04) = Calibration OK.	*B1*	
					5 (0x05) = Calibration error.		
					6 (0x06) = Zero calibration in progress.		

Optimized layout for A4 print.

*Chart 1 - **Input Status Register***

(always Big Endian)

Byte (Big Endian)		*Modbus TCP Register*	Bit	Description	Bit meaning 0	Bit meaning 1
8	B1	**30005**	0	Net weight polarity.	+	-
			1	Gross weight polarity.	+	-
			2	Weight stability.	No	Yes
			3	Underload condition.	No	Yes
			4	Overload condition.	No	Yes
			5	Inserted tare condition.	No	Yes
			6	Manual tare condition.	No	Yes
			7	Gross weight equals 0.	No	Yes
9	B0		8	Input 1.	Disabled	Enabled
			9	Input 2.	Disabled	Enabled
			10	Input 3 *(if applicable)*.	Disabled	Enabled
			11	Input 4 *(if applicable)*.	Disabled	Enabled
			12	Endian.	Big Endian	Little Endian
			13	Not used.		
			14	Displayed channel (lsb).	00 = channel 1	01 = channel 2
			15	Displayed channel (msb).	10 = channel 3	11 = channel 4

*Chart 2 - **Output Status Register***

Byte (Big Endian)		*ModbusTCP Register*	Bit	Description	Bit meaning 0	Bit meaning 1
12	B1	**30007**	0	Relay 1.	Not energized	Energized
			1	Relay 2.	Not energized	Energized
			2	Not used.	-	-
			3			
			4			
			5			
			6			
			7			
13	B0		8	Error Channel 1.	No	Yes
			9	Error Channel 2.	No	Yes
			10	Error Channel 3.	No	Yes
			11	Error Channel 4.	No	Yes
			12	Channel General Error.	No	Yes
			13	Not used.	-	-
			14			
			15	Communication scale - Module.	Bit that changes every second if the communication between scale and module is active.	

Optimized layout for A4 print.

*Chart 3 - **Command Status Register***

Byte (Big Endian)		*Modbus TCP Register*	Bit	Description	Bit meaning
10	B1	**30006**	0	Processed commands counting.	Value in module 16.
			1		
			2		
			3		
			4 (LSB)	Result of the last command received:	0000 = Correct and performed command. 0001 = Incorrect command. 0010 = Incorrect data in command. 0011 = Command not allowed. 0100 = Non-existent command.
			5		
			6		
			7 (MSB)		
11	B0		8	Last command received.	-
			9		
			10		
			11		
			12		
			13		
			14		
			15		

*Chart 4 - **Alibi Status Register***

Byte (Big Endian)		*Modbus TCP Register*	Bit	Description	Bit meaning	
					0	1
28	B1	**30015**	0	Rewriting number.	0 to 255 rewritings.	
			1			
			2			
			3			
			4			
			5			
			6			
			7			
29	B0		8	Scale number.	1 to 4.	
			9			
			10			
			11	Tare type.	Semiautomatic	Manual
			12	Not used.	-	
			13			
			14			
			15			

Optimized layout for A4 print.

*Chart 5 - **Single scale Status Register (only MODE 3 "TRANSM")***

Bit	Description	Bit meaning	
		0	1
0	Weight polarity.	+	-
1	Weight stability.	No	Yes
2	Underload condition.	No	Yes
3	Overload condition.	No	Yes
4	Gross weight equals 0.	No	Yes
5	Not used.	-	-
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Optimized layout for A4 print.

COMMAND SENDING (OUTPUT AREA)

- Commands are sent in the first 10 Bytes of the Output Area.
- Some commands need specific parameters.
- In the first 2 Bytes the command is specified, in Bytes 2 to 5 PARAMETER 1 is specified, in Bytes 6 to 9 PARAMETER 2 is specified.
- Depending on the Fieldbus, the page size can reach 128 Bytes.
- Each DGT page size is 32 Bytes (therefore, even if the page size is 128 Bytes, only the first 32 avalaible Bytes are used).
- Only the first 10 Bytes of each page are used to send commands.
- Data are expressed by default in Big Endian format. To modify the format follow the procedure at page 8.

How to send a command

1. If required by the command, insert the required parameters in Bytes 2 to 9.
2. Write the command in Byte 1.
WARNING: Byte 0 value must equal 0 (0x00).

Byte	*Modbus TCP Register*	Big Endian		Data	*Little Endian*	
0	**40001**	B1	-	0 (0x00) always zero.	*B0*	-
1		B0		Command (see command list at page 21).	*B1*	
2	**40002**	B3	H	Parameter 1.	*B0*	*L*
3		B2			*B1*	
4	**40003**	B1	L		*B2*	*H*
5		B0			*B3*	
6	**40004**	B3	H	Parameter 2.	*B0*	*L*
7		B2			*B1*	
8	**40005**	B1	L		*B2*	*H*
9		B0			*B3*	

Optimized layout for A4 print.

List of available commands

COMMAND	DESCRIPTION	PARAMETER 1	PARAMETER 2
0 (0x00)	No commands.	-	-
1 (0x01)	Zero.	Only for MODE 3 "TRANSM": specify the scale for zeroing.	-
2 (0x02)	Tare.	Only for MODE 3 "TRANSM": specify the scale for tare execution.	-
3 (0x03)	Manual tare.	Tare value.	Only for MODE 3 "TRANSM": specify the scale for tare execution.
10 (0x0A)	Setpoint 1 writing.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
11 (0x0B)	Setpoint 2 writing.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
25 (0x19)	Set relay status.	Bitmask of relays status to be enabled *(bit 0 = relay 1,* *bit 1 = relay 2).*	Always 0 (0x00).
26 (0x1A)	Setup reading.	Setup page to read 0 ÷ 63 (0x00 ÷ 0x3F).	-
27 (0x1B)	Setup writing.	Setup page to write 0 ÷ 63 (0x00 ÷ 0x3F).	-
28 (0x1C)	Save setup.	-	-
29 (0x1D)	Change page.	Destination page.	-
30 (0x1E)	Alibi memory reading.	Rewriting number.	Weight alibi ID.
31 (0x1F)	Weight storage in alibi memory.	-	-
34 (0x22)	Reboot device.	-	-
35 (0x23)	Data reading.	MODE 1 "DEP.CH" = 0 (0x00). MODE 2 "IND.CH" = 0 (0x00). MODE 3 "TRANSM": 0 (0x00) = Scale 1 1 (0x01) = Scale 2 2 (0x02) = Scale 3 3 (0x03) = Scale 4.	-
36 (0x24)	Data writing and storage.	Parameter 1 = 0 (0x00) to store data. Parameter 1 = 500X (0x138x) for page writing.	-
37 (0x25)	Calibration point acquisition.	0 (0x00) = Zero point 1 (0x01) = First point 2 (0x02) = Second point 3 (0x03) = Third point.	-
38 (0x26)	Cancel ongoing calibration.	-	-

Optimized layout for A4 print.

COMMAND	DESCRIPTION	PARAMETER 1	PARAMETER 2
39 (0x27)	Zero calibration.	MODE 1 "DEP.CH" = 0 (0x00). MODE 2 "IND.CH" = 0 (0x00). MODE 3 "TRANSM": 0 (0x00) = Scale 1 1 (0x01) = Scale 2 2 (0x02) = Scale 3 3 (0x03) = Scale 4.	-
40 (0x28)	Enable / disable keypad.	1 (0x01): Enable keypad. 0 (0x00): Disable keypad.	-
45 (0x2D)	Zero scale 1 (only for MODE 3 "TRANSM").	-	-
46 (0x2E)	Zero scale 2 (only for MODE 3 "TRANSM").	-	-
47 (0x2F)	Zero scale 3 (only for MODE 3 "TRANSM").	-	-
48 (0x30)	Zero scale 4 (only for MODE 3 "TRANSM").	-	-
49 (0x31)	Tare scale 1 (only for MODE 3 "TRANSM").	-	-
50 (0x32)	Tare scale 2 (only for MODE 3 "TRANSM").	-	-
51 (0x33)	Tare scale 3 (only for MODE 3 "TRANSM").	-	-
52 (0x34)	Tare scale 4 (only for MODE 3 "TRANSM").	-	-
53 (0x35)	Multi-scale zeroing (only for MODE 3 "TRANSM").	Bitmask indicating the scales for zeroing *(bit 0 = scale 1,* *bit 1 = scale 2,* *bit 2 = scale 3,* *bit 3 = scale 4).*	-
54 (0x36)	Multi-scale tare (only for MODE 3 "TRANSM").	Bitmask indicating the scales for tare execution *(bit 0 = scale 1,* *bit 1 = scale 2,* *bit 2 = scale 3,* *bit 3 = scale 4).*	-
55 (0x37)	Disable a peripheral device.	Always 0 (0x00).	Bit 0 = 1 disables relay 1. Bit 1 = 1 disables relay 2.
56 (0x38)	Save page.	Page to save.	-

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Note: To run many consecutive times the same command follow this precedure:
- Send the command.
- Delete the content in command Byte (Byte 1).
- Send again the command.

EXCEPTIONS:
- SETUP READING
- SETUP WRITING
- CHANGE PAGE

These commands are run even when PARAMETER 1 varies.

Optimized layout for A4 print.

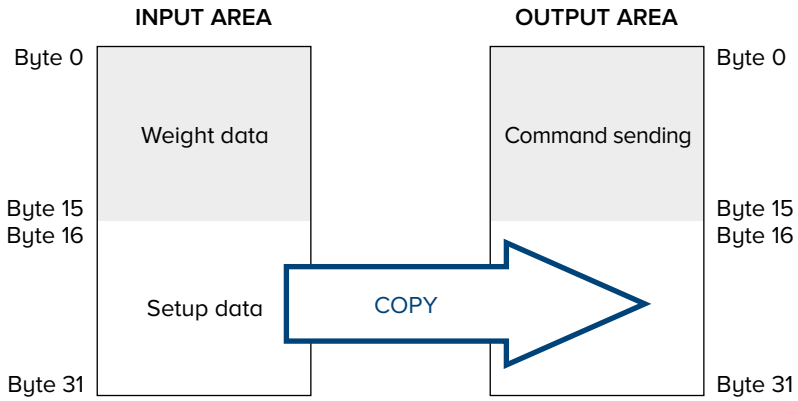
- Main setup parameters can be configurated via Fieldbus.
- Depending on the Fieldbus, the page size can reach 128 Bytes.
- Each DGT page size is 32 Bytes (therefore, even if the page size is 128 Bytes, only the first 32 avalaible Bytes are used).
- The first 16 Bytes of each page are used to send writing and setup saving commands.
- In Bytes 16 to 31 the value of each parameter must be specified.
- Before modifying the parameters the command **35** (0x23) "**DATA READING**" must be sent.
- Data are expressed by default in Big Endian format. To modify the format, follow the procedure at page 8.
- Data must be expressed with positive integers. Ex. 12,345 ⟶ 12345 (0x3039).

PROCEDURE

1. Send the command **35** (0x23) "**DATA READING**".
If MODE 3 "TRANSM" was selected, specify in PARAMETER 1 the scale to modify.

2. Select the page that contains the parameter to modify.
Send command **29** (0x1D) "**CHANGE PAGE**" inserting in PARAMETER 1 the value of the page to read.

3. Copy Bytes 16 to 31 from the selected page in the same Bytes of the Output Area.



4. Modify the required parameter.

5. Save the page containing the modified parameter.
NOTE : use the command specified below the chart concerning that parameter to save.

Optimized layout for A4 print.

Operating Mode

1. Send the command **35** (0x23) "**DATA READING**".
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5003** (0x138B) and send the command **29** (0x1D) "**CHANGE PAGE**".
3. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
4. Modify required parameters.

Parameter		Page	Byte	Modbus TCP Register	Big Endian		Little Endian	
Description	Possible values							
Operating mode.	0 (0x00) = Independent channels.	**5003** (0x138B)	16	40009	B1	-	B0	-
	1 (0x01) = Dependent channels.							
	2 (0x02) = Transm.		17		B0		B1	
Channel number.	1 (0x01) = 1 Channel.		18	40010	B1	-	B0	-
	2 (0x02) = 2 Channels.							
	3 (0x03)x = 3 Channels.		19		B0		B1	
	4 (0x04) = 4 Channels.							

5. Save the parameters:
• Write in Bytes 2 to 5 (PARAMETER 1) the value **5003** (0x138B) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".
The device will restart automatically.

Calibration Parameters

1. Send command **35** (0x23) "**DATA READING**".
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5006** (0x138E) and send the command **29** (0x1D) "**CHANGE PAGE**".
3. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
4. Modify required parameters.

Parameter		Page	Byte	Modbus TCP Register	Big Endian		Little Endian	
Description	Possible values							
Unit of measure.	0 = kg 2 = t 1 = g 3 = lb	**5006** (0x138E)	16	40009	B1	-	B0	-
			17		B0		B1	
Resolution.	1, 2, 5.		18	40010	B1	-	B0	-
			19		B0		B1	
Decimal places.	0, 1, 2, 3, 4, 5.		20	40011	B1	-	B0	-
			21		B0		B1	
Capacity.	From 1 to 999999.		22	40012	B3	H	B0	L
			23		B2		B1	
			24	40013	B1	L	B2	H
			25		B0		B3	
Calibration weight.	From 1 to 999999.		26	40014	B3	H	B0	L
			27		B2		B1	
			28	40015	B1	L	B2	H
			29		B0		B3	

5. To save the parameters:
• Write in Bytes 2 to 5 (PARAMETER 1) the value **5006** (0x138E) and send the command **36** (0x24) **"DATA WRITING AND STORAGE"**.
• Delete command Byte content (Byte 1).
• Write in Bytes 2 to 5 (PARAMETER 1) the value 0 (0x00) and send the command **36** (0x24) **"DATA WRITING AND STORAGE"**.

Optimized layout for A4 print.

Calibration Linearisation

1. Send the command **35** (0X23) "**DATA READING**".
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5001** (0x1D) "**CHANGE PAGE**".
3. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
4. Modify required parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values $_{10}$							
Calibration point number.	1, 2, 3.	**5001** (0x1389)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Calibration weight 1.	From 1 to 999999.		*18*	*40010*	*B3*	*H*	*B0*	*L*
			19		*B2*		*B1*	
			20	*40011*	*B1*	*L*	*B2*	*H*
			21		*B0*		*B3*	
Calibration weight 2.	From weight calibration value 1 to 999999.		*22*	*40012*	*B3*	*H*	*B0*	*L*
			23		*B2*		*B1*	
			24	*40013*	*B1*	*L*	*B2*	*H*
			25		*B0*		*B3*	
Calibration weight 3.	From calibration weight 2 to 999999.		*26*	*40014*	*B3*	*H*	*B0*	*L*
			27		*B2*		*B1*	
			28	*40015*	*B1*	*L*	*B2*	*H*
			29		*B0*		*B3*	

5. Save the parameters:
- Write in Bytes 2 to 5 (PARAMETER 1) the value **5001** (0x1389) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".
- Delete command Byte content (Byte 1).
- Write in Bytes 2 to 5 (PARAMETER 1) the value **0** (0x00) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".

Optimized layout for A4 print.

Filter / Metric Parameters 1

1. Send the command **35** (0x23) "**DATA READING**".
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5004** (0x138C) and send the command **29** (0x1D) "**CHANGE PAGE**".
3. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
4. Modify required parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values $_{10}$							
Filter index.	From 0 to 26 (see page 33).	**5004** (0x138C)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Custom filter.	For manufacturer's use.		*18*	*40010*	*B1*	-	*B0*	-
			19		*B0*		*B1*	
			20	*40011*	*B1*	-	*B0*	-
			21		*B0*		*B1*	
			22	*40012*	*B1*	-	*B0*	-
			23		*B0*		*B1*	
			24	*40013*	*B1*	-	*B0*	-
			25		*B0*		*B1*	
Self-zeroing at power-up.	0 = Disabled. 1 = Enabled.		*26*	*40014*	*B1*	-	*B0*	-
			27		*B0*		*B1*	
Self-zeroing percentage at power-up.	From 0 to 50. From 0 to 10 *(approved version).*		*28*	*40015*	*B1*	-	*B0*	-
			29		*B0*		*B1*	
Zero percentage by key / command.	Da 0 a 10. Da 0 a 2 *(approved version).*		*30*	*40016*	*B1*	-	*B0*	-
			31		*B0*		*B1*	

5. To save the parameters:
- Write in Bytes 2 to 5 (PARAMETER 1) the value **5004** (0x138C) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".
- Delete command Byte content (Byte 1).
- Write in Bytes 2 to 5 (PARAMETER 1) the value **0** (0x00) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".

Optimized layout for A4 print.

Metric Parameters 2

1. Send the command **35** (0x23) "**DATA READING**".
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5005** (0x138D) and send the command **29** (0x1D) "**CHANGE PAGE**".
3. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
4. Modify the desired parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values $_{10}$							
Zero tracking divisions.	See chart below.	**5005** (0x138D)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Divisions for stability.	0 to 99. 0 to 2 *(approved version).*		*18*	*40010*	*B1*	-	*B0*	-
			19		*B0*		*B1*	
"g" calibration zone.	See note below.		*20*	*40011*	*B1*	-	*B0*	-
			21		*B0*		*B1*	
"g" area of use.	See note below.		*22*	*40012*	*B1*	-	*B0*	-
			23		*B0*		*B1*	

VALUE	MEANING
0 (0x00)	Disabled.
1 (0x01)	1 / 4 Division.
2 (0x02)	1 / 2 Division.
4 (0x04)	1 Division.
8 (0x08)	2 Divisions.
16 (0x10)	4 Divisions.
24 (0x18)	6 Divisions.
32 (0x20)	8 Divisions.
40 (0x28)	10 Divisions.

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The value to insert is calculated by subtracting 9.7 from the gravity value and considering only decimal places.

Ex. for the gravity value 9.80390, insert **10390** / (0x2896).
9.80390 - 9.7 = 0.**10390**.

5. To save the parameters:
• Write in Bytes 2 to 5 (PARAMETER 1) the value **5005** (0x138D) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".
• Delete command Byte content (Byte 1).
• Write Bytes 2 to 5 (PARAMETER 1) the value **0** (0x00) and send the command **36** (0x24) "**DATA WRITING AND STORAGE**".

Optimized layout for A4 print.

Digital inputs

1. Write in Bytes 2 to 5 (PARAMETER 1) the value **5100** (0x13EC) and send the command **29** (0x1D) "**CHANGE PAGE**".
2. Copy Bytes 16 to 31 of the selected page in the same Bytes of Output Area.
3. Modify the desired parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values							
Input 1 function.	See chart below.	**5100** (0x13EC)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Input 2 function.	See chart below.		*18*	*40010*	*B1*	-	*B0*	-
			19		*B0*		*B1*	

VALUE	MEANING
0 (0x00)	No function.
1 (0x01)	Pressing Zero key.
2 (0x02)	Pressing Tare key.
3 (0x03)	Pressing Mode key.
4 (0x04)	Pressing Print key.
5 (0x05)	Pressing C key.
6 (0x06)	Off.
7 (0x07)	Keyboard disabling.

4. To save parameters:
- Write in Bytes 2 to 5 (PARAMETER 1) the value **5100** (0x13EC) and send the command **56** (0x38) "**SAVE PAGE**".
- Send command **28** (0x1C) "**SAVE SETUP**".

Optimized layout for A4 print.

Digital output 1

1. Write in Bytes 2 to 5 (PARAMETER 1) the value **5101** (0x13ED) and send the command **29** (0x1D) "**CHANGE PAGE**".
2. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
3. Modify the desired parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values							
Output function.	See chart below.	**5101** (0x13ED)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Contact type (NO/NC).	0 (0x00) = Normally open. 1 (0x01) = Normally closed.		*18*	*40010*	*B1*	-	*B0*	-
			19		*B0*		*B1*	
Switching condition.	0 (0x00) = Direct. 1 (0x01) = At stability.		*20*	*40011*	*B1*	-	*B0*	-
			21		*B0*		*B1*	
Hysteresis.	0 (0x00) = Disabled. 1 (0x01) = Enabled.		*22*	*40012*	*B1*	-	*B0*	-
			23		*B0*		*B1*	
Sign.	0 (0x00) = Positive. 1 (0x01) = Negative.		*24*	*40013*	*B1*	-	*B0*	-
			25		*B0*		*B1*	
Delayed switching.	0 to 1000 (0x00 to 0x03E8) *(in tenths of seconds).*		*26*	*40014*	*B1*	-	*B0*	-
			27		*B0*		*B1*	
Activation time.	0 to 1000 (0x00 to 0x03E8) *(in tenths of seconds).*		*28*	*40015*	*B1*	-	*B0*	-
			29		*B0*		*B1*	

VALUE	MEANING
0 (0x00)	No function.
1 (0x01)	Setpoint on gross weight.
2 (0x02)	Setpoint on net weight.
4 (0x04)	Gross weight at zero.
5 (0x05)	Net weight at zero.
6 (0x06)	Moving weight.
23 (0x17)	Print key pressed.
25 (0x19)	Mode key pressed.
26 (0x1A)	C key pressed.
27 (0x1B)	Zero key pressed.
28 (0x1C)	Tare key pressed.
29 (0x1D)	Error.
30 (0x1E)	Setpoint in net weight if a tare was set.

4. To save the parameters:
• Write in Bytes 2 to 5 (PARAMETER 1) the value **5101** (0x13ED) and send the command **56** (0x38) "**SAVE PAGE**".
• Send the command **28** (0x1C) "**SAVE SETUP**".

Optimized layout for A4 print.

Digital output 2

1. Write in Bytes 2 to 5 (PARAMETER 1) the value **5102** (0x13EE) and send the command **29** (0x1D) "**CHANGE PAGE**".
2. Copy Bytes 16 to 31 of the selected page in the same Bytes of the Output Area.
3. Modify required parameters.

Parameter		Page	*Byte*	*Modbus TCP Register*	*Big Endian*		*Little Endian*	
Description	Possible values							
Output function.	See chart below.	**5102** (0x13EE)	*16*	*40009*	*B1*	-	*B0*	-
			17		*B0*		*B1*	
Contact type (NO/NC).	0 (0x00) = Normally open. 1 (0x01) = Normally closed.		*18*	*40010*	*B1*	-	*B0*	-
			19		*B0*		*B1*	
Switching condition.	0 (0x00) = Direct. 1 (0x01) = At stability.		*20*	*40011*	*B1*	-	*B0*	-
			21		*B0*		*B1*	
Hysteresis.	0 (0x00) = Disabled. 1 (0x01) = Enabled.		*22*	*40012*	*B1*	-	*B0*	-
			23		*B0*		*B1*	
Sign.	0 (0x00) = Positive. 1 (0x01) = Negative.		*24*	*40013*	*B1*	-	*B0*	-
			25		*B0*		*B1*	
Delayed switching.	0 to 1000 (0x00 to 0x03E8) *(in tenths of seconds).*		*26*	*40014*	*B1*	-	*B0*	-
			27		*B0*		*B1*	
Activation time.	0 to 1000 (0x00 to 0x03E8) *(in tenths of seconds).*		*28*	*40015*	*B1*	-	*B0*	-
			29		*B0*		*B1*	

VALUE	MEANING
0 (0x00)	No function.
1 (0x01)	Setpoint on gross weight.
2 (0x02)	Setpoint on net weight.
4 (0x04)	Gross weight at zero.
5 (0x05)	Net weight at zero.
6 (0x06)	Moving weight.
23 (0x17)	Print key pressed.
25 (0x19)	Mode key pressed.
26 (0x1A)	C key pressed.
27 (0x1B)	Zero key pressed.
28 (0x1C)	Tare key pressed.
29 (0x1D)	Error.
30 (0x1E)	Setpoint in net weight if a tare was set.

4. To save the parameters:
• Write in Bytes 2 to 5 (PARAMETER 1) the value **5102** (0x13EE) and send the command **56** (0x38) "**SAVE PAGE**".
• Send the command **28** (0x1C) "**SAVE SETUP**".

Optimized layout for A4 print.

After each step of the following procedure, verify the correct calibration progression reading the Bytes 30 - 31 of the page **5001** (0x1389) in the Input Area.

VALUE	MEANING
0 (0x00)	Calibration not started.
1 (0x01)	Acquisition in progress.
2 (0x02)	Acquisition OK.
3 (0x03)	Acquisition error.
4 (0x04)	Calibration OK.
5 (0x05)	Calibration error.
6 (0x06)	Zero calibration in progress.

1. Send the command **35** (0x23) "**DATA READING**".
WARNING: for MODE 3 "TRANSM" specify the scale to calibrate with PARAMETER 1.
(**0** (0x00) = scale 1, 1 (0x01) = scale 2, 2 (0x02) = scale 3, 3 (0x03) = scale 4).

2. Modify Bytes 16 to 29 of the Output Area, and send the command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value **5006** (0x138E).

3. ZERO POINT ACQUISITION

Unload the scale and send the command **37** (0x25) **"CALIBRATION POINT ACQUISITION"** inserting in PARAMETER 1 the value 0 (0x00) to acquire calibration zero point.
In the Input Area, the calibration status changes to **ACQUISITION IN PROGRESS** and, if it changes to **ACQUISITION OK**, you can proceed (if it changes to **ACQUISITION ERROR** the point was not acquired, send the command **38** (0x26) **"CANCEL CALIBRATION IN PROGRESS"** and repeat the procedure).

4. SAMPLE WEIGHT ACQUISITION

Load the sample weight and send the command **37** (0x25) **"CALIBRATION POINT ACQUISITION"** inserting in PARAMETER 1 the value 1 (0x01) to acquire the calibration point.
In the Input Area, the calibration status changes to **ACQUISITION IN PROGRESS** and, if it changes to **ACQUISITION OK**, you can proceed (if it changes to **ACQUISITION ERROR** the point was not acquired, send the command **38** (0x26) **"CANCEL CALIBRATION IN PROGRESS"** and repeat the procedure).

5. CALIBRATION SAVING

Send the command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value 0 (0x00) to save the calibration.
In the Input Area, the calibration status changes to **CALIBRATION OK** (if it changes to **CALIBRATION ERROR,** send the command **38** (0x26) **"CANCEL ONGOING CALIBRATION"** and repeat the procedure).

Optimized layout for A4 print.

SCALE ZEROING VIA FIELDBUS

MODE 1 "DEP.CH" / MODE 2 "IND.CH"

Send the command **1** (0x01) **"ZERO"**.

MODE 3 "TRANSM"

To zero a single scale send the following commands:
45 (0x2D) **"ZERO SCALE 1"**
46 (0x2E) **"ZERO SCALE 2"**
47 (0x2F) **"ZERO SCALE 3"**
48 (0x30) **"ZERO SCALE 4"**

or alternatively, send the command **53** (0x35) **"MULTI-SCALE ZEROING"** inserting in PARAMETER 1 the bitmask that indicates the scale/s to zero *(bit 0 = scale 1, bit 1 = scale 2, bit 2 = scale 3, bit 3 = scale 4).*

Note: This command does not affect calibration. Once the device is turned off, the performed zeroing gets lost.

MECHANICAL TARE ZEROING VIA FIELDBUS

MODE 1 "DEP.CH" / MODE 2 "IND.CH"

- Send command **35** (0x23) **"DATA READING"**.
- Send command **39** (0x27) **"ZERO CALIBRATION"**.
- Verify that, in page **5001** (0x1389) in the Input Area, the value in Bytes 30 - 31 turns from 6 (0x06) "Ongoing zero calibration" into 4 (0x04) "Calibration OK".
- Send command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value 0 (0x00).

MODE 3 "TRANSM"

- Send command **35** (0x23) **"DATA READING"** specifying in PARAMETER 1 the scale on which zero calibration is to be performed.
- Send command **39** (0x27) **"ZERO CALIBRATION"**.
- Verify that, in page **5001** (0x1389) in the Input Area, the value in Bytes 30 - 31 turns from 6 (0x06) "Ongoing zero calibration" into 4 (0x04) "Calibration OK".
- Send command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value 0 (0x00).

Note: Unlike ZERO command, the ZERO CALIBRATION command affects the scale calibration and finalises the modification of the zero point.

Optimized layout for A4 print.

WEIGHING FILTER SETUP VIA FIELDBUS

Find below the available filters that can be activated by inserting the index of the desired filter in Bytes 16 - 17 and by sending the commands:
- **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value **5004** (0x138C).
- Delete command Byte content (Byte 1).
- **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value 0 (0x00).

INDEX	FILTER	DESCRIPTION
0 (0x00)	FLT0	Filter for simple weighing.
1 (0x01)	FLT1	
2 (0x02)	FLT2	
3 (0x03)	FLT3	
4 (0x04)	F.F.100.1	100 Hz filter for dosing.
5 (0x05)	F.F.100.2	
6 (0x06)	F.F.100.3	
7 (0x07)	F.F.100.4	
8 (0x08)	H.R.0	High resolution filter.
9 (0x09)	H.R.1	
10 (0x0A)	H.R.2	
11 (0x0B)	H.R.3	
12 (0x0C)	H.R.4	
13 (0x0D)	H.R.5	
14 (0x0E)	H.R.6	
15 (0x0F)	DYN 0	Filter for moving weight.
16 (0x10)	DYN 1	
17 (0x11)	DYN 2	
18 (0x12).	DYN 3	
19 (0x13)	F.F.50.1	50 Hz filter for dosing.
20 (0x14)	F.F.50.2	
21 (0x15)	F.F.50.3	
22 (0x16)	F.F.200.1	200 Hz filter for dosing.
23 (0x17)	F.F.200.2	
24 (0x18)	F.F.200.3	
25 (0x19)	F.F.400	400 Hz filter for conversion / serial transmission.
26 (0x1A)	CUSTOM	Customisable filter for manufacturer's use.

Note: By increasing filter value, weight stability increases and scales reactivity decreases.

Optimized layout for A4 print.

Backup

It is possible to **copy the device setup** by reading in sequence all setup pages from 0 to 63 (0x00 to 0x3F).

1. Send the command **26** (0x1A) **"SETUP READING"** inserting in PARAMETER 1 the value 0 (0x00) "first setup page".

2. Copy data in Bytes 16 to 31 of page 0 (0x00) "Input Area".

3. Send the command **26** (0x1A) **"SETUP READING"** inserting in PARAMETER 1 the value 1 (0x01) "second setup page".

4. Copy data in Bytes 16 to 31 of page 1 (0x01) "Input Area".

5. Repeat this procedure for all the other pages.

Restore

To restore the backup, write in sequence all setup pages:

1. Copy in Bytes 16 to 31 of the Output Area previously saved data in page 0 (0x00).

2. Send the command **27** (0x1B) **"SETUP WRITING"** inserting in PARAMETER 1 the value 0 (0x00).

3. Copy in Bytes 16 to 31 of the Output Area previously saved data in page 1 (0x01).

4. Send the command **27** (0x1B) **"SETUP WRITING"** inserting in PARAMETER 1 the value 1 (0x01).

5. Repeat this procedure for all the other pages.

Optimized layout for A4 print.

OPERATING MESSAGES

Message	Description
F.b.Conn	Fieldbus in operation.
F.b.oH	Communication with active network.
F.buS. in	Module initialisation.

ERROR MESSAGES

Message	Description
F.buS.Er	Fielbus not in operation.
F.b.Err + code	Error status, see error codes.

Code	Decription
1000	Module fatal error. Restart the device.
1001	Selected protocol differs from the one managed by the module. Check step FLd.buS.
000 140	General network error. Check network connections.
000 141	Closed connection.
000 142	Connection in timeout.
000 143	Isolated network.
000 144	Duplicated node.
000 145	Network cable unplugged.

Optimized layout for A4 print.

In the examples below data are expressed in Big Endian format.

Weight storage or reading in Alibi memory

To store a weight in Alibi memory send command **31** (0x1F) **"WEIGHT STORAGE IN ALIBI MEMORY"**.

To read a weight stored in Alibi memory:
- Write in Bytes 2 to 5 (PARAMETER 1) the rewriting value of the weight to read.
- Write in Bytes 6 to 9 (PARAMETER 2) the ID identification code of the weight to read.
- Send the command **30** (0x1E) **"ALIBI MEMORY READING"**.
- Send the command **29** (0x1D) **"CHANGE PAGE"** inserting in PARAMETER 1 the value 1000 (0x03E8).

Ex. Weight reading with rewriting number 00255 (0xFF) and ID = 131071 (0x01FFFF).

Output Area		
Reading command	Value to write	Byte to write
Command ALIBI MEMORY READING	0x00	**0**
	0x1E	**1**
PARAMETER 1 (Rewriting number) = 00255 (0xFF)	0x00	**2**
	0x00	**3**
	0x00	**4**
	0xFF	**5**
PARAMETER 2 (Weight ID) = 131071 (0x01FFFF)	0x00	**6**
	0x01	**7**
	0xFF	**8**
	0xFF	**9**

Optimized layout for A4 print.

FIELDBUS calibration

Calibration of 4 dependent channels scale with 50 kg capacity, 2 g division (0.002 kg), one calibration point (except zero) with 20 kg sample weight.

1. Send the command **35** (0x23) **"DATA READING"** inserting in PARAMETER 1 the value 0 (0x00) "dependent channels".

Output Area		
Data reading	Value to write	Byte to write
DATA READING command.	0x00	**0**
	0x23	**1**
PARAMETER 1 = 0 (0x00) namely dependent channels system.	0x00	**2**
	0x00	**3**
	0x00	**4**
	0x00	**5**

2. Set Bytes 16 to 19 (operating mode setup).

Output Area		
Parameter setup	Value to write	Byte to write
Set dependent channels = 1 (0x01).	0x00	**16**
	0x01	**17**
Set 4 channels = 3 (0x03).	0x00	**18**
	0x03	**19**

3. Send the command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value **5003** (0x138B).
The device will restart automatically.

4. Send the command **35** (0x23) **"DATA READING"** inserting in PARAMETER 1 the value 0 (0x00) "dependent channels".
As shown at point 1.

Optimized layout for A4 print.

5. Set Bytes 16 to 29 (calibration parameters).

Output Area		
Calibration parameters	Value to write	Byte to write
Set unit of measure in kg, namely 1 (0x01).	0x00	**16**
	0x01	**17**
Set reading resolution to 2 (0x02).	0x00	**18**
	0x02	**19**
Set number of decimal positions to 3 (0x03).	0x00	**20**
	0x03	**21**
Set maximum scale capacity. Write number 50.000 without decimal point, namely 50000 (0xC350).	0x00	**22**
	0x00	**23**
	0xC3	**24**
	0x50	**25**
Set scale calibration point. Write number 20.000 without decimal point, namely 20000 (0x4E20).	0x00	**26**
	0x00	**27**
	0x4E	**28**
	0x20	**29**

6. Send the command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value **5006** (0x138E).

7. Unload the scale and send the command **37** (0x25) **"CALIBRATION POINT ACQUISITION"** inserting in PARAMETER 1 the value 0 (0x00) to acquire calibration zero.

Output Area		
Command	Value to write	Byte to write
Command CALIBRATION POINT ACQUISITION.	0x00	**0**
	0x25	**1**
PARAMETER 1 = 0 (0x00), namely zero point acquisition.	0x00	**2**
	0x00	**3**
	0x00	**4**
	0x00	**5**

Optimized layout for A4 print.

8. Send the command **29** (0x1D) **"CHANGE PAGE"** inserting in PARAMETER 1 the value 5001 (0x1389).

9. Verify that in Bytes 31 and 32 the value is 2 (0x02).

Input Area		
Meaning	Value to read	Byte to read
2 (0x02) = Acquisition OK.	0x00	**30**
	0x02	**31**

10. Load the sample weight on the scale and send the command **37** (0x25) **"CALIBRATION POINT ACQUISITION"** inserting in PARAMETER 1 the value 1 (0x01) to acquire the calibration point.

Output Area		
Meaning	Value to write	Byte to write
Command CALIBRATION POINT ACQUISITION.	0x00	**0**
	0x25	**1**
PARAMETER 1 = (0x01) calibration point acquisition.	0x00	**2**
	0x00	**3**
	0x00	**4**
	0x01	**5**

11. Verify that in Bytes 31 and 32 the value is 2 (0x02).

Input Area		
Meaning	Value to read	Byte to read
2 (0x02) = Acquisition OK.	0x00	**30**
	0x02	**31**

12. Send the command **36** (0x24) **"DATA WRITING AND STORAGE"** inserting in PARAMETER 1 the value 0 (0x00) to save the calibration.

13. Verify that in Bytes 31 and 32 the value is 4 (0x04).

Input Area		
Meaning	Value to read	Byte to read
4 (0x04) = Calibration OK.	0x00	**30**
	0x04	**31**

Optimized layout for A4 print.

Output setup

Setup example of output 1 with setpoint on gross weight, normally open contact, direct switching condition, no hysteresis, positive sign, no switching delay and enabled for 10 s.

1. Set parameters in Bytes 16 to 29.

Output Area		
Parameters to configurate	Value to write	Byte to write
Setpoint on gross weight = 1 (0x01).	0x00	**16**
	0x01	**17**
Normally open contact = 0 (0x00).	0x00	**18**
	0x00	**19**
Direct switching condition = 0 (0x00).	0x00	**20**
	0x00	**21**
No hysteresis = 0 (0x00).	0x00	**22**
	0x00	**23**
Positive sign = 0 (0x00).	0x00	**24**
	0x00	**25**
No switching delay = 0 (0x00).	0x00	**26**
	0x00	**27**
Tenths of seconds (10 s) = 100 (0x64).	0x00	**28**
	0x64	**29**

2. Send the command **56** (0x38) **"SAVE PAGE"** inserting in PARAMETER 1 the value **5101** (0x13ED).
3. Send the command **28** (0x1C) **"SAVE SETUP"** inserting in PARAMETER 1 the value 0 (0x00).

Input setup

Setup example of input 1 for keypad disabling and of input 2 for tare execution.

1. Set parameters in Bytes 16 to 19.

Output Area		
Parameters to configurate	Value to write	Byte to write
Keypad disabling = 7 (0x07).	0x00	**16**
	0x07	**17**
Tare key simulation = 2 (0x02).	0x00	**18**
	0x02	**19**

2. Send the command **56** (0x38) **"SAVE PAGE"** inserting in PARAMETER 1 the value **5100** (0x13EC).
3. Send the command **28** (0x1C) **"SALVA SETUP"** inserting in PARAMETER 1 the value 0 (0x00).

Optimized layout for A4 print.

Notes

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The individual in charge of the scale operation must make sure that all safety regulations in force in the country of use are applied, ensure that the appliances is used in accordance with the purpose for which it was intended to be used and to avoid any danger for the user.

The Manufacturer declines any liability arising from any weighing errors.

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Notes

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