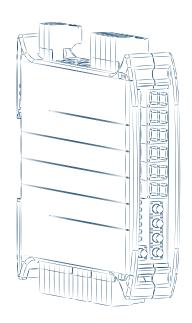


DGT1S

Digital weight transmitter

USER MANUAL

ENGLISH



For DGT1S with firmware release minimum 08.03



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Introduction

Dear Customer,

Thank you for purchasing a DINI ARGEO product.

This manual contains all the instructions for a correct installation and commissioning of the DGT1S digital weight transmitter. While thanking you for purchasing this product, we would like to draw your attention to some aspects of this manual.

This booklet provides useful information for the correct operation and maintenance of the scale to which it refers; it is therefore essential to pay the greatest attention to all those paragraphs that illustrate the simplest and safest way to operate.

It is recommended that you carefully follow the instructions for programming the weight transmitter; performing actions not indicated in this manual could compromise the proper functioning of the scale.

The utmost care has been taken in compiling this manual, but reports of any inaccuracies are always welcome.

The instrument is covered by warranty and MUST NOT BE TAMPERED WITH BY THE USER under any circumstances. Any attempt at repair or modification may expose the user to the danger of electric shock and voids any warranty conditions, relieving the Manufacturer from all liability.

Any problem with the product must be reported to the manufacturer or to the retailer where it was purchased. In any case, always TURN OFF THE POWER SUPPLY before any installation or repair operation.





Transmitter installation

Installation requirements

Observe the following conditions for correct installation of the transmitter and of the load receiver:

- Flat, level support surface.
- Stability and absence of vibrations.
- Absence of aggressive dusts and vapours.
- Absence of draughts.
- Make sure that the platform is levelled or that the load cells are evenly supported.
- Moderate temperature and humidity (15°C 30°C and 40% 70%).
- Do not install in an environment where there is a risk of explosion.
- All transmitter connections must be made in accordance with applicable regulations in the area and environment of installation. Observe the electrical precautions listed in the section "Electrical precautions".
- Ensure that it is correctly earthed, see the relevant section "Earthing of the system".
- Do not perform welding when the load cells have already been installed.
- If necessary, use watertight sheaths and fittings to protect the load cell cables.
- Any junction boxes must be watertight.
- Anything not expressly described in this manual constitutes improper use of the equipment.



Electrical precautions

- Use a regulated mains supply within \pm 10% of the rated voltage.
- The electrical protections (fuses, etc.) are the responsibility of the installer.
- Observe the recommended minimum distances between cables of different categories (see table on page 10).
- The following cables must comply with the maximum permissible lengths (see table on page 10), they must be shielded and must be inserted alone in metal conduits or pipes:
 - the load cell extension cables;
 - the signal amplifier cables;
 - the cables for connecting the serial ports;
 - the analog output cables.
- The cell or amplifier cables must have an independent input in the electrical panel. They must be connected (if possible) directly to the terminal block of the transmitter without passing through the conduit with other cables.
- · Fit "RC" filters:
 - on the contactor coils;
 - on the solenoid valve coils;
 - on all devices that produce electrical interference.
 - If condensation can occur inside the weight transmitter, it is advisable to keep the equipment powered at all times.
- Connections to load cells and any external device must be as short as possible.
- The cable ends (connectors, leads, terminals, etc.) must be installed correctly; the cable shielding must be kept intact until close to the connection point.
- If the transmitter is placed inside an electrical panel, a shielded cable must also be used for the power supply.







	Category I	Category II	Category III	Category IV
Distance	≥ 20	←	≥ 100 mm ≥ 500 mm	00 mm
Classification	Fieldbus, LAN network (PROFIBUS, Ethernet, Devicenet). Shielded data cables (RS232). Shielded cables for analog digital signals < 25 V (sensors, load cells). Low voltage power supply cables (< 60 V). Coaxial cables.	DC supply cables wi voltage > 60 V and < 400 V. AC supply cables wi voltage > 25 V and < 400 V.	Power supply cables with voltage > 400 V.	Any cable subject to lightning danger.

MAXIMUM ALLOWED LENGTHS

Load cell	RS232	RS485	Analog output
50 metres with 6 x 0.25 mm² cable; 100 metres with 6 x 0.5 mm² cable.	15 m with baud rate up to 19200.	1200 m with shielded 2 x 24 AWG twisted pair with outer braid + aluminium strip.	CURRENT: 100 metres with 2 x 0.25 mm² cable; 150 metres with 2 x 0.5 mm² cable; 300 metres with 2 x 1 mm² cable. VOLTAGE: 50 metres with 2 x 0.25 mm² cable; 75 metres with 2 x 0.5 mm² cable; 150 metres with 2 x 1 mm² cable.





Earthing of the system

For correct earthing and optimal system operation, the load cells, junction box, if any, and weighing structure must be earthed.

LOAD CELLS AND JUNCTION BOX

The connection must be made by connecting the earth cables to the earth bar (cables that must have a cross-section of at least 16 mm²); finally, connect the earth bar to the earth post with a cable having a cross-section of at least 50 mm².

EXAMPLES:

- If the load cells are connected to the transmitter through a junction box, the cable shield from the transmitter and the cell cable shields must be connected to the earth socket of the junction box (refer to the junction box manual) and the junction box must be earthed using a copper cable with a cross-section of not less than 16 mm².
- If the load cells are connected directly to the transmitter (without using the junction box), the cell cable shields must be connected to the earthing point (or earth bar).
- If the weighing system involves large and/or outdoor structures (weighbridges, silos, etc.) and the distance between the junction box and the weight transmitter is greater than 10 m, connect the cell cable shields to the earth socket in the junction box.

WEIGHING STRUCTURE

Earth the weighing structure and/or any unconnected structures (e.g. silos that release material onto the weighing structure) using cables with a cross-section of not less than 16 mm².

Also connect the upper part with the lower part of each cell by means of a copper braid with a cross-section not less than 16 mm² (refer to the earthing examples on page 12 and page 13).

SERIAL CABLES AND CONNECTED INSTRUMENTS

Connect the serial cable shield to the earthing point (or earth bar) inside the panel. To avoid any undesired effects, the earth reference of the connection cable, power supply and transmitter must be at the same potential.

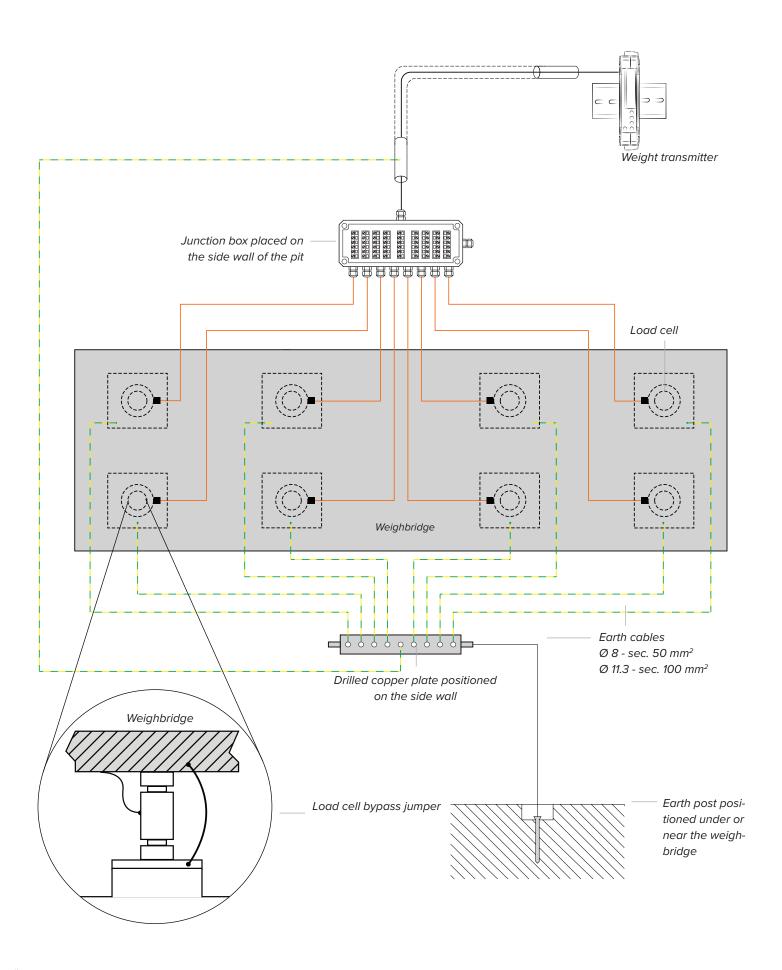


GENERAL NOTES:

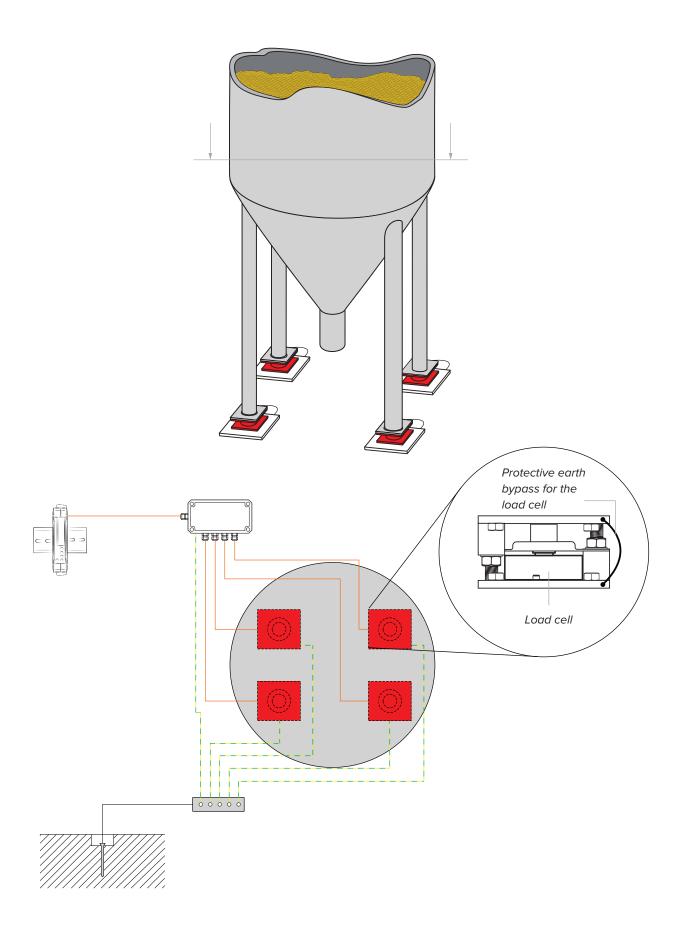
- All earth cables must be of suitable length, so as to obtain an overall resistance of the earthing system of less than $1\,\Omega$.
- If the weighing system involves large and/or outdoor structures (weighbridges, silos, etc.):
 - the earth connection must be made by connecting the earth cables to an earth bar and the earth bar to the earth post with a cable having a cross-section of not less than 50 mm²;
 - the thickness of the cables must be greater (50 mm² instead of 16 mm² and 100 mm² instead of 50 mm²), because the voltages at stake are greater (e.g. lightning);
 - the earth post must be placed at a distance of at least 10 m from the structure.
- If the load receiver is more than 10 m from the transmitter, we recommend using the SENSE line and load cells equipped with a (SENSE) compensation circuit.













Technical features

POWER SUPPLY	12 - 24 Vdc LPS or with class 2 power supply.			
MAXIMUM ABSORPTION (without load cells)	DGT1S: 100 mA at 12 V / 70 mA at 24 V (2 W); DGT1SAN: 185 mA at 12 V / 90 mA at 24 V (2.5 W).			
OPERATING TEMPERATURE	From -15°C to +40°C.			
DISPLAY DIVISIONS	10000e, 2 x 3000e for legal weighing, expandable up to 800,000 for internal use (with a minimum cell signal of 1.6 mV/V).			
SAMPLING SPEED	Up to 400 conv. / sec.			
MINIMUM VOLTAGE PER DIVISION	0.3 μV (approved instrument); 0.03 μV (non-approved instrument).			
COUNTING RESOLUTION	1,500,000 points (with input signal 3 mV/V).			
DISPLAY	6 digits, h 13 mm.			
SIGNALS	6 status indicator LED lights.			
KEYPAD	5 keys.			
TARE FUNCTION	Subtraction possible over the entire range.			
LOAD CELL POWER SUPPLY	5 Vdc \pm 5%, 120 mA (max 8 cells of 350 $\Omega).$			
LOAD CELL CONNECTION	6 wires with sense.			
CONNECTABLE CELLS	Up to 8 350 Ω cells.			
CASE	Made of plastic, suitable for DIN rail or wall mounting.			
SERIAL OUTPUTS 1 RS485 bidirectional port; 1 configurable RS232 bidirectional port for connection to printer;				
OUTPUTS / INPUTS	2 fotomosfet outputs NO or NC, configurable as programmable weight thresholds: 48 Vac 0.15 A max (or 60 Vdc 0.15 A max); 2 configurable inputs (optocouplers): 12 - 48 Vdc; Input reading and output update time: 1 msec; (DGT1SIO version) Opto-isolated analog output with 16 bits, optionally 4 - 20 mA, 0 - 5 Vdc or 0 - 10 Vdc (DGT1SAN version). The maximum applicable resistance on the current output is 350 Ω while the minimum applicable resistance on the voltage output is 10 k Ω .			
LOAD CELL SENSITIVITY	Maximum sensitivity of the connectable load cells: 6 mV/V.			



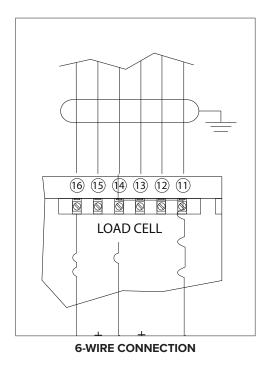
Load cell installation

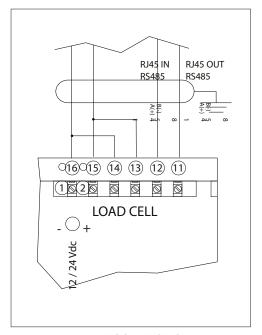
After carrying out the instructions for the platform or load receiver, the shielded cable from the cell(s) must be properly connected to the terminal blockof the transmitter (CELL; see section "Wiring diagrams").

The transmitter has one channel (CELL) for 6-wire connection to load cells (using the SENSE).

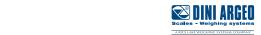
The SENSE allows you to compensate for any voltage drop on the section of cable connecting the transmitter to the load receiver.

It is especially useful when the distance between the transmitter and the load receiver is more than 10 metres.

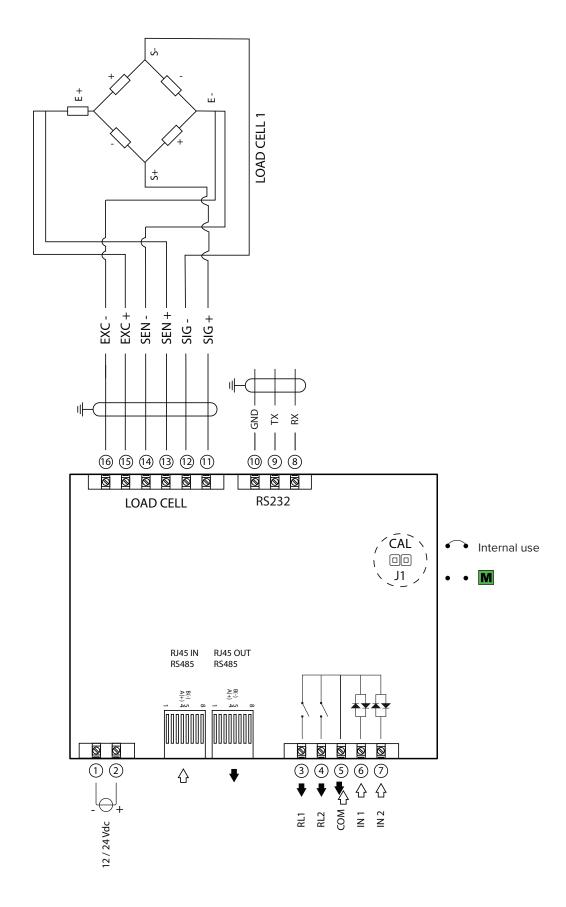




4-WIRE CONNECTION

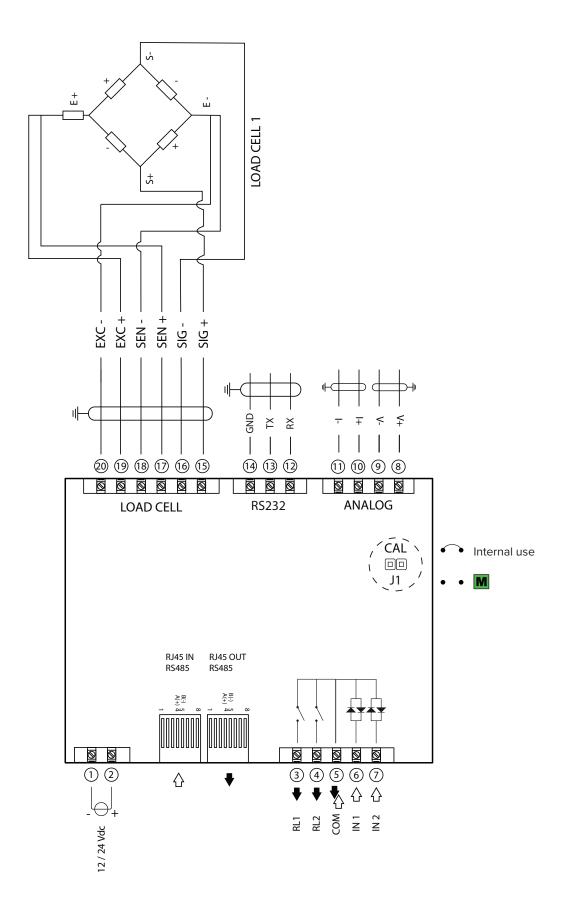


DGT1S

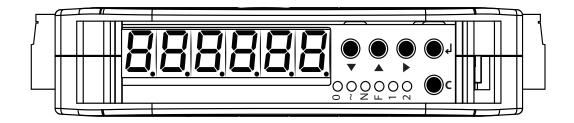


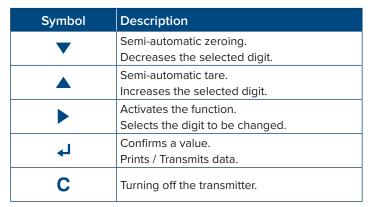


DGT1SAN









Symbol	Description		
0	Gross weight on zero.		
~	Unstable weight.		
N	A tare is active.		
F	A special function is active.		
1	Output 1 is active.		
2	Output 2 is active.		

Quick menu

The transmitter is equipped with a quick menu, through which you can program the main parameters of the scale. To enter the quick menu, follow the procedure below:

- **1.** Reboot the transmitter.
- 2. Press the key when the display shows 888888.



For further information, refer to the transmitter Quick Start Guide.







Advanced programming menu

The advanced menu contains all the transmitter configuration parameters for the most advanced adjustments.

Access to the menu and saving the changes

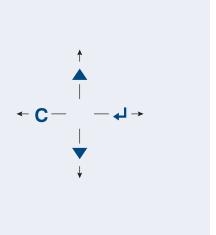
- **1.** Reboot the transmitter.
- 2. Press the \triangle key when the display shows 888888.



HOW TO EXIT THE SETUP AND SAVE CHANGES

- 1. Press C several times, until the display shows "5AUE?".
- 2. Press 🔁 to save or C to exit without saving.

Function of the keys in the menu



- Previous parameter.
- Next parameter.
- Access the parameter / confirm setting.
- C Exit a parameter (without saving).

FUNCTION OF THE KEYS WHEN ENTERING NUMBERS

- Increases the selected digit.
- Decreases the selected digit.
- Selects the next digit.
- Confirms the value.
- Resets the value.

 If pressed again, exits entering.

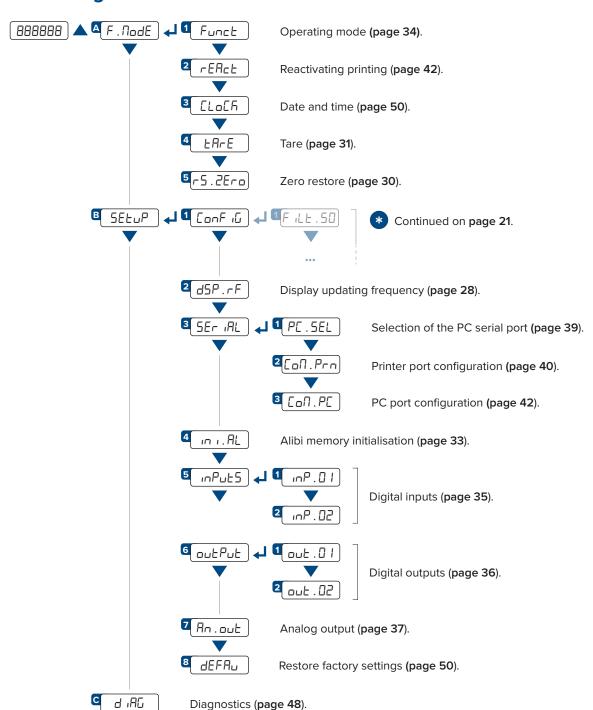


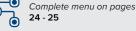
In the menu description on the following pages the vsymbol indicates repeated pressing of the vkey until the parameter indicated is reached.





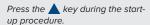
Block diagram of the menu

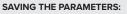








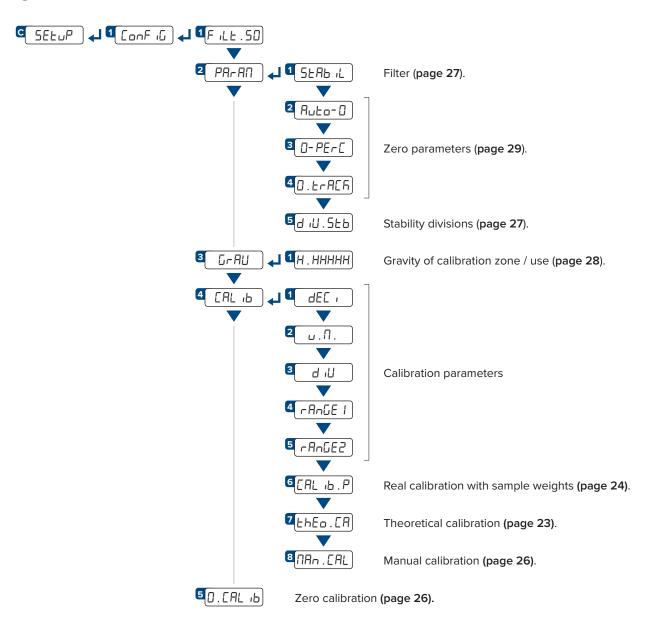




Press the \bigcirc key several times, until the display shows SAUEP. Press the \checkmark key to confirm.

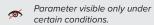








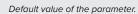
















On / Off

Once powered, the transmitter switches on automatically.

STAND-BY CONDITION

During normal operation, pressing and holding the key \mathbb{C} for 2 seconds switches the transmitter to standby mode.



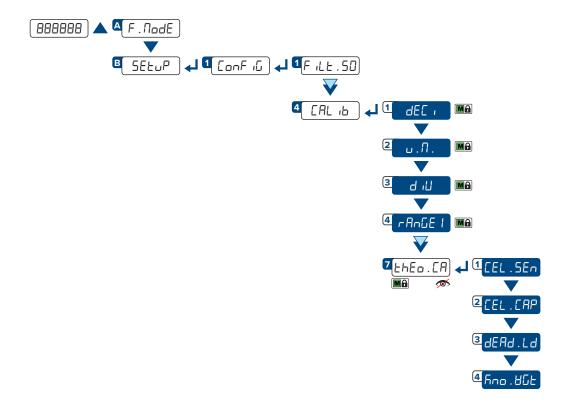
From stand-by mode you can turn on the transmitter by pressing the key \mathbb{C}

To turn off the transmitter completely, you must shut down the power supply.





Theoretical calibration



CALIBRATION PROCEDURE:

1. Set the calibration parameters:

dEC i = Number of decimals.

υ.П. = Unit of measurement (F_{ω} , F_{ω} , F_{ω} , F_{ω} , F_{ω}).

υр = Minimum division.

 $\neg A \neg G E \mid$ = Maximum range.

2. Set the cell data:

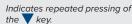
5En. [EL = Cell sensitivity (given by the average of the mV/V value of each cell).

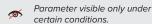
EEL . CAP = Total capacity of the cells (given by the sum of the capacities of each cell).

- 3. Enter the weight value of the structure in the dEAd.Ld parameter. If you do not know this value, enter "0".
- 4. If the structure contains a quantity of material whose weight value is known (e.g. full silo), enter this value in the Fno. HGL parameter.
- **5.** Application of theoretical calibration:

Press the C key to exit the calibration menu. The display shows Lh. [ALP. Press the key to confirm the use of the theoretical calibration, or the C key to cancel.









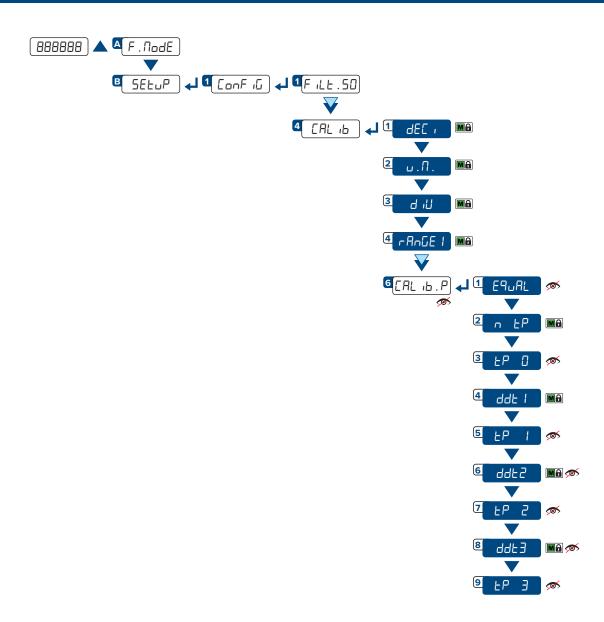








Calibration with sample weights



CALIBRATION PROCEDURE:

1. Set the calibration parameters:

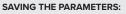
dEI = Number of decimals.

υ.Π. = Unit of measurement ($F_{ω}$, ω, L, Lb).

ป เป = Minimum division. - ศิกษิยิ I = Maximum range.

2. Acquire the calibration points (continued on next page)



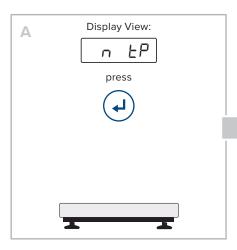


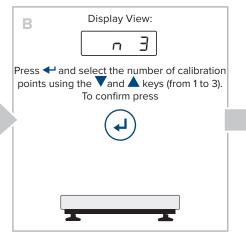
Press the $igcup_{key}$ several times, until the display shows SRUEP. Press the \buildrel key to confirm.

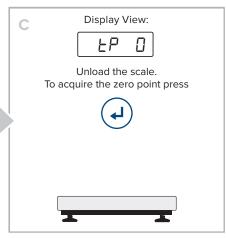


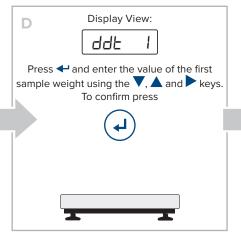


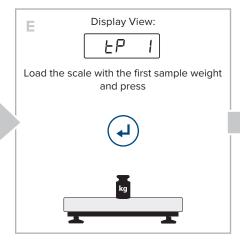
2. Acquire the calibration points:

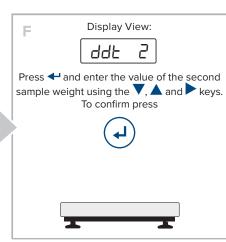


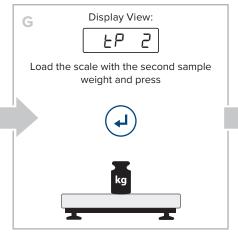


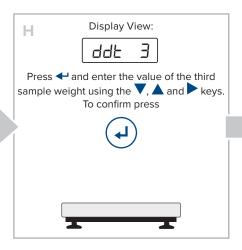


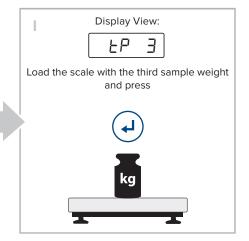










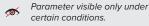


P

For successful calibration, the value of the largest sample weight must be at least 50% of the capacity.



Indicates repeated pressing of the key.





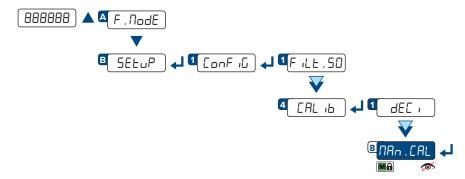
Parameter or menu subject to approval.







Manual calibration



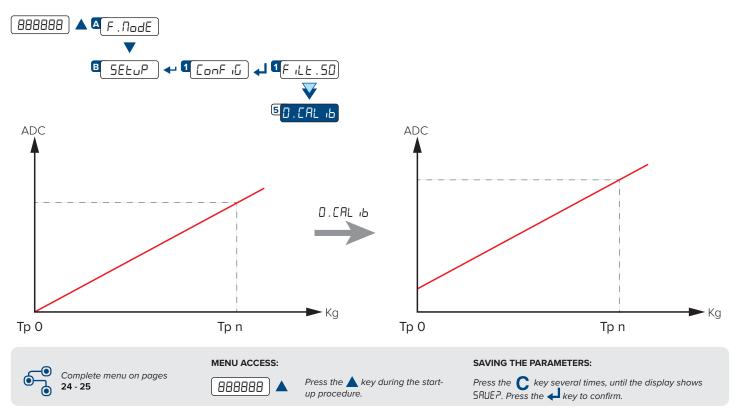
If you know the number of ADC converter points for a known weight (for example if you want to copy the calibration from one transmitter to another) the calibration points can be entered manually:

- 1. The display shows \(\oldsymbol{P}_0\oldsymbol{L} \), proceed by pressing the \(\oldsymbol{L} \) key.
- 2. Using the ▲ and ▼ keys, select the calibration point you want to enter / change (from 🛭 to ∃). Press the 🗸 key to confirm.
- 3. The display shows $\forall E \in \mathbb{L}hE$, use the \triangle , ∇ and \triangleright keys to enter the weight value. Press the \rightleftarrows key to confirm.
- 4. The display shows Pa in ≥5, use the △, ▼ and ▶ keys to enter the converter points value. Press the ✓ key to confirm.

0

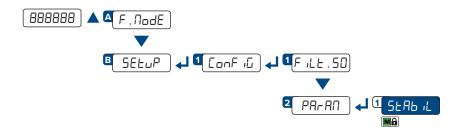
Repeat the procedure for each calibration point.

Quick zero calibration (pre-tare zeroing)





Filter adjustment



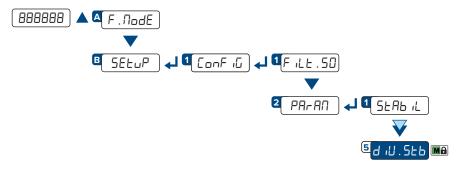
Filter	Response time (ms)	Updating frequency (Hz)	Filter	Response time (ms)	Updating frequency (Hz)
h.r.0	1230	6	FLE 2	590	25
h.r.1	1435	6	FLE 3	980	25
h.r.2	1840	6	F.F.50.1	440	50
h.r.3	2050	6	F.F.50.2	390	50
h.r.4	3280	6	F.F.50.3	340	50
h.r.5	4100	6	F.F. 100.1	110	100
h.r.6	4920	6	F.F. 100.2	210	100
d9n . 0	1640	6	F.F. 100.3	260	100
d9n. l	2050	6	F.F. 100.4	280	100
d9n . 2	2460	6	F.F.200.1	170	200
дуп. Э	2460	6	F.F.200.2	155	200
FLE O	250	25	F.F.200.3	140	200
FLE I	390	25	F.F.400	50	400



In the case of an approved instrument, it is possible to select only FLT F iLEF-5.

Stability detection sensitivity

It is possible to decide that tare, zero and print functions (from keypad or serial command / PLC) are performed only if the weight is stable.



The value 0 disables the stability control.

By entering a value other than 0, you enable stability control.

Enter the number of deviation divisions beyond which the transmitter detects instability.

From 0 to 99.

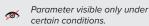
\tilde{

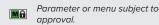
M = 02.





Indicates repeated pressing of the key.





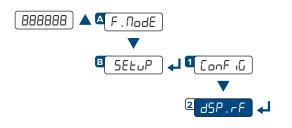






Display updating frequency

Additional filter that acts only by displaying the weight, thus increasing its stability. Useful in particular applications where you want to make the weight more stable in the eyes of the operator.



This parameter does not affect the actual speed and stability of the weight (set via the filter). It only affects the indication of the weight on the display.



Function disabled.

1 display update per second.

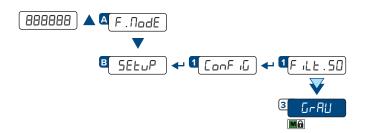
2.5 display updates per second.

5 display updates per second.

10 display updates per second.

20 display updates per second.

Gravity



From 9.7500 I to 9.84999.

♥ = 9 . 80543.

This parameter allows you to correct the gravity acceleration value.

Before calibration, set the value of the calibration zone.

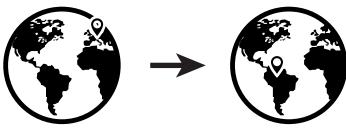
Next, set this value to the value of the zone of use.

Any difference between the two values will be automatically compensated.



In the case of an approved transmitter, the value is read-only.

EXAMPLE:



Calibration zone Italy g = 9.80543



Zone of use Brazil g = 9.77623

- 1. Before calibration, in the GrAU parameter enter the value 9.80543.
- 2. Calibrate the transmitter.
- **3.** Before using the transmitter, in the $G \cap AU$ parameter enter the value 9.77623.



MENU ACCESS:



Press the **k**ey during the startup procedure.

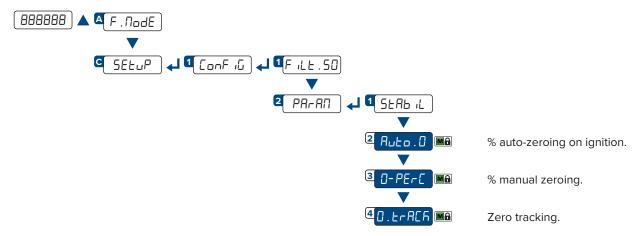
SAVING THE PARAMETERS:

Press the \bigcirc key several times, until the display shows SAUEP. Press the \checkmark key to confirm.

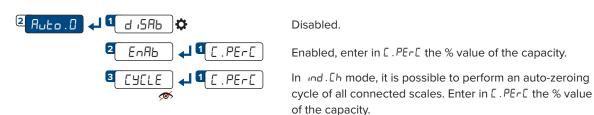




Zeroing parameters



Auto-zeroing on ignition



from 0 to 50%. from 0 to 10%.

Visible only if £YPE ≠ ind.[h

Maximum percentage of manual zeroing

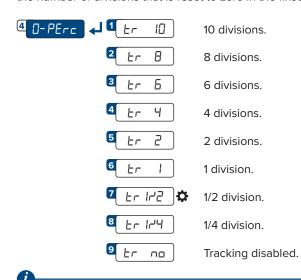


Indicates the weight value that can be zeroed by key or command. The value is expressed as % of the full scale. For example: if the scale has a full scale (RANGE1) of 1000 kg, by setting 3% it is possible to zero up to 30 kg. The value 0 disables the ZERO key and the zeroing commands.

from 0 to 50%. from 0 to 2%. $\clubsuit = 2\%$.

Zero tracking

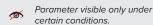
This menu allows to set zero tracking, i.e. the compensation parameter of the thermal drift of the scale; the set value corresponds to the number of divisions that is reset to zero in the fixed time of 1 second.

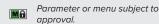


In the case of an approved transmitter, it is possible to select the values Er 1/2, Er 1/4, Er no.



Indicates repeated pressing of the key.





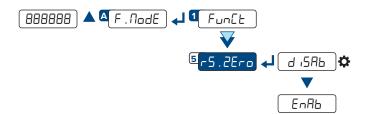








Restoring zero



Restoring zero disabled.

Restoring zero enabled.

• If Auto . 0 = d .5Ab:

The last zeroing in the memory before turning off the power is always restored.

• If Auto.0 = EnAb / CYCLE:

The last zeroing in the memory before turning off the power is restored only if the auto-zeroing fails.

Semi-automatic zeroing

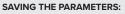
By pressing the \triangle key, or sending the zero command, the transmitter zeroes the gross weight on the scale. For a moment the display shows " $2E_{ro}$ " and then it shows 0 (gross weight).

The semi-automatic zeroing cannot be performed if:

- The weight on the scale is greater than the zero capacity (□.PE-□).
- The weight is unstable.







Press the \bigcirc key several times, until the display shows SRUEP. Press the \hookleftarrow key to confirm.

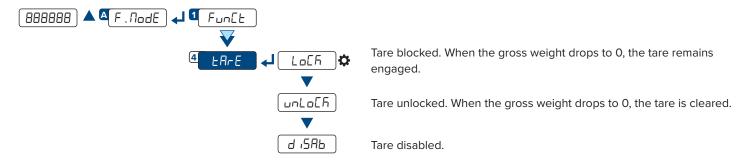






Tare functions and parameters

Tare mode



Semi-automatic tare

By pressing the \triangle key, or sending the tare command, the transmitter sets as tare the weight on the scale. For a moment the display shows "ER-E" and then it shows 0 (net weight). The N light indicates that the net weight is shown on the display.

The semi-automatic tare cannot be performed if:

- The weight is less than one division.
- The weight is overloaded.

Predetermined tare

By holding down the \triangle key, or by means of the predetermined tare command, it is possible to enter a tare value manually. For a moment the display shows "- $E\Pi$ -" and shows the tare present (or 0 if no tare is present). Enter the tare value and press \blacktriangleleft to confirm.

Clearing the tare

The tare can be cleared in different ways:

- By unloading the scale and performing a semi-automatic tare.
- By entering a predetermined tare value of 0.
- If the weight is negative, pressing the V key.





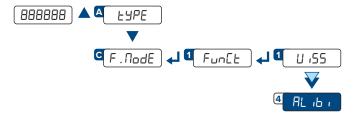




Alibi memory

The alibi memory allows you to store the weight values transmitted to the computer for further processing and/or data integration. The stored values can then be retrieved from the PC port or directly on the display of the transmitter for later checking.

Enabling the alibi memory



Saving a weighing operation in the alibi memory

A weighing operation is stored after receiving the PID serial command (see "Serial commands" page 45) or after pressing the key. The transmitter transmits on the PC port the gross weight, the tare and an ID code that uniquely identifies the weighing. The ID has the following format:

- rewrite number: 5-digit number (from 00000 to 00255) indicating the number of complete rewrites;
- weighing number: 6-digit number (from 000000 to 131072) indicating the weighing number in the current rewrite. Each time it is saved, the weighing number is increased by 1; when it reaches the value 131072, it starts again from 000000 and the rewrite number is increased by 1.

Example

If the weighing that has been saved is as follows:

PIDST,1, 1.000kg, 1.000kg,00126-131072

The next one will be:

PIDST,1, 1.000kg, 1.000kg,00127-000000

A weighing operation can only be saved if the weight ≥ 0 , stable and valid (not underloaded or overloaded). To store the weighing operation by key, the function must be active (see "Reactivating printing" on page 42). In addition, if the transmitter is approved, the weight must exceed 20 divisions.

If these conditions are not met:

- the response to the PID command will have "NO" instead of the ID (PIDST,1, 1.000kg, 1.000kg,NO);
- there is no transmission when the
 ← key is pressed.

USER MAN ENG DGT1S V8







Reading the alibi memory

FROM THE TRANSMITTER (MANUAL)

By pressing the key you can read a saved weight:

you will be asked to enter the rewrite number "-EB. .d" (from 0 to 255) and the ID number " .d" (from 0 to 131072).

The weighing data are shown. Use the ▼ and ▲ keys to scroll through the following information:

- "[h. X", where X indicates the scale number.
- " \square " YY", where YY indicates the unit of measurement ($\upbeta \upbeta \upbanka \upbanka \upbanka \upb$
- "Lra55", followed by the gross weight.
- "EALE / EALEPE", followed by the tare value.

Press the C key to return to weighing.

The weighing of an ID can only be verified if:

- it has a rewrite number equal to the current alibi memory number and a weighing number ≤ the last value received with the PID command:
- it has a rewrite number ≥ 0, but 1 less than the current alibi memory value, and a weighing number greater than the last value received with the PID command.

FROM PC

To read a weighing operation from a PC, see the serial command "READING A WEIGHING OPERATION IN THE ALIBI MEMORY" on page 47.

FROM PLC

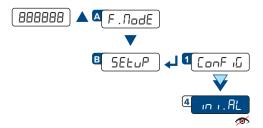
To read a weighing operation from a PLC, refer to the Modbus and Fieldbus protocol manuals.



If the alibi memory is empty, when the key is pressed the display shows "ENPLY" for one second and returns to weighing mode.

If an invalid ID is entered, the display shows "no od and returns to weighing mode."

Initialising the alibi memory



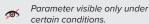
Mot visible if the transmitter is approved.



This operation deletes all saved weighing operations; it is not possible to delete a weighing operation individually.









Parameter or menu subject to approval.

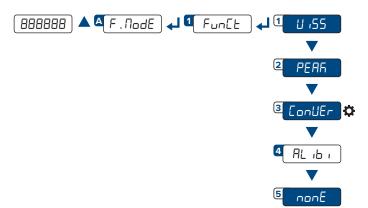








Use functions



High resolution

U 155

Weight display in high resolution (x10). Press the key to activate or deactivate the function.

When the weight is displayed in high resolution, the indicator light **F** is lit.

In the case of an approved transmitter, the high-resolution weight display is automatically deactivated after 5 seconds.

Peak detection

PERF

Detection of the maximum weight value during a time interval. Press the key to activate the function. The display shows "-PERR-" every 5 sec and the transmitter shows the maximum weight reached since the function was activated.

To deactivate the function press the again, the display shows "PERhoF" for a moment and shows the instantaneous weight again.

By holding down the \checkmark key it is possible to select in the $P \in L \setminus I$ parameter the minimum time of the pulse duration, expressed in hundredths of a second. The lower this value, the higher the peak function sensitivity.

Converting units of measurement

conUEr

Converting the scale unit of measurement using a free conversion factor. Press the key to convert the weight to pounds. By holding down the key, you can enter a free conversion factor, which will be multiplied by the weight.

Example: to make the display show the cubic meters of water on the scale, enter the value 997 as the conversion factor. The key can be used to switch from the main unit of measurement to the secondary unit at any time.

When the secondary unit of measurement is displayed, the indicator light **F** is lit.

Alibi memory

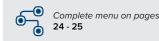
AL 16 1

(See section "Alibi memory" page 33).

No function

nonE

No function when the key is pressed.





Press the **k**ey during the start-up procedure.



Press the **C** key several times, until the display shows SAUE?. Press the **4** key to confirm.



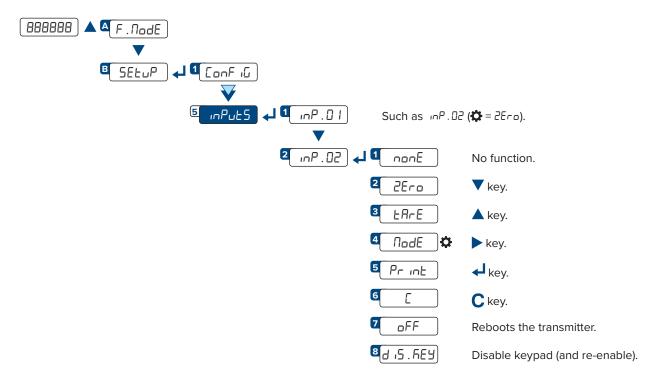




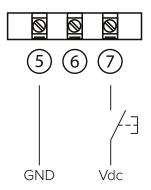


Input configuration

The indicator has 2 configurable inputs (bidirectional optocouplers).

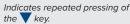


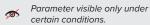
INPUT CONNECTION:



The input is activated when there is a potential difference between terminals 5 - 6 (IN1 and IN2) and terminal 9 (COM). The inputs are bidirectional, therefore it is possible to invert GND and Vdc.











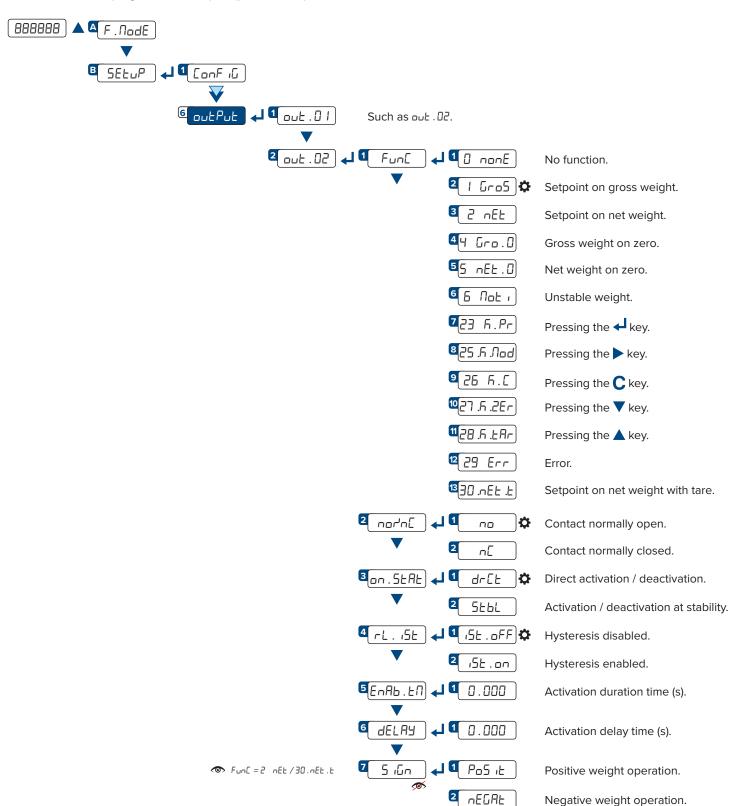




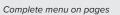


Output configuration

The indicator has 2 programmable outputs (photomosfet).



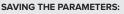






888888





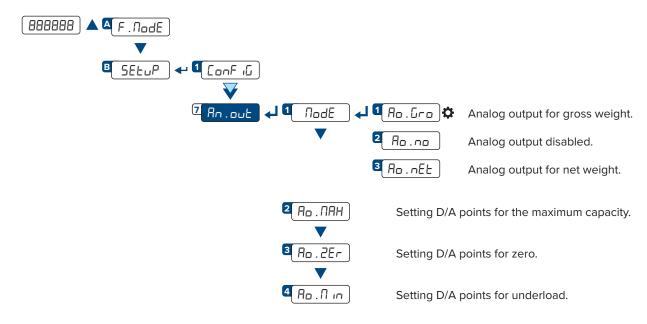
Press the \bigcirc key several times, until the display shows SRUE?. Press the \rightleftharpoons key to confirm.





Analog output configuration

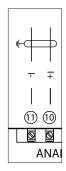
The DGT1SAN model has an analog output in voltage (0 - 5 / 0 - 10 Vdc) or current (4 - 20 / 0 - 20 mA).



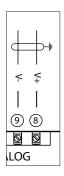
Voltage or current operation is determined by the connection to the transmitter terminals:

Current: 5 (+) and 6 (-). Voltage: 7 (+) and 8 (-).

CURRENT ANALOG OUTPUT



VOLTAGE ANALOG OUTPUT















CALIBRATION PROCEDURE:



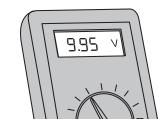
Connect a multimeter to the transmitter. Go to the parameter to be changed (A_{\square} ΠAH , A_{\square} ZE, A_{\square} Π \square) and set an approximate value.

Voltage output $62650 \approx 10 \text{ V}$ $0 \approx 0 \text{ V}$

Current output 58600 ≈ 20 mA

12700 = 4 mA0 = 0 mA В

Press to update the output value on the multimeter.



C

Increase or decrease the value to reach the desired output.

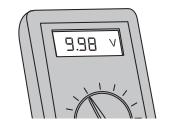
100 D/A points ~ 0.015 V / 0.035 mA 1000 D/A points ~ 0.15 V / 0.34 mA 10000 D/A points ~ 1.57 V / 3.42 mA

Example:

Increase $\boxed{\textit{H}_{\tiny D}}$ $\boxed{\textit{\Pi}\textit{RH}}$ from 62650 to 62750.

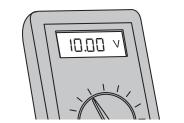


Press to update the output value on the multimeter.



Е

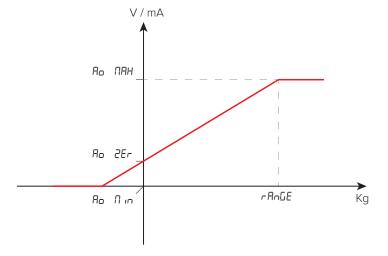
Repeat the procedure from point "C" until the desired value is reached, then press to save.



E

Save the changes (press the **C** key several times until you reach the message <u>SRUE?</u>, then press the **L** key to confirm).

ANALOG OUTPUT GRAPH:



Press the $igcup_{key}$ several times, until the display shows SRUEP. Press the \buildrel key to confirm.







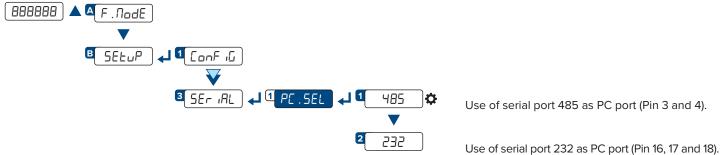
Serial communication configuration

The transmitter has 2 serial ports (232 and 485) that can be used indiscriminately to communicate:

- In bidirectional mode with the PC / PLC ("PC" port);
- In one-directional mode with the PC, thermal printer, repeater ("PRN" port);

It is necessary to choose which port to use as PC and, consequently, which one to use as PRN.

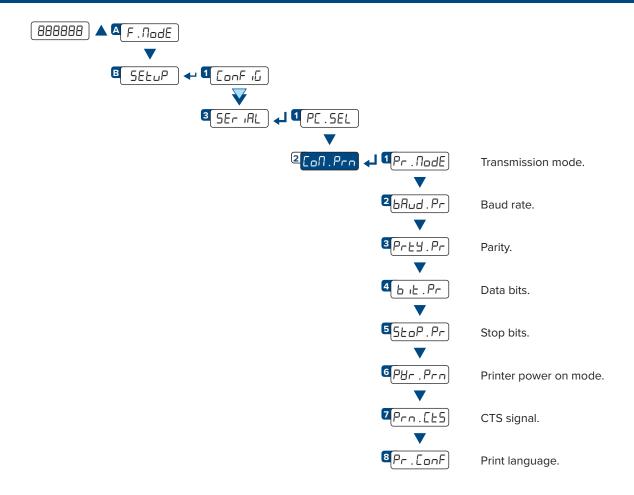
Selection of the PC serial port



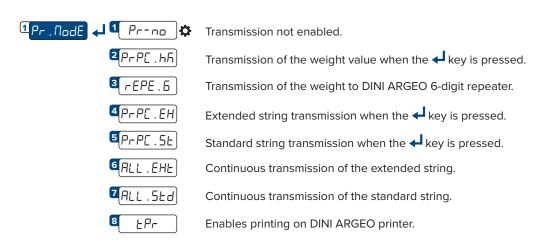




Configuration of the printer port (COM.PRN)



Transmission mode



For the specifications of transmission modes, strings and protocols see the section "TRANSMISSION PROTOCOLS".

Setting Pr. . NadE = rEPE . 5 automatically sets the serial port to 4800, N-8-1. It is however possible to set it differently.



MENU ACCESS:



Press the key during the startup procedure.



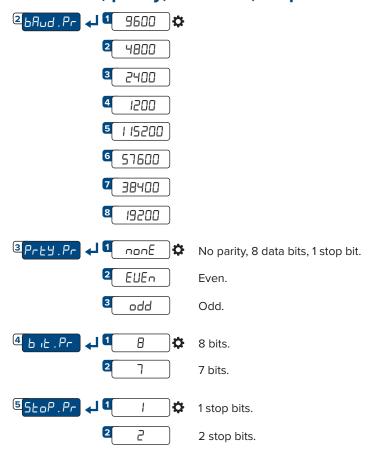
Press the **C** key several times, until the display shows 5AUEP. Press the

key to confirm.





Baud rate, parity, data bits, stop bits



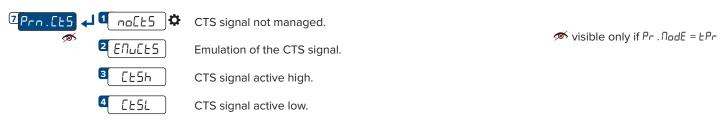
Printer power on mode

It is possible to set the way the printer is turned on:

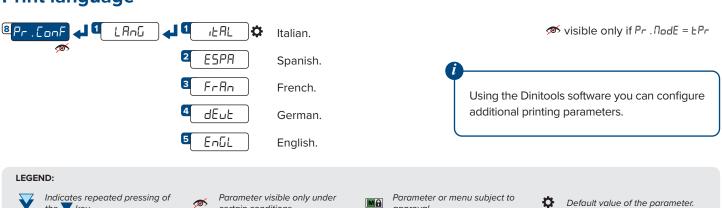


CTS signal

On serial port 232 there is the CTS (Clear to send) signal in pin 16.



Print language



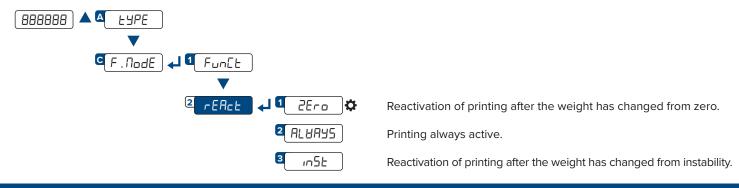


the key.

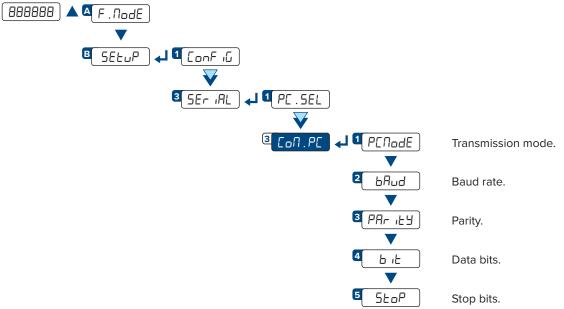


certain conditions.

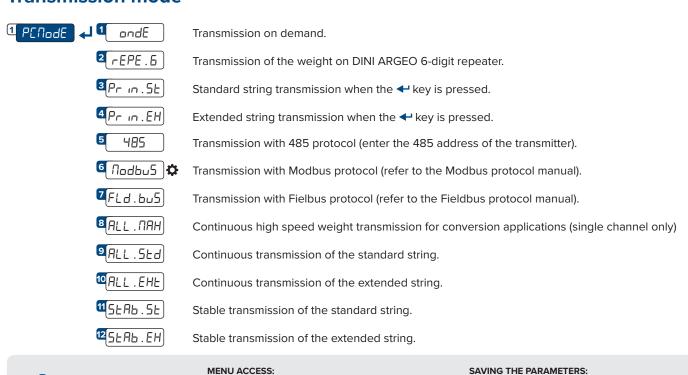
Reactivation of printing



Configuration of the PC port (COM.PC)



Transmission mode





Complete menu on pages



Press the **C** key several times, until the display shows 5AUEP. Press the

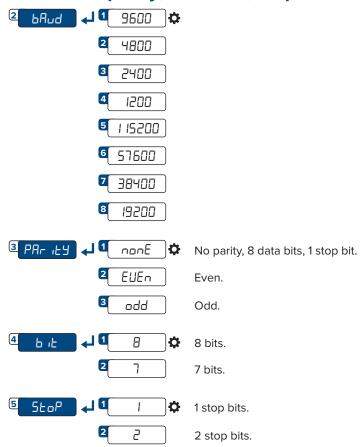
key to confirm.

Press the **k**ey during the start-

up procedure.

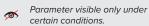
888888

Baud rate, parity, data bits, stop bits

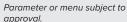














Default value of the parameter.









Communication protocols

Standard string

[01]ST,GS, 0.0,kg<CR><LF>

Where:

O1 Transmitter code 485 (2 characters), only if communication mode 485 is enabled

ST Scale status (2 characters):

<u>US</u> - Unstable weight <u>ST</u> - Stable weight

<u>OL</u> - Weight overload *(out of range)* <u>UL</u> - Weight underload *(out of range)*

, Character ASCII 044

GS Type of weight data (2 characters)

GS - Gross
NT - Net
VL - Microvolts
RZ - Converter points
Character ASCII 044

0.0 Weight (8 characters including the decimal point)

, Character ASCII 044

kg Unit of measurement (2 characters)

<CR><LF> Transmission terminator, characters ASCII 013 and ASCII 010

Extended string

[01]1ST,1, 0.0,PT 20.8, 0,kg,01/02/19 11:12:13<CR><LF>

Where:

01 Transmitter code 485 (2 characters), only if communication mode 485 is enabled

1 Number of the active scale

ST Scale status (2 characters):

US - Unstable weight

ST - Stable weight

<u>OL</u> - Weight overload (out of range) <u>UL</u> - Weight underload (out of range)

Character ASCII 044

0.0 Weight (8 characters including the decimal point)

, Character ASCII 044
PT Preset tare indication

20.8 Tare (8 characters including the decimal point)

Character ASCII 044Character ASCII 048Character ASCII 044

kg Unit of measurement (2 characters)

, Character ASCII 044

01/02/19 11:12:13 dd/mm/yy hh:mm:ss (only with REXD command and optional clock card)

<CR><LF> Transmission terminator, characters ASCII 013 and ASCII 010







Serial commands

By selecting the PC port on demand mode (andE), you can communicate with the transmitter via serial commands. For each command received, the transmitter emits a string containing the response (refer to the command description) or one of the following signals:

OK <crlf></crlf>	Command sent when sending a correct command. This response does not imply that the command is executed.
ERR01 <crlf></crlf>	Command sent correctly but followed by letters entered unintentionally (e.g. READF, TARES).
ERR02 <crlf></crlf>	Incorrect command data.
ERR03 <crlf></crlf>	Command sent not allowed (transmitter busy, or not used in the selected operating mode).
ERR04 <crlf></crlf>	Command sent non-existent.



If the 485 protocol has been selected, you must precede the command with the transmitter address (e.g. 01READ).

WEIGHT READING (standard string)

Format	R	Е	А	D
Response	Star	ndard	l strin	g.

WEIGHT READING IN HIGH RESOLUTION (X10)

Format	G	R	1	0	
Response	Star	ndard	strin	g wit	h weight in resolution x10.

MANUAL TARE

Format	Т	М	А	N	t	t	t	t	t	t
Where		tttttt		tare value						
Response	ОК	or El	RRxx)							

By entering a manual tare value of 0, the tare on the scale is cleared.

DISABLING KEYPAD

Format	K	Е	Υ	Е	D						
onse	ОК	(or El	RRxx)).		-					

READING INPUTS

Format	I	N	Р	U	n								
Where	n	ı	nput	(1 / 2)).								
Response	I	N	Р	U	n	٧	٧	V	٧				
	1	1	Input number.										
			Input status:										
Where	VV	0000 = Not active. 0001 = Active. FFFF = Input reading error.											

READING OF THE EXTENDED WEIGHT

Format	R	Е	Х	Т
Response	Exte	ende	d strii	ng.

AUTOMATIC TARE

Format	Т	А	R	Е
Response	ОК	(or El	RRxx)	

ZEROING (of active channel)

Format	Z	Е	R	0
Response	ОК	or El	RRxx)).

ENABLING KEYPAD

Format	K	Е	Υ	Е	Е	
Response	ОК	(or El	RRxx)			

READING OUTPUTS

Format	0	U	Т	S	n											
Where	n	0	output (1 / 2).													
Response	0	U	T S n v v v													
	n					Output number.										
			Output status:													
Where	vv	vv	0000 = Not active. 0001 = Active. FFFF = Output reading error.													





PRESSING A KEY

Format	K	Е	Υ	Р	х	х			
	Х	X	Key code.						
	0	0	_						
	0	1							
Where	0	2							
	0	3		4	_				
	0	4	С						

Response OK (or ERRxx).



To simulate pressing a key, you must send the KEYP and KEYR commands in succession.

If more than 1.5 s pass after the KEYP command is sent, the transmitter will execute the function associated with prolonged pressing of the key.

RELEASING A KEY

Format	K	Е	Υ	R	
Response	ОК	or El	RRxx)		

BRIDGE BETWEEN THE SERIAL PORTS

Format	В	R	I	D	G	Е	1				
Response	OK (or ERRxx).										

SCALE INFORMATION

Format	R	А	L	L																			
	s	S	,	b	,	Ν	N	N	N	N	N	u	u	,	L	L	L	L	L	L	u	u	,
Response	Υ	Υ	Т	Т	Т	Т	Т	Т	u	u	,	S	S	S	,	Α	Α	А	,	С	С	С	С
	,	,	R	R	R	R	R	-	I	I	I	I	I	I									
		SS		OL =	JL = Underload. DL = Overload. ST = Stable weight. JS = Unstable weight.																		
		b		Nun	nber	of the	e acti	ve so	ale.														
	NNI	INN	Nuu	Net	weig	ht wi	th un	it of	neas	urem	ent.												
	LL	LLLL	uu						of me			t.											
		YY							esen		".												
	TT	TTTT	uu	Tare	with	unit	of m	easu	reme	nt.													
Where		SSS		000 001		ale w ering	g a nu	ımeri	cal v														
				l	nter 1 =	-	pres	sed:															
		AAA		000	2 = /	•																	
					4 = C																		
	(ccc		Cod	e of l	ast k	ey pı	esse	d.														
	F	RRR	R	Last rewrite number saved to Alibi memory.																			
		IIIIII		Last	ID n	umbe	er sav	ed to	Alib	i me	mory.												





READING OF MICROVOLTS

Format	М	V	0	L
Response	Star	ndarc	strin	ıg.

READING OF CONVERTER POINTS

Format	R	Α	Z	F	
Response	Star	ndard	strin	g.	

INITIALISING ALIBI MEMORY

Format	А	L	D	L	
Response	ALD	LOK	/ AL[DLNC)

WEIGHT READING WITH DATE AND TIME

Format	R	Е	Χ	D	
Response	Exte	nded	d strii	ng.	

READING A WEIGHING OPERATION IN THE ALIBI MEMORY

Format	А	L	R	D	Х	Х	Х	Х	Х	-	Υ	Υ	Υ	Υ	Υ	Υ									
	b	,	L	L	L	L	L	L	L	L	L	L	u	u	,										
Response	Υ	Υ	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	u	u		_									
		l	b		Sca	Scale number.																			
NA//	LL	LLLL	LLLL	uu	Gro	Gross weight with unit of measurement.																			
Where		Υ	Υ		"PT if a manual tare is present or " ".										"PT if a manual tare is present or "".										
	TT	TTTT	TTT	Гии	Tare with unit of measurement.																				

SAVING A WEIGHING OPERATION IN THE ALIBI MEMORY

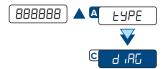
Format	Р	I	D																				
	Р	ı	D	S	Т	,	b	,	L	L	L	L	L	L	L	L	L	L	u	u	,	Υ	Υ
Response	Т	Т	Т	Т	Т	Т	Т	Т	Т	Т	u	u	,	Х	Х	Х	Х	Х	-	Υ	Υ	Υ	Υ
	Υ	Υ																					
		ı	b		Sca	Scale number.																	
	LL	LLLL	LLLL	uu	Gross weight with unit of measurement.																		
Where		Υ	Υ		"PT	if a n	nanua	al tar	e is p	reser	nt or	. ".											
where	TT	TTTT	TTTT	Гии	Tare	Tare with unit of measurement.																	
		XXX	XXX		Rew	Rewrite number.																	
		YYY	YYY		ID number.																		

The Modbus protocol and the Fieldbus protocols are described in the respective manuals.





Diagnostics



Cells / converter test



Display of the μV related to the weight on the scale.

For correct operation, the value of the μV of each channel must be less than 30000 with a weight equal to the maximum capacity. This value must be stable, and increase if a load is applied to the cell.



Display of the A/D points of the converter related to the weight on the scale.

For correct operation, the value of A/D points must be stable, and increase if a load is applied to the cell.

Firmware release



Display of firmware release (e.g. 08.04.00).

Serial number



Display of transmitter serial number.

Display



Activation of all display segments and indicators.

Keypad



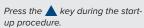
The code of last key pressed is shown on the display:

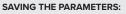
	8001
	8002
	8003
4	8004
С	80AA

Press the same key 3 consecutive times to exit.









Press the \bigcirc key several times, until the display shows SRUE?. Press the \checkmark key to confirm.









Serial ports



Bridge between serial ports (for manufacturer's use).

CTS signal

10[E5.5E.

Checking the CTS signal of the printer (on) connected to the PRN port.

Inputs



Checking the status of the inputs:

value 0 indicates that the input is disabled, value 1 indicates that the input is enabled.

Usethe **\(\)** and **\(\)** keys to display the two inputs.

Outputs



Activation of the output shown on the display (rEL . I / rEL . 2).

Use the \triangle and \bigvee keys to activate the two outputs.

Analog output



Analog output test.

Use the \triangle , \bigvee , keys to enter the D/A point value of the analog output.

Press the key to confirm and update the V / mA value of the analog output.

Programming the Setpoints



🦈 visible only if rL . ₁5t = ₁5t . םח

5.1 oFF
Output 1 deactivation valu

5.2 on
Output 2 activation value.

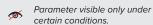
🦈 visible only if rL . ₁5t = ₁5t .on

Once you have entered the desired values, press C. The display shows "5torE" and returns to weighing mode.

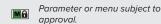
LEGEND:



Indicates repeated pressing of the key.



Output 2 deactivation value.



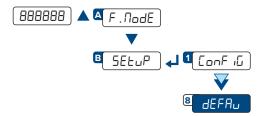


Default value of the parameter.





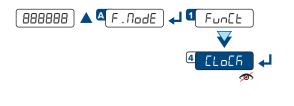
Restoring factory settings



The transmitter is initialized and the default parameters (indicated by the symbol) are activated. Pressing the display shows "dFLE?" confirm further with or exit by pressing another key.

The actual activation of the default parameters is performed by saving the settings (5AUE?) while exiting the menu.

Date and time setting



Visible only with optional clock card

dЯУ Set the day and press ←.

NanEh Set the month and press ←.

Set the year (with two digits) and press ←.

hour Set the hour and press ← The time format is 24h.

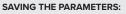
 \square In uEE Set the minutes and press \blacktriangleleft .



The date and time format is: DD/MM/YY, HH:MM:SS (24h),







Press the \bigcirc key several times, until the display shows SAUEP. Press the \checkmark key to confirm.







Alarm	Description										
PrEC	Displayed if you try to calibrate a point v	vithout first confirming the number of calibration points ($n E^p$).									
Er .Not	Calibration error: unstable weight during	Calibration error: unstable weight during point acquisition.									
ErPnt	Calibration error: during the acquisition	Calibration error: during the acquisition of a calibration point a NULL value was read from the converter.									
Err.H.I		Error that occurs if the capacity of channel H is not set, or there is an error in the calibration parameters of channel H, where H indicates the number of the channel to which the error refers.									
oUEr H		Error that occurs if the capacity of channel H is not set, or there is an error in the calibration parameters of channel H, where H indicates the number of the channel to which the error refers.									
Er II	Calibration error: a sample weight that is the scale's capacity.	s too low was used; it is recommended to use a weight of at least half									
Er 12	Calibration error: The acquired calibration	on point (EP 1/EP 2/EP 3) is equal to the zero point (EPD).									
Er 37	Scale to be calibrated (we recommend reproceeding).	esetting the transmitter to the factory default "dEFAu" settings before									
Er 39	Scale to be calibrated (we recommend reproceeding).	esetting the transmitter to the factory default "dEFAu" settings before									
C.Er36	the calibration point is below the zero.	Negative internal points were calculated during calibration: the calibration point is below the zero point;									
C.Er37	the calibration point is equal to the	Internal points below the minimum value were calculated during calibration: the calibration point is equal to the zero point; too high a capacity has been set with respect to the division.									
h8.Err	Hardware error: software not compatible	e with the installed hardware.									
AL.Err		bled and the transmitter does not detect the presence of the card function is set automatically, but not saved in the setup environment.									
6u5Y	Printing in progress (printer serial port b	usy) or transmitter waiting to transmit a print to PC.									
un5EAb	You are trying to print with an unstable v	veight.									
un . oUEr	You are trying to print with the weight in	underload or overload.									
	The weight is overloaded (9 divisions ov	ver the maximum capacity).									
	The weight is underloaded.	proved instrument: -100 divisions.									
	No	on-approved instrument: -maximum capacity -9 divisions.									
Gro5 . Er	You are trying to print with a non-positiv	e gross weight (less than or equal to zero).									
nEr .Err	You are trying to print with a non-positiv	You are trying to print with a non-positive net weight (less than or equal to zero).									
LoB	Net weight less than the minimum weigl	Net weight less than the minimum weight required for printing.									
па . 0 . ип5	Weight not passed by net 0 or instability	Weight not passed by net 0 or instability.									
ConU	You are trying to print while the transmit	You are trying to print while the transmitter is converting the unit of measurement.									
Err.CLR	Communication problems with the clock	Communication problems with the clock card of the transmitter.									



Notes	
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This publication, or any part of it, may not be reproduced without written permission from the Manufacturer. All information in this manual is based on the data available at the time of its publication; the Manufacturer reserves the right to make changes to its products at any time, without notice and without incurring any penalty. We therefore recommend that you always check for updates. The person responsible for the use of the scale must ensure that all safety regulations in force in the country of use are applied, ensure that the scale is employed in accordance with the intended use and avoid any dangerous situation for the user. The Manufacturer declines all responsibility for any weighing errors.













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Stamp of the authorized service center