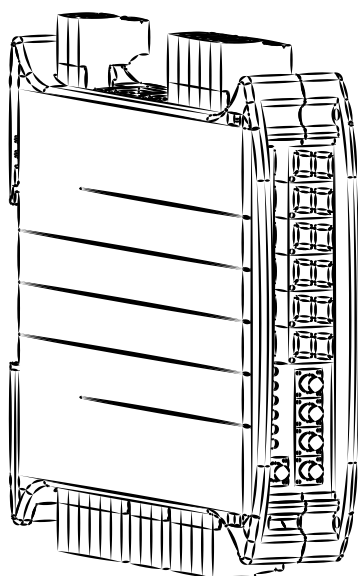


FIELDBUS PROTOCOL

For DGT1SX, DGT1SP models

TECHNICAL MANUAL

ENGLISH



DeviceNet

EtherNet/IP

PROFI
NET

PROFI
BUS

EtherCAT
Technology Group

CANopen

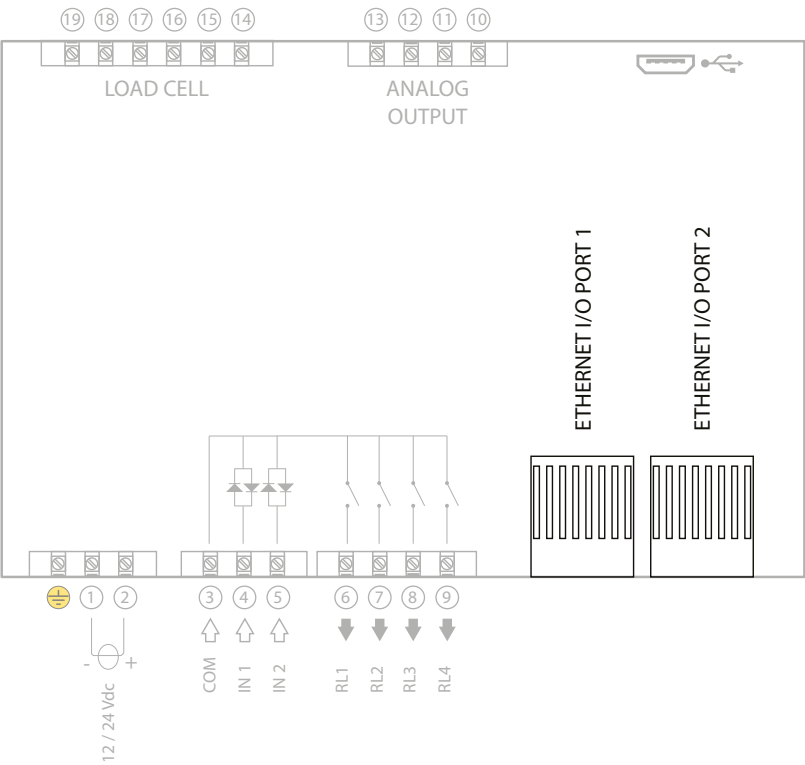
Modbus
TCP/IP

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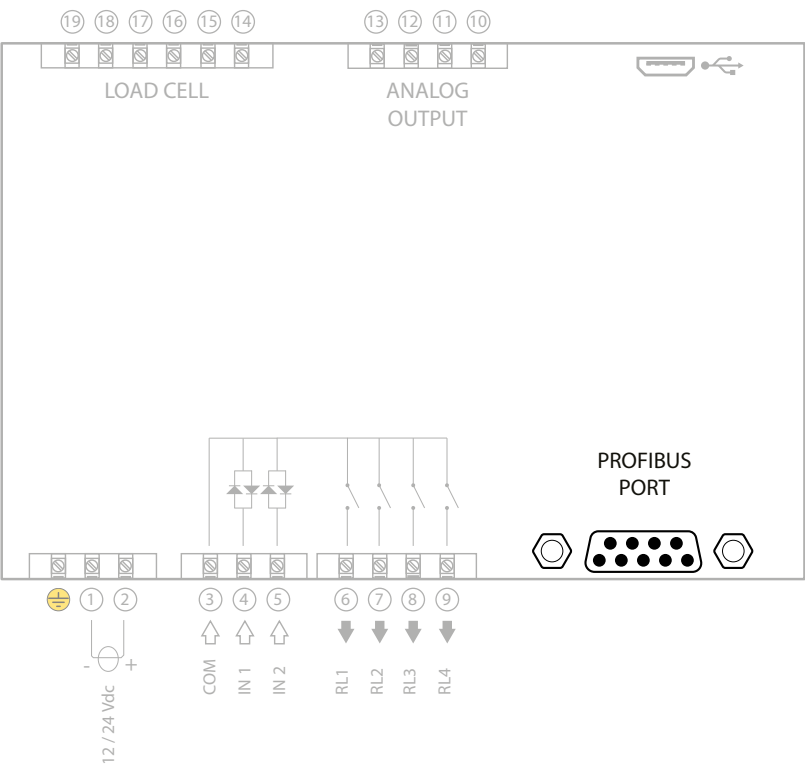
Connection

DGT1SX-ETHIP, DGT1SX-PRONET, DGT1SX-MODTCP, DGT1SP-ETHIP, DGT1SP-PRONET, DGT1SP-MODTCP



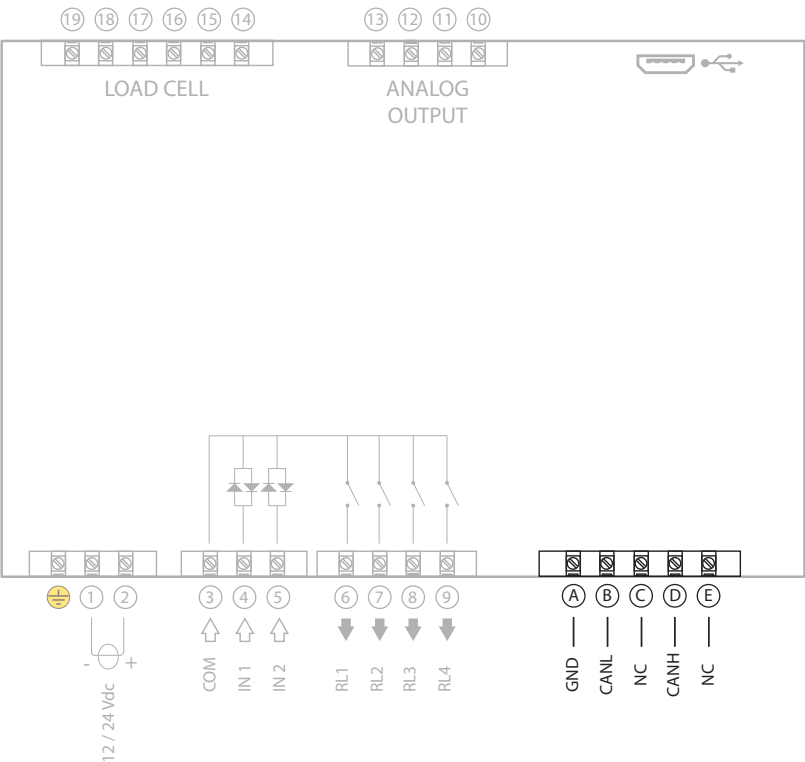
i The connection to the Fieldbus goes through one of the two **ETHERNET** standard connectors of the device.

DGT1SX-PB, DGT1SP-PB



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

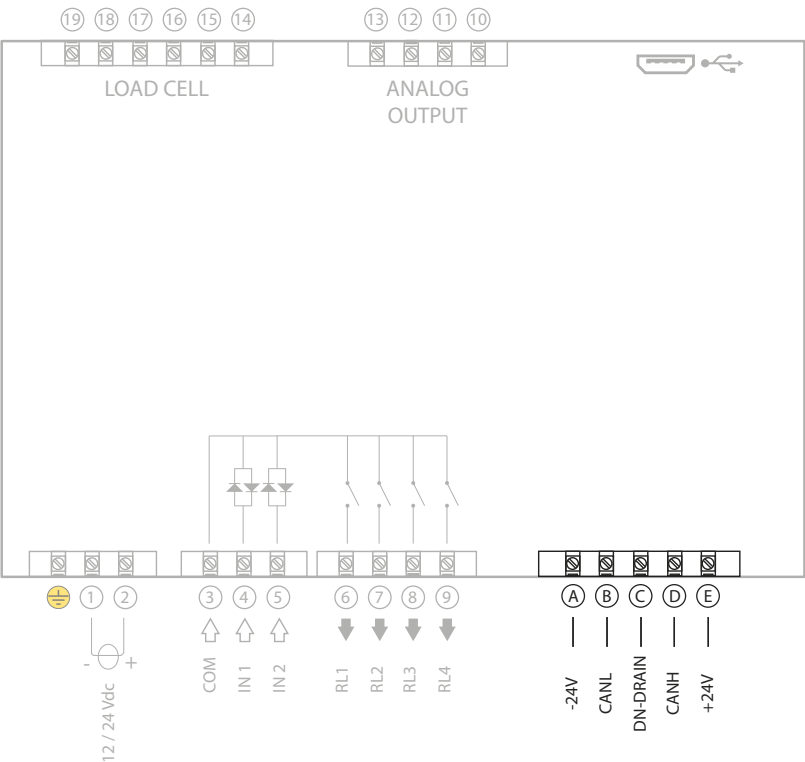
DGT1SX-CANOP, DGT1SP-CANOP



i

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

DGT1SX-DEVNET, DGT1SP-DEVNET



i

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

Fieldbus and data format configuration

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

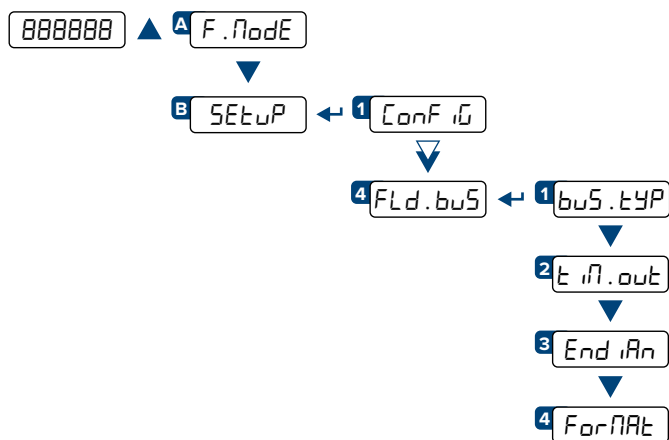
1. Access to the configuration menu:

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

2. Scroll the menu with the key ▼ until SEtUP is displayed and press ←.

3. Scroll the menu with the key ▼ until FLd.buS is displayed and press ←.

4. Selected the fieldbus type used and configure its parameters.



MENU OVERVIEW

buS.tYP

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

For Profibus:

ProF ib ← noDE . id Node ID (0 ÷ 98).

For DeviceNet:

dEU .nEt ← MAC . id MAC ID (0 ÷ 63).
bAud .r Baud rate (500 kB, 250 kB, 125 kB).

For CanOpen:

CAnoPn ← 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).

ProF in ← Aut.CFG

IP.Add

net.N56

Gate.WAY

Gateway.

Eth. IP ← Aut.CFG
IP.Add
net.M56
GAt.WAY

Gateway.

```

Nb.tcp ← Aut.CFG
      IP.Add
      net.nsh
      gate.wray

```

Gateway.

`t.in.out` `End !An` `ForNat`

←

"Time out" error message repeated.

End An ← b.G

Little

Little Endian.

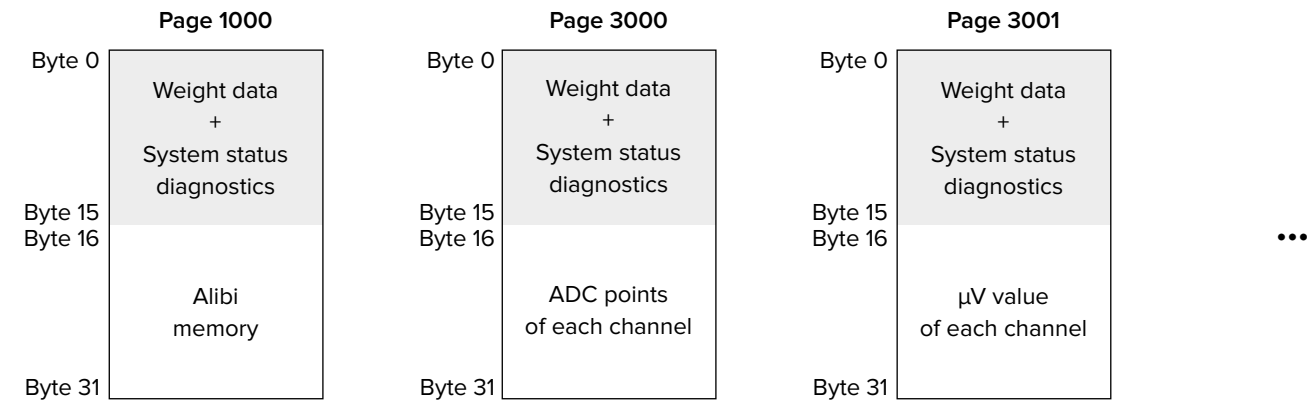
```
Format ← uns.int
      float
      sig.int
```

Signed integer.

Data reading (input area)

- The available data are divided into pages.
- To display data from pages 5xxx you must first send the command 35 (0x23) "LETTURA DATI".
- Depending on the Fieldbus, the data area size can be up to 128 Bytes.
- The size of each DGT1SX 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 7.
- Weight data are expressed with unsigned integers. (Es. 12,345 → 0x3039). To change it, follow the procedure at page 7.
- µV and ADC points are always expressed with positive and negative integers. (Ex. -12,345 0xCFC7).

Model of the pages in the Input Area:



Available pages

Page	Name	Description	Read	Write
1000 (0x03E8)	Alibi memory	See page 10	●	
3000 (0x0BB8)	Valore ADC	See page 11	●	
3001 (0x0BB9)	Valore μV (*)	See page 12	●	
5000 (0x1388)	Calibrazione 0 - Parametri bilancia	See page 13	●	●
5001 (0x1389)	Calibrazione 1 - Pesi dei punti di calibrazione	See page 14	●	●
5002 (0x138A)	Calibrazione 2 - ADC dei punti di calibrazione	See page 15	●	●
5003 (0x138B)	Calibrazione 3 - Stato omologazione	See page 16	●	●
5004 (0x138C)	Calibrazione 4 - Filtro e parametri metrici (1/2)	See page 17	●	●
5005 (0x138D)	Calibrazione 5 - Parametri metrici (2/2)	See page 18	●	●
5006 (0x138E)	Calibrazione 6 - Calibrazione veloce	See page 19	●	●
5007 (0x138F)	Filtri avanzati	See page 20	●	●
5008 (0x1390)	Filtro anti picco	See page 21	●	●
5010 (0x1392)	Tipo tara	See page 22	●	●
5011 (0x1393)	SN e firmware del trasmettitore	See page 23	●	
5015 (0x1397)	Unit of measure 2 ("CONUER" mode)	See page 24		
5030 (0x13A6)	Configurazione Bus di campo	See page 25	●	●
5031 (0x13A7)	Nome Profinet (solo per DGT1SX)	See page 26	●	●
5100 (0x13EC)	Configurazione ingressi	See page 27	●	●
5101 (0x13ED) ... 5104 (0x13F2)	Configurazione uscite	See page 28	●	●
5110 (0x13F6)	Configurazione uscita analogica (1/3)	See page 29	●	●
5111 (0x13F7)	Configurazione uscita analogica (2/3)	See page 30	●	●
5112 (0x13F8)	Configurazione uscita analogica (3/3)	See page 31	●	●
6100 (0x17D4)	Valori setpoint (1/2)	See page 32	●	
6101 (0x17D5)	Valori setpoint (2/2)	See page 33	●	

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

Alibi memory "Page 1000" (0x03E8)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-			
9		B0				B0				
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-			
11		B0				B1				
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-			
13		B0				B1				
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-			
15		B0				B1				
16	30009	B3	H	Gross weight.		B0	L			
17		B2				B1				
18	30010	B1	L			B2	H			
19		B0				B3				
20	30011	B3	H	Tare weight.		B0	L			
21		B2				B1				
22	30012	B1	L			B2	H			
23		B0				B3				
24	30013	B3	H	ID		B0	L			
25		B2				B1				
26	30014	B1	L			B2	H			
27		B0				B3				
28	30015	B1	-	Alibi status register		B0	-			
29		B0				B1				
30	30016	-	-	Not used.		-	-			
31		-				-				

ADC value "Page 3000" (0x0BB8)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format	0 = uns. integer 01 = sig. integer 10 = float	B0	-
15		B0		(bit 0 ÷ 13) (bit 14-15)		B1	
16	30009	B3	H	ADC points.		B0	L
17		B2				B1	
18	30010	B1	L			B2	H
19		B0				B3	
20	30011	-	-	Not used.		-	-
...	...						
31	30016						

μV value "Page 3001" (0x0BB9)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009	B1	-	µV value.		B0	-	
17		B0				B1		
18	30010	-	-	Not used.		-	-	
...								
31	30016							

Calibration 0 - Scale parameters "Page 5000" (0x1388)

Byte	Modbus TCP Register	Big Endian		Dato			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 Tab. 1 page 34).			B1	-
9		B0					B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).			B0	-
11		B0					B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).			B0	-
13		B0					B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer		B0	-
15		B0			10 = float			
16	30009	B3	-	Unit of measure	0 = g	1 = kg	B0	L
17		B2			2 = t	3 = lb		
18	30010	B1	-	Range 1 division			B2	H
19		B0					B3	
20	30011	B3	-	Range 2 division			B0	L
21		B2					B1	
22	30012	B1	-	Decimals			B2	H
23		B0					B3	
24	30013	B3	H	Range 1			B0	L
25		B2					B1	
26	30014	B1	L				B2	H
27		B0					B3	
28	30015	B3	H	Range 2			B0	L
29		B2					B1	
30	30016	B1	L				B2	H
31		B0					B3	

To set these data write them in the same positions in the output area and use the command **36** (0x24) **"DATA WRITING AND STORAGE"** with PARAMETER 1 equals to 5000.

Calibration 1 - Calibration points weights "Page 5001" (0x1389)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 0 ÷ 13) (bit 14-15)	10 = float	B1	
16	30009	B1	-	Number of calibration points.		B0	-
17		B0				B1	
18	30010	B1	-	Sample weight 1.		B0	L
19		B0				B1	
20	30011	B1	-			B2	H
21		B0				B3	
22	30012	B1	-	Sample weight 2.		B0	L
23		B0				B1	
24	30013	B1	-			B2	H
25		B0				B3	
26	30014	B1	-	Sample weight 3.		B0	L
27		B0				B1	
28	30015	B1	-			B2	H
29		B0				B3	
30	30016	B1	-	Calibration state (same as page 5006, only reading)		B0	-
31		B0				B1	

To set these data write them in the same positions in the output area and use the command **36** (0x24) "DATA WRITING AND STORAGE" with PARAMETER 1 equals to 5001.

Calibration 2 - Calibration points ADC "Page 5002" (0x138A)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009	B3	H	ADC value of the zero point.		B0	L	
17		B2				B1		
18	30010	B1	L			B2	H	
19		B0				B3		
20	30011	B3	H	ADC value of the point 1.		B0	L	
21		B2				B1		
22	30012	B1	L			B2	H	
23		B0				B3		
24	30013	B3	H	ADC value of the point 2.		B0	L	
25		B2				B1		
26	30014	B1	L			B2	H	
27		B0				B3		
28	30015	B3	H	ADC value of the point 3.		B0	L	
29		B2				B1		
30	30016	B1	L			B2	H	
31		B0				B3		

To set these data write them in the same positions in the output area and use the command **36** (0x24) **"DATA WRITING AND STORAGE"** with PARAMETER 1 equals to 5002.

Calibration 3 - Legal state "Page 5003" (0x138B)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009		-	Not used in reading.			-	
17								
18	30010							
19								
20	30011	B1	-	Pre-calibration state	0 = no.	B0	-	
21		B0			1 = yes.	B1		
22	30012	B1	-	Setup size		B0	-	
23		B0				B1		
24	30013	B1	-	Legal for trade	0 = internal use.	B0	-	
25		B0			1 = legal for trade.	B1		
26	30014	-	-	Not used.			-	
...	...							
31	30016							

To set these data write them in the same positions in the output area and use the command **36 (0x24) "DATA WRITING AND STORAGE"** with **PARAMETER 1** equals to 5003.
The instrument will permanently save the setting and reboot.

Calibration 4 - Filter and metrical parameters (1/2) "Page 5004" (0x138C)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer 10 = float (bit 14-15)	B0	-
15		B0				B1	
16	30009	B1	-	Filter index (see tab. 6 page 35)		B0	-
17		B0				B1	
18	30010	B1	-	Rate custom filter.		B0	-
19		B0				B1	
20	30011	B1	-	Win custom filter.		B0	-
21		B0				B1	
22	30012	B1	-	Avg custom filter.		B0	-
23		B0				B1	
24	30013	B1	-	Pit custom filter.		B0	-
25		B0				B1	
26	30014	B1	-	Auto zero at start-up.		B0	-
27		B0				B1	
28	30015	B1	-	Auto zero percentage.		B0	-
29		B0				B1	
30	30016	B1	-	Zero percentage (by key / command)		B0	-
31		B0				B1	

To set these data write them in the same positions in the output area and use the command **36** (0x24) "**DATA WRITING AND STORAGE**" with PARAMETER 1 equals to 5004.

Calibration 5 - Metrical parameters (2/2) "Page 5005" (0x138D)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer 10 = float	B0	-
15		B0		B1			
16	30009	B1	-	Zero tracking.	(see tab. 6 page 35)	B0	-
17		B0		B1			
18	30010	B1	-	Division for stability.	(number of divisions)	B0	-
19		B0		B1			
20	30011	B1	-	G value of the calibration zone.	G value decimals – 9.7. E.g. g=9.80390, the value displayed will be 10390.	B0	-
21		B0		B1			
22	30012	B1	-	G value of the use zone.		B0	-
23		B0		B1			
24	30013	B1	-	Zero tracking time.	(100-5000ms)	B0	-
25		B0		B1			
26	30014	B1	-	Stability detection time.	(10-10000ms)	B0	-
27		B0		B1			
28	30015	B1	-	Additional filter for stability detection.	(0-2000ms, 0 disabled)	B0	-
29		B0		B1			
30	30016	-	-	Not used.		-	-
31		-					

To set these data write them in the same positions in the output area and use the command **36** (0x24) "**DATA WRITING AND STORAGE**" with PARAMETER 1 equals to 5005.

Calibration 6 - Condensed calibration "Page 5006" (0x138E)

Byte	Modbus TCP Register	Big Endian		Dato			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 Tab. 1 page 34).			B1	-
9		B0					B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).			B0	-
11		B0					B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).			B0	-
13		B0					B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	00 = uns. integer 01 = sig. integer		B0	-
15		B0			10 = float		B1	
16	30009	B1	-	Unit of measure.	00 = g	01 = kg	B0	-
17		B0			10 = t	11 = lb	B1	
18	30010	B1	-	Division.			B0	-
19		B0					B1	
20	30011	B1	-	Number of decimals.			B0	-
21		B0					B1	
22	30012	B3	H	Capacity.			B0	L
23		B2					B1	
24	30013	B1	L				B2	H
25		B0					B3	
26	30014	B3	H	Sample weight for calibration.			B0	L
27		B2					B1	
28	30015	B1	L				B2	H
29		B0					B3	
30	30016	B1	-	Calibration state (reading only)	0 (0x00) = Calibration not started.		B0	-
					1 (0x01) = Acquisition in progress.			
					2 (0x02) = Acquisition OK.			
					3 (0x03) = Acquisition error.			
					4 (0x04) = Calibration OK.			
					5 (0x05) = Calibration error.			
31		B0			6 (0x06) = Zero calibration in progress.		B1	

To set these data write them in the same positions in the output area and use the command **36** (0x24) "**DATA WRITING AND STORAGE**" with PARAMETER 1 equals to 5006.

Automatically will be set:

Division 2 = 0, Range 2 = 0, Number of calibration points = 1, Sample weight 2 = 0, Sample weight 3 = 0, ADC value of the point 2 = 0, ADC value of the point 3 = 0.

Advanced filters "Page 5007" (0x138F)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 14-15)	10 = float	B1	
16	30009	B1	-	Filter 1 ID.		B0	-
17		B0				B1	
18	30010	B1	-	Filter 1 value.		B0	-
19		B0				B1	
20	30011	B1	-	Filter 2 ID.		B0	-
21		B0				B1	
22	30012	B1	-	Filter 2 value.		B0	-
23		B0				B1	
24	30013	B1		Filter 3 ID.		B0	-
25		B0				B1	
26	30014	B1		Filter 3 value.		B0	-
27		B0				B1	
28	30015	-	-	Not used.		-	-
...							
31	30016						

ID	Filter type	Value
0	-	Filter disabled.
1	Coarse	Frequency, 1 decimal (the value 30 stands for 3,0 Hz)
4	Selective	Frequenza, 1 decimale (the value 500 stands for 50,0 Hz)
5	Fine	Percentuale, 2 decimali (the value 100 stands for 10%)

To set these data write them in the same positions in the output area and use the command **36** (0x24) "DATA WRITING AND STORAGE" with PARAMETER 1 equals to 5007.

Anti-peak filter "Page 5008" (0x139A)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009	B1	-	Lock divisions ($P_{FH} \cdot L_{FH} \cdot dU$).		B0	-	
17		B0				B1		
18	30010	B1	-	Unlocked to locked switch time ($P_{FH} \cdot L_{FH} \cdot t_{\pi}$, 0,01 s).		B0	-	
19		B0				B1		
20	30011	B1	-	Unlock divisions ($P_{FH} \cdot d \cdot U$).		B0	-	
21		B0				B1		
22	30012	B1	-	Locked band divisions ($P_{FH} \cdot b_n \cdot dU$).		B0	-	
23		B0				B1		
24	30013	B1	-	Locked peak time ($P_{FH} \cdot t_{\pi PE}$, 0,01 s).		B0	-	
25		B0				B1		
26	30014	-	-	Not used.		-	-	
...								
31	30016							

To set these data write them in the same positions in the output area and use the command **36** (0x24) "DATA WRITING AND STORAGE" with PARAMETER 1 equals to 5008.

Tare type "Page 5010" (0x1392)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format.	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 0 ÷ 13) (bit 14-15)	10 = float	B1	
16	30009	B1	-	Tare type.	0 = disabled 1 = locked	B0	-
17		B0		2 = unlocked	B1		
18	30010			Not used.			
...							
20	30011						

To set these data write them in the same positions in the output area and use the command **27** (0x1B) "**SETUP WRITING**" with PARAMETER 1 equals to 5010.

Transmitter SN and firmware "Page 5011" (0x1393)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 14-15)	10 = float	B1	
16	30009	B1	-	Hardware ID.		B0	-
17		B0				B1	
18	30010	B3	H	Firmware version.	B3: 0	B0	L
19		B2			B2: release	B1	
20	30011	B1	L		B1: sub-release	B2	H
21		B0			B0: bug-release	B3	
22	30012	B3	H	SN.		B0	L
23		B2				B1	
24	30013	B1	L			B2	H
25		B0				B3	
26	30014	B1	-	Legal Hardware ID.		B0	L
27		B0		Legal ID.		B1	
28	30015	-	-	Not used.		-	-
...							
31	30016						

Unit of measure 2 ("ConUEr" mode) "Page 5015" (0x1397)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 0 ÷ 13) (bit 14-15)	10 = float	B1	
16	30009	B1	-	Decimals of the unit of measure 2. (0 ÷ 4)		B0	-
17		B0				B1	
18	30010	B1	-	Unit of measure 2. 0 = default 1 = custom		B0	-
19		B0				B1	
20	30011	B1	-	Division of the unit of measure 2. (1, 2, 5, 10, 20, 50)		B0	-
21		B0				B1	
22	30012	B3	H	Conversion factor of the unit of measure 2 (in fixed-point integer 5 decimal places).		B0	L
23		B2				B1	
24	30013	B1	L			B2	H
25		B0				B3	
26	30014	-	-	Not used.		-	-
27							
28	30015						
29							
30	30016						
31							

Fieldbus configuration "Page 5030" (0x13A6)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer 10 = float	B0	-
15		B0		B1			
16	30009	B1	-	Baud rate index.		B0	-
17		B0				B1	
18	30010	B3	H	IP.		B0	L
19		B2				B1	
20	30011	B1	L			B2	H
21		B0				B3	
22	30012	B3	H	Subnet mask.		B0	L
23		B2				B1	
24	30013	B1	L			B2	H
25		B0				B3	
26	30014	B3	H	Gateway.		B0	L
27		B2				B1	
28	30015	B1	L			B2	H
29		B0				B3	
30	30016	B1	-	Dynamic IP (*) / ID.	(*) 0 = disabled 1 = enabled	-	-
31		B0		-			

	Profibus	Devicenet	Canopen	
ID	0 ÷ 126	0 ÷ 63	1 ÷ 127	
Baud rate	-	0: 500kBaud 1: 250kBaud 2: 125kBaud	0: 1MBaud 1: 800kBaud 2: 500kBaud 3: 250kBaud 4: 125kBaud	5: 100kBaud 6: 50kBaud 7: 20kBaud 8: 10kBaud

To set these data write them in the same positions in the output area and use the command **27** (0x1B) "SETUP WRITING" with PARAMETER 1 equals to 5030.

To activate the new parameters reboot the instrument with the command **34** (0x22) "REBOOT DEVICE".

Profinet name (only for DGT1SXPRONET) "Page 5031" (0x13A7)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0		(bit 0 ÷ 13) (bit 14-15)		B1		
16	30009	-	-	1st Profinet name character (ASCII code).		-	-	
17		-		2nd Profinet name character (ASCII code).		-		
18	30010	-	-	3rd Profinet name character (ASCII code).		-	-	
19		-		4th Profinet name character (ASCII code).		-		
20	30011	-	-	5th Profinet name character (ASCII code).		-	-	
21		-		6th Profinet name character (ASCII code).		-		
22	30012	-	-	7th Profinet name character (ASCII code).		-	-	
23		-		8th Profinet name character (ASCII code).		-		
24	30013	-	-	9th Profinet name character (ASCII code).		-	-	
25		-		10th Profinet name character (ASCII code).		-		
26	30014	-	-	11th Profinet name character (ASCII code).		-	-	
27		-		12th Profinet name character (ASCII code).		-		
28	30015	-	-	13th Profinet name character (ASCII code).		-	-	
29		-		14th Profinet name character (ASCII code).		-		
30	30016	-	-	15th Profinet name character (ASCII code).		-	-	
31		-		16th Profinet name character (ASCII code).		-		

Allowed characters:

- a ÷ z (lower case)
- 0 ÷ 9
- symbol "-"

Per scrivere i parametri utilizzare il comando **56** (0x38) "**SAVE PAGE**" with PARAMETER 1 equals to 5031.

To make the changes permanent, send the command **28** (0x1C) "**SAVE SETUP**".

To activate the new parameters reboot the instrument with the command **34** (0x22) "**REBOOT DEVICE**".

Inputs configuration "Page 5100" (0x13EC)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer	B0	-
15		B0		(bit 14-15)	10 = float	B1	
16	30009	B1	-	Input 1 function (see table 7 page 35).		B0	-
17		B0				B1	
18	30010	B1	-	Input 2 function (see table 7 page 35).		B0	-
19		B0				B1	
20	30011	-	-	Not used.		-	-
...							
31	30016						

To set these data write them in the same positions in the output area and use the command **56 (0x38) "SAVE PAGE"** with PARAMETER 1 equals to 5100.

To make the changes permanent, send the command **28 (0x1C) "SAVE SETUP"**.

Outputs configuration "Pages 5101 - 5104" (0x13ED - 13F0)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-
15		B0				B1	
16	30009	B1	-	Output function (see table 8 page 35). (*)		B1	-
17		B0				B0	
18	30010	B1	-	Contact type. (*)	0 = Normally open 1 = Normally close	B0	-
19		B0				B1	
20	30011	B1	-	Modo di attivazione. (*)	0 = Direct 1 = At stability	B0	-
21		B0				B1	
22	30012	B1	-	Hysteresis. (*)	0 = Disabled 1 = Enabled	B0	-
23		B0				B1	
24	30013	B1	-	Sign. (*)	0 = Positive 1 = Negative	B1	-
25		B0				B0	
26	30014	B1	-	Activation delay. (*)	value in 0,1 s (max. 1000)	B0	-
27		B0				B1	
28	30015	B1	-	Activation time. (*)	value in 0,1 s (max. 1000)	B1	-
29		B0				B0	
30	30016	-	-	Not used.		-	-
31		-				-	

(*)

Page 5101 - Output 1
Page 5102 - Output 2
Page 5103 - Output 3
Page 5104 - Output 4

To set these data write them in the same positions in the output area and use the command **56** (0x38) "**SAVE PAGE**" with PARAMETER 1 equals to 5101-5104.

To make the changes permanent, send the command **28** (0x1C) "**SAVE SETUP**".

Analogue output configuration (1/3) "Page 5101" (0x13F6)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer	B0	-
15		B0			10 = float	B1	
16	30009	B1	-	Operative mode	0 = Gross weight.	B0	-
17		B0			1 = Net weight.	B1	
18	30010	-	-	Not used.		-	-
...							
21	30011						
22	30012	B1	-	DAC value relative to 0V.		B0	-
23		B0				B1	
24	30013	B1	-	DAC value relative to 10 V.		B0	-
25		B0				B1	
26	30014	B1	-	DAC value relative to 4 mA.		B0	-
27		B0				B1	
28	30015	B1	-	DAC value relative to 20 mA.		B0	-
29		B0				B1	
30	30016	-	-	Not used.		-	-
31							

To set these data write them in the same positions in the output area and use the command **56** (0x38) "**SAVE PAGE**" with PARAMETER 1 equals to 5110.

To make the changes permanent, send the command **28** (0x1C) "**SAVE SETUP**".

Analogue output configuration (2/3) "Page 5102" (0x13F7)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-
9		B0				B0	
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-
11		B0				B1	
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-
13		B0				B1	
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13)	0 = uns. integer 01 = sig. integer 10 = float	B0	-
15		B0				B1	
16	3009	-	-	Not used.		-	-
...							
19	30010						
20	30011	B3	H	Weight of the calibration point 1.		B0	L
21		B2				B1	
22	30012	B1	L			B2	H
23		B0				B3	
24	30013	B1	-	DAC value relative to calibration point 1.		B0	-
25		B0				B1	
26	30014	-	-	Not used.		-	-
...							
29	30015						
30	30016	B1	-	Current value of the analogue output (DAC).		B0	-
31		B0				B1	

To set these data write them in the same positions in the output area and use the command **56** (0x38) "**SAVE PAGE**" with PARAMETER 1 equals to 5111.

To make the changes permanent, send the command **28** (0x1C) "**SAVE SETUP**".

Analogue output configuration (3/3) "Page 5102" (0x13F8)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-			
9		B0				B0				
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-			
11		B0				B1				
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-			
13		B0				B1				
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-			
15		B0				B1				
16	30009	B3	H	Weight of the calibration point 2.		B0	L			
17		B2				B1				
18	30010	B1	L			B2	H			
19		B0				B3				
20	30011	B1	-	DAC value relative to calibration point 2.		B0	-			
21		B0				B1				
22	30012	B3	H	Weight of the calibration point 3.		B0	L			
23		B2				B1				
24	30013	B1	L			B2	H			
25		B0				B3				
26	30014	B1	-	DAC value relative to calibration point 3.		B0	-			
27		B0				B1				
28	30015	-	-	Not used.		-	-			
29		-				-				
30	30016	B1	-	Current value of the analogue output (DAC).		B0	-			
31		B0				B1				

To set these data write them in the same positions in the output area and use the command **56** (0x38) "**SAVE PAGE**" with PARAMETER 1 equals to 5112.

To make the changes permanent, send the command **28** (0x1C) "**SAVE SETUP**".

Setpoint values (1/2) "Page 6100" (0x17D4)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009	B3	H	ON value Setpoint 1.		B0	L	
17		B2				B1		
18	30010	B1	L			B2	H	
19		B0				B3		
20	30011	B3	H	OFF value Setpoint 1.		B0	L	
21		B2				B1		
22	30012	B1	L			B2	H	
23		B0				B3		
24	30013	B3	H	ON value Setpoint 2.		B0	L	
25		B2				B1		
26	30014	B1	L			B2	H	
27		B0				B3		
28	30015	B3	H	OFF value Setpoint 2.		B0	L	
29		B2				B1		
30	30016	B1	L			B2	H	
31		B0				B3		

Integers or float data depending on the indicator configuration.

Setpoint values (2/2) "Page 6101" (0x17D5)

Byte	Modbus TCP Register	Big Endian		Dato		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 Tab. 1 page 34).		B1	-	
9		B0				B0		
10	30006	B1	-	Command Status Register (see Tab. 3 page 35).		B0	-	
11		B0				B1		
12	30007	B1	-	Output Status Register (see Tab. 2 page 34).		B0	-	
13		B0				B1		
14	30008	B1	-	Selected page - Data format (bit 0 ÷ 13) (bit 14-15)	0 = uns. integer 01 = sig. integer 10 = float	B0	-	
15		B0				B1		
16	30009	B3	H	ON value Setpoint 3.		B0	L	
17		B2				B1		
18	30010	B1	L			B2	H	
19		B0				B3		
20	30011	B3	H	OFF value Setpoint 3.		B0	L	
21		B2				B1		
22	30012	B1	L			B2	H	
23		B0				B3		
24	30013	B3	H	ON value Setpoint 4.		B0	L	
25		B2				B1		
26	30014	B1	L			B2	H	
27		B0				B3		
28	30015	B3	H	OFF value Setpoint 4.		B0	L	
29		B2				B1		
30	30016	B1	L			B2	H	
31		B0				B3		

Integers or float data depending on the indicator configuration.

Tab 1 - Input Status Register

(always Big Endian)

Byte		Modbus TCP Register	Bit	Description	Bit meaning	
Big Endian					0	1
8	B1	30005	15	Not used.	-	-
			14			
			13			
			12	Endian.	Big Endian	Little Endian
			11	Not used.	-	-
			10			
			9	Input 2.	Disabled	Enabled
			8	Input 1.	Disabled	Enabled
9	B0		7	Gross weight = 0.	No	Si
			6	Manual tare condition.	No	Si
			5	Inserted tare condition.	No	Si
			4	Overload condition.	No	Si
			3	Underload condition.	No	Si
			2	Weight stability.	No	Si
			1	Gross weight polarity.	+	-
			0	Net weight polarity.	+	-

Chart 2 - Output Status Register

Byte		ModbusTCP Register	Bit	Description	Bit meaning	
Big Endian					0	1
12	B1	30007	15	Communication scale - Module.	Bit that changes every second if the communication between scale and module is active.	
			14	Decimals (B1).	00 = 0	01 = 1
			13	Decimals (B0).	10 = 2	11 = 3
			12	Not used.	-	-
			11			
			10			
			9			
			8	Load cell error.	No	Yes
13	B0		7	Unit of measure (B1)	00 = g	01 = kg
			6	Unit of measure (B0)	10 = t	11 = lb
			5	Not used.	-	-
			4			
			3	Relay 4.	Not energized	Energized
			2	Relay 3.	Not energized	Energized
			1	Relay 2.	Not energized	Energized
			0	Relay 1.	Not energized	Energized

Tab 3 - Command Status Register

Byte		Modbus TCP Register	Bit	Description	Bit meaning
Big Endian					
10	B1	30006	15	Last command received.	
			14		
			13		
			12		
			11		
			10		
			9		
			8		
11	B0		7 _(MSB)	Processed commands counting.	Value in module 16.
			6		
			5		
			4 _(LSB)		
			3	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.
			2		
			1		
			0		

Tab 4 - Alibi Status Register

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

Tab. 5 - Filter

Index	Filter	Description
0 (0x00)	F 1	5 Hz filter
1 (0x01)	F 2	10 Hz filter
2 (0x02)	F 3	20 Hz filter
3 (0x03)	F 4	40 Hz filter
4 (0x04)	F 5	80 Hz filter
5 (0x05)	F 6	160 Hz filter
6 (0x06)	F 7	325 Hz filter
7 (0x07)	F 8	650 Hz filter (*)
8 (0x08)	F 9	1300 Hz filter (*)
9 (0x09)	F 10	2600 Hz filter (*)
10 (0x0A)	F 11	4800 Hz filter (*)
11 (0x0B)	CUSTOM	Custom filter (for manufacturer's use only).

(*) Available only on DGT1SX models.

Tab. 6 - Zero tracking

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.

Tab. 7 - Input functions

Value	Meaning
0 (0x00)	No function.
1 (0x01)	Pression of Zero key.
2 (0x02)	Pression of Tare key.
3 (0x03)	Pression of Mode key.
4 (0x04)	Pression of Print key.
5 (0x05)	Pression of C key.
6 (0x06)	Off.
7 (0x07)	Disabled keyboard.

Tab. 8 - Output functions

Value	Meaning
0 (0x00)	No function.
1 (0x01)	Setpoint on gross weight.
2 (0x02)	Setpoint on net weight.
4 (0x04)	Gross weight = 0.
5 (0x05)	Net weight = 0.
6 (0x06)	Unstable 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 on gross weight if a tare is active.

Command sending (output area)

- Commands are sent in the first 14 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, in Bytes 10 to 13 PARAMETER 3 is specified.
- Depending on the Fieldbus, the page size can reach 128 Bytes.
- Each DGT1SX - DGT1SP page size is 32 Bytes (therefore, even if the page size is 128 Bytes, only the first 32 available Bytes are used).
- Only the first 10 Bytes of each page are used to send commands.
- The last 16 Bytes are used to write data.
- Data are expressed by default in Big Endian format. To modify the format follow the procedure at page 7.

How to send a command

1. If required by the command, insert the required parameters in Bytes 2 to 13.
2. Write the command in Byte 1. The execution of the command occurs when the content in Byte 1 changes.

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 38).	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	
10	40006	B3	H	Parameter 3.	B0	L
11		B2			B1	
12	40007	B1	L		B2	H
13		B0			B3	
14	40008	B1	-	Command counter.	B0	-
15		B0			B1	

List of available commands

COMMAND	DESCRIPTION	PARAMETER 1	PARAMETER 2
0 (0x00)	No commands.	<i>Use this command before repeating the same command twice.</i>	
1 (0x01)	Zero.	-	-
2 (0x02)	Tare.	-	-
3 (0x03)	Manual tare.	Tare value.	-
10 (0x0A)	Writing setpoint 1.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
11 (0x0B)	Writing setpoint 2.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
12 (0x0C)	Writing setpoint 3.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
13 (0x0D)	Writing setpoint 4.	"Threshold" weight for output activation.	"Threshold" weight for output deactivation.
25 (0x19)	Set relay status. (relays must have function: 0 "no function").	Bitmask of relays status to be enabled (<i>bit 0 = relay 1, bit 1 = relay 2 bit 2 = relay 3, bit 3 = relay 4</i>).	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.	-	-
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.	-	-
39 (0x27)	Zero calibration.	-	-
40 (0x28)	Enable / disable keypad.	1 (0x01): Enable keypad. 0 (0x00): Disable keypad.	-
55 (0x37)	Disable a peripheral device.	0 (0x00) = disables digital outputs (parameter 2). 1 (0x01) = disables analog output (parameter 2).	Bit 0 = 1 disables relay 1 / analog output. Bit 1 = 1 disables relay 2.
56 (0x38)	Save page.	Page to save.	-
59 (0x3B)	Data format setting.	0 (0x00) = Big Endian. 1 (0x01) = Little Endian.	-
63 (0x3F)	Data type setting.	0 (0x00) = Unsigned integer 1 (0x01) = Signed integer 2 (0x02) = Float	-
66 (0x42)	Theoretical calibration.	See par. "Theoretical calibration"	

Transmitter configuration via fieldbus

PROCEDURE

1. Send the command **35** (0x23) "**DATA READING**".
2. Write the Bytes from 16 to 31 of the exit area of the page containing the desired parameter(s).
NOTA: All 16 Bytes are always written, so you must enter the values for all parameters.
3. Save the page that contains the modified parameter.
Use the commands specified below the table that contains the parameter(s).
4. Store the configuration.
Use the commands specified below the table that contains the parameter(s).

Theoretical calibration

1. Write parameters registers:
Byte 2 ÷ 5 (PARAMETER 1): total load cells capacity. Scale decimals.
Byte 6 ÷ 9 (PARAMETER 2): load cells sensitivity (*). 5 decimals.
Byte 10 ÷ 13 (PARAMETER 3): mechanical tare value (if not known, insert the value 0). Scale decimals + 1.
2. Send the command **66** (0x42) "**THEORETICAL CALIBRATION**".
3. Save the parameters by sending the command **28** (0x1C) "**SAVE SETUP**".



If there are several load cells connected via a junction/equalisation box, enter the average value:

$$\frac{(\text{mV/V cell 1}) + (\text{mV/V cell 2}) + (\text{mV/V cell 3}) + \dots + (\text{mV/V cell n})}{n}$$

Example:

Theoretical calibration of a platform with 4 load cells.

Total capacity = 2000kg

Mechanical tare = 55 kg

Load cells sensitivity: cell 1 = 2,01032

cell 2 = 1,99420

cell 3 = 1,98846

cell 4 = 2,00375

Byte	Modbus TCP Register	Big Endian		Data	Little Endian	
0	40001	B1	-	0 (0x00) always zero.	B0	-
1		B0		66 (0x42)	B1	
2	40002	B3	H	2000 (0x07D0)	B0	L
3		B2			B1	
4	40003	B1	L		B2	H
5		B0			B3	
6	40004	B3	H	199918 (0x00030CEE)	B0	L
7		B2			B1	
8	40005	B1	L		B2	H
9		B0			B3	
10	40006	B3	H	550 (0x0226)	B0	L
11		B2			B1	
12	40007	B1	L		B2	H
13		B0			B3	

Calibration

1. Send command **35** (0x23) "**DATA READING**".

2. Modify required parameters.

Parameter			Page	Byte	Modbus TCP Register	Big Endian		Little Endian	
Description	Possible values								
Unit of measure.	0 = kg	2 = t	5006 (0x138E)	16	40009	B1	-	B0	-
	1 = g	3 = lb		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	

3. 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**".

4. Acquire calibration points:

- Unload the scale. Write in Bytes 2 to 5 (PARAMETER 1) the value 0 (0x00) and send the command **37** (0x25) "**CALIBRATION POINT ACQUISITION**".
- Check that in Byte 30 and 31 the value is equal to 2 (Acquisition OK).
- Load the scale with the sample weight. Write in Bytes 2 to 5 (PARAMETER 1) the value 1 (0x01) and increase the command counter value (Byte 15).
- Check that in Byte 30 and 31 the value is equal to 4 (Acquisition OK).

5. Send the command **36** (0x24) "**DATA WRITING AND STORAGE**" with PARAMETER 1 = 0 (0x00) to save the calibration.

- Check that in Byte 30 and 31 the value is equal to 4 (Calibration OK).

Calibration Linearization

1. Send the command **35** (0X23) "**DATA READING**".

2. 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	

3. 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**".

4. Acquire calibration points:

- Unload the scale. Write in Bytes 2 to 5 (PARAMETER 1) the value 0 (0x00) and send the command **37** (0x25) "**CALIBRATION POINT ACQUISITION**".
- Check that in Byte 30 and 31 the value is equal to 2 (Acquisition OK).
- Load the scale with the first sample weight. Write in Bytes 2 to 5 (PARAMETER 1) the value 1 (0x01) and increase the command counter value (Byte 15).
- Check that in Byte 30 and 31 the value is equal to 4 (Acquisition OK).
- Load the scale with the second sample weight. Write in Bytes 2 to 5 (PARAMETER 1) the value 1 (0x01) and increase the command counter value (Byte 15).
- Check that in Byte 30 and 31 the value is equal to 4 (Acquisition OK).
- Load the scale with the third sample weight. Write in Bytes 2 to 5 (PARAMETER 1) the value 1 (0x01) and increase the command counter value (Byte 15).
- Check that in Byte 30 and 31 the value is equal to 4 (Calibration OK).

5. Send the command **36** (0x24) "**DATA WRITING AND STORAGE**" with PARAMETER 1 = 0 (0x00) to save the calibration.

Filter / Metric Parameters 1

1. Send the command **35** (0x23) "**DATA READING**".

2. Modify required parameters.

Parameter		Page	Byte	Modbus TCP Register	Big Endian		Little Endian	
Description	Possible values ₁₀							
Filter index.	From 0 to 12 (see table 5 page 35).	5004 (0x138C)	16	40009	B1	-	B0	-
			17		B0		B1	
Custom filter.	For manufacturer’s use only.		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	
Auto-zeroing at power-up.	0 = Disabled. 1 = Enabled.		26	40014	B1	-	B0	-
			27		B0		B1	
Auto-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	

3. 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**".
- Write in Bytes 2 to 5 (PARAMETER 1) the value **0** (0x00) and increase the command counter value (Byte 15).

Metric Parameters 2

1. Send the command **35** (0x23) "DATA READING".

2. 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.

i

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).
 $9.80390 - 9.7 = 0.10390$.

3. 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".
- Write Bytes 2 to 5 (PARAMETER 1) the value **0** (0x00) and increase the command counter value (Byte 15).

Digital inputs

1. Write in Bytes 2 to 5 (PARAMETER 1) the value **5100** (0x13EC) and send the command **29** (0x1D) "**CHANGE PAGE**".

2. 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.

3. 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**".

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. 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.

3. 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**".

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. 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.

3. 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".

Profinet name

1. Write in Bytes 16 to 31 of the Output Area the new Profinet name of the transmitter.
2. Write in Bytes 2 to 5 (PARAMETER 1) the value **5031** (0x13A7) and send the command **56** (0x38) **"SAVE PAGE"**.

Parameter		Page	Byte
Description	Possible values		
Command SAVE PAGE	00		0
	38		1
Page 5031 (0x13A7)	0		2
	0		3
	13		4
	A7		5

<p>Profinet name to be assigned to the transmitter, insert up to 16 ASCII characters.</p> <p>Allowed characters: a ÷ z (lowercase) 0 ÷ 9 " _</p> <p>If the length of the Profinet name is less than 16 characters, fill the remaining Bytes with the value 0.</p> <p>In the example: diniargeo-012345</p>	d (0x64)	5031 (0x13A7)	16
	i (0x69)		17
	n (0x6E)		18
	i (0x69)		19
	a (0x61)		20
	r (0x72)		21
	g (0x67)		22
	e (0x65)		23
	o (0x6F)		24
	- (0x2D)		25
	0 (0x30)		26
	1 (0x31)		27
	2 (0x32)		28
	3 (0x33)		29
	4 (0x34)		30
	5 (0x35)		31

3. Save the parameters:
 - Send the command **28** (0x1C) **"SAVE SETUP"**.
 - Reboot the transmitter (command **34** (0x22)).

Scale zeroing via fieldbus

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

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

Mechanical tare zeroing via fieldbus

- 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).

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

Backup

It is possible to **copy the device setup** by reading in sequence all setup pages from 0 to 255 (0x00 to 0xFF).

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.

OPERATING MESSAGES

Message	Description
<i>F.b.Conn</i>	Fieldbus in operation.
<i>F.b.oñ</i>	Communication with active network.
<i>F.buS.in</i>	Module initialisation.

ERROR MESSAGES

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

Code	Decription
<i>1000</i>	Module fatal error. Restart the device.
<i>100 1</i>	Selected protocol differs from the one managed by the module. Check step <i>Fld.buS</i> .
<i>000 140</i>	General network error. Check network connections.
<i>000 14 1</i>	Closed connection.
<i>000 142</i>	Connection in timeout.
<i>000 143</i>	Isolated network.
<i>000 144</i>	Duplicated node.
<i>000 145</i>	Network cable unplugged.



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