

## Innehållsförteckning

- 01 – Datablad
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- 03 – Kopplingsschema
- 04 – Installationsinstruktioner
- 05 – Manualer
- 06 – EU Declaration Of Conformity
- 07 – Kalibreringsbevis

## DGT20I

"DGT20I": IP68 STAINLESS STEEL WEIGHT TRANSMITTER / INDICATOR



Weight indicator/transmitter with AISI 304 stainless steel multifunction case that guarantees an IP68 degree of protection both on bench and panel installations. Suitable for heavy industrial applications, for dosage, filling and level control systems.

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#### Approvals:

**CE-M EN 45501, OIML R-76, OIML R-61 (MID),  
OIML R-51 (MID), Australian approval**

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Working in cooperation with:

**SVENSKA VAG AB**

SJOUDEDEVAGEN 5 - SE-352 46 - VAXJO - SWEDEN  
Tel. 0046 470 72 40 60 Fax. 0046 470 478 44  
info@svenskavag.se

**The best solution  
for advanced industrial  
applications**

## MAIN FEATURES

- Easy to use 5-key waterproof keyboard.
- Highly efficient red LED display with 6 20-mm digits and 6 LEDs for showing active functions.
- New AISI304 stainless steel multifunction protective case, which allows:
  - Wall or bench installation via standard swivel bracket
  - Panel installation with IP68 degree of protection both front and rear, ideal for the chemical, pharmaceutical and food industry and harsh environments.
  - Easy cabling, inspection and maintenance with front panel removal system.
- IP68 degree of protection, with both bench and panel installation.
- Dimensions 212x169,5x91mm, fitted with support bracket for table or wall mounting.
- Theoretical calibration.
- Up to 8 signal linearization points with DINITOOLS (3 from keypad).
- Calibration, Set-Up parameters, configurable from keyboard or from PC with DINI TOOLS.
- Up to 10.000e OIML or 2 x 3000e @ 0,3  $\mu$ V/e CE-M legal for trade.
- Up to 800.000 displayable divisions with internal resolution up to 3.000.000 points.
- A/D 24-bit sigma-delta conversion, up to 400 conv./sec. autoselect.
- Connectable with up to 8 analogue load cells with 350 Ohm input resistance.
- Management of a digitally equalised 4-cell weighing system or management of 4 independent weighing systems.
- DGT20I / DGT20IAN:  
Power supply from 12Vdc to 24Vdc. With external power unit 110/230Vac - 12Vdc and IP68 connector. EU, UK, US, AU plugs included as standard.
- DGT20IPW:  
Internal power unit 110/230Vac.

## MAIN CERTIFICATIONS

- CE-M EN 45501
- OIML R76
- OIML R61 - MID
- OIML R51
- Australian legal for trade certificate of approval (NMI S788)

## TRANSMITTER / INDICATOR: FUNCTIONS

- **THROUGH KEYBOARD:**  
Zeroing; Semi automatic and presettable tare, print and/or data transmission; ON/Stand-by.
- **SELECTABLE:**  
High Resolution Weighing x 10; Net/Gross or lb/kg conversion; Weighs totalisation; Formulation; Counting; In/Out Truck weighing; Hold e Peak.
- **EXTERNAL INPUT:**  
Simulation of key pressure; Keyboard lock.
- **MOSFET OUTPUT:**  
Set Point Control on the weight, either positive (in loading) or negative (in unloading), or on the pieces (counting mode), with programmable enabling/disabling thresholds, as direct check or upon weight stability.
- **SERIAL PORTS:**  
  
On all models: Reading of the net, gross, and tare weights; Clearing; Semi automatic and presettable tare; Scale switch; Setting of outputs activation thresholds.  
  
DGT20I and DGT20IAN models: Reading of microvolts or ADC converter for all the channels; Message display; Printing; Setting of APW in counting mode; Simulation of key pressure; MODBUS ASCII and RTU serial protocol.
- **THROUGH 16 bit ANALOGUE OUTPUT (DGT20IAN):**  
Analogue output proportional to the net or gross weight, either positive (in loading) or negative (in unloading).

## I/O SECTION

- RS232/C bidirectional port (RJ11 connector) configurable for connection to external units.
- RS485 bidirectional port configurable for network connection.
- 2 photomosphet outputs 150 mA 48 Vac/150 mA 60 Vdc (NO) with configurable functions.
- 2 inputs (optoisolator photocouplers) 12 ÷ 24 Vdc, 5 mA min - 20 mA max, with configurable functions.
- 16-bit analogue output (DGT20IAN model) 4-20mA, 0-5Vdc choice or 0-10 Vdc. Maximum load applicable to the current output: 300 Ohm. Minimum load applicable to live output: 1K Ohm.



## MASTER/REPEATER OPTION (MSTSLV code )

- A specific programme for using the indicator as a universal or multi-scale weight repeater (MASTER) in combination with DFW/DGT/MCW.

### OPERATING MODES:

- Multi-scale repeater (MASTER):  
mode that allows up to 32 independent scales to be repeated, with the ability to manage their functions, or to display and print the sum of the weights of all the scales.

### UNIVERSAL weight repeater:

mode that allows weight repetition of any scale, by configuring the input string.

- For further details, [Click here](#).

## DETAIL 1

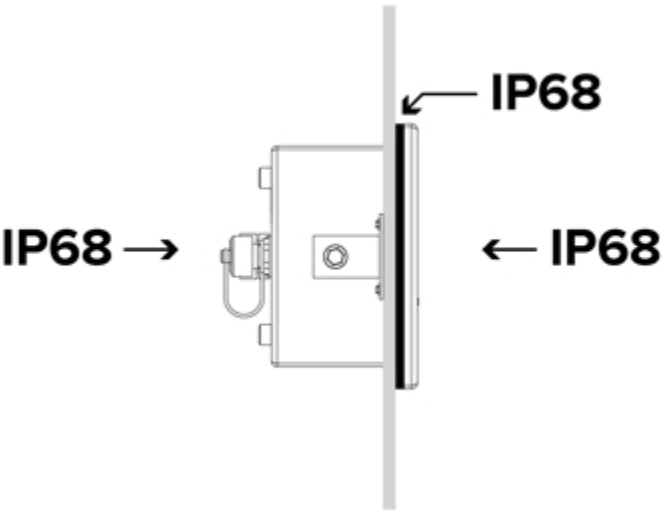


DGT20IPW

## DETAIL 2



DGT20IPW





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Australia



**COMPANY HEADQUARTERS**

Via Della Fisica, 20  
41042 Spezzano di Fiorano - Modena - Italy  
Tel. +39.0536 843418

**SVENSKA VAG AB**

SJOUDEVAGEN 5 - SE-352 46 - VAXJO - SWEDEN

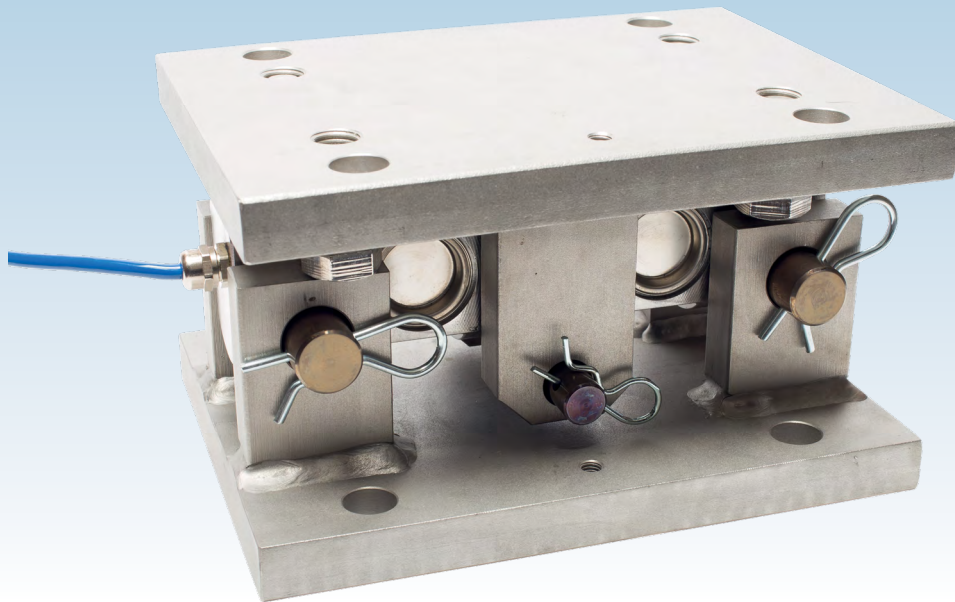
Tel. 0046 470 72 40 60 Fax. 0046 470 478 44

[info@svenskavag.se](mailto:info@svenskavag.se)

**SALES AND TECHNICAL ASSISTANCE SERVICE**

## LOAD CELL ASSEMBLY FOR SILO, TANK AND PROCESS VESSEL WEIGHING

*capacities 2t - 200t*



Vessel weighing problems solved simply and cost effectively. The VC3500 double shear beam load cell, with its robust LA3500 mounting assembly, is designed particularly for large silos and tanks and it incorporates a high resistance to lift-off. The VC3500 load cell is also available with optional ATEX or IECEx certification and can be supplied as a special version with high temperature capability (for operation up to 150°C continuously).

The LA3500 mounting assembly's mechanical characteristics have been designed and calculated according to Eurocode 3 (EN 1993) for peace of mind. Up to 75 tonnes capacity, the mounting assembly incorporates jacking bolts to simplify installation and any routine maintenance that may be desired.

A version with EN 1090 certification (and CE marking\*\*) can be quoted on special request at 30t, 50t, 75t and 100t capacities.

End use industries include cement, food, beverage, minerals, chemicals, plastics, pharmaceutical, paint, biomass, offshore and others.

- Stainless steel load cell, fully welded and hermetically sealed to IP68 and IP69K
- High integral resistance to lift-off as standard
- Resistant to off-axis loading
- Low profile design
- LA3500 mounting assembly designed according to Eurocode 3 (EN 1993)
- Durable Polyurethane cable with high resistance to chemicals, UV radiation and cuts
- 5 year warranty
- Allows for vessel expansion and contraction
- Robust LA3500 assembly is available with zinc plated, stainless steel, galvanized and other finishes
- Optional ATEX or IECEx certification is available
- Optional version with EN 1090 certification and CE marking\*\* is available on request
- Optional load cell output of 4-20mA on request



# VC3500

## installation & dimension details...

### THE CONCEPT

The VC3500 family of load cells is available in capacities from 2,000kg to 200,000kg. They are especially suitable for high capacity vessel weighing and feature a combined error specification of  $< \pm 0.03\%$ .

The critical sensor element is a fully welded double ended shear beam, manufactured from high tensile 17-4 PH stainless steel that is heat treated to give a high ultimate tensile strength. This heat treatment provides an extremely stable platform for the strain gauges, resulting in excellent accuracy and repeatability.

In common with all Thames Side load cells, the strain gauged element is temperature compensated to ensure accuracy is maintained over a wide temperature range.

Stainless steel diaphragms are welded in position to provide total environmental sealing. This method of construction, together with the fitting of a high quality cable gland, allows Thames Side to offer a 5 year warranty on the complete unit.

The mounting assembly has a durable zinc plated finish as standard, to provide a high level of protection. Galvanized alloy steel, stainless steel, or specially painted mounting assemblies are available as an option.

The bi-directional freedom of movement of the mounting assembly top plate allows for a high degree of misalignment in the silo / vessel support structure. This is particularly important in large structures where dimensional accuracy, rigidity and angular conformity cannot be guaranteed, or where large changes in ambient temperature are anticipated.

The complete VC3500 weighing assembly incorporates lift-off protection, reducing the need in many cases for additional restraints. Integrated jacking bolts on capacities up to 75t facilitate simple installation and routine maintenance. This eliminates the need for time-consuming and expensive installation work, giving a very cost effective total solution.

Due to the unique design of the VC3500, transverse and non-axial misalignment errors are minimised.

### ATEX and IECEx CERTIFICATION

The VC3500 load cell has a number of ATEX and IECEx certification options, several of which allow for use without safety barriers. This can result in significant cost savings;

Cert.	Code	Safety Parameters	Key Points
ATEX	II 1 GD Ex ia IIC T6 Ga Ex ia IIIC T70°C Da $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$	$U_i=30\text{ V}$ , $P_i=1.3\text{ W}$ $C_i=2.4\text{ nF}$ , $L_i=8\text{ }\mu\text{H}$	Suitable for all gas (0, 1, 2) and dust (20, 21, 22) zones but requires safety barriers.
IECEx	Ex ia IIC T6 Ga Ex ia IIIC T70°C Da $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$		
ATEX	II 3 G Ex nA T6 $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$	$U_i=30\text{ V}$ , $P_i=1.3\text{ W}$ $C_i=2.4\text{ nF}$ , $L_i=8\text{ }\mu\text{H}$	Suitable for gas zone 2 only. No safety barriers are required; for full details refer to ATEX certificate.
ATEX	II 1 D Ex ta IIIC T80°C Da $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$	$U_m=18\text{ V}$	Suitable for all dust zones (20, 21, 22). No safety barriers are required; for full details refer to ATEX certificate. Excitation voltage must be below 18V.

For details of the certification relating to a specific product code, please refer to the documentation included in the [“ATEX and IECEx Approved Products”](#) section of our website [www.thames-side.com](http://www.thames-side.com)

### HIGH TEMPERATURE

The VC3500 load cell is available optionally as a high temperature variant that utilises special load cell components and a 6-wire PTFE ‘Teflon’ cable (with sense wires) for continuous operation in environments up to  $150^{\circ}\text{C}$ .

### OPTIONAL EXTRA PROTECTION FOR EXTREME ENVIRONMENTS

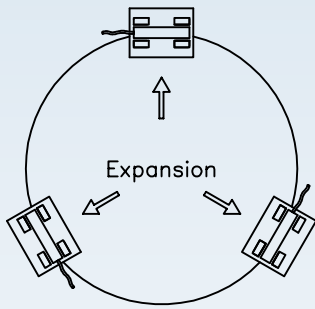
A special Parylene coating can be added to the load cell as an option, to provide additional protection in extreme environments where stress corrosion could occur. Examples are applications where chlorine, acids, salts or other harsh chemicals are present.

### AMPLIFIED OUTPUT

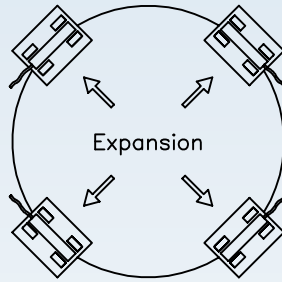
The VC3500 load cell can be supplied with an integral 4-20mA amplified output as a special option when required.



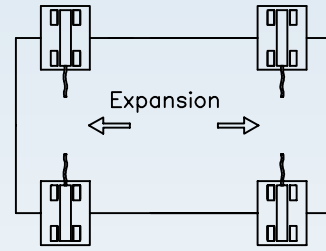




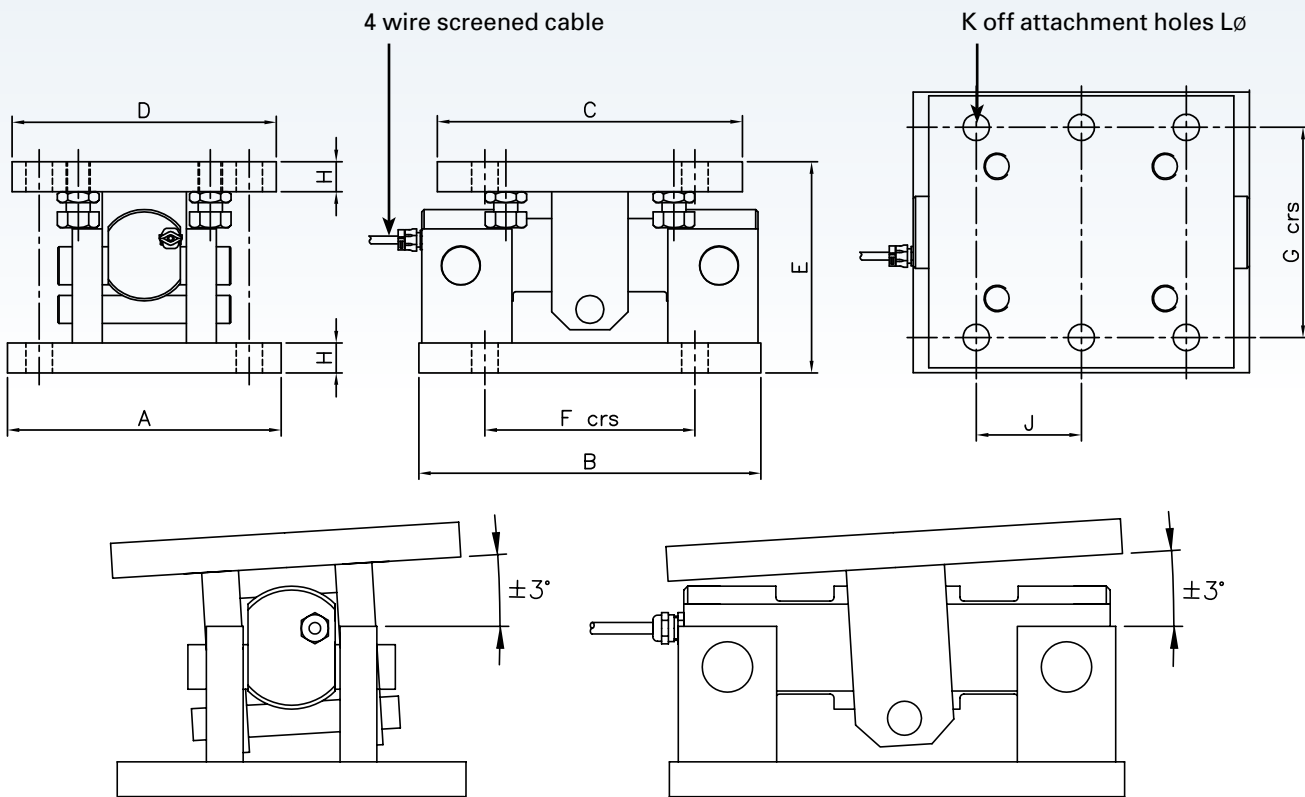
Circular Vessel, 3 Leg Supports  
VC3500 3 x Load Cell Installation



Circular Vessel, 4 Leg Supports  
VC3500 4 x Load Cell Installation



Horizontal Vessel, 4 Supports  
VC3500 4 x Load Cell Installation



Load Cell Capacity (t)	A	B	C	D	E	F crs	G crs	H	J crs	K No	L Ø	Combined weight of load cell and assembly (kg)
2	180	235	235	180	137	155	140	20	-	8	18	22.2
5												
7.5												
10												
15												
20	250	300	250	220	210	175	175	25	-	8	22	43.1
30												
50												
75	250	360	330	250	250	200	180	25	100	12	22	59.7
100	350	450	440	350	275	300	235	30	150	12	26	112.8
150	350	440	440	350	325	310	285	30	155	12	32	119.8
200												

NOTE: Jacking bolts are available except for 100t, 150t and 200t capacity versions.

A smaller body size 30t version of the VC3500 load cell is available, but is only suitable for use with the MasterMount® assembly.

# VC3500 with LA3500

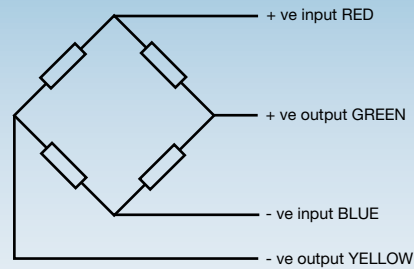
technical specification...



## VC3500 Load Cell

	Load cell specification	Units
Load Cell Capacities	2, 5, 7.5, 10, 15, 20, 30, 50, 75, 100, 150, 200	tonnes (t)
Full Load Output	2.0	mV/V $\pm$ 0.25%
Excitation - Recommended	5 - 15	V
Excitation - Maximum	18	V
Safe Service Load	150	%*
Ultimate Overload	300	%*
Combined Error	$< \pm 0.03$	%*
Repeatability	$< \pm 0.015$	%*
Output at Zero Load	$< \pm 2.0$	%*
Input Resistance	785	$\Omega \pm 20$
Output Resistance	705	$\Omega \pm 5$
Operational Temperature Range	-50 to +80	$^{\circ}\text{C}$
Compensated Temperature Range	-10 to +40	$^{\circ}\text{C}$
Temperature Coefficient on Zero	$< \pm 0.002$	%* / $^{\circ}\text{C}$
Temperature Coefficient on Span	$< \pm 0.0012$	%* / $^{\circ}\text{C}$
Environmental Protection	IP68 and IP69K	
Cable Length	20	m
Cable Material	Polyurethane	
Insulation	$> 5000$	M $\Omega$ @ 100V

\*All percentages are related to Full Rated Load



### Electrical Connections

Via 4 core, 6mm diameter, screened polyurethane cable (halogen-free).

Screen not connected electrically to load cell.

### Construction

#### Load cell VC3500

High strength stainless steel type 17-4PH

#### Mounting Assembly LA3500

- Zinc Plated Alloy Steel version (LA3500-\*\*\*\*-Z)

Upper & lower plates: alloy steel, durable zinc plated finish

Pins: corrosion resisting hardened stainless steel

Clips: plated alloy steel

- Galvanized alloy steel version (LA3500-\*\*\*\*-G)

Upper & lower plates: alloy steel, galvanized finish

Pins: corrosion resisting hardened stainless steel

Clips: plated alloy steel

- Stainless steel version (LA3500-\*\*\*\*-SS)

Upper & lower plates: stainless steel

Pins: corrosion resisting hardened stainless steel

Clips: stainless steel

## LA3500 Mounting Assembly

Loading limits for Zinc Plated and Galvanized Alloy Steel assemblies (with load cell installed)

Mounting Assembly	Load Cell Capacity (t)	Deflection at capacity (mm)	Allowable expansion across assembly (mm)	Maximum Vertical Load (kg)	Maximum End Load (kg)	Maximum Transverse Load (kg)	Maximum Lift-off (kg)
LA3500 - 20T	2	0.20	$\pm 5$	79538 <sup>A</sup>	10800	4000	3202
	5	0.20					
	7.5	0.25					
	10	0.25					
	15	0.30					
	20	0.40					
LA3500 - 50T	30	0.50	$\pm 9$	96873	28042	10910	18355
	50	0.50		132560			
LA3500 - 75T	75	0.80	$\pm 9$	173352	35690	8872	29572
LA3500 - 100T	100	0.80	$\pm 12$	263087	39260	11727	19885
LA3500 - 200T	150	0.90	$\pm 12$	538410 <sup>AA</sup>	87002	17285	61937
	200	0.90					

Loading limits are calculated according to Eurocode 3 (EN 1993). Limits for Stainless Steel assemblies (LA3500-\*\*\*\*-SS) are available on request.

<sup>A</sup>With 20t load cell installed <sup>AA</sup>With 200t load cell installed

## THAMES SIDE SENSORS LTD

Unit 10, io Trade Centre, Deacon Way,  
Reading, Berkshire RG30 6AZ, UK

tel: +44 (0) 118 941 1387

fax: +44 (0) 118 941 2004

sales@thames-side.co.uk

www.thames-side.com



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Svenska Våg AB  
Sjöddev. 5, 352 46 Växjö  
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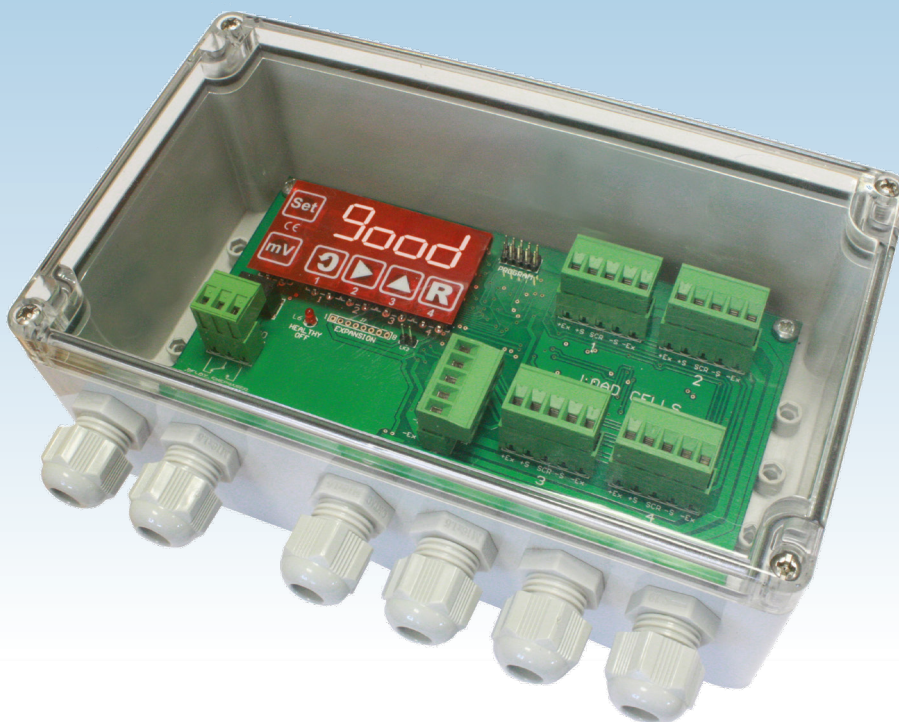
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INTELLIGENTA VÄGNINGSSYSTEM

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## JUNCTION BOX WITH CONTINUOUS LOAD CELL HEALTH MONITORING



Continuous, cost effective load cell monitoring with an instant alarm signal.

This Intelligent Junction Box is designed to continuously monitor the output signal and electrical circuit of up to 4 load cells connected together in a weighing system; if a fault condition occurs with one or more load cells then the LED display shows the relevant load cell number(s) together with the error details. An alarm signal is also indicated by a relay changing its state.

Avoidance of product recall or batch wastage, reduction in plant downtime, increased safety and faster installation and commissioning are just a few of many reasons why the this intelligent junction box is an important component in any weighing system. The compact, IP65 / NEMA4 rated unit contains an on-board microprocessor that continuously checks each load cell for errors such as an out-of-balance mV signal, a signal outside of a pre-set mV range, a reduction in the excitation voltage, a short-circuit or an open-circuit.

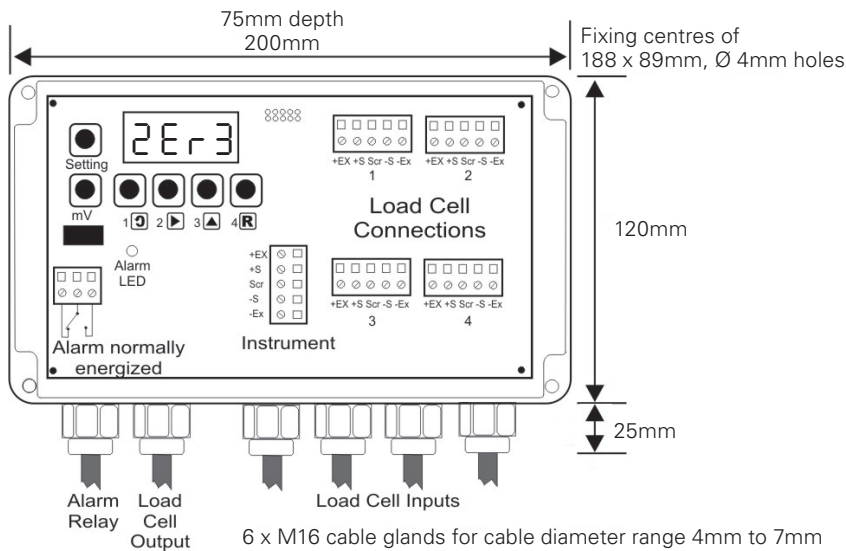
The junction box can be used with **any brand** of indicator/transmitter meeting the requirements shown on the next page

- Continuous monitoring of up to 4 load cells
- IP65 / NEMA4 ingress protection
- ABS casing (option of Stainless Steel casing or PCB only)
- Red LED illuminates and relay changes state if a fault condition occurs
- RoHS, CE and European EMC approvals
- Checks for Wheatstone bridge faults in the load cell
- Removable terminals for simpler, faster wiring
- Display shows individual mV/V outputs of the load cells (or the mean mV/V value)
- Transparent cover for easy viewing of faults on 4-digit red LED display (ABS version only)
- 3 year warranty

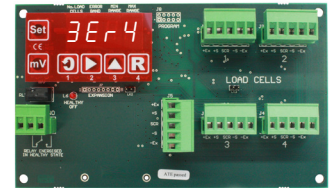


# JB4T-INTELLIGENT

technical specification...



Optional stainless steel IP65 version (cover is not transparent)



Optional PCB only

## Intelligent Junction Box

Specifications	
<b>Faults monitored by junction box</b>	Load Cell out of pre-set balance range
	Load Cell out of pre-set operating range
	Low/high excitation voltage
	Open circuit to any load cell
	Short circuit on any load cell connection
	Internal load cell fault (Wheatstone bridge imbalance)
<b>Power</b>	By Load Cell Excitation from indicator/transmitter
<b>Indication</b>	4-digit LED display for set up, load cell number and error type (see above examples) & individual or total mV signal
<b>Interface</b>	6 buttons for reading & set up
<b>Connections</b>	2 part terminals, for up to 2.5mm <sup>2</sup> cross-section cable
	4 x 5 way, for load cell connections
	1 x 5 way, for load cell output to indicator/transmitter
<b>Dimensions</b>	1 x 3 way, alarm relay contacts
	200 x 120 x 75 mm
<b>Environmental</b>	Sealed to IP65 / NEMA4 with cable glands & blanking plugs fitted; CE Compliant
<b>Enclosure</b>	Grey ABS IP65 / NEMA4 (Stainless Steel Case IP65 / NEMA4, or PCB only, as options)
<b>Relay Alarm</b>	Relay is normally energized in healthy state (when power is provided to the junction box). SPCO current: 1 A; 30 V DC or 120 V AC
<b>Use with barriers (ATEX)</b>	NOT ATEX approved. NOT suitable for use with barriers, even when installed in an ATEX certified enclosure or in a 'safe' zone
<b>Compatible indicators/transmitters</b>	Thames Side XT1000, XT2000, XTSGA, XT960, Matrix 2, SMART, SMART-ATEX (without barriers), X320, R400, DP100 or another brand (minimum excitation voltage 5V DC)

Performance Parameters	
<b>Allowable voltage at Junction Box (from indicator/transmitter)</b>	4 to 12 V DC
<b>Allowable current from indicator/transmitter</b>	Max. 80 mA *
<b>Load cell bridge resistance</b>	300 to 1000 Ohms
<b>Load cell sensitivity</b>	1.0 to 5.0 mV/V
<b>Number of load cells</b>	1 to 4
<b>Output load (indicator input resistance)</b>	1M Ohms
<b>Bandwidth (display only)</b>	100 Hz
<b>Zero Temperature Coefficient of display value @ 2 mV/V @ 4V excitation</b>	0.008 % FR / °C
<b>Span Temperature Coefficient of display value</b>	0.001 % FR / °C
<b>Linearity</b>	0.03 % FR
<b>Error display speed on LED display (using 4 cells)</b>	Typ. 40 ms, Max. 100 ms
<b>Display Range</b>	± 50 mV
<b>mV measurement accuracy for individual load cells (display only)</b>	± 0.1 mV
<b>Operating temperature</b>	-10 to +55 °C
<b>Storage temperature</b>	-40 to +95 °C
<b>Max. humidity</b>	95% non-condensing
<b>EMC Approvals</b>	2014/30/EU, BS EN 61326-1:2013, BS EN 61326-2-3:2013
<b>Maximum cable length between junction box and indicator/transmitter</b>	10 metres when using our 6-core screened cable CA-PU-5.7MM-6C with XT1000/XT2000. With other cable or indicators, make a voltage drop calculation or consult us

\* excluding load cell excitation current  
FR: full range

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Svenska Våg AB  
Sjöddev. 5, 352 46 Växjö  
Tel: 0470/724060  
Mail: info@svenskavag.se / www.svenskavag.se

## THAMES SIDE SENSORS LTD

Unit 10, io Trade Centre, Deacon Way,  
Reading, Berkshire RG30 6AZ, UK

tel: +44 (0) 118 941 1387

fax: +44 (0) 118 941 2004

sales@thames-side.co.uk

www.thames-side.com

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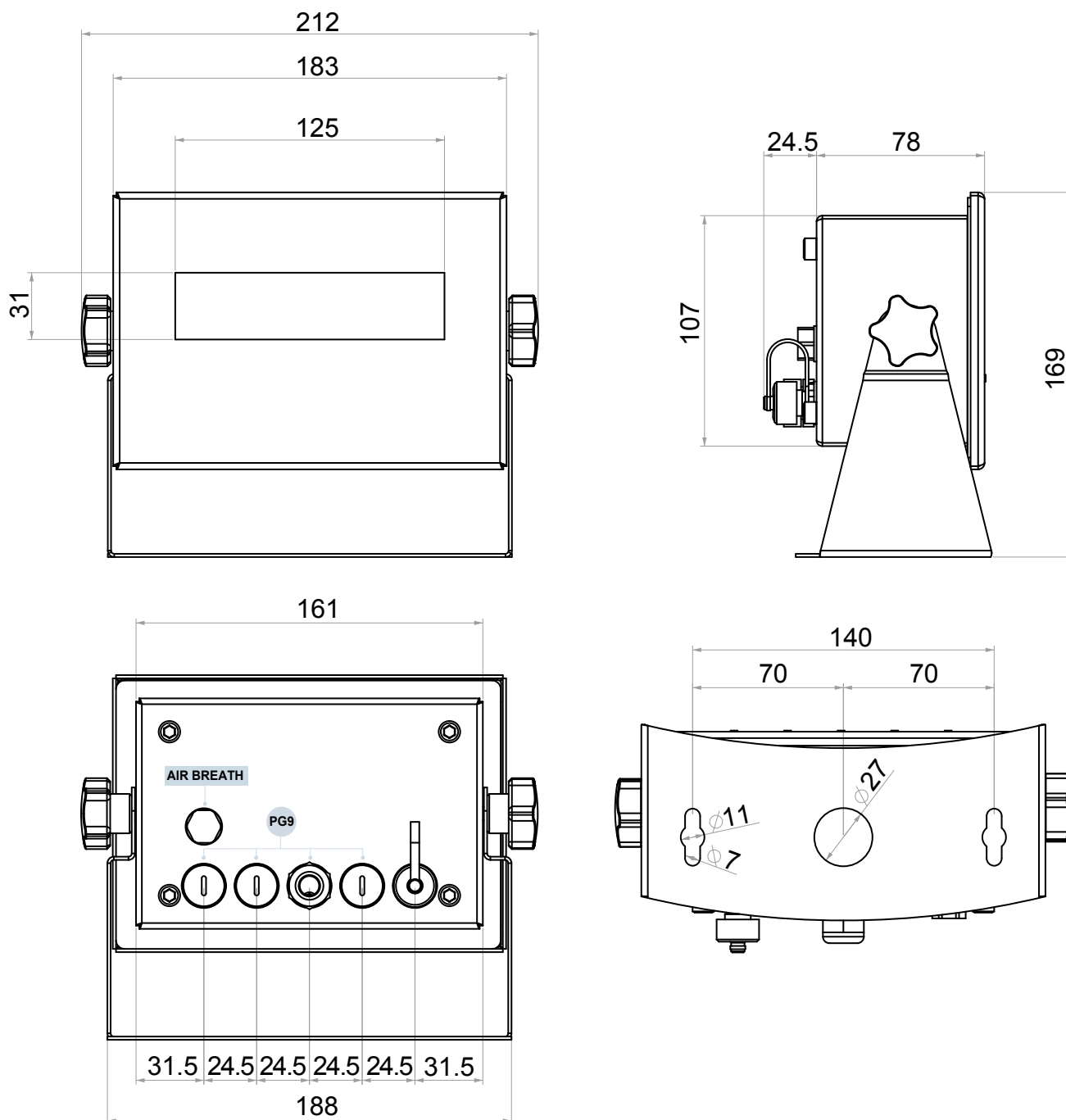


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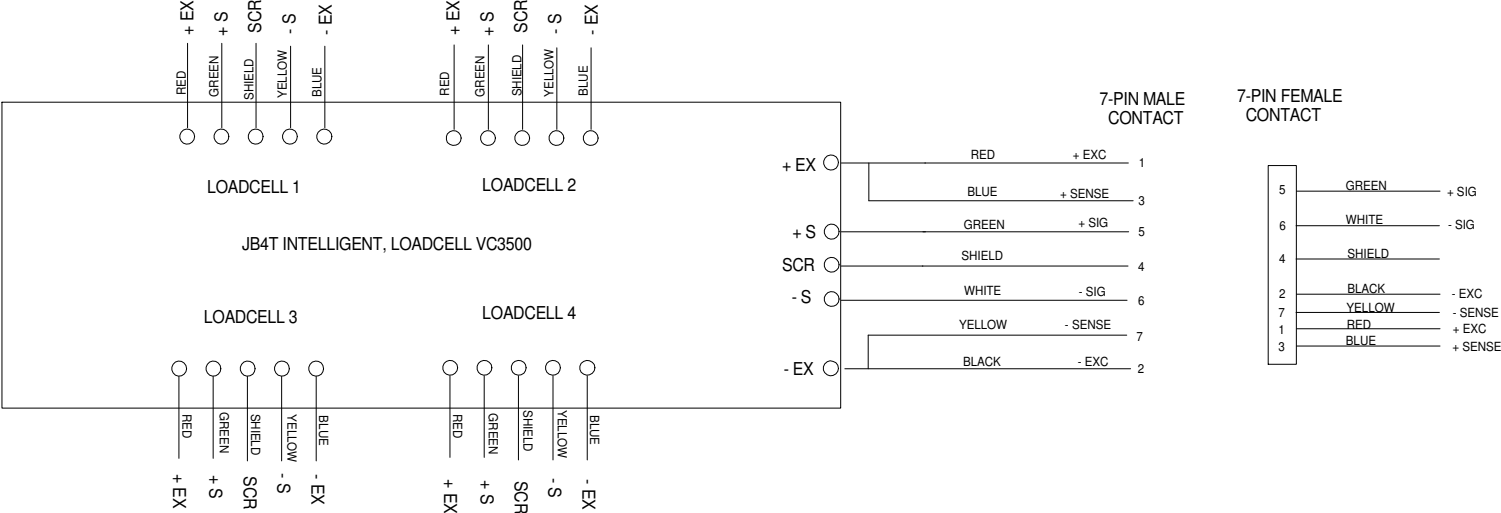
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## DGT20I-1



Cable gland	Min. cable ø (mm)	Max. cable ø (mm)	Fastening torque (Nm)
PG9 - metal	4	8	5

dimensions in mm

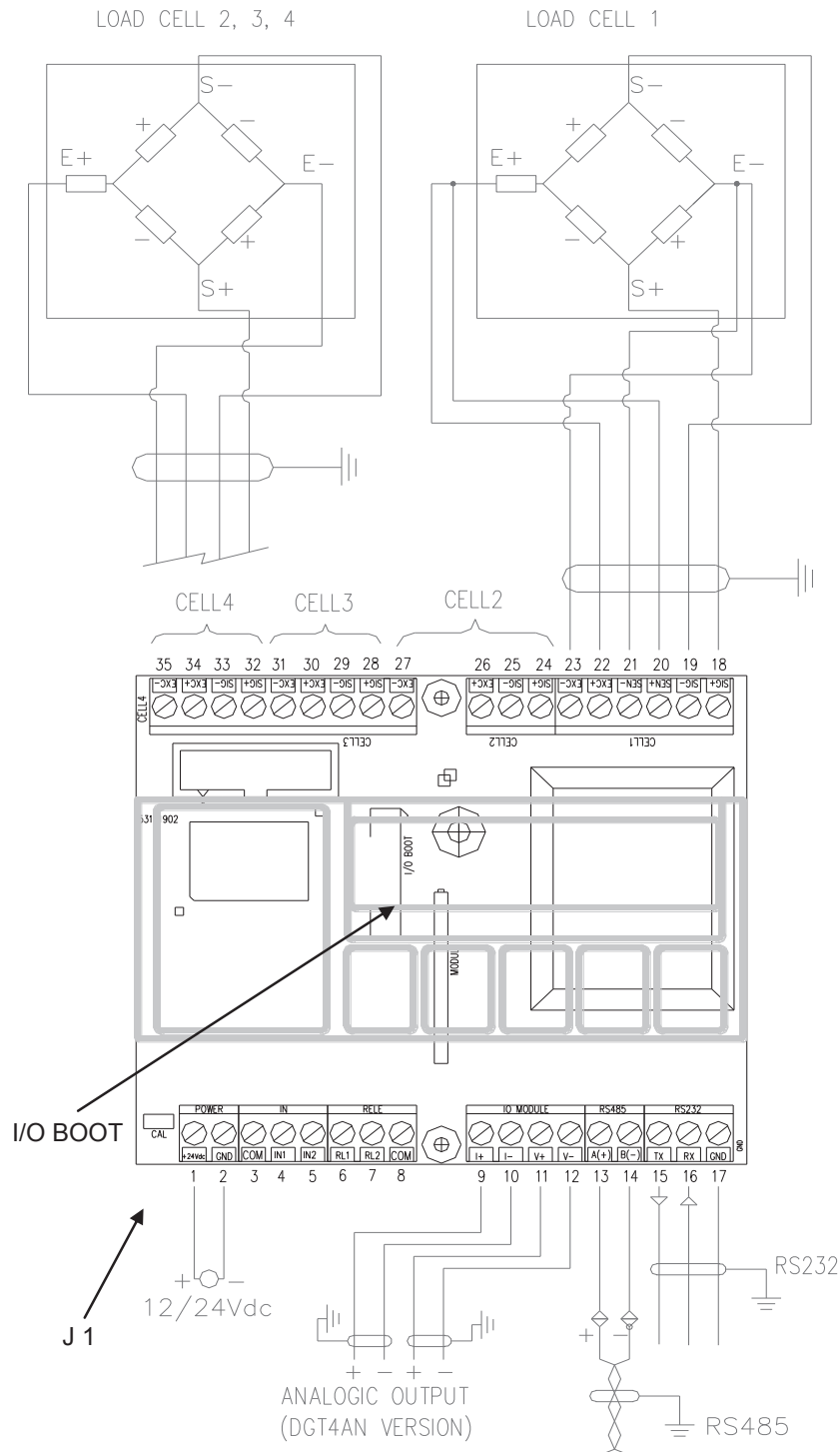


## 14. CONNECTION SCHEMES

### 14.1 DGT1/DGT1S MOTHERBOARD

For the schemes of these indicators, refer to the corresponding manuala “Smart setup” downloadable from the [www.diniargeo.com](http://www.diniargeo.com) website.

### 14.2 DGT4 / DGT60 / DGT20 / DGT4AN / DGT20AN MOTHERBOARD



## MEANING OF DGT4 / DGT60 / DGT100 / DGT20 / DGT4AN / DGT20AN TERMINAL BOARDS AND MOTHER BOARD JUMPERS

### • VE 12 / 24 Vdc POWER SUPPLY

1. **+24Vdc**      +12 / 24 Vdc
2. **GND**        0 Vdc (GND)

### • CELL LOAD RECEPTORS

#### CELL1:

18. **SIG+**      SIGNAL +
19. **SIG-**      SIGNAL -
20. **SEN+**      SENSE +
21. **SEN-**      SENSE -
22. **EXC+**      EXCITATION +
23. **EXC-**      EXCITATION -

**!! IMPORTANT !!**

If one wants to use 4 wires in the CELL 1 terminal board (without using the SENSE signal), one should short-circuiting - SEN with -EXC and +SEN with +EXC.

#### CELL2:

24. **SIG+**      SIGNAL +
25. **SIG-**      SIGNAL -
26. **EXC+**      EXCITATION +
27. **EXC-**      EXCITATION -

#### CELL3:

28. **SIG+**      SIGNAL +
29. **SIG-**      SIGNAL -
30. **EXC+**      EXCITATION +
31. **EXC-**      EXCITATION -

#### CELL4:

32. **SIG+**      SIGNAL +
33. **SIG-**      SIGNAL -
34. **EXC+**      EXCITATION +
35. **EXC-**      EXCITATION -

### • CALIBRATION JUMPER

**J1** = if closed, it enables the access to the metrological parameters

### • I/O BOOT

Connector for the connection of the ALIBI MEMORY board or for the CLOCK board.

### • ANALOGUE OUTPUT (DGT4AN and DGT20AN versions)

#### On current:

9. **I+**        + 20 mA
10. **I-**        0 mA (GND)

**On voltage:**11. **V+** + 10 V12. **V-** 0 V (GND)

**Note:** the maximum resistance applicable on the output current is 350 Ohm and the minimum resistance applicable on the output voltage is 10 kohm.

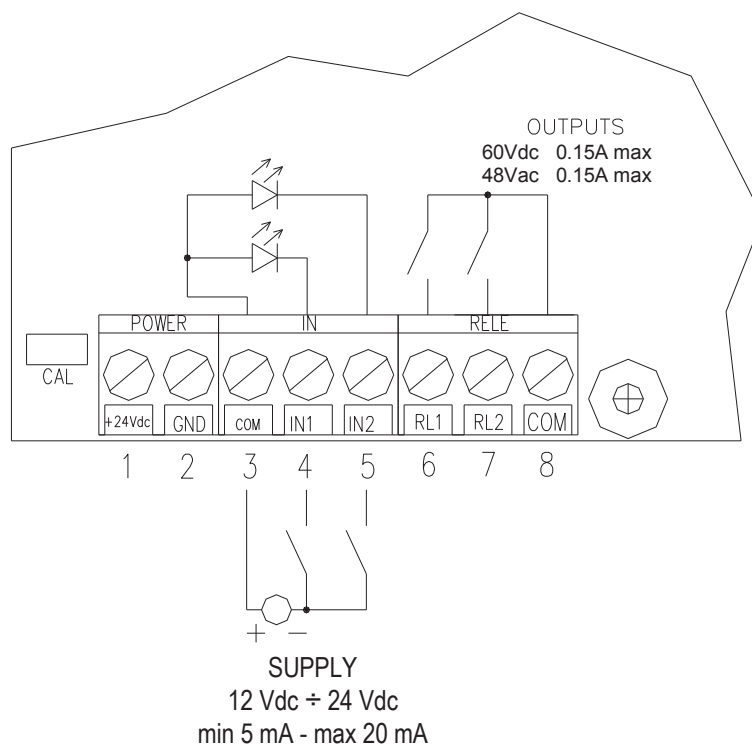
- **RS 485 SERIAL PORT**

13. **A(+)** 485 + Line14. **B(-)** 485 - Line

- **RS 232 SERIAL PORT**

15. **TX** Transmission16. **RX** Reception17. **GND** GND

- **INPUTS (OPTOISOLATOR PHOTOCOUPLEDERS) AND PHOTOMOSFET OUTPUTS**



The maximum power of the outputs 48 Vac 0,15 A max (or 60 Vdc 0,15 A max), the maximum voltage applicable to the inputs is between 12 ÷ 24 Vdc with current from minimum 5 mA to maximum 20 mA.

**Spareparts:**

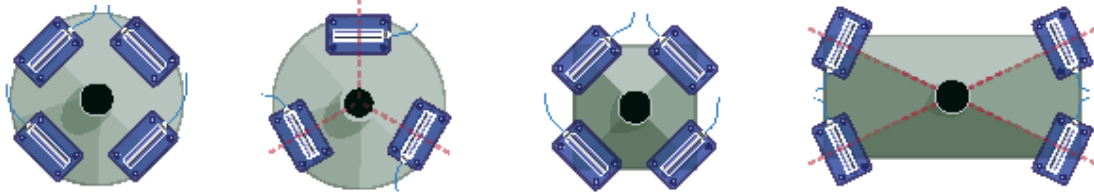
<b>Type:</b>	<b>Art.no:</b>	<b>Pcs:</b>
Weighinginstrument DGT20IAN	13-03-066	1
Loadcell 460-30000kg incl. Loading assembly	11-04-013	4
Junctionbox JB4T-Intelligent	11-50-064	1
Instrument cable 10m	12-01-098	1

# Loadcell installation



Each installation is unique, and this document is a general guideline. It should be used in conjunction with standards relevant to the application. Should you require advice on your weighing application, our application engineers will be pleased to advise you on the best solution.

## Loadcell orientation



These loadcell positions are recommended. Expansion and contraction of the vessel has minimal effect on the weighing system. When planning new installations, follow these guides. With existing plant, it is not always possible to achieve the ideal layout, but balance the forces equally over the loadcells. Align the loadcell axis with the Centre of Gravity.

## Environment



Proper drainage is necessary to avoid submersion. For steam cleaning, or direct wash down, a protective shroud must be fitted. Shrouds must allow free movement of loadcell assemblies and cables.



## Retrofit system

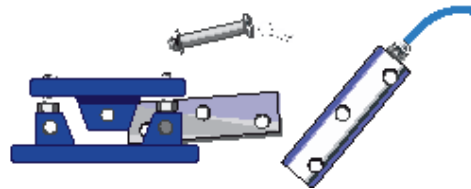


When fitting weighing systems to existing vessels, take care to maintain a rigid structure. Additional support may be required for safety and accuracy.



## Dummy loadcells

Loadcell elements are vulnerable during installation. Dummy loadcells are available for installation, leveling, or when welding is carried out on the vessel or silo.



Fit dummy loadcell elements to the assembly, prior to installation. Conduct all assembly, welding and initial leveling with the dummy loadcells in the assembly. Mountings, and safety mechanisms, must allow calibration adjustment. Three cell systems may be self leveling. Four or more cells will require adjustment. See leveling guide.



### Lift off protection



For installations subjected to wind loading, or seismic activity, lift off protection must be fitted to the vessel. Lift off bolts must withstand the maximum forces expected, and restrain upward movement. A clearance should be left to prevent the bolts from mechanically interfering with the vessel

during normal use as this could cause weighing inaccuracies. When the vessel is empty; wind the bolts down to touch the vessel skirt, then back 1 turn, and lock off.

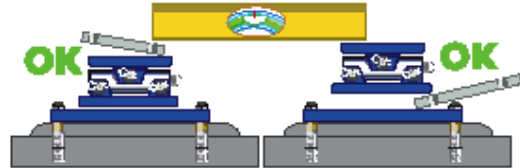
### Mounting



Check all the mounting surfaces carefully; vessel mountings, and ground spreader plates. Everything must be level within  $\pm 0.5^\circ$ . The silo must be vertical. Fit spreader plates to support the loadcell assembly. Level the concrete plinth with shim plates. Fill with grout if required.

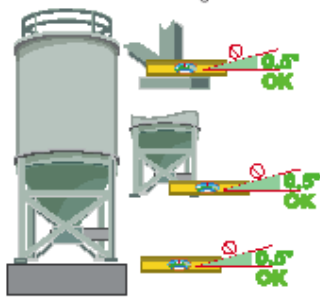


Use shim plates to make fine level adjustments. Shims must fully cover the loadcell assembly plate. Avoid point loading. Shim plates may be fitted either above or below the loading assembly. For ease of maintenance fit shims only to one side of the assembly.

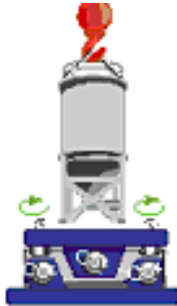


### Installation of the vessel or silo using dummy loadcells

Use dummy loadcells during installation. Avoid mechanical damage or overload. Inspect the installation. Silos must be vertical. Vessels and loadcell assemblies must be level within  $\pm 0.5^\circ$ .



### Installation of the vessel or silo when dummy loadcells not are available



Before lower the silo weight onto the loadcell assembly. Wind down the jacking points so the loadcell moves freely. Carefully lower the silo weight onto the loadcell assembly. Avoid mechanical damage or overload. Wind the jacking bolts tightly back into the top plate. Inspect the installation. Silos must be vertical. Vessels and loadcell assemblies must be level within  $\pm 0.5^\circ$ .

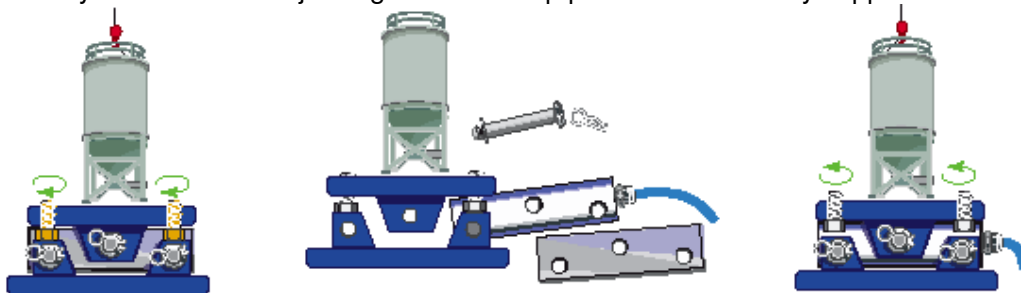
### Connections to the vessel

Use flexible connections to maintain accuracy. Balance pipework around the vessel. Avoid rigid conduit or cable trays to mixers or agitators. Where possible, mixers should be balanced, and positioned at the centre of the vessel.



### To remove dummy loadcells

Complete all welding work, and initial leveling work. Use suitable jacking points. Lift or jack the weight off the loadcell assemblies. Avoid excessive force. The dummy loadcell must move freely. Wind down the jacking bolts. The top plate must be safely supported.



Carefully lower the silo weight onto the loadcell assembly. Inspect the mechanical assembly. Wind the jacking bolts tightly back into the top plate. See Loadcell levelling for final shim, and calibration.

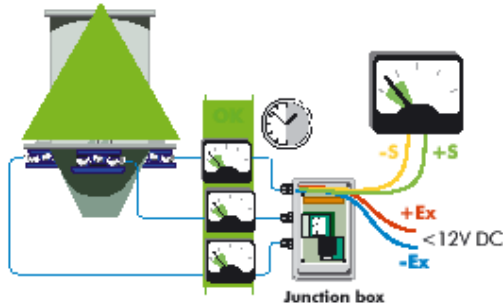
# Loadcell leveling



Each installation is unique, and this document is a general guideline. It should be used in conjunction with standards relevant to the application. Should you require advice on your weighing application, our application engineers will be pleased to advise you on the best solution.

**Leveling is essential for accuracy and safety. The objective is to distribute the weight equally over the loadcells.**

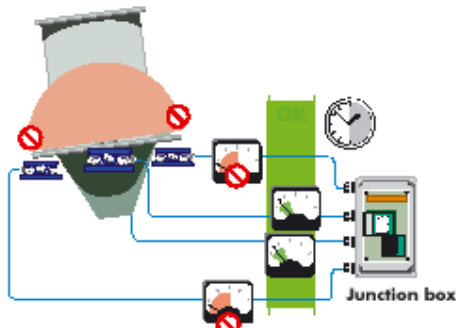
Ideally the millivolt output from each loadcell will be within 20% of each other, and the signal should be stable. Carry out basic wiring and mechanical safety checks before fitting loadcells and applying power.



After the Silo has been installed, and whilst it is still empty; measure and record the millivolt output across the + signal and - signal wires on each loadcell.

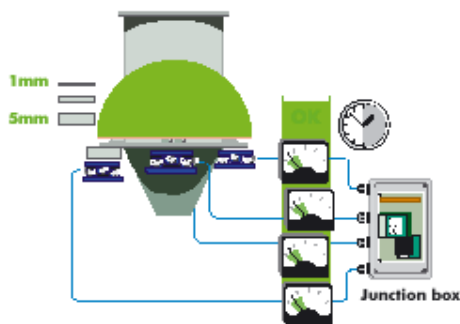
Three loadcell installations tend to be self leveling. This makes it easier to balance the signals, within a 20% band. But where you require greater loads, and mechanical stability, more loadcells may be fitted.

On installations with 4 or more loadcells; it is likely 2 opposing loadcells will be giving out lower readings.

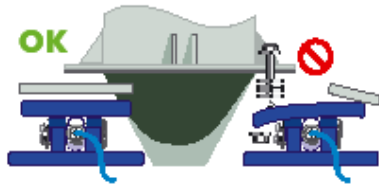


If the loadcell outputs differ by more than 20%, shim plates should be fitted to level the system. Shim plates should be positioned between the top plate of the loadcell assembly and the foot of the vessel.

Shim the loadcell with the lowest output. Shimming will then force more weight to be applied to its opposing loadcell.



Shim plates can range from 1mm to 5mm thickness. 1mm should be used for fine shimming. Take care where shims are positioned. Shims must cover the full area of the loadcell plate, evenly distributing the force.

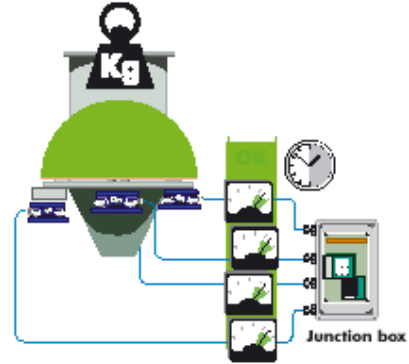


Avoid point loading. Small patches of shim, or spacing washers may twist the loadcell, causing inaccuracies, and possibly damage the assembly.

Apply a known load. Again measure the output from each loadcell. Ensure that each output is still within 20%. Inspect the installation and add further fine shims as required.

When the system is correctly shimmed, the millivolts output from each loadcell will be within 20% of each other, and the signal should be stable.

After shimming, carry out a final inspection. Check all bolts are tightened, check wiring, and refit all junction box covers. Ensure the installation is fit for use.

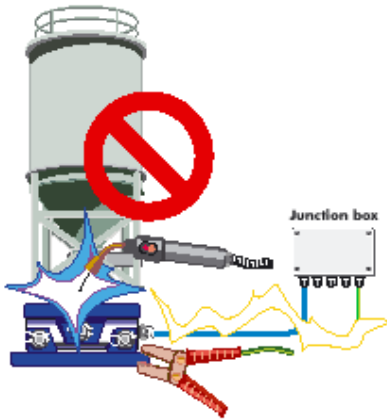


# Welding near loadcell



Each installation is unique, and this document is a general guideline. It should be used in conjunction with standards relevant to the application. Should you require advice on your weighing application, our application engineers will be pleased to advise you on the best solution.

**Bolt the loadcell assembly in position. Never weld loadcell assemblies. To avoid damage to a loadcell, when welding on a vessel or silo, take the following precautions.**

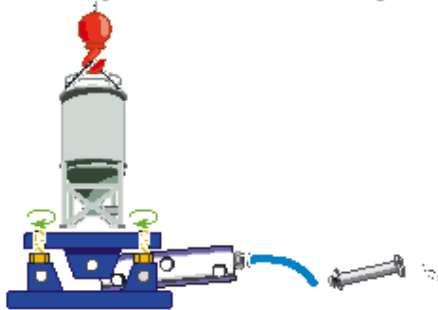


Inspect the system carefully. Understand all the electrical connections. Ensure that all sensitive equipment is switched off, and disconnected. Protect the loadcells and wiring from: heat, mechanical overload, high voltage, high grounding currents, and molten splatter.

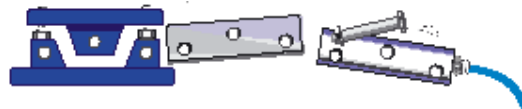
**Never weld across an active loadcell, or weighing system.**

For corrosion protection, assemblies are plastic coated. Do not connect welding ground to the loadcell assembly base.

**We recommend you remove the loadcell and fit dummy loadcells for all welding work.**



Remove the circlips and load pins. Remove the live loadcell. Fit the dummy loadcell. Refit the load pins and circlips. Wind the jacking bolts all the way back into the top plate.





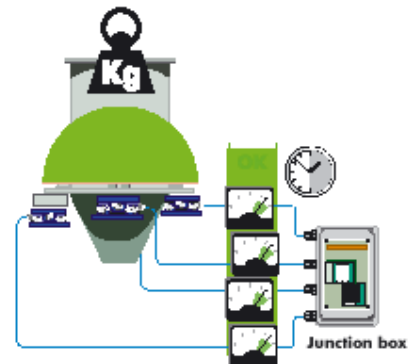
Carefully lower the silo weight onto the dummy cell assembly. Inspect the mechanical assembly. Carry out the welding work.



### When it is not possible to remove loadcells



If you are welding on other parts of the silo: Disconnect the loadcells at the junction box. Connect the welding ground to avoid the welding current flowing through loadcell assembly. Protect the loadcell assembly from splatter, overheating, and mechanical overload. When the welding is complete, reconnect the loadcells at the junction box, and check the calibration.



**Spareparts:**

<b>Type:</b>	<b>Art.no:</b>	<b>Pcs:</b>
Weighinginstrument DGT20IAN	13-03-066	1
Loadcell VC3500-30000kg incl. Loading assembly	11-04-025	4
Junctionbox JB4T-Intelligent	11-50-064	1
Instrument cable 10m	12-01-098	1

## Nollpunktskalibrering DGT

### Viktigt!

**Vågssystemet är kalibrerat vid leverans. Endast nollpunktskalibrering behövs efter att montering är slutförd innan systemet tas i drift.**

**Se nedan instruktioner för hur nollpunktskalibrering utförs.**

**OBS! Använd INTE taringsfunktionen för att nollställa systemet. Minnet för tarering försvinner vid strömavbrott. Se den tekniska manualen för mer information.**

Nollpunktskalibrering utförs genom följande steg:

1. Säkerställ att vågen är tom och i det tillstånd då instrumentet ska visa 0
2. Håll inne C-knappen tills displayen visar "-OFF-". Var noga med att släppa knappen direkt när "-OFF-" visas. Om knappen hålls inne längre än nödvändigt går instrumentet in i ett testläge och visar olika parametrar, innan det återgår till viktvisning.
3. När instrumentet är avstängt och endast en punkt lyser, tryck en gång på C-knappen för att starta instrumentet och när displayen visar 888888 (efter ca 1 sekund) tryck på Tare-knappen (↑). Displayen visar "F-ModE" alternativt "tyPE" beroende på vilket instrument som används.
4. Tryck pil ner/upp tills displayen visar "Setup". Tryck Enter för att gå in i Setup.
5. Displayen visar "Config". Tryck Enter för att gå in i Config.
6. Tryck pil ner/upp tills displayen visar "0.Calib" och tryck Enter
7. Displayen visar "Cal.0?". Bekräfta genom att trycka Enter igen.
8. Displayen växlar mellan att visa ett värde och texten "0.Calib" några gånger. Det är viktigt att vågen är stabil och inte vibrerar/rör sig under nollpunktskalibreringen. Samma värde måste visas tre gånger innan DGT accepterar värdet som den nya nollpunkten. Värdet som visas är det interna ADC-värdet som DGT räknar fram från lastcellens signal.
9. Om kalibreringen lyckades visar displayen ett värde som börjar på "d.", t ex d.00216, och sedan "filt.50".
10. Tryck C-knappen upprepade gånger tills displayen visar "SAVE?"
11. Tryck Enter för att spara kalibreringen.
12. Displayen visar "Store" och instrumentet startar om

Efter steg 8, om kalibreringen inte gick igenom, exempelvis på grund av instabil signal från lastcellerna, visas texten "ErNot" under ett kort ögonblick innan displayen växlar till "Store?". I detta läge kan användaren välja om det felaktiga resultatet som nollpunktskalibreringen ändå ska användas eller om en ny kalibrering ska utföras.

Nytt försök:

9. När displayen visar "Store?", tryck C-knappen, displayen visar "Retry?".



10. Tryck Enter för att göra ett nytt försök. Om ny kalibrering lyckas, fortsätt från punkt 10 ovan, eller om kalibrering misslyckas igen avbryt med C-knappen eller fortsätt från instruktionerna nedan.

Använd resultat från den misslyckade nollkalibreringen:

9. När displayen visar "Store?", tryck Enter för att välja avläst nollpunkt.
10. Displayen visar ett värde som börjar på "d.", t ex d.00216, och sedan "filt.50".
11. Tryck C-knappen upprepade gånger tills displayen visar "SAVE?"
12. Tryck Enter för att spara kalibreringen.
13. Displayen visar "Store" och instrumentet startar om

En pågående nollpunktskalibrering kan aldrig avbrytas. Det är däremot inte nödvändigt att spara resultatet från den. När "Store?" visas (i steg 12/13 ovan) kan C-knappen användas för att avfärda gjorda ändringar under kalibreringsförfarandet.

Observera att det i steg 7 måste gå en viss tid från att displayen "Cal.0?" innan instrumentet accepterar Enter-knappen. Detta är en säkerhetsåtgärd ifall användaren råkar dubbeltrycka på knappen.

## Användarmanual DGT-serien



## INTRODUKTION

Syftet med det här dokumentet är att förklara de mest grundläggande funktionerna för våginstrument i DGT-serien. Instrument som täcks av manualen är DGT1S, DGT4, DGTQ, DGT20 samt DGTPK samt de varianter med analog utgång. För programmering och uppsättning av DGT hänvisas till User Manual och Technical Manual.

## INNEHÅLL

1. Säkerhetsinstruktioner
2. Installation
  - 2.1. DGT1S
  - 2.2. DGT4
  - 2.3. DGTQ
  - 2.4. DGT20
  - 2.5. DGTPK
3. Matning & Uppstart
4. Knappar & Dioder
5. Funktioner
  - 5.1. Nollställning
  - 5.2. Tarering
  - 5.3. Inmatning av börvärden/nivåer
6. Kalibrering
  - 6.1. Nollpunktskalibrering
  - 6.2. Justering av span
7. Larm
8. Teknisk specifikation

## 1. Säkerhetsinstruktioner

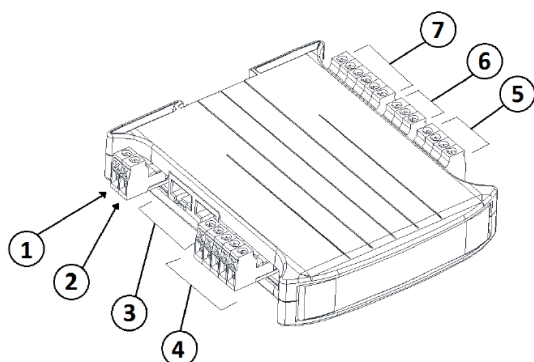
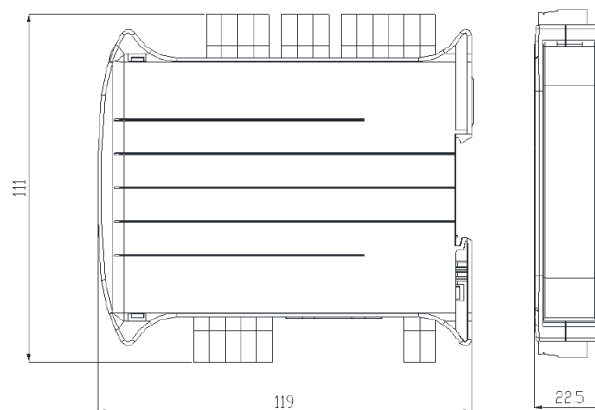
Nedan följer ett antal säkerhetsinstruktioner.

1. Varje försök att reparera eller ändra enheten kan utsätta användaren för elektriska stötar och kommer även att ogiltigförklara garanti.
2. Detta instrument täcks av garanti förutsatt att DET INTE HAR ÖPPNATS AV ANVÄNDAREN.
3. Om något problem uppstår med enheten eller systemet, vänligen kontakta tillverkaren eller leverantören som instrumentet förvärvades från.
4. Varning! Håll inte vätska i enheten!
5. Använd inte lösningsmedel för att rengöra enheten.
6. Utsätt inte instrumentet för varken direkt solljus eller värmekällor.
7. Montera alltid enheten i en vibrationsfri ställning.
8. Alla anslutningar måste göras i enlighet med de normer som gäller för den miljö som enheten installeras i.
9. Läs noga och tillämpa det som står skrivet under Installation och Matning.
10. Installera inte enheten i en miljö med risk för explosion.

## 2. Installation

### 2.1 DGT1S

Enheten har ett skal i plast med dimensioner enligt nedan.



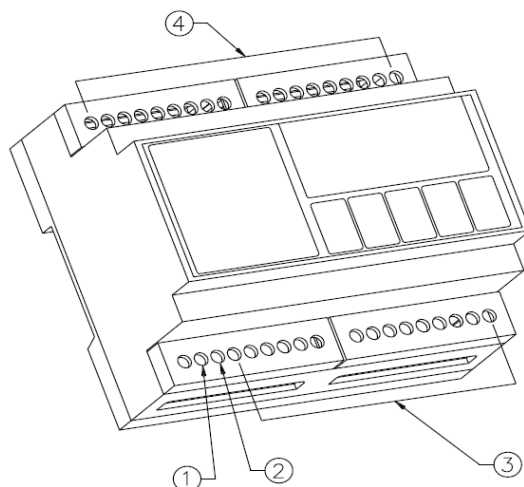
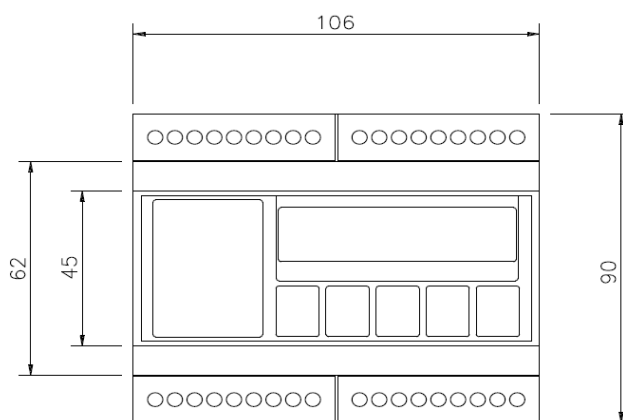
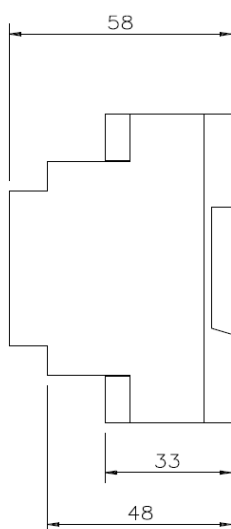
1. 0 VDC
2. + 12/24 VDC från extern transformator.
3. Anslutning av seriell kommunikation via RS-485
4. In- och utgångar
5. Analog utgång
6. Anslutning av seriell kommunikation via RS-232
7. Anslutning av lastcell

## 2.2 DGT4

Enheten har ett skal i plast med dimensioner enligt nedan.

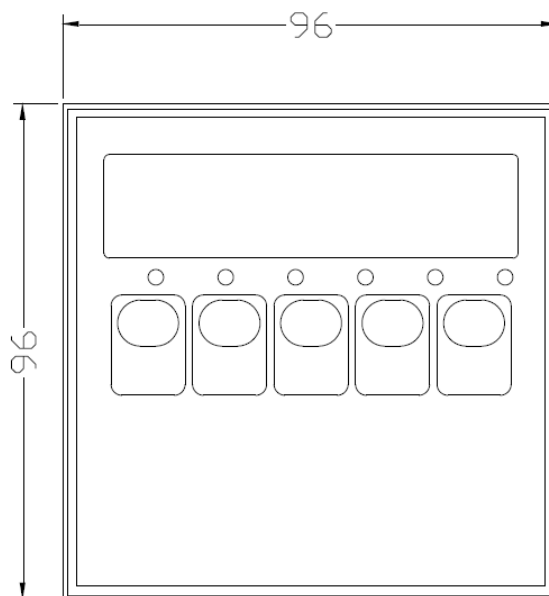
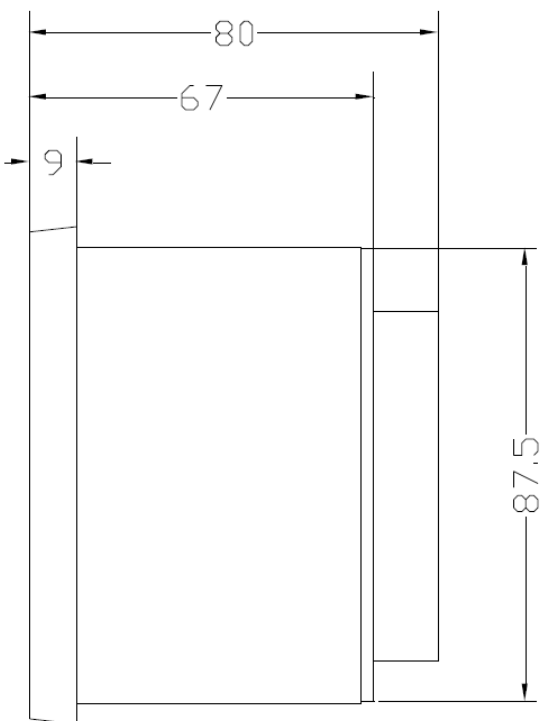
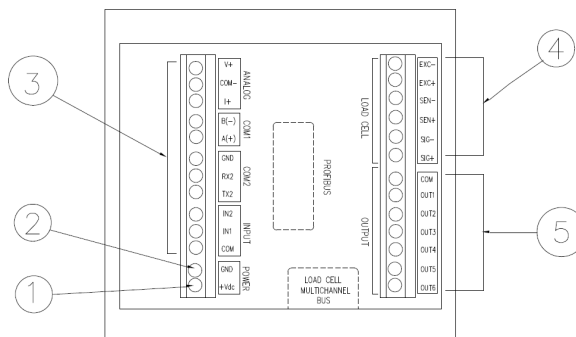


1. + 12/24 VDC från extern transformator.
2. 0 VDC
3. Anslutning av serieportar, ingångar och utgångar
4. Anslutning av lastceller - 4 st kanaler  
kanal 1 med 6-trådsinkoppling och  
kanal 2-4 med 4-trådsinkoppling



## 2.3 DGTQ

Enheten har ett skal i plast med dimensioner enligt nedan. Enheten monteras i en panel.



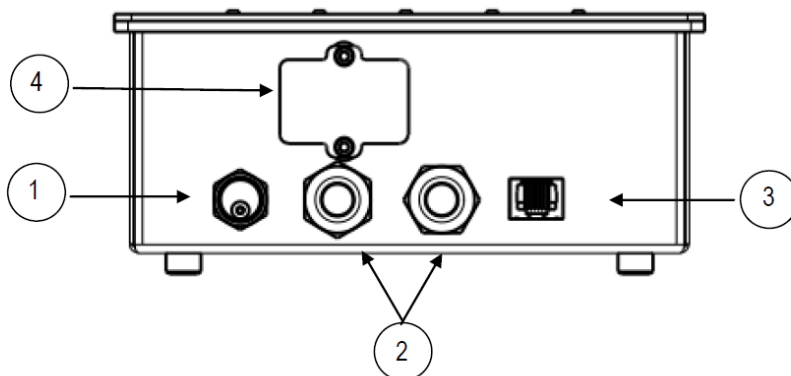
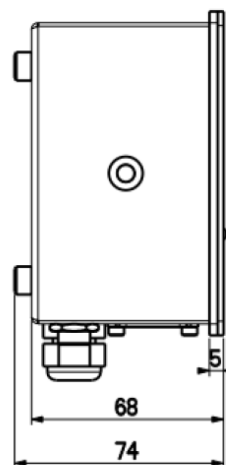
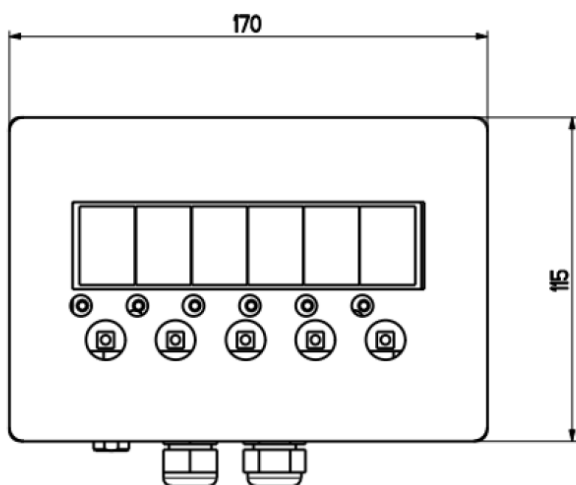
1. + 12/24 VDC från extern transformator.
2. 0 VDC
3. Anslutning av serieportar, ingångar och analog utgång
4. Anslutning av lastceller
5. Anslutning av utgångar

## 2.4 DGT20

Enheten har ett yttre av målat stål med storlek enligt nedan.



1. Matning via medföljande transformator.
2. Tillgänglig för lastcell, serieportar eller in- och utgångar
3. RJ45-kontakt
4. Fältbuss (i förekommande fall)



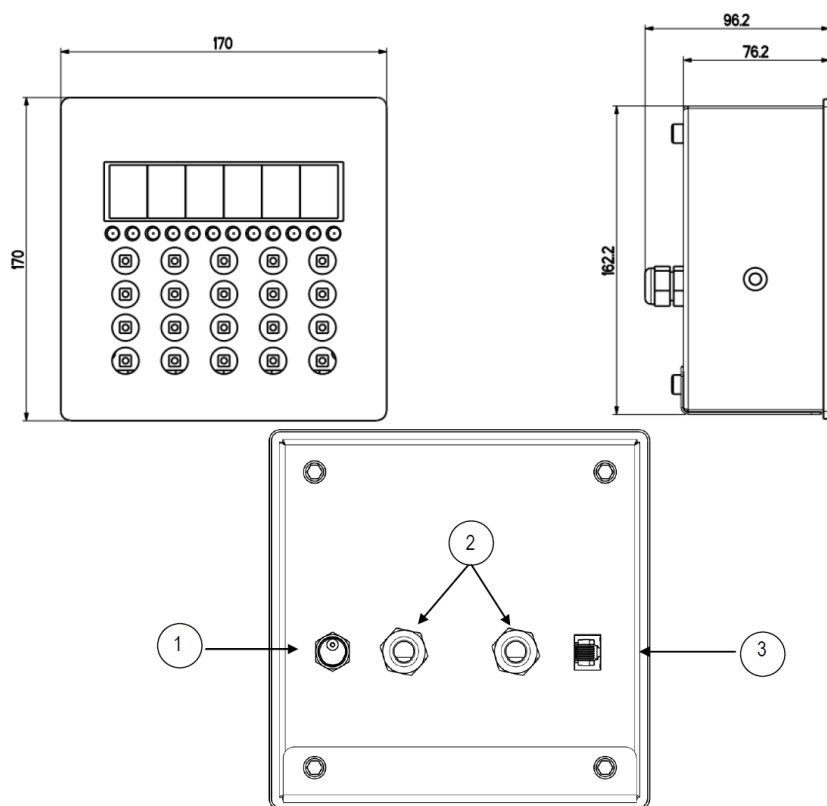


## 2.5 DGTPK

Enheten har ett yttre av målat stål med storlek enligt nedan.



5. Matning via medföljande transformator.
6. Tillgänglig för lastcell, serieportar eller in- och utgångar
7. RJ45-kontakt



### 3. Matning & uppstart

Alla varianter av DGT i denna manual måste anslutas med stabiliserad likspänning 12-24VDC.

Starta instrumentet genom att hålla inne C-knappen tills displayen tänds upp. Under uppstartssekvensen visas 888888 följt av mjukvaruversion (XX.YY) samt räknar ner från 999999 till 000000. Därefter utförs en nollställning och displayen visar Zero (om detta är aktiverat). Slutligen visar displayen aktuell vikt.

### 4. Knappar

Alla våginstrument i DGT-serien (förutom DGTPK) har samma uppsättning knappar. DGT20PK har ett utökat tangentbord med fler knappar än övriga instrument. Dessutom finns ett antal dioder som visar information om aktuell vikt.

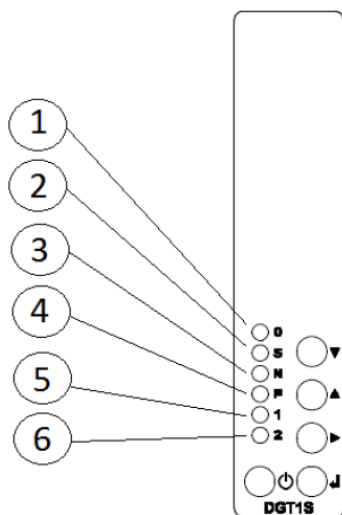
I nedan bilder är dioderna numrerade och har följande funktioner:

1. Vikt är inom nollområde ( $\pm 1/4$  upplösning)
2. Vikten är i rörelse (ej stabil)
3. Vikten som visas är en nettovikt, dvs en instrumentet har tarerats (taravikt finns)
4. Inställd specialfunktion är aktiv (styrts av F.Mode->FunCt i setup, se teknisk manual)
5. Visar normalt sett att utgång 1 är aktiv
6. Visar normalt sett att utgång 2 är aktiv

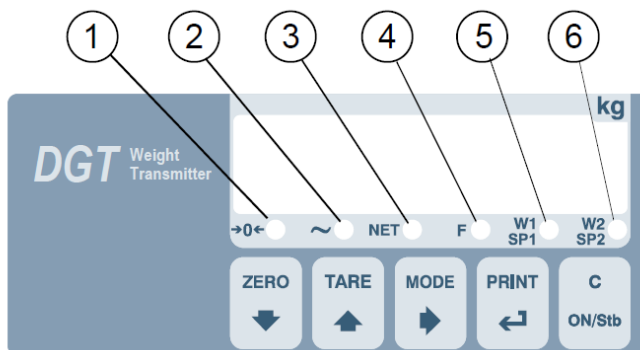
Om verifierat instrument och multirange visar diod 5 range 1 medan diod 6 visar range 2.

8. Om verifierat instrument och multirange visar detta vilken range som är aktiv, likt 5-6
9. Visar vilken utgång 1 - 6 som är aktiv

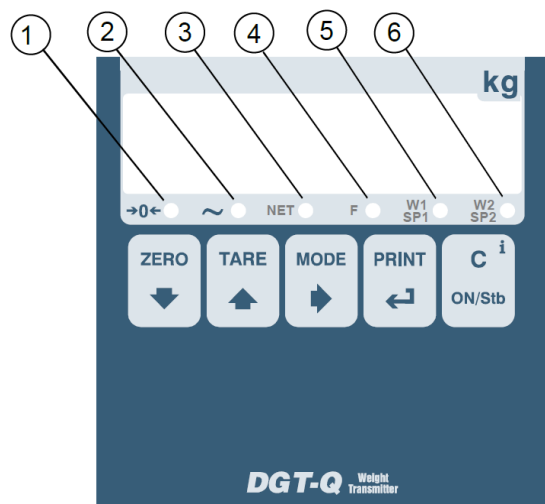
**DGT1S:**



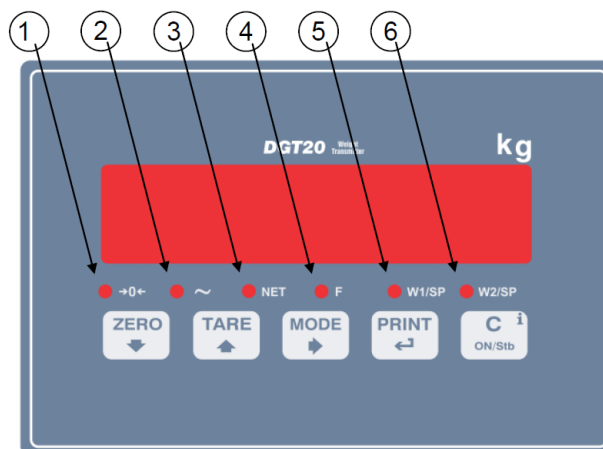
**DGT4:**



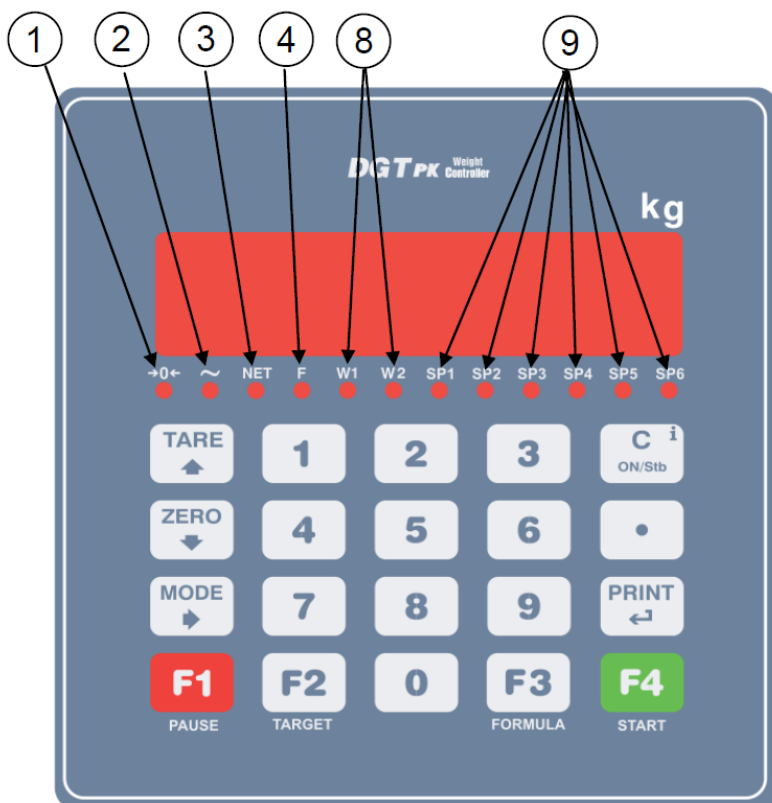
**DGTQ:**



**DGT20:**



**DGTPK:**



Knapparna från vänster till höger har följande funktion:

<b>Knapp</b>	<b>Funktion</b>
ZERO ↓	Zero används för nollställning av vågen. Om vikten avviker mer än 2% från senaste nollpunktskalibrering måste ny nollpunktskalibrering utföras. En nollställning försvinner normalt sett vid omstart/strömavbrott om det inte är uppsatt att nollställning ska sparas automatiskt. Ner används för att stega mellan olika val i en meny (nedåt). Vid inmatning av siffror räknar denna ner vald siffra.
TARE ↑	Ett kort tryck används för att tarera vågen och växla till nettoviktsvisning. Vid tarering sparas aktuell bruttovikt som taravikt vilket gör att nettovikten blir 0. Normalt sett försvinner taravikten vid omstart/strömavbrott. Ett långt tryck tillåter manuell inmatning av taravikt. Upp används för att stega mellan olika val i en meny (uppåt). Vid inmatning av siffror räknar denna upp vald siffra.
MODE →	Funktionen för mode bestäms av vilken typ av extrafunktion som är uppsatt. I DGT med fler än en vågkanal används denna knapp för att växla kanal att visa på displayen (långt tryck). Höger används för att komma åt en undermeny. Vid inmatning av siffror växlar denna till nästa siffra i ordningen.
PRINT □	Print används för att utföra den speciella funktion som är uppsatt. Knappen används även för att utföra en utskrift på serieporten, om detta är uppsatt. Enter används också för att bekräfta inmatningar eller för att gå in i undermenyer.
C/ON/Stb	Används för att starta och ställa av ett instrument. I menyer används knappen för att backa till föregående meny eller för att ångra en påbörjad inmatning. Knappen kan även användas för att nollställa värdet i början av en inmatning.

På DGT1S är knapparna placerade uppifrån och ner med samma funktion och ordning som övriga instrument. DGTPK har med sitt utökade tangentbord fler knappar än övriga instrument, med möjlighet till inmatning av siffror och decimaltecken. Knapparna F1-F4 används inte i den vanliga DGTPK utan bara i DGTPKF med doseringsfunktion som drar nytta av samma hårdvara.

## 5. Funktioner

### 5.1 Nollställning

Nollställning av våg kan utföras genom knappen Zero (↓). Nollställning kan endast ske om vikten är inom 2% av maximal kapacitet. Under tiden nollställning utförd visar displayen Zero ("2Ero")

### 5.2 Tarering

Tarering av våg kan ske genom knappen Tare (↑). När vågen tareras sparas aktuell bruttovikt i instrumentets minne så att netto kan visas som värdet 0 (netto = brutto - tara). Under tiden tarering utförs visar displayen Tare ("tArE").

Det går även att manuellt skriva in en vikt för tara. Detta görs genom att Tare hålls inne tills displayen visar "-TM-" och därefter växlar till 000000. Använd piltangenterna för att skriva in önskad tara och tryck enter.

Viss begränsning vid tarering finns om instrumentet är verifierat, se User Manual för ytterligare information.

### 5.3 Börvärden/Nivåer

Om DGT är konfigurerat för att använda digitala utgångar som börvärdesnivåer kan Enter-knappen användas för inställning av dessa gränser.

1. Håll inne Enter tills displayen visar "S.1 on" (eller "S.1 off" beroende på uppsättning).
2. Tryck enter för att välja börvärde 1. Displayen växlar till att visa senast valda börvärde.
3. Ändra till nytt önskat värde och tryck Enter. Displayen visar "S.2 on" (eller "S.2 off" beroende på uppsättning)
4. Tryck Enter för att välja börvärde 2. Displayen växlar till att visa senast valda börvärde.
5. Ändra till nytt önskat värde och tryck Enter. Displayen visar "S.1 on" (eller "S.2 off" beroende på uppsättning)
6. Avsluta genom att trycka på C-knappen. Om något värde har ändrats visar displayen "Store" ett kort ögonblick innan displayen växlar tillbaka att visa vikt.

I punkt 2 och 4 när displayen visar S.1 alternativt S.2 går det att växla mellan dessa genom knapparna pil upp eller pil ner. Det går även att avsluta efter inmatning av S.1 genom att trycka på C-knappen när S.2 visas.

## 6. Kalibrering

Det finns i huvudsak två typer av kalibreringar som går att utföra med DGT. Det ena är en nollpunktskalibrering där endast referensen för nollan flyttas så att displayen visar brutto = 0. Den andra är en justering av span, det vill säga justering av vågens förstärkning. Många gånger är det endast justering av nollpunkten som behövs när en våg visar fel vikt.

### 6.1 Nollpunktskalibrering

Nollpunktskalibrering utförs genom följande steg:

1. Säkerställ att vågen är tom och i det tillstånd då instrumentet ska visa 0
2. Håll inne C-knappen tills displayen visar "-OFF-". Var noga med att släppa knappen direkt när "-OFF-" visas. Om knappen hålls inne längre än nödvändigt går instrumentet in i ett testläge och visar olika parametrar, innan det återgår till viktvisning.
3. När instrumentet är avstängt och endast en punkt lyser, tryck en gång på C-knappen för att starta instrumentet och när displayen visar 888888 (efter ca 1 sekund) tryck på Tare-knappen (↑). Displayen visar "F-ModE" alternativt "tyPE" beroende på vilket instrument som används.
4. Tryck pil ner/upp tills displayen visar "Setup". Tryck Enter för att gå in i Setup.
5. Displayen visar "Config". Tryck Enter för att gå in i Config.
6. Tryck pil ner/upp tills displayen visar "0.Calib" och tryck Enter
7. Displayen visar "Cal.0?". Bekräfta genom att trycka Enter igen.
8. Displayen växlar mellan att visa ett värde och texten "0.Calib" några gånger. Det är viktigt att vågen är stabil och inte vibrerar/rör sig under nollpunktskalibreringen. Samma värde måste visas tre gånger innan DGT accepterar värdet som den nya nollpunkten. Värdet som visas är det interna ADC-värdet som DGT räknar fram från lastcellens signal.
9. Om kalibreringen lyckades visar displayen ett värde som börjar på "d.", t ex d.00216, och sedan "filt.50".
10. Tryck C-knappen upprepade gånger tills displayen visar "SAVE?"
11. Tryck Enter för att spara kalibreringen.
12. Displayen visar "Store" och instrumentet startar om

Efter steg 8, om kalibreringen inte gick igenom, exempelvis på grund av instabil signal från lastcellerna, visas texten "ErNot" under ett kort ögonblick innan displayen växlar till "Store?". I detta läge kan användaren välja om det felaktiga resultatet som nollpunktskalibreringen ändå ska användas eller om en ny kalibrering ska utföras.

Nytt försök:

9. När displayen visar "Store?", tryck C-knappen, displayen visar "Retry?"
10. Tryck Enter för att göra ett nytt försök. Om ny kalibrering lyckas, fortsätt från punkt 10 ovan, eller om kalibrering misslyckas igen avbryt med C-knappen eller fortsätt från instruktionerna nedan.

Använd resultat från den misslyckade nollkalibreringen:

9. När displayen visar "Store?", tryck Enter för att välja avläst nollpunkt.
10. Displayen visar ett värde som börjar på "d.", t ex d.00216, och sedan "filt.50".
11. Tryck C-knappen upprepade gånger tills displayen visar "SAVE?"
12. Tryck Enter för att spara kalibreringen.

13. Displayen visar "Store" och instrumentet startar om  
Eller

Tryck Enter för att välja den avlästa opålitliga nollpunkt och använd den som nollpunkt även om den inte är rätt. Fortsätt från steg 10 ovan.

En pågående nollpunktskalibrering kan aldrig avbrytas. Det är däremot inte nödvändigt att spara resultatet från den. När "Store?" visas (i steg 12/13 ovan) kan C-knappen användas för att avfärda gjorda ändringar under kalibreringsförfarandet.

Observera att det i steg 7 måste gå en viss tid från att displayen "Cal.0?" innan instrumentet accepterar Enter-knappen. Detta är en säkerhetsåtgärd ifall användaren råkar dubbeltrycka på knappen.

## 6.2 Justering av span

Justering av span utförs med hjälp av en känd vikt och genom följande steg:

1. Säkerställ att vågen är tom och i obelastat tillstånd
2. Håll inne C-knappen tills displayen visar "-OFF-". Var noga med att släppa knappen direkt när "-OFF-" visas. Om knappen hålls inne längre än nödvändigt går instrumentet in i ett testläge och visar olika parametrar, innan det återgår till viktvisning.
3. När instrumentet är avstängt och endast en punkt lyser, tryck en gång på C-knappen för att starta instrumentet och när displayen visar 888888 (efter ca 1 sekund) tryck på Tare-knappen (↑). Displayen visar "F-ModE" alternativt "tyPE" beroende på vilket instrument som används.
4. Tryck pil ner/upp tills displayen visar "Setup". Tryck Enter för att gå in i Setup.
5. Displayen visar "Config". Tryck Enter för att gå in i Config.
6. Tryck pil ner/upp tills displayen visar "Calib" och tryck Enter
7. Tryck pil ner/upp tills displayen visar "Calib.P" och tryck Enter
8. Displayen visar "n tP", tryck Enter
9. Displayen visar "n 1", tryck Enter
10. Displayen visar tP 0, tryck Enter. DGT läser av lastcellernas signal vid det obelastade läget på samma sätt som vid nollpunktskalibrering, steg 8 i kapitel 6.1.
11. När den obelastade punkten har lästs av visar displayen "ddt 1", tryck Enter
12. Displayen visar ett förslag på kalibreringsvikt. Belasta vågen med önskad vikt och ändra värdet på displayen till den vikt som vågen belastas med. Tryck Enter.
13. Displayen visar "tp 1", tryck Enter för att på nytt läsa av lastcellernas signal.
14. När avläsningen är klar visar displayen åter igen "n tP".
15. Backa med C-knappen tills displayen visar "SAVE?"
16. Tryck Enter för att spara kalibreringen.
17. Displayen visar "Store" och instrumentet startar om

## 7. Larm

Displayen kan förutom vikt visa olika symboler och texter.

Display	Beskrivning
AL.Err	Ett larm som uppstår vid användning av alibi-minne om fel uppstår, se User Manual för mer info.
buSy	Visas under tiden utskrift sker till serieporten eller vid kommunikation med PC.
unStAb	Visas som larm vid utskrift om vikten inte är stabil.
un.oVer	Om utskrift sker vid underlast eller överlast.
-----	Vågen är utanför vägningsområde, överlast
-----	Vågen är utanför vägningsområde, underlast
GroS.Err	Negativ bruttovikt vid utskrift
nEt.Err	Negativ nettovikt vid utskrift
LoW	Får låg nettovikt vis utskrift
Err.Clk	Fel vid kommunikation med klockkrets, se teknisk manual för mer info.
ErNot	Vikten är inte stabil vid läsning av kalibreringspunkt
ErPnt	A/D-kretsen ger null-värde vid kalibrering.
Er-11	För liten kalibreringsvikt har använts vid kalibrering.
Er-12	En kalibreringspunkt för span har samma värde som för nollpunkten
Er-37	Felaktiga inställningar, en reset till fabriksinställningarna behövs
Er-39	Felaktiga inställningar, en reset till fabriksinställningarna behövs

För fler larmtexter, se Users Manual och Technical Manual.



## 8. Teknisk specifikation

Matning	12-24VDC $\pm 10\%$ stabiliserad
Maximal förbrukning (utan lastceller)	DGT4/DGTQ/DGT20/DGTPK: 100mA vid 12V; 70mA vid 24V DGT4AN/DGTQAN/DGT20AN/DGTPKAN: 185mA vid 12V; 90mA vid 24V DGT4PB/DGTQPB/DGT20PB: 410mA vid 12V; 220mA vid 24V
Temperatur drift	Mellan -15 - 40°C
Upplösning display	10000e, 3 x 3000e för verifierad vägning, upp till 800.000 internt (med minimum 1,6mV/V från lastcell)
Antal omvandlingar	Upp till 200 omvandlingar per sekund, automatiskt
Minsta spänning/div	0,3 $\mu$ V (verifierat instrument); 0,03 $\mu$ V (icke verifierat instrument)
Räkneupplösning	1.500.000 punkter (med ingångssignal på 3mV/V)
Display	DGT1S: 6 siffror, höjd 8mm DGT4/DGTQ: 6 siffror, höjd 13mm DGT20/DGTPK: 6 siffror, höjd 20mm
Indikeringar/dioder	DGT1S/DGT4/DGTQ/DGT20: 6 st LED; DGTPK: 12 st LED
Tangentbord	DGT1S/DGT4/DGTQ/DGT20: 5 st knappar (vattentäta) DGTPK: 20 st knappar (vattentäta)
Tareringsfunktion	Tillgänglig över hela vägningsområdet
Auto. avstängning	Kan programmeras till 1 - 255 minuter
Matning lastceller	5VDC $\pm 5\%$ , 120mA (upp till 8 lastceller med 250 $\Omega$ vardera)
Anslutning lastceller	6-tråds med sense för ingång 1; 4-tråds för ingång 2-4
Kapsling	DGT1/DGT4: Plast för montering på DIN-skena. DGTQ: Plast för panelmontage. DGT20/DGTPK: Målat stål med justerbart väggfäste
Serieportar	1 st RS485 för kommunikation med PC/PLC 1 st RS232 för kommunikation med skrivare DGT4 & DGT20 kan väljas med fältbuss (tillval)
Digitala in- & utgångar	2 st programmeringsbara ingångar (DGTPK: 4 st) 12-24VDC, 5-20mA. 2 st utgångar (photomosfet), NO/NC, max 48VAC/60VDC, max 150mA, programmeringsbar funktion. DGTQ: Expanderbar till 6 st utgångar, DGTPK: 6 st utgångar.

	Lästid för ingångar och uppdateringstid för utgångar: 1ms.
Analoga utgångar (tillval)	Optoisolerad analog utgång 16-bit för 4-20mA, 0-5VDC, 0-10VDC. (Endast DGT1SAN/DGT4AN/DGTQAN/DGT20AN/DGTPKAN)
Lastceller	Högsta tillåtna signal: 6mV/V

# USER MANUAL WEIGHT INDICATORS



## DGT: INDICATOR, REPEATER, TRANSMITTER OF WEIGHT



## Indicators for bench or panel applications.



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# 1. INTRODUCTION

The purpose of this manual is to help the user knowing the weight indicator's various functioning modes, the keys' functions and the display indications. It is possible to incur into the phrase **"TECH.MAN.REF."**: this means that an advanced function is being described (therefore, for the technical personnel) which is further explained in the corresponding technical manual.

**We advise to follow carefully the instructions for programming the weight indicator; by taking actions not indicated in this manual, the proper functioning of the scale could be compromised.**

In addition to having all the characteristics of a high precision scale, the indicator has the unit of measure conversion function, switching of net/gross weight, set point on the gross weight/net weight/pieces, in/out weigh, multiscale repeater, alibi memory, hold function, peak detector, weighing totaliser and piece counter.

These features make it suitable for industrial use as well as for legal for trade use in relation with third parties and in commerce, satisfying the most current needs about transmitting and printing the data through its two bidirectional serial ports.

**This manual has been made as carefully and exactly as possible; in any case, your suggestions are always welcome.**



Any attempt to repair or alter the unit can expose the user to the danger of electric shock and it will void our warranty. This instrument is covered under warranty provided that **IT HAS NOT BEEN OPENED BY THE USER** for any reason. If any problem with the unit or system has been experienced please notify the manufacturer or the dealer from which the instrument was acquired.

## **!!WARNING!!**

**Do not pour liquids on the indicator!**

**Do not use solvents to clean the indicator!**

**Do not expose instrument to either direct sun light or any heat sources!**

**Always mount the indicator and platform in a vibration free setting!**



**All indicator connections must be made respecting the norms applicable to the zone and environment in which it will be installed.**

**Read carefully & apply what described in the POWER SUPPLY & START-UP section!**

**Do not install in an environment with any risk of explosion!**

# 2. SYMBOLS

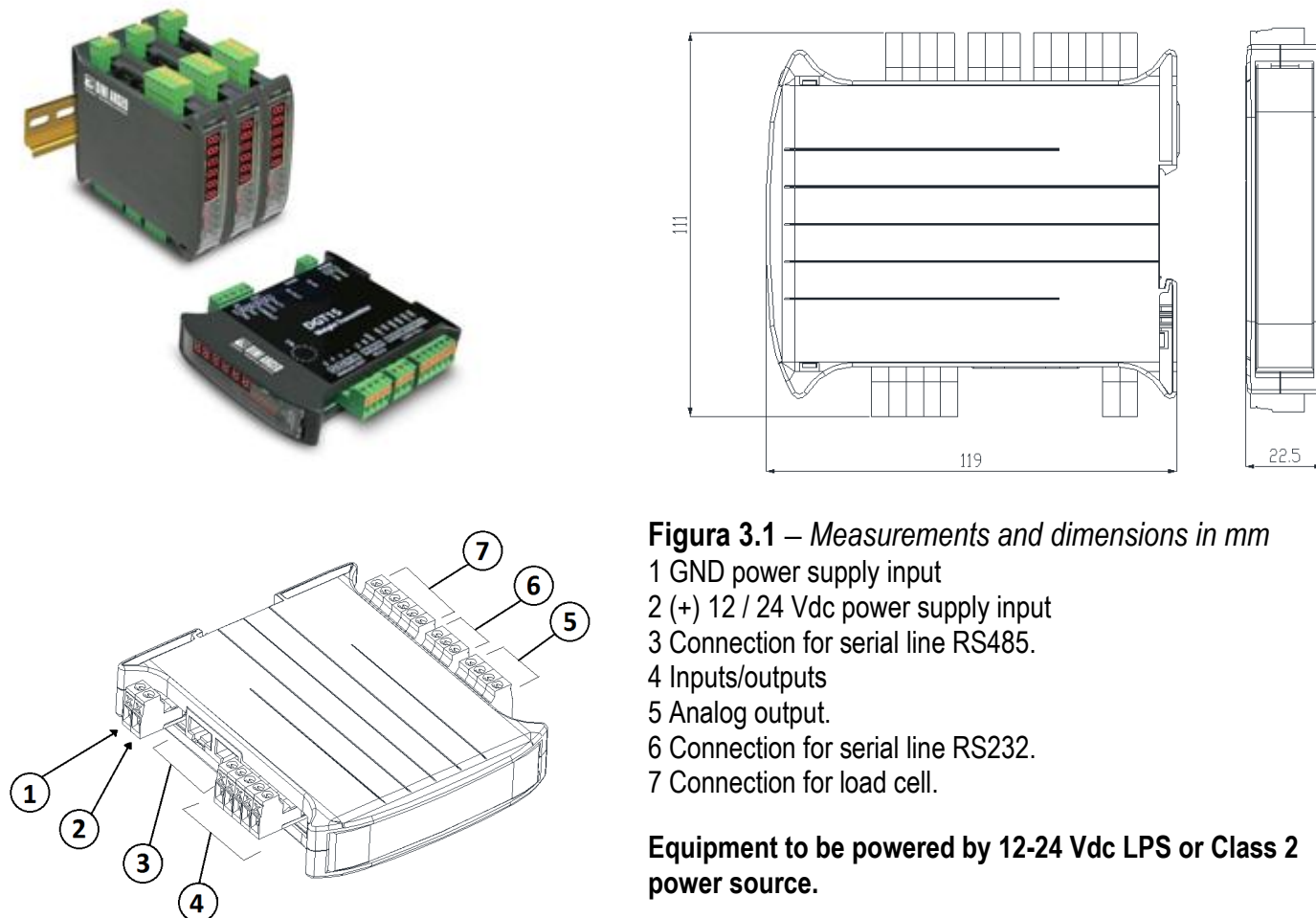
**To call the attention of the user, the following symbols are used both in the manual and on the instrument itself:**

	Warning! This operation must be performed only by qualified personal
	CE CONFORMITY
<b>"TECH.MAN.REF."</b>	means that an advanced function is being described (therefore for the technical personnel) which will be further explained in the corresponding technical manual.

## 3. INSTALLATION

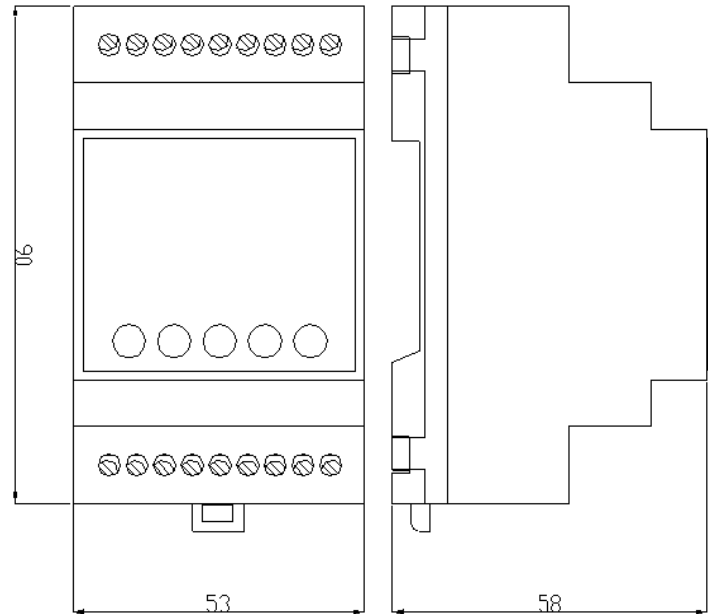
### 3.1 DGT1S CASE AND DIMENSIONS

The indicator has a plastic case, whose external dimensions are shown in Figure 3.1.



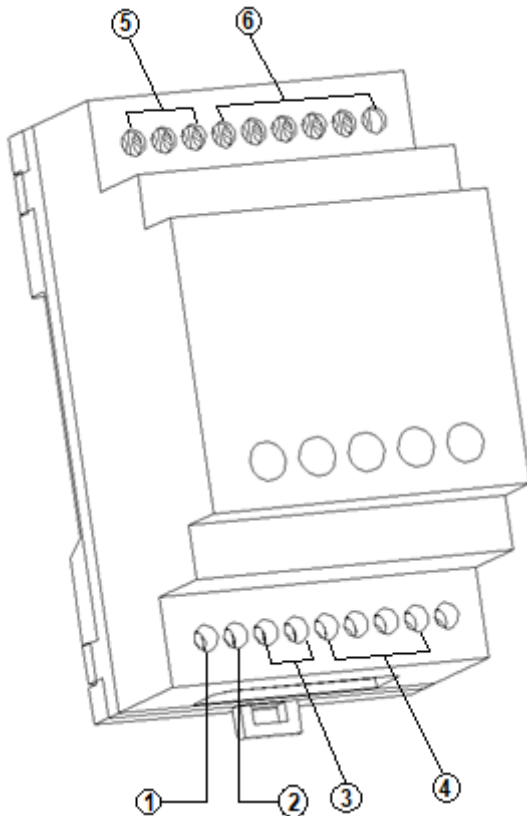
### 3.2 DGT1 CASE AND DIMENSIONS

The indicator has a plastic case, whose external dimensions are shown in Figure 3.2.



**Figura 3.2 – Measurements and dimensions in mm**

- 1 (+) 12 / 24 Vdc power supply input
- 2 GND power supply input
- 3 Connection for serial line RS485.
- 4 Analog output.
- 5 Connection for serial line RS232.
- 6 Connection for load cell.



**Equipment to be powered by 12-24 Vdc LPS or Class 2 power source.**



### 3.3 DGT4 CASE AND DIMENSIONS

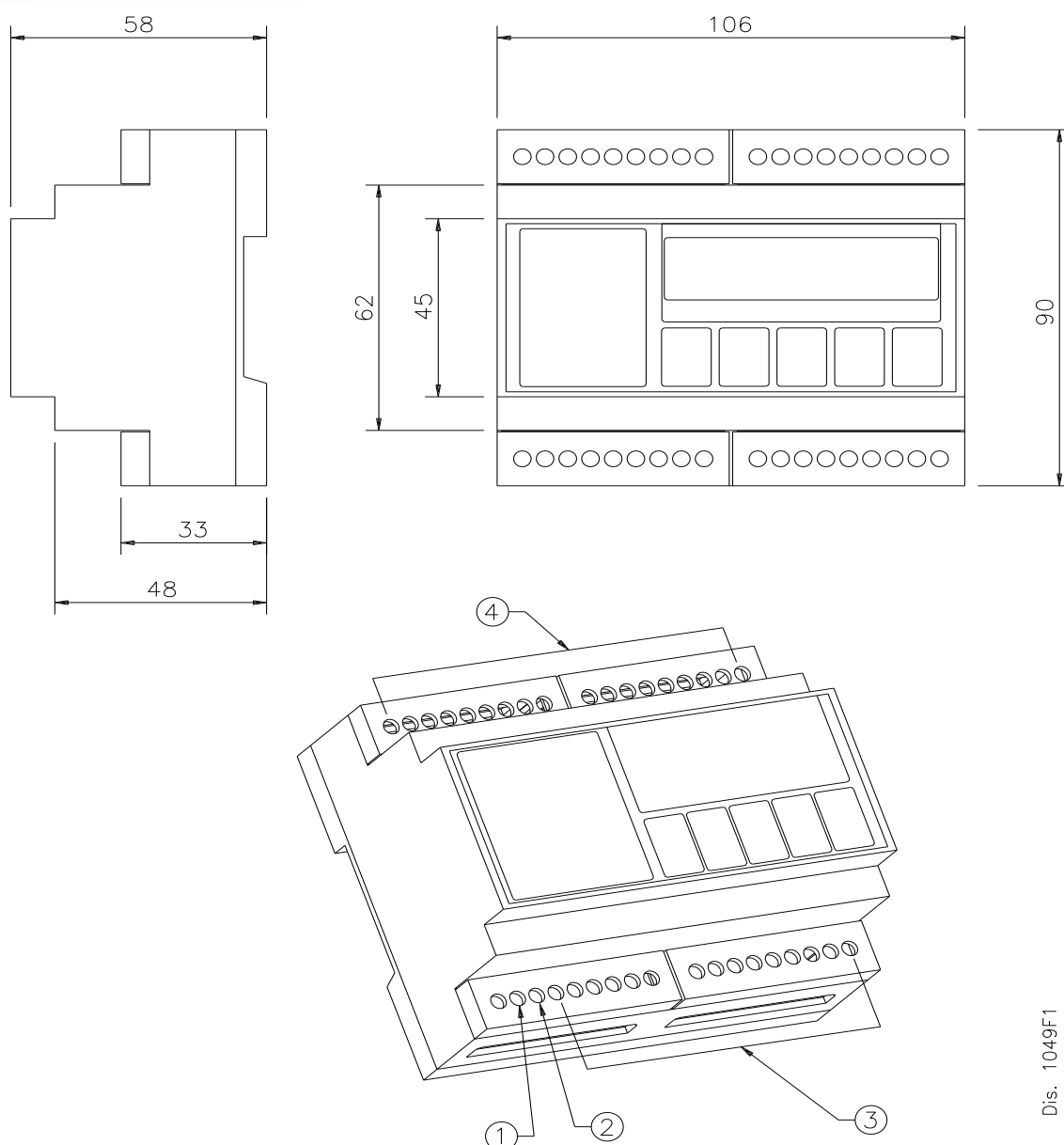
The indicator has a plastic case, whose external dimensions are shown in Figure 3.3.



**Figure 3.3 – Measurements and dimensions in mm**

- 1 (+) 12 / 24 Vdc power supply input
- 2 GND power supply input
- 3 Connections for serial lines / inputs / outputs
- 4 Connections for load cells

**Equipment to be powered by 12-24 Vdc LPS or Class 2 power source.**



Dis. 1049F1

The instrument may be installed on the wall, or on the side of the electrical box (on the DIN bar).

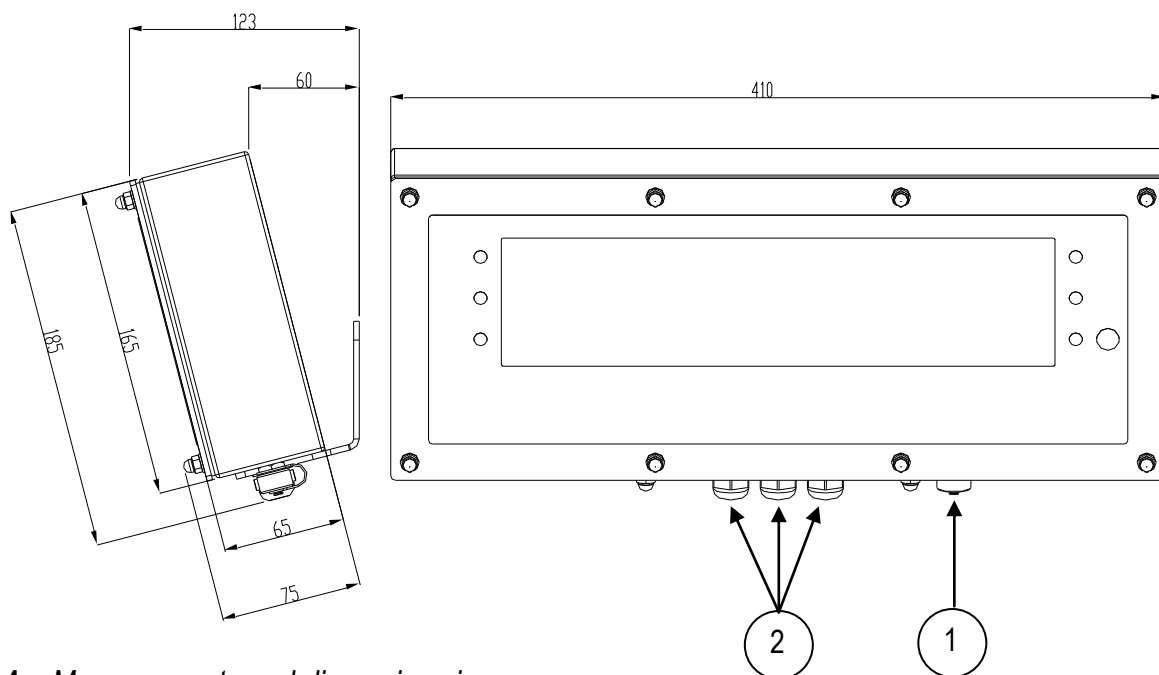
**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

### 3.4 DGT60 CASE AND DIMENSIONS

The indicator has a STAINLESS STEEL case, whose external dimensions are shown in Figure 3.4 and 3.5.

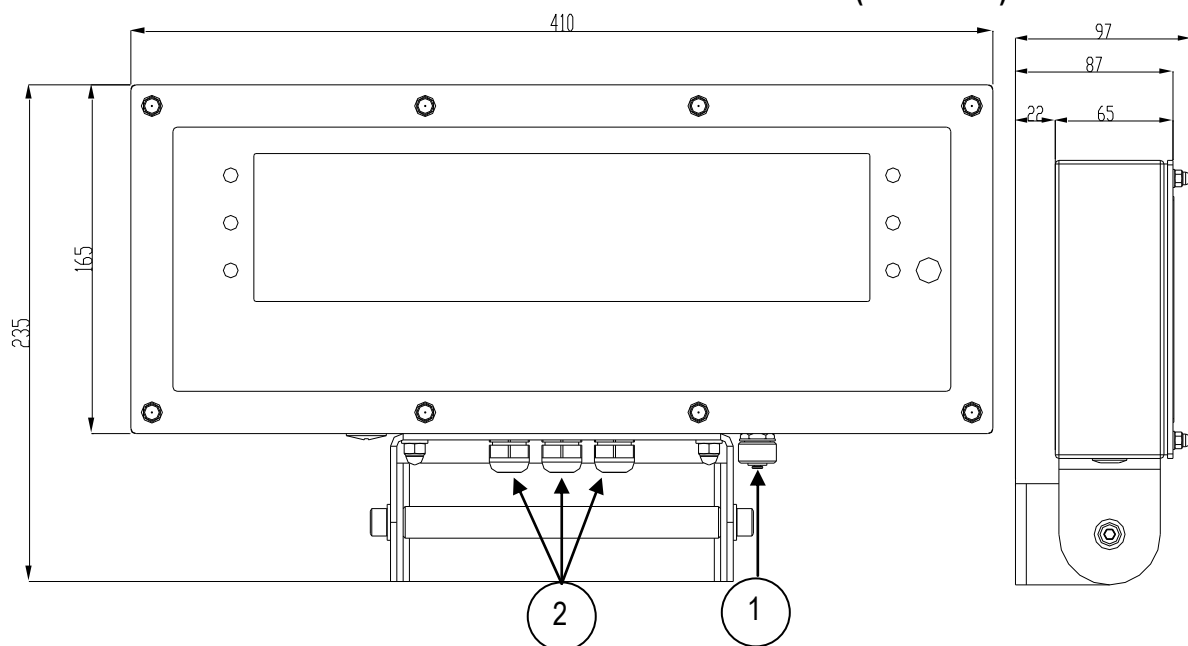


#### MODEL WITH FIXED BRACKET (STANDARD FITTING)



**Figure 3.4 – Measurements and dimensions in mm**

#### MODEL WITH "STFR" ADJUSTABLE BRACKET (OPTIONAL)



1 Power supply input.

2 Available for load cells / serial lines / inputs / outputs

The instrument may be installed on the wall.

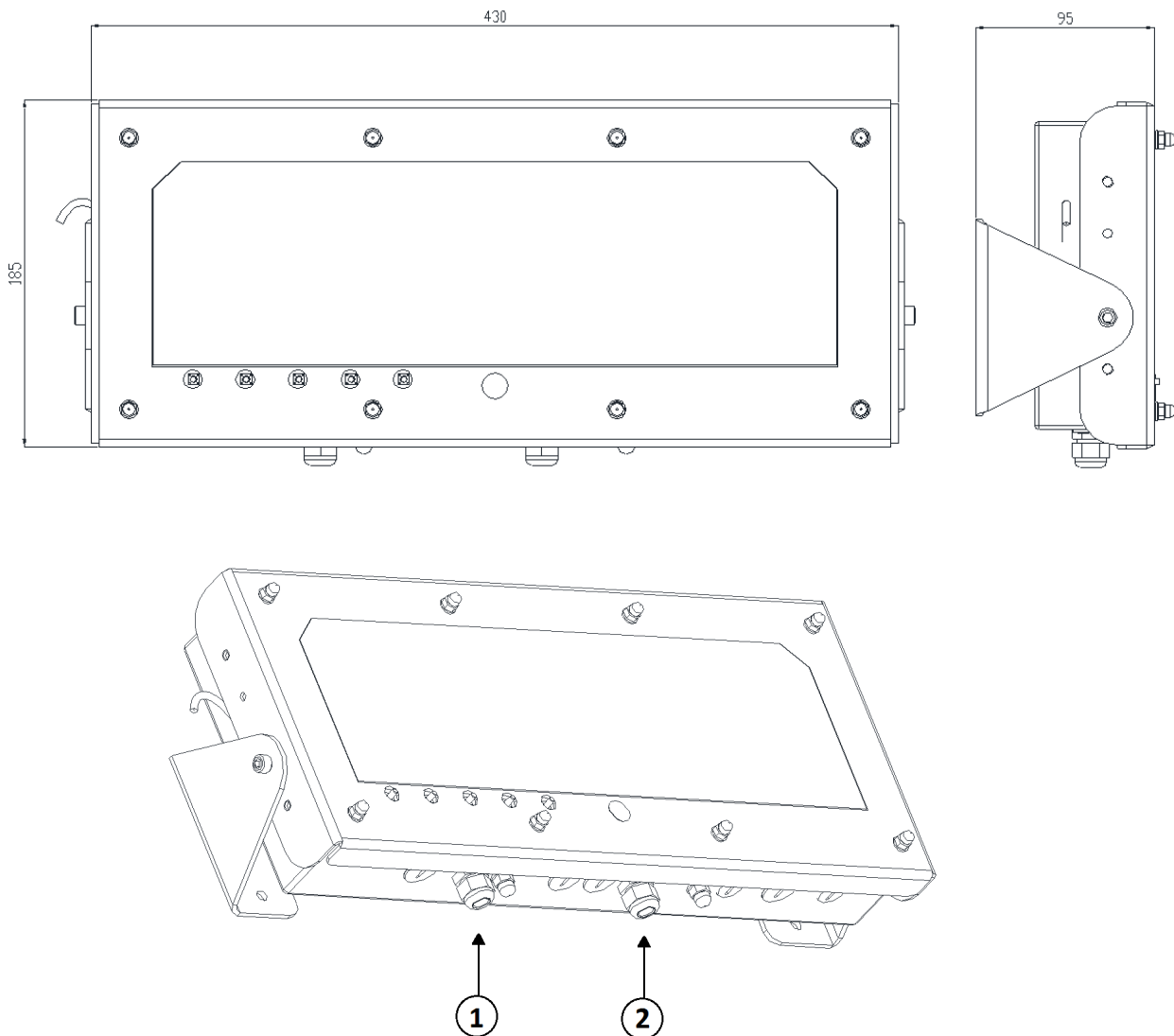
**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

### 3.5 DGT100 CASE AND DIMENSIONS

The indicator has a STAINLESS STEEL case, whose external dimensions are shown in Figure 3.6 and 3.7.



**Figure 3.6** – Measurements and dimensions in mm



**Figure 3.7** – Measurements and dimensions in mm

1. Power supply input.

2 Available for load cells / serial lines / inputs / outputs.

The instrument may be installed on the wall.

**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

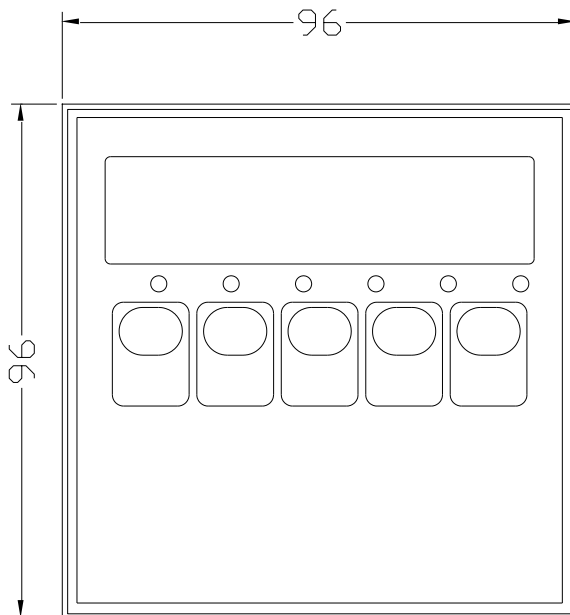
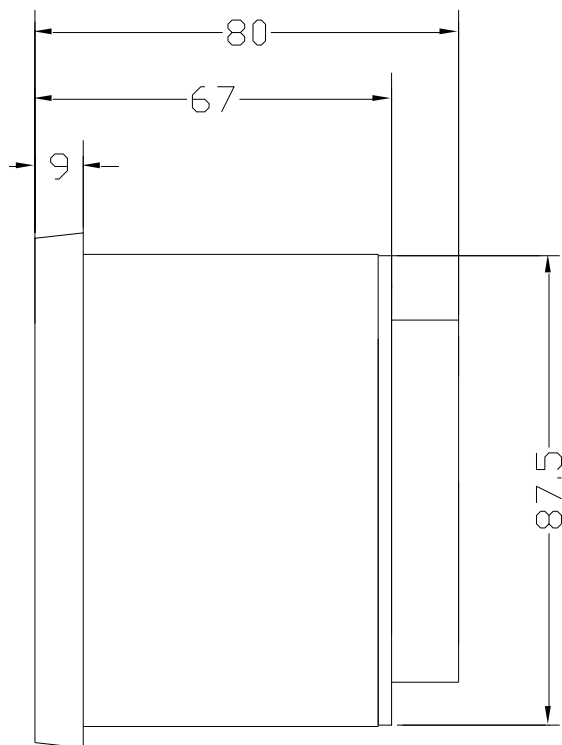
### 3.6 DGTQ CASE AND DIMENSIONS

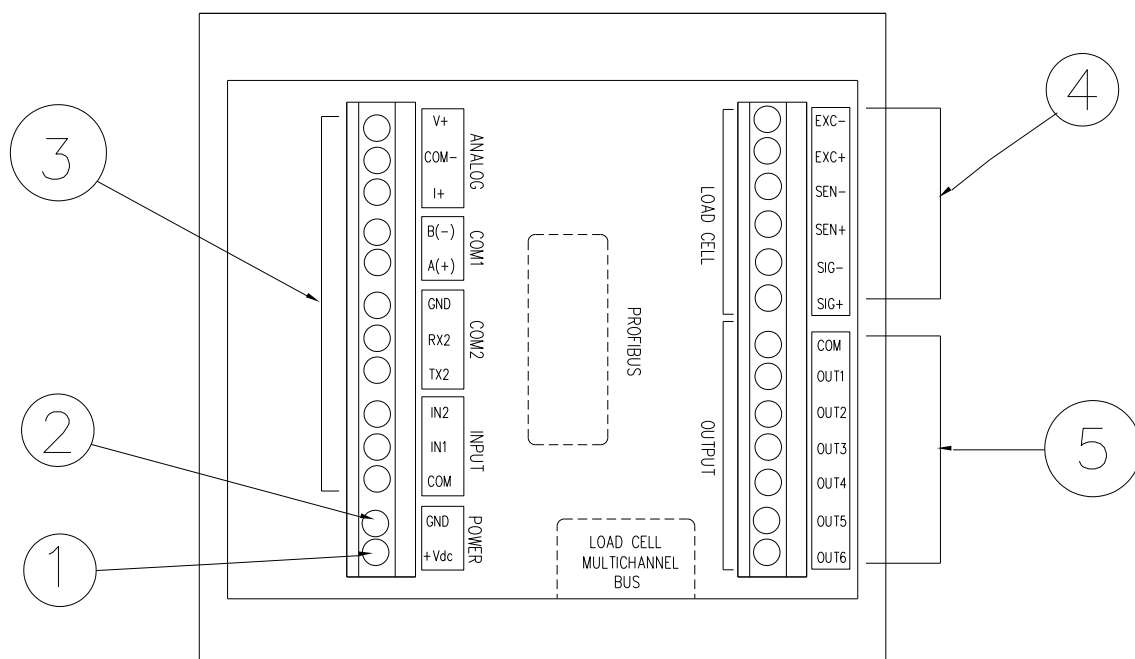
The indicator has a plastic case, whose external dimensions are shown in Figure 3.8.



**Figure 3.8 – Measurements and dimensions in mm**

- 1) Power supply cable input
- 2) GND power supply input
- 3) Connections for serial lines / inputs / analogic output
- 4) Connection for load cell
- 5) Connections for outputs





The instrument may be installed on the side of the electrical box.

**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

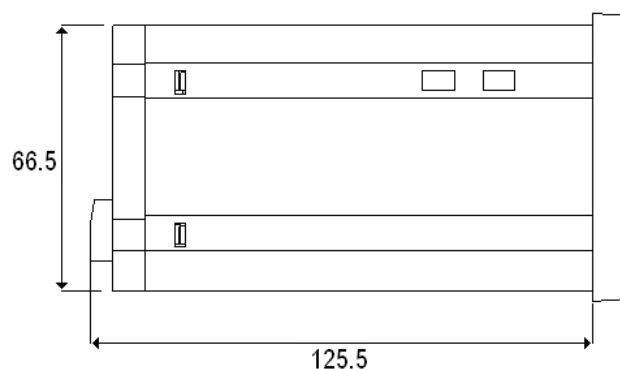
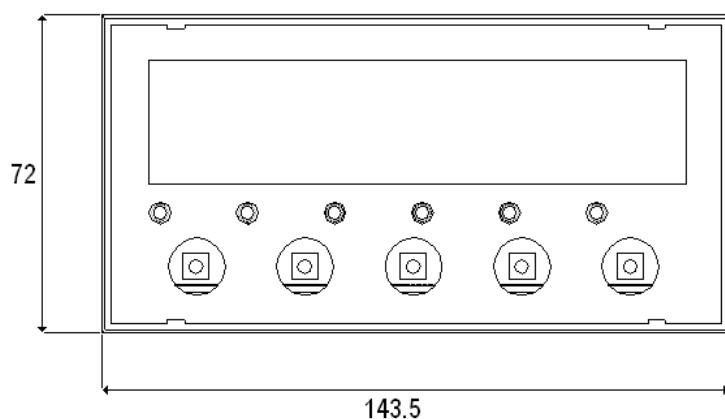
### 3.7 DGTP CASE AND DIMENSIONS

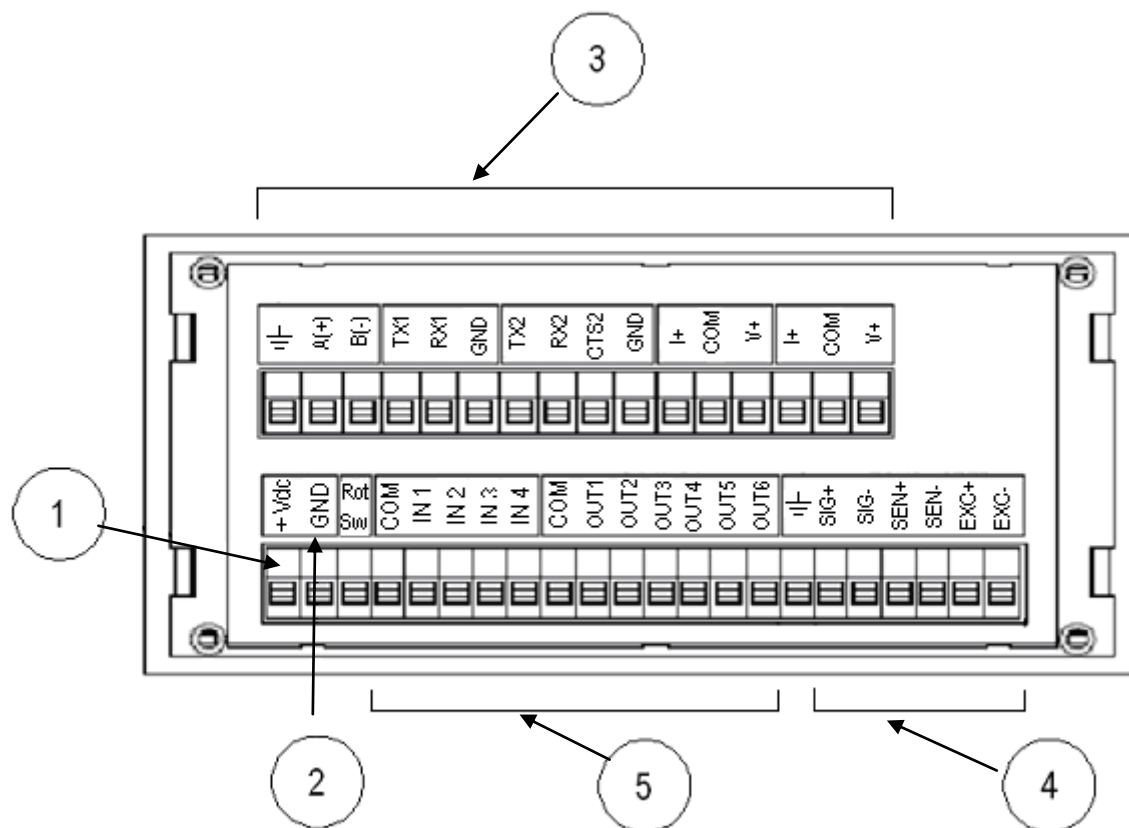
The indicator has a plastic case, whose external dimensions are shown in Figure 3.9.



**Figure 3.9 – Measurements and dimensions in mm**

- 1) Power supply cable input.
- 2) GND power supply input.
- 3) Connections for serial lines / analog output.
- 4) Connection for load cell.
- 5) Connections for inputs / outputs.





The instrument may be installed on the side of the electrical box.

**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

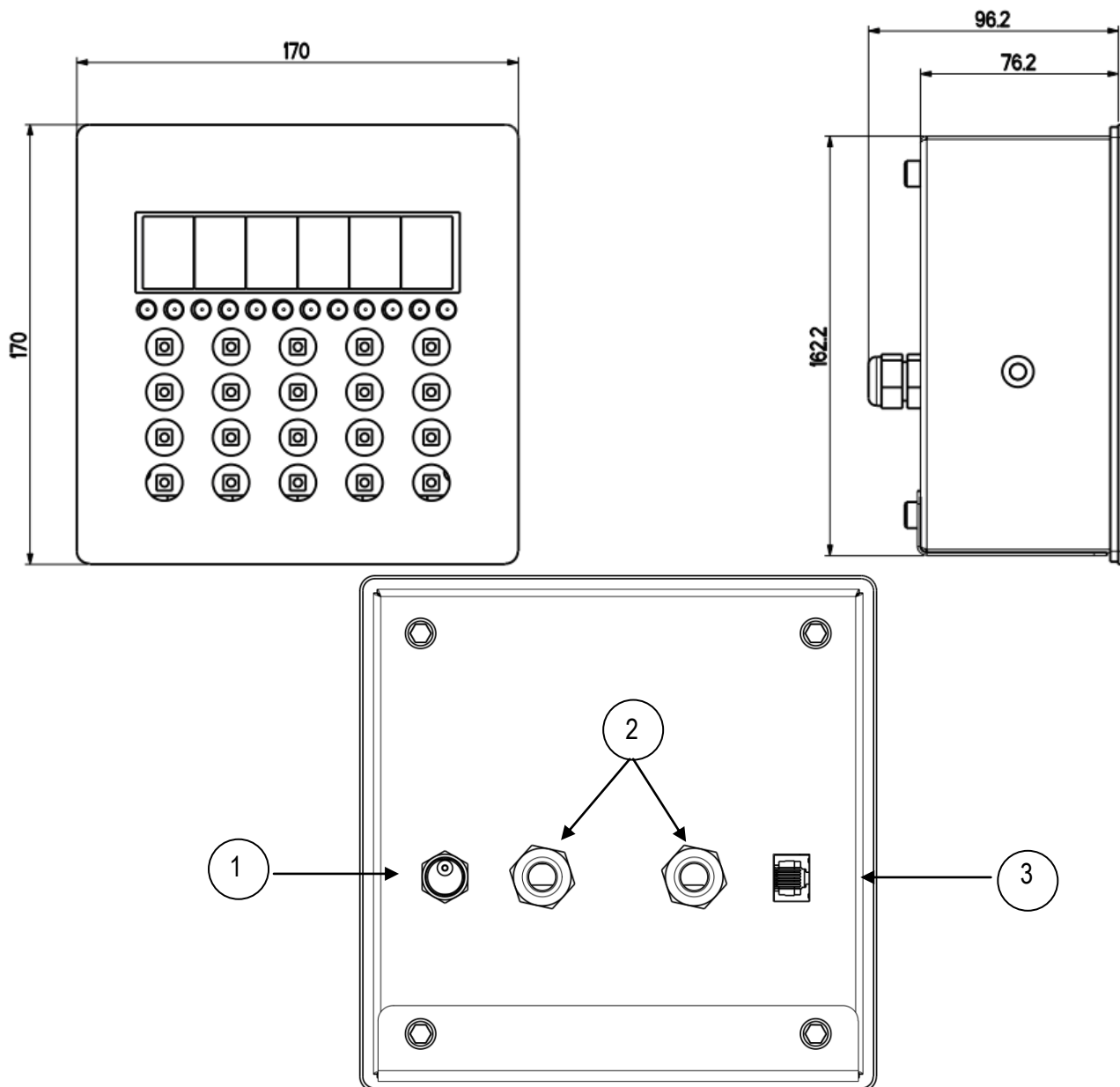
### 3.8 DGTPK CASE AND DIMENSIONS

The indicator has a PAINTED STEEL case, whose external dimensions are shown in Figure 3.10.



**Figure 3.10 – Measurements and dimensions in mm**

- 1) Power supply cable input.
- 2) Available for load cells / serial lines / inputs / outputs
- 3) RJ45 connector



The instrument may be installed on the wall.

**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

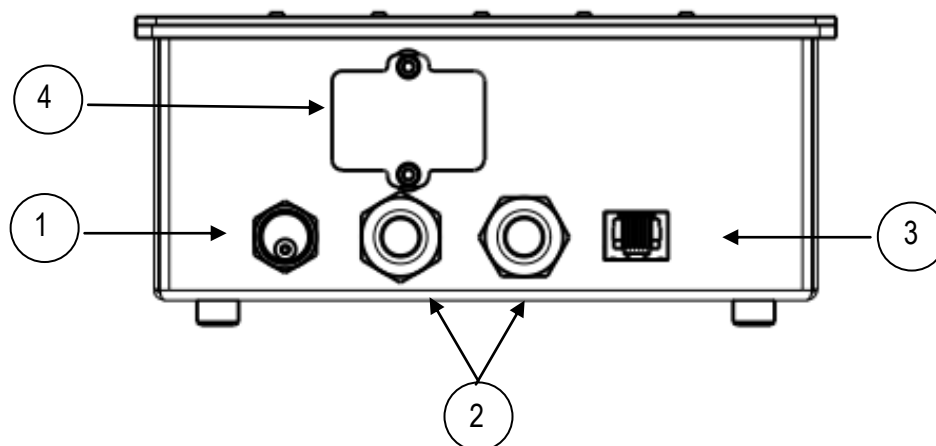
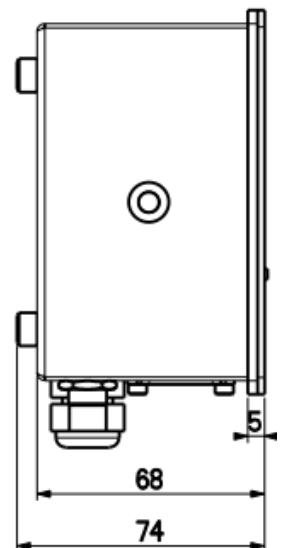
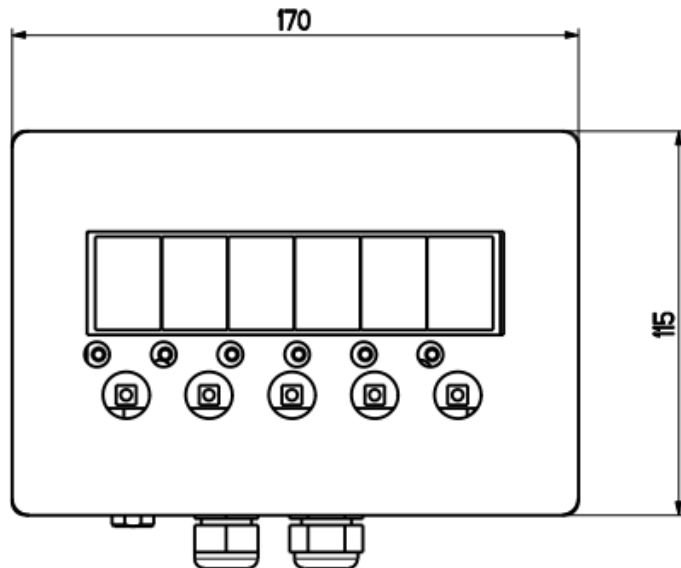
### 3.9 DGT20 CASE AND DIMENSIONS

The indicator has a PAINTED STEEL case, whose external dimensions are shown in Figure 3.11 and 3.12.

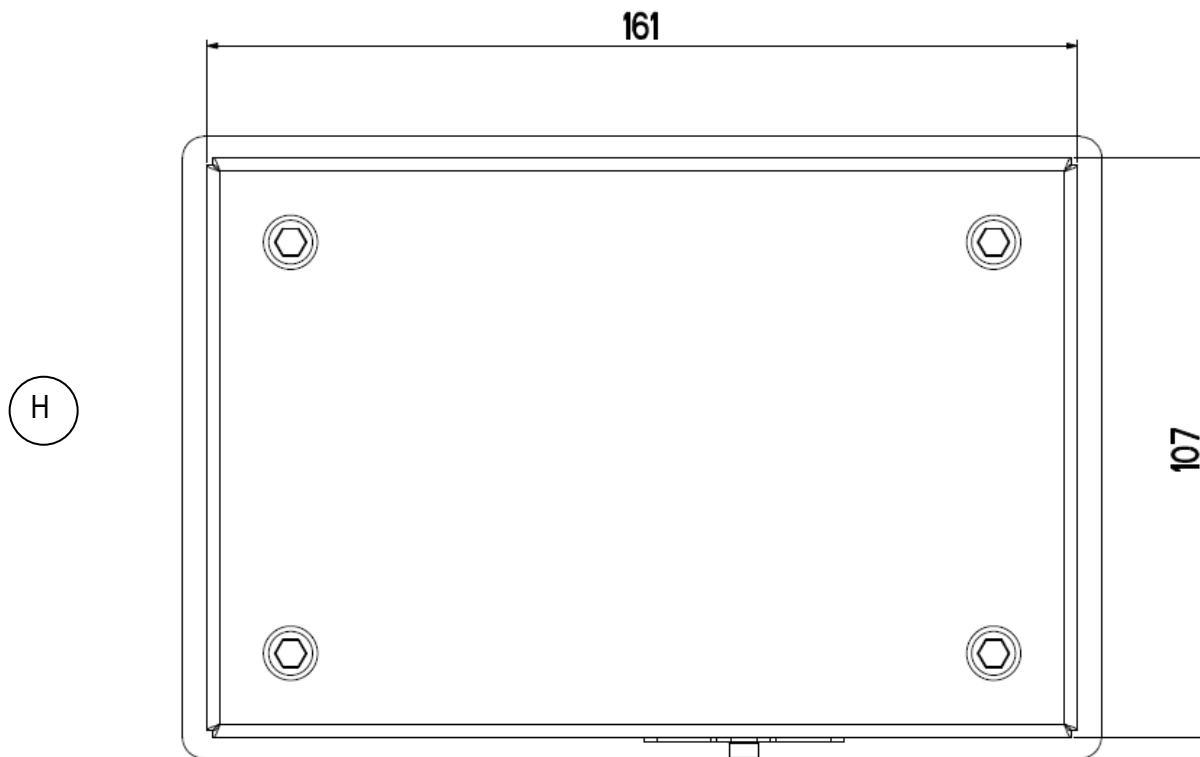


**Figure 3.11 – Measurements and dimensions in mm**

- 1) Power supply cable input.
- 2) Available for load cells / serial lines / inputs / outputs
- 3) RJ45 connector
- 4) Profibus







**Figure 3.12 – Drilling template. Measurements and dimensions in mm**

The instrument may be installed on the wall.

**NOTE:** When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it to the appropriate space on the indicator, so that it can be identified.

## 4. POWER SUPPLY & START UP

### INSTRUMENT POWER SUPPLY:

#### DGT1, DGT1S, DGT4 , DGTQ, DGTP, DGTPK, and DGT20 models

The instrument must be powered with stabilized voltage at 12 Vdc or 24 Vdc supplied from an AC/DC external charger (not equipped) which should be connected to the 220 Vac mains voltage. **Equipment to be powered by 12-24 Vdc LPS or Class 2 power source (only DGT1, DGT1S and DGT4).**

**TO POWER** the instrument, connect the two power supply cables (+ and -) in the appropriate terminal board (section "INSTALLATION") on the side or on the rear of the instrument.

#### DGT60 and DGT100 models

The instrument is powered with stabilized voltage at 12 Vdc or 24 Vdc supplied from an AC/DC internal charger (supplied) which should be connected to the 220 Vac mains voltage.

Safety norms must be respected for the connection to the mains voltage including the use of a line which has to be free from noise and interference generated by other electronic equipment.

**Do not connect other equipment to the same socket as the one used for the adapter.**

**Do not step on or crush the power supply cable**

**TO TURN ON THE INSTRUMENT**, keep the **C – ON/OFF** key pressed until the indicator turns on, and then release the key.

The display executes a start-up procedure, in which indicates:

**XX.YY** is the installed software version.

The indicator has an "auto zero at start-up" function: in other words, it means that if at start-up a weight within +/- 10% of

the capacity is detected, it will be zeroed. If the weight is not within this tolerance, with a non approved instrument the display shows the current weight after a few instants; while with an approved instrument "ZEro" is shown continuously on the display, until the weight complies with the tolerance. The auto zero function at start-up may be disabled in the set-up environment (only with non approved instrument); see **SEtuP→ConFiG→PArAM→Auto-0 (TECH.MAN.REF.)**.

By pressing the **ZERO** key for an instant while the version is shown in the LED display, the indicator will show the following (in this order):

<b>XX.YY</b>	in which XX is the software release and YY is the sub release.
<b>CLoCK</b>	if there is the optional board.
<b>XX.YY</b>	in which XX indicates the type of the instrument, YY indicates the metrological software version.
<b>XX.YY.ZZ</b>	is the installed software version.
<b>XXXXXX</b>	is the name of the installed software.
<b>n.Ch X</b>	number of the configured channels (if equal to 2, 3, or 4)
<b>XXX.XXX</b>	capacity and division of channel 1

After this, "hi rES" is displayed (in case of non approved instrument), or "LEGAL" (in case of approved instrument), together with the gravitational acceleration value of the area of use. Then, the instrument executes a countdown (self-check).

**NOTE:** the display of the other information is described in section "DISPLAY OF METRIC DATA (inFO)".

**TO PUT THE INSTRUMENT IN STANDBY:** keep the **C – ON/OFF** key pressed until the message "- OFF -" appears on the display and then release the key; just the point at the extreme left of the display remains on.

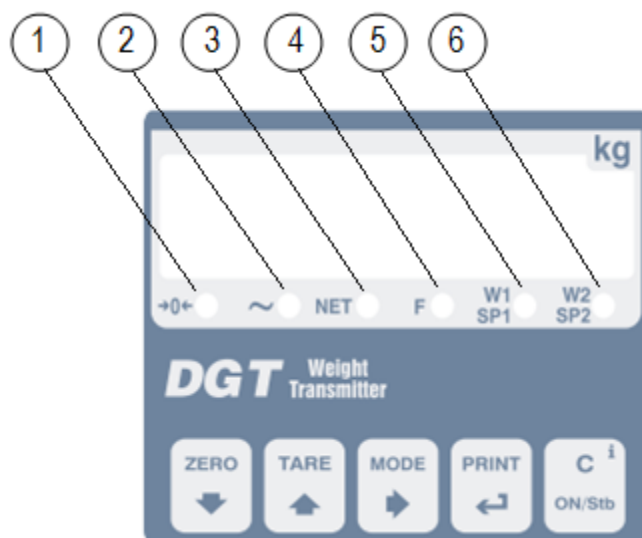
**TO TURN OFF THE INSTRUMENT:** take away the power supply.

## 5. FRONT PANEL KEYS AND INDICATORS

The front panel of the indicator is designed for a simple and quick use.

### 5.1 DGT1

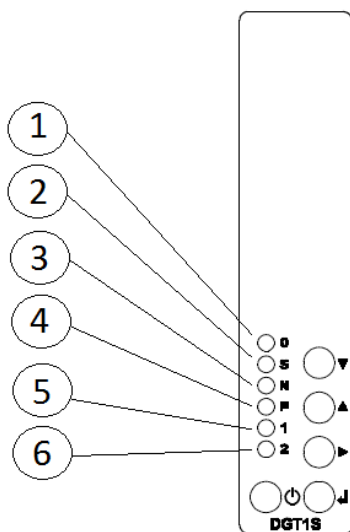
The front panel of the DGT1 consists of a display with 6 digits, 13 mm high, 6 LED function indicators and a 5-key keyboard.



**Figure 6.1** – Keys and indicators of the DGT1 front panel

## 5.2 DGT1S

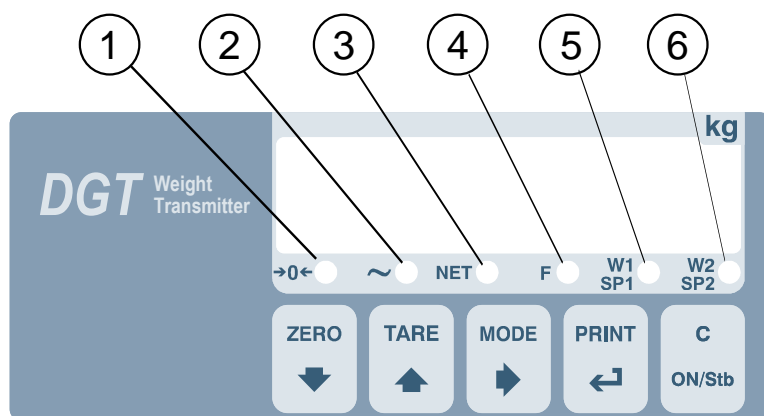
The front panel of the DGT1S consists of a display with 6 digits, 13 mm high, 6 LED function indicators and a 5-key keyboard.



**Figure 6.2** – Keys and indicators of the DGT1S front panel

## 5.3 DGT4

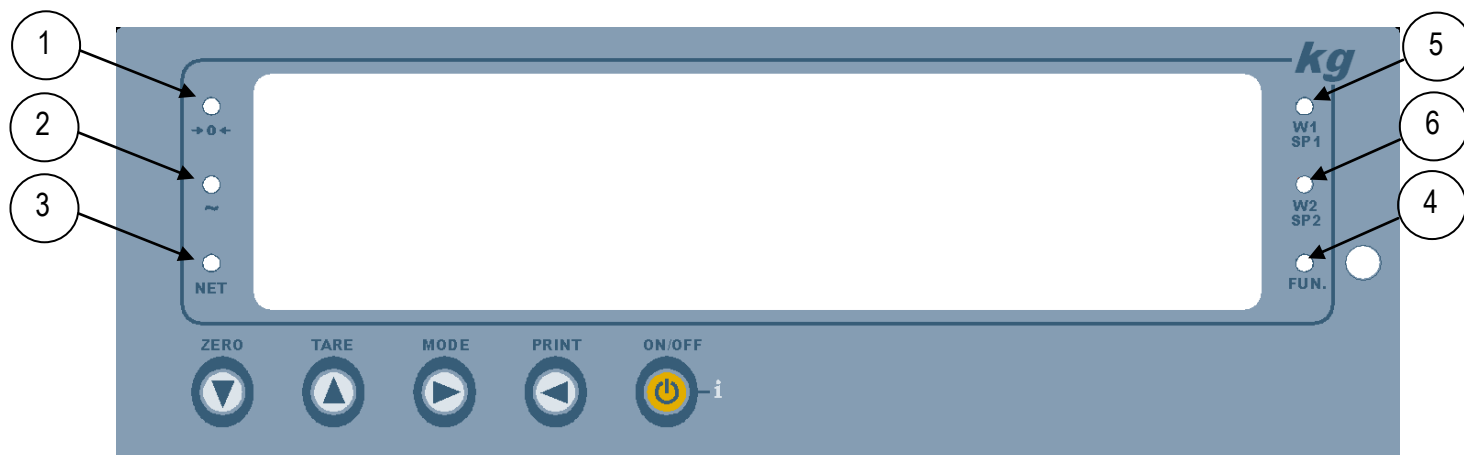
The front panel of the DGT4 consists of a display with 6 digits, 13 mm high, 6 LED function indicators and a 5-key keyboard.



**Figure 6.3** – Keys and indicators of the DGT4 front panel

## 5.4 DGT60

The front panel of the DGT60 consists of a display with 6 digits, 60 mm high, 6 LED function indicators and a 5-key keyboard.



**Figure 6.4** – Keys and indicators of the DGT60 front panel

## 5.5 DGT100

The front panel of the DGT100 consists of a display with 6 digits, 92 mm high, 6 LED function indicators and a 5-key keyboard.



**Figure 6.5** – Keys and indicators of the DGT100 front panel

5.6 DGTQ

The front panel of the indicator is designed for quick but simple weighing applications for the user. It consists of a display with 6 digits, 13 mm high, 6 LED function indicators and a 5-key keyboard.

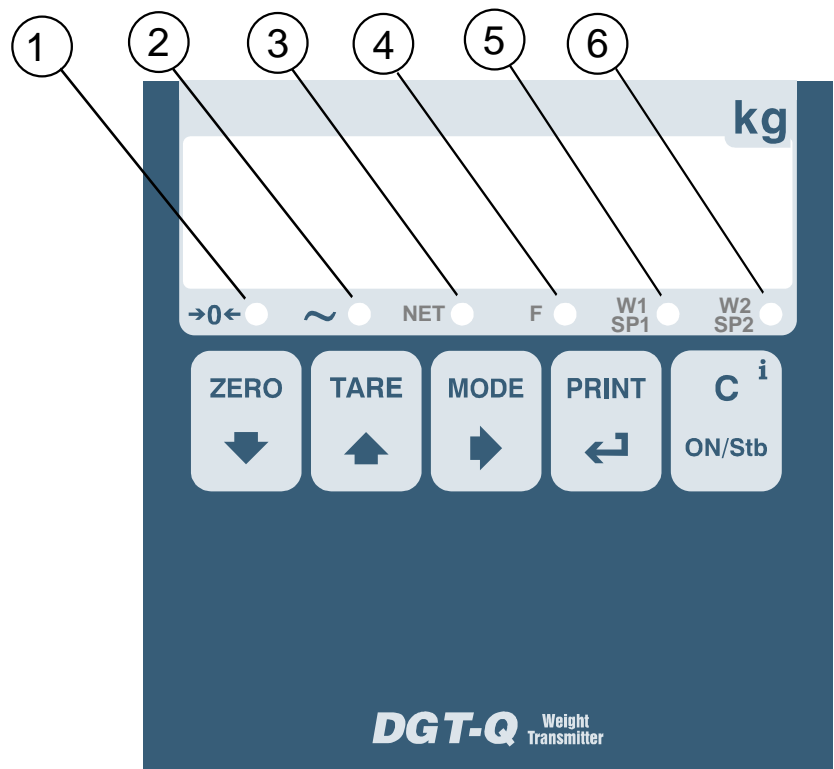


Figure 6.6 – Keys and indicators of the DGTQ front panel

5.7 DGTP

The front panel of the DGTP consists of a display with 6 digits, 20 mm high, 6 LED function indicators and a 5-key keyboard.

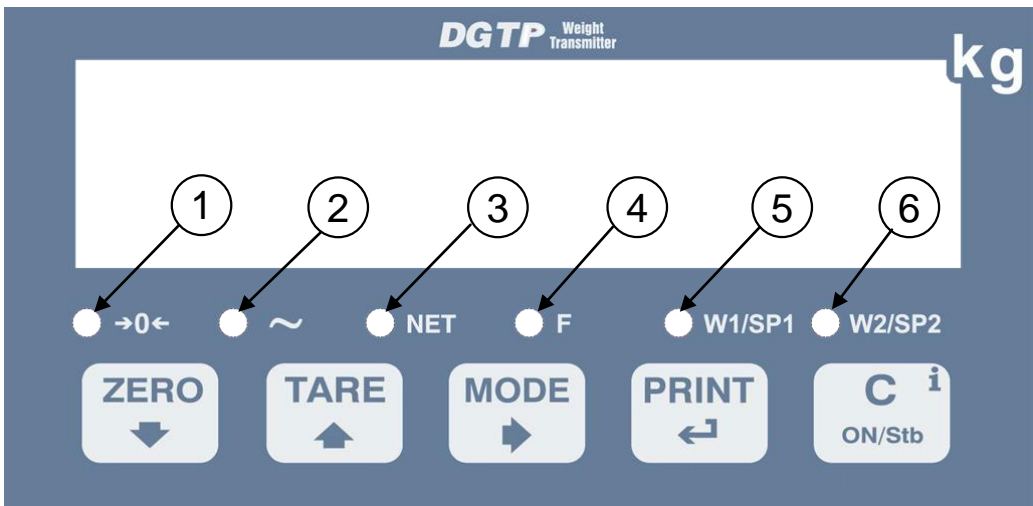


Figure 6.7 – Keys and indicators of the DGTP front panel

5.8 DGTPK

The front panel of the DGTPK consists of a display with 6 digits, 20 mm high, 12 LED function indicators and a 20-key keyboard.

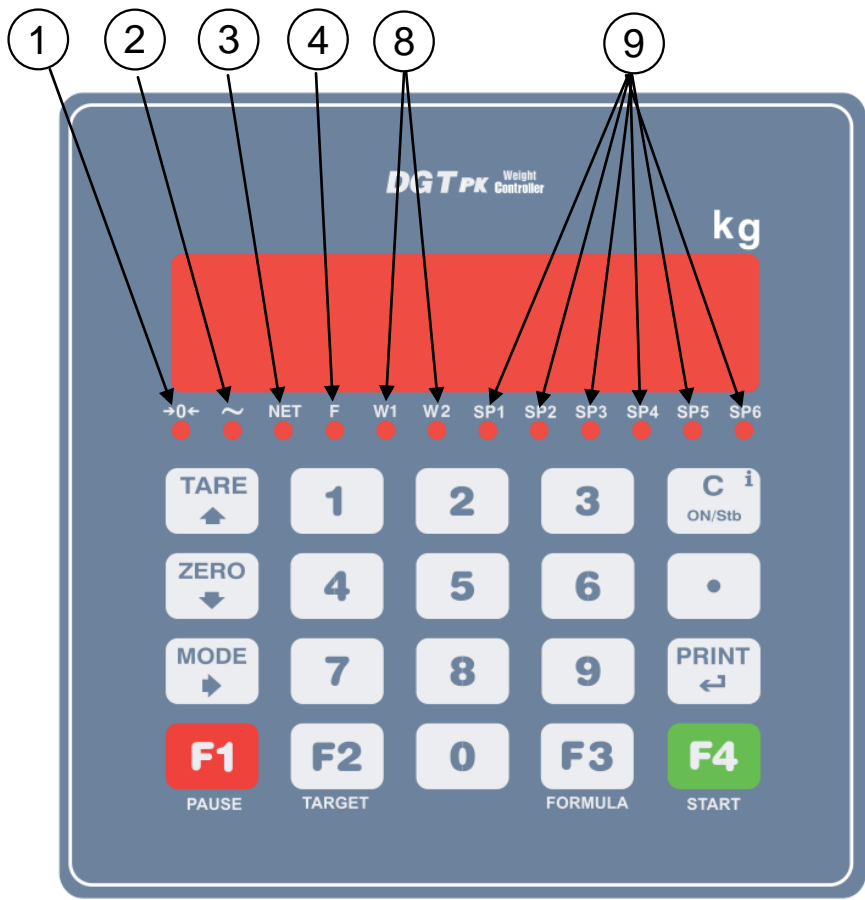


Figure 6.6 – Keys and indicators of the DGTPK front panel

5.9 DGT20

The front panel of the DGT20 consists of a display with 6 digits, 20 mm high, 6 LED function indicators and a 5-key keyboard.

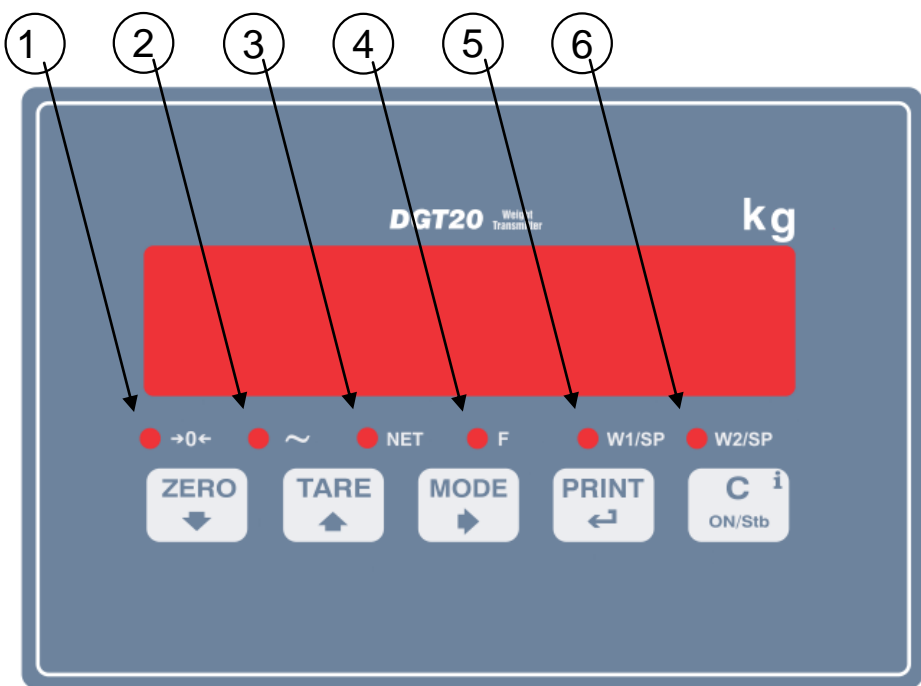


Figure 6.9 – Keys and indicators of the DGT20 front panel

## 5.10 FUNCTION OF THE INDICATORS

NUMBER	FUNCTION
(1)	The weight detected by the weighing system is near to zero, specifically within $-\frac{1}{4} \div \frac{1}{4}$ of the division.
(2)	Indication of UNSTABLE WEIGHT.
(3)	The displayed value is a NET WEIGHT.
(4)	<p>It turns on when:</p> <ul style="list-style-type: none"> <li>- the SPECIFIC FUNCTION of the instrument is ACTIVE, which is set in the <math>F.NodE \rightarrow FUNCTION</math> parameter</li> <li>- a key is pressed.</li> </ul> <p>It turns off:</p> <ul style="list-style-type: none"> <li>- when the SPECIFIC FUNCTION of the instrument IS DISABLED.</li> <li>- with an active function, a key is pressed.</li> </ul> <p>When blinking it means that the instrument function is active for 5 seconds.</p>
(5)	<p><u>In case of instrument in dual range and approved:</u> it indicates the 1<sup>st</sup> weighing range (w1).</p> <p><u>In the other cases:</u> It shows the activation of the 1<sup>st</sup> OUTPUT (Sp1).</p>
(6)	<p><u>If instrument in dual range and approved:</u> it indicates the 2<sup>nd</sup> weighing range (w2)</p> <p><u>In the other cases:</u> It shows the activation of the 2<sup>nd</sup> OUTPUT (Sp2).</p>
(7)	Sensor for the reception of the infrared signal (standard fitting, only for the DGT60 and DGT100 models).
(8)	<p><u>If instrument in dual range and approved:</u> it indicates the 1<sup>st</sup> weighing range (w1)</p> <p><u>If instrument in dual range and approved:</u> it indicates the 2<sup>nd</sup> weighing range (w2)</p>
(9)	The relays nr. 1,2,3,4,5,6 has been enabled.

## 5.11 FUNCTIONS OF THE KEYS:

DGT4, DGT60, DGT100, DGTP, DGT20 KEY	DGTPK KEY	FUNCTION
<b>ZERO ▼</b>	<b>ZERO ▼</b>	<ul style="list-style-type: none"> <li>- Clears the displayed gross weight, if included within +/- 2% of the total capacity.</li> <li>- Cancels the negative tare value.</li> <li>- In <u>NUMERIC INPUT</u>: decreases the digit to be modified.</li> </ul>
<b>TARE ▲</b>	<b>TARE ▲</b>	<ul style="list-style-type: none"> <li>- With <u>Brief pressing</u>: executes the semiautomatic tare.</li> <li>- With <u>Long pressing</u>: allows to enter a manual tare from the keyboard.</li> <li>- Cancels the negative tare value.</li> <li>- In <u>NUMERIC INPUT</u>: increases the digit to be modified.</li> </ul>
<b>MODE ►</b>	<b>MODE ►</b>	<ul style="list-style-type: none"> <li>- Executes a <u>SPECIFIC FUNCTION</u> of the functioning mode which has been previously set in the set-up environment.</li> <li>- By <u>Pressing at length</u>: this allows to switch the displayed channel of the instrument (if configured in the "Independent Channels" mode, or "ind. Ch").</li> <li>- In <u>NUMERIC INPUT</u>: selects the digit to be modified, from left to right.</li> </ul>
<b>PRINT</b> ↵	<b>PRINT</b> ↵	<ul style="list-style-type: none"> <li>- Executes a <u>SPECIFIC FUNCTION</u> of the functioning mode which has been previously set in the set-up environment.</li> <li>- In <u>NUMERIC INPUT</u>: confirms the entry made.</li> <li>- In <u>SETUP</u>: allows to enter a step or to confirm a parameter inside a step.</li> <li>- Executes a <u>PRINTOUT</u> or transmission of the data from the serial port dedicated to the printer.</li> </ul>
<b>C ON/OFF</b>	<b>C ON/Stb</b>	<ul style="list-style-type: none"> <li>- <u>ON / STANDBY</u> of the instrument.</li> <li>- In <u>NUMERIC INPUT</u>: quickly clears the present value.</li> <li>- In <u>SETUP</u>: allows to exit a step without confirming the modification made.</li> <li>- Visualisation of <u>Metric information</u> of the scale: Capacity, Division, Minimum weigh for each configured range, Gravitational Acceleration Value, Number of configured Channels.</li> </ul>
	<b>F1, F2, F3, F4</b>	- Not used in this application.
	<b>NUMERIC KEYBOARD</b>	- In the numeric input phase it allows to enter the desired value.



## 6. BASIC FUNCTIONS

### 6.1 SCALE ZERO

By pressing the **ZERO** key, it is possible to zero a gross weight value which is within +/- 2% of the capacity; after the zeroing, the display shows 0 weight and the relative pilot lights turn on.

### 6.2 TARE OPERATIONS

#### SEMIAUTOMATIC TARE

By pressing the **TARE** key, any weight value which is on the scale is tared: the display shows "**⌊AR-E**" for an instant and then 0 (net weight); the related keys turn on.

**NOTE:** The semiautomatic tare will be acquired only if the weight is AT LEAST ONE DIVISION, STABLE (instability ~ led off) and VALID (in other words, the OVERLOAD condition should not be created).

#### MANUAL TARE FROM KEYBOARD

Press **TARE** for a few seconds: the display shows "**⌊AR-**" and then "000000". Enter the desired value using the following keys:

**ZERO** decreases the blinking digit.

**TARE** increases the blinking digit.

**MODE** selects the digit to be modified (blinking); the scrolling of the digits takes place from left to right.

**C- ON/OFF** if pressed for an instant it quickly zeros the present value; if pressed at length it allows to return to weighing without saving the changes made.

Confirm with the **PRINT** key; the value will be subtracted from the weight present on the plate and the relative pilot lights will turn on.

**If the entered value is not a multiple of the scale's minimum division, it will be rounded off.**

#### CANCELLING A TARE

The tare value can be cancelled in different ways:

- unload the scale and press the **TARE** or **ZERO** key.
- carry out some tares in deduction, partially unloading the scale and pressing **TARE** to zero the display.
- press **C - ON/OFF** without unloading the scale.
- enter a manual tare equal to 0.

**NOTE: it is possible to automatically cancel the tare value by doing the following:**

#### SELECTION OF LOCKED/UNLOCKED/DISABLED TARE

Normally, when a tare value is entered (automatic, manual, or from storage) by unloading the scale plate, the display shows the tare value with a negative sign (LOCKED TARE). For one's convenience it is also possible to choose that the tare value cancels itself automatically each time that the scale is unloaded (UNLOCKED TARE); or disable the tare functions.

With the UNLOCKED tare:

- **In case of SEMIAUTOMATIC TARE the net weight, before unloading the scale, may also be 0.**
- **In case of MANUAL TARE the net weight before unloading the scale must be greater than 2 divisions and stable.**

To set the type of tare:

- Turn on the indicator, press the **TARE** key while the firmware version is displayed (the display shows the "**TYPE**" menu).
- Select "**F . MODE**" (by pressing once the **ZERO** key) and press **PRINT** to enter in the menu.
- Scroll until the "**⌊AR-E** ⌊" parameter appears, and select it.
- With the **ZERO** or **TARE** keys select the possible options:
  - a) "**LOCK**" (locked tare)
  - b) "**UNLOCK**" (unlocked tare)
  - c) "**DISABLE**" (disabled tare).

- Confirm with **PRINT**.
- Press the **C – ON/OFF** key many times until the display shows the message "SCALEP".
- Press **PRINT** to confirm the changes made or another key for not saving.

The indicator stores the last selection made, also after it is turned off.

### 6.3 LIMITATION OF THE TARE FUNCTIONS

With approved instrument, it is possible to limit the tare functions, by setting "YES" in the step **SEtUP→d.SALE** (**TECH.MAN.REF.**). The tare operations will have the following specifications:

SCALE CAPACITY	FUNCTIONING	
	<b>SEtUP→d.SALE→rEN.dSP→no</b> (no remote display for the visualization of the tare)	<b>SEtUP→d.SALE→rEN.dSP→YES</b> (remote display for the visualization of the tare)
< 100kg	All the tare functions are disabled.	<ul style="list-style-type: none"> <li>- The SEMIAUTOMATIC TARE value cannot be modified with a manual tare.</li> <li>- The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero.</li> <li>- It is possible to cancel the tare value only with an UNLOADED scale, by pressing the ZERO key or by entering a manual tare equal to zero.</li> </ul>
≥ 100kg	<ul style="list-style-type: none"> <li>- The SEMIAUTOMATIC TARE value cannot be modified with a manual tare.</li> <li>- The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero.</li> <li>- It is possible to cancel the tare value only with an UNLOADED scale, by pressing the ZERO key or by entering a manual tare equal to zero.</li> </ul>	<ul style="list-style-type: none"> <li>- The SEMIAUTOMATIC TARE value can not be modified with a manual tare.</li> <li>- The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero.</li> <li>- It is possible to cancel the tare value only with an UNLOADED scale, by pressing the ZERO key or by entering a manual tare equal to zero.</li> </ul>

With approved instrument, the **d.SALE** and **rEN.dSP** steps are read-only.

### 6.4 AUTO POWER OFF FUNCTION

It is possible to automatically turn off the indicator (from 1 to 255 minutes), or disable it; the auto power off takes place when, **with unloaded scale**, the weight has not been moved or a key has not been pressed for the time set: the display shows the "- OFF -" blinking message, after this the indicator turns off.

For the setting, follow the procedures below:

- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the "TYPE" menu).
- Select "F.NoDE" (by pressing once the ZERO key) and press PRINT to enter in the menu.
- Scroll until the "AutoOFF" parameter appears and select it.
- With the ZERO or TARE keys select the possible options: "d,SAb" (auto switch-off disabled), "EnAb" (auto switch-off enabled).
- Confirm with PRINT; if "EnAb" is selected, the indicator requires to enter the number of minutes after which it will turn off: enter a number between 1 and 255 (using the MODE key to select the digit to be modified and ZERO/TARE to decrease/increase it) and confirm with PRINT.
- Press many times the **C – ON/OFF** key until the display shows "SCALEP".
- Press PRINT to confirm the changes made or another key for not saving.

### 6.5 MULTI RANGE FUNCTIONING (for legal trade approved instruments)

The **multirange functioning** allows to subdivide the scale capacity in two, each one up to 3000 divisions, improving in this way the first range division in the dual range.

For example, with a 10 kg cell platform it is possible to approve the weighing system with:

- A single range: 6 kg capacity and 2 g division (3000 div.).
- Dual range: 6 / 3 kg capacity and 2/1 g division (3000 + 3000 div.).

#### NOTES:

- For the approval of the weighing system in dual range the cell must have better technical features in comparison to the cell used for the approval in a single range.

The multirange functioning is shown by the turning on of the relative LED, which identifies the operating range; by passing to the second range, its division is enabled. At this point the first range division is restored **only by passing by the gross zero of the scale**.

- The selection of the range number with multirange functioning is made during the indicator's calibration (TECH.MAN.REF.).

## 6.6 DATE/TIME ADJUSTMENT (OPTIONAL)

The indicator can be fitted with the date/time option; in this case, the "CLoCK" message is shown when the instrument is turned on. To set the date/time, follow the procedure below:

- Turn on the scale, press the **TARE** key while the firmware version is displayed (the display shows the "TYPE" menu).
- Select "F.NoDE" (by pressing once the **ZERO** key) and press **PRINT** to enter in the menu.
- Scroll until the "CLoCK" parameter appears.
- Confirm with **PRINT** and enter, in the following order; day, month, year, hour, and minutes. The entry of each parameter must be confirmed with **PRINT**.
- Press the **C – ON/OFF** key many times until the message "SAVE?" appears on the display.
- Press **PRINT** to confirm the changes made or another key to exit without saving.

#### NOTES:

- the "CLoCK" parameter is not displayed if there is no date/time option.
- the clock/calendar function is standard fitted on the DGTP/DGTPK version.

## 6.7 "SCREEN SAVER" FUNCTION (OPTIONAL)

If the indicator is fitted with the date/time function, it is possible to enable the "Screen Saver": after a programmable time (from 1 to 255 minutes) **with the scale unloaded**, the time is shown on the display, in the "HH-MM.SS" format. As soon as a weight variation is detected, or a key is pressed, the indicator returns to viewing the current weight.

To set the function:

- Turn on the scale, press the **TARE** key while the firmware version is displayed (the display shows the "TYPE" menu).
- Select "F.NoDE" (by pressing once the **ZERO** key) and press **PRINT** to enter in the menu.
- Scroll until the "SCr.SAU" parameter appears and select it.
- With the **ZERO** or **TARE** key select the possible options: "no" (disabled), "YES" (enabled).
- Confirm with **PRINT**; if "YES" is selected, the indicator asks you to enter the number of minutes after which the time should appear: enter a number between 1 and 255 (using the **MODE** key to select the digit to be modified and the **ZERO/TARE** keys to decrease/increase it) and confirm with **PRINT**.
- Press the **C – ON/OFF** key many times until the display shows the message "SAVE?".
- Press **PRINT** to confirm the changes made, or another key to exit without saving.

#### NOTES:

- the "SCr.SAU" parameter is not shown if there is no date/time option.
- the screen saver function is standard fitted on the DGTP/DGTPK version.

## 6.8 PRINTING

If a printer is connected, it is possible to print the programmed weight data, for example:

- 4 heading lines of 24 characters
- GROSS weight
- TARE weight
- NET weight
- ticket number
- date and time (optional)
- a CODE 39 bar code (both with the LP542S labeller and the TPR thermal printer).

Besides the generic printing described above, each single functioning mode will have some specific printouts, which are described in the operating mode.

It is also possible to send weight data to the PC, with standard or extended string, via the printer port (*ALL .Std/ALL .Ext* or *Pr-PC .Std/Pr-PC .Ext/Pr-PC .hfi* in *Pr .Mode* parameter).

### Executing printouts with NON approved scales.

In order to print with non-approved scales, the following conditions must be satisfied:

- stable weight;
- gross weight  $\geq 0$ ;
- printout always active.

**NOTES:** In the totalizer modes, in order to print the totalised weight:

- the weight must be stable;
- the net weight must be  $\geq$  of a division with normal or fast totalization;
- the net weight must be  $\geq$  of 10 divisions with automatic totalization.

The printing is reactivated depending on how the "*REEN*" parameter has been set in the set-up environment: passage by zero of the NET weight, weight instability, or always (see "REENABLING OF THE PRINTOUTS AND OF THE INDICATOR FUNCTIONS" section).

### Legal for Trade scale printing.

In order to be able to print with an approved scale:

- the weight must be stable;
- the net weight must be  $\geq$  the minimum weight (minimum of 20 divisions).
- the printing is reactivated depending on how the "*REEN*" parameter has been set in the set-up environment: passage by zero of the NET weight, weight instability, or always (see "REENABLING OF THE PRINTOUTS AND OF THE INDICATOR FUNCTIONS" section).

To configure the printouts, go to the "PROGRAMMING THE PRINTOUTS" section in the technical manual (**TECH.MAN.REF.**).

### NOTES:

- The printing is confirmed by the indication on the display of the "*Print*" message.
- If the printout is not reenabled the display shows the "*no .0 .un5*" message
- In case of unstable weight the display shows the "*unStAb*" message.

## 6.9 REENABLING THE PRINTOUTS AND THE INDICATOR FUNCTIONS

While using the indicator, if the error "no . 0 . 5" appears on the display, the print or the function to be executed must be reactivated (in order to avoid unwanted executions).

It is possible to set the re-enabling in different ways: "passage by zero of the net weight", "weigh instability" or "always". Follow the procedure below:

- Turn on the scale, press the **TARE** key while the firmware version is displayed (the display shows the "TYPE" menu).
- Select "F . mode" (by pressing once the **ZERO** key) and press **PRINT** to enter in the menu.
- Scroll until the "rEALt" parameter appears and select it.
- With the **ZERO** or **TARE** keys select the possible options: "ZEro" (passage by zero of the net weight), "inst" (instability), ALWAYS.
- Confirm with **PRINT**.
- Press the **C – ON/OFF** key many times until the message "SAVE?" is shown on the display.
- Press **PRINT** to confirm the changes made or another key to exit without saving.

## 6.10 DISPLAY OF METRIC DATA ( mFD)

The indicator is fitted with a function named " mFD", thanks to which it is possible to view the metric data and other configuration data:

- First range capacity, first range minimum weigh, first range division.
- Second range capacity, second range minimum weigh, second range division (if set).
- Gravitational Acceleration Value.
- Number of configured Channels.

### NOTES:

- The minimum weigh corresponds to 20 net weight divisions.
- The data of the second and third range appear only if actually configured.

### To view the metric data:

- Keep the **C – ON/OFF** key pressed until the display shows " mFD", and release.
- The capacity value of the first range will appear.
- Press the **ZERO** key to scroll the following data, in the order (for example for channel 1):  
1st range capacity ("Ch 1 . MAX") ⇒ 1st range minimum weigh ("Ch 1 . min") ⇒ 1st range division ("Ch 1 . E") ⇒ 2nd range division ("Ch 1 . MAX") ⇒ 2nd range minimum weigh ("Ch 1 . min") ⇒ 2nd range division ("Ch 1 . E") ⇒ Gravitational Acceleration Value ("GRAV ite") ⇒ Nr. of Configured Channels ("CONF . Ch") ⇒ ..... and so on these repeat cyclically.
- Press the **TARE** key to scroll backwards through the metric data.
- Press the **PRINT** or **C – ON/OFF** key to return to weighing.

By pressing the MODE key during the display of the info for the currently active channel, it is possible to view the metric data of the other channels (if configured); for example, if also channels 2 and 3 are configured, for the maximum capacity of the 1st range:

1st range capacity channel 1 ("Ch 1 . MAX") ⇒ Press MODE ⇒ 1st range capacity channel 2 ("Ch2 . MAX")  
⇒ Press MODE ⇒ 1st range capacity channel 3 ("Ch1.MAX")  
(Function is not available with DGT1 and DGT1S models)

## 6.11 SELECTION OF THE CHANNEL TO BE DISPLAYED

In all the functioning modes, excluding the "MASTER" mode (section "MULTISCALE REPEATER (MASTR)"), it is possible to select the channel to be displayed (when the instrument is configured in the "Independent Channels" Mode - see the section "CALIBRATION", **TECH.MAN.REF.**) using the **MODE** key:

By pressing the **MODE** key at length: The "Chan" message appears for a few instants.

- The nr. of channel used until that moment is displayed:
    - For **example**, if channel 1 → "Chan 1" appears
  - Select the number of channel to be displayed, using the **ZERO** or **TARE** keys
    - For **example**, if the channels 1, 2, and 3 are configured → the items "Chan 1", "Chan 2", "Chan 3" will appear.
  - Confirm the choice by pressing the **PRINT** key.
- (Function is not available with DGT1 and DGT1S models)

## 6.12 REMOTE CONTROL (OPTIONAL, JUST WITH DGT60 AND DGT100 MODELS)

Only with DGT60 and DGT 100 models, it is possible to use the instrument with the 6-keys radio remote control.

It is possible to use remotely the functionality of the ZERO, TARE, MODE, ENTER/PRINT, C/DEL and Fn keys or just the TARE key.

To choose this type of remote control follow the below procedure:

- Turn on the scale; press the TARE key while the firmware version is displayed (the display shows the "TYPE" menu).
- Press ZERO many times (to scroll ahead through the parameters) or TARE (to scroll backwards) until the "F.MODE" parameter appears.
- Press PRINT to enter the menu.
- Scroll until the "rd.F" parameter appears and select it.
- With the ZERO or TARE keys select the possible options: "none" (disabled remote control), "rd 1" and "br 1" (all the remote control keys function as the TARE key) or "rd 4" and "br 4" (the remote control keys functions as ZERO, TARE, MODE, ENTER/PRINT, C/DEL and Fn).
- All other options refer to other types of remote controls
- Confirm with PRINT.
- Press the C – ON/OFF key many times until the message "SAVE?" appears on the display.
- Press PRINT to confirm the changes made or another key to exit without saving.

In the "multifunction" configuration, the remote control keys repeat the keys' functions (both the ones obtained with a SHORT pressing as well as those with a LONG pressing) and they correspond to the following indicator keys:

KEY	"none" MODE FUNCTION	"rd 1" or "rd.br 1" MODE FUNCTION	"rd 4" or "rd.br 4" MODE FUNCTION
<b>TARE</b>	DISABLED	TARE	TARE
<b>ZERO</b>	DISABLED	TARE	ZERO
<b>MODE</b>	DISABLED	TARE	MODE
<b>PRINT</b>	DISABLED	TARE	ENTER/PRINT
<b>C</b>	DISABLED	TARE	C
<b>Fn</b>	DISABLED	TARE	Fn

Radio remote control configuration:

- "rd H": In this configurations it is necessary to combine the remote control to the instrument.
- "rd.br H": the instrument works with any remote control supplied.

In the "rd 1" and "rd 6" configurations it is possible to combine 3 remote controls.

It is possible to combine a new remote control by pressing and holding (3 seconds) TARE and ZERO key.

When the instrument displays "RUL.rd?" by pressing the ENTER key of the keyboard, the new remote control is recognized.

With C key of the keyboard, if the serial number exits, the remote control is removed.

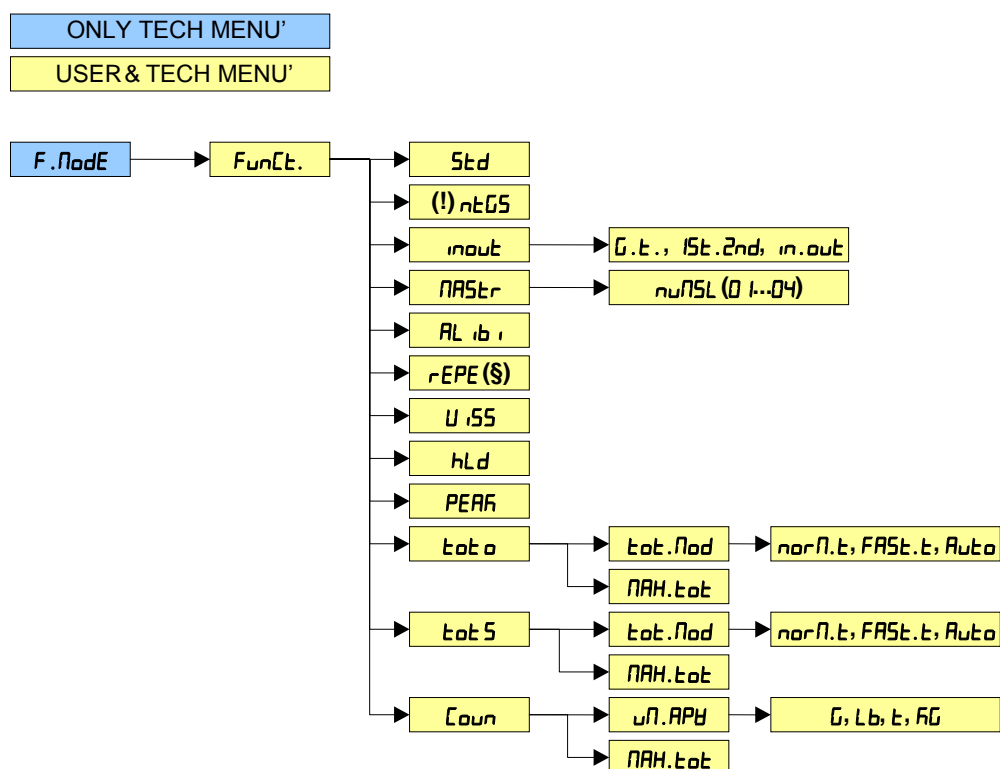
In the "multifunction" configuration, by pressing at length the C key, it is possible to put the instrument in stand-by; by pressing C on the keyboard or any key on the remote control, the instrument returns to the weighing mode.

## 7. SELECTABLE OPERATING MODES

In addition to the STANDARD weighing mode - with TARE deduction and transmission of data, the indicator can carry out one of the following functions:

UNIT OF MEASURE CONVERSION, NET/GROSS SWITCH, IN/OUT WEIGHING, MULTISCALE REPEATER, ALIBI MEMORY, SINGLE SCALE REPEATER, DISPLAY WITH SENSITIVITY X 10, FREEZING OF THE WEIGHT ON THE DISPLAY, PEAK DETECTOR, HORIZONTAL TOTALIZER, VERTICAL TOTALIZER, PIECE COUNTING, SIMULTANEOUS TRANSMITTER OF THE CHANNEL VALUE.

Each functioning mode is associated with the turning on of various function pilot LEDs, described in detail in the section "KEYS AND INDICATORS OF THE FRONT PANEL".



To set the operating mode, carry out the following procedures:

- Turn on the scale, press the TARE key while the firmware version is displayed (the display shows the "tYPE" menu).
- Select "F.Mode" (by pressing once the ZERO key) and press PRINT to enter in the menu (the display shows the "FunCt" menu).
- Press PRINT to enter the parameter.
- With the ZERO or TARE keys select the possible options:
  - **Std** = Unit of measure conversion
  - **netGS** = net weight / gross weight conversion
  - **inout** = input / output weighing
  - **NRSctr** = Multiscale repeater (\*\*)
  - **ALibi** = Alibi memory
  - **rEPE** = Single scale repeater(\*\*)
  - **U,SS** = Sensitivity times ten
  - **hLd** = Freezing of the weight on the display
  - **PEAR** = Peak detector
  - **tot o** = Horizontal totalizer

- **tot 5** = Vertical totalizer
- **Count** = Counting
- Confirm with **PRINT**. If the **input**, **MASTER**, **tot 0**, **tot 5** or **Count** mode is selected, the indicator requires the selection of another operating parameter; refer to the specific functioning mode section for the relative description.
- The instrument automatically goes to the following step.
- Press many times the **C – ON/OFF** key until the display shows the message "SAVEP".
- Press **PRINT** to confirm the changes made or another key for not saving.

(\*\*) **MASTER** and **PEPE** are the only parameters displayed in the MASTER type firmware.

**NOTE:** Once the functioning mode is selected, and there is a printer, the standard printouts relative to the type of printer selected in the **SEtUP→SErIAL→COn.PRnt→Pr.NoDE** (see **TECH.MAN.REF.**) parameter. It is possible to activate the default parameters by carrying out the selected print default (see section "PROGRAMMING THE PRINTOUTS", **TECH.MAN.REF.**).

## 7.1 UNIT OF MEASURE CONVERSION (5td)

Simple display functioning mode, with the function of conversion between the scale unit of measure and lb. and vice versa.

### FUNCTIONING:

- By pressing the **MODE** key the weight conversion between the scale unit of measure and lb is made and vice versa.
- By pressing the **PRINT** key at length: it is possible to directly enter to the SETPOINT INPUT Menu (see section "OUTPUTS FUNCTIONS").

### NOTES:

- If various platforms are connected to the indicator, in order to pass from one platform to the other, the weight must be expressed in the scale unit of measure.
- The conversion takes place for any unit of measure set during the calibration.

Furthermore, with APPROVED instrument

- The weight in pounds is displayed for 5 seconds, after which the display goes to the scale unit of measure.
- During the viewing in pounds it is not possible to print the weight (when pressing **PRINT** the message "COnW" is shown)

## 7.2 NET/GROSS SWITCH (ntGS)

Simple functioning mode with Net / Gross conversion function.

### FUNCTIONING:

- If a tare is set, by pressing **MODE** the display switches between the net and the gross weight and vice versa.
- By pressing **PRINT** at length: it is possible to access directly to the INPUT menu of the SET POINTS (see section "OUTPUTS FUNCTIONS").

### NOTES:

With an APPROVED instrument

- The display time of the gross weight is 5 seconds, and then the display of the net weight returns.
- While the gross weight is displayed it is not possible to print the weight.

## 7.3 INPUT/OUTPUT (in/out)

Simple display functioning mode with in / out weighing function: the indicator acquires two weight values through the confirmation of the operator and calculates the difference, automatically printing the data (if the presence of a printer has been configured).

### SETTING:

Once the in/out mode is selected, the message "TYPE" appears for an instant, and the indicator requires to select (with **PRINT**) the printing mode of the acquired data:

- **G.L. gross/tare:**  
PRINTED DATA



GROSS	Greater weight with unit of measure
TARE	Lesser weight with unit of measure.
NET	Difference between GROSS and TARE with unit of measure

- **1<sup>st</sup> . 2<sup>nd</sup> first weigh/second weigh:**

PRINTED DATA

WEIGH 1	First weight with unit of measure
WEIGH 2	Second weight with unit of measure.
NET	Difference without sign between WEIGH 1 and WEIGH 2 with unit of measure.

- **input/output:**

PRINTED DATA

INPUT	First weight with unit of measure.
OUTPUT	Second weight with unit of measure.
NET	Zero weight with unit of measure >> if WEIGH 1 = WEIGH 2

INPUT NET >> if WEIGH 1 > WEIGH 2  
Difference without sign between INPUT and OUTPUT with unit of measure.

OUTPUT NET >> if WEIGH 1 < WEIGH 2  
Difference without sign between INPUT and OUTPUT with unit of measure.

**FUNCTIONING:**

- By pressing the **MODE** key, the first weight is acquired. The display shows " -- 1--".
- By pressing again the **MODE** key the second weight is acquired, and the display shows " -- 2--".
- When the acquisition of the second weight is made, the printing of the data is commanded.
- It is possible to interrupt the weighing cycle by pressing the **C – ON/OFF** key after the acquisition of the first weight: On the display the message "CLEAR" appears. Press **PRINT** to confirm the cancelling of the first acquired weight or another key to not confirm.
- By pressing and holding **PRINT**: it is possible to enter directly to the INPUT menu of the SET POINTS (see section "OUTPUTS FUNCTIONS").

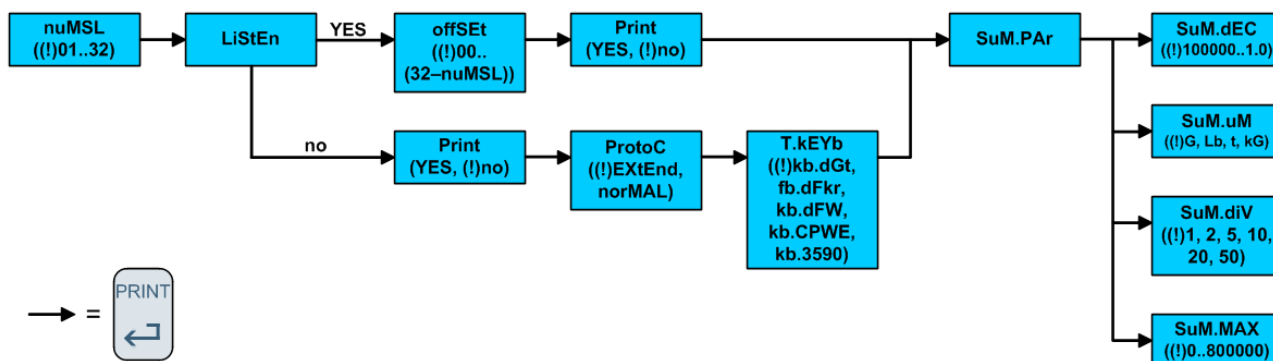
**NOTES:**

- The weight is acquired if:  
With a NON APPROVED scale, it is STABLE and GREATER than 0.  
With an APPROVED scale, it is STABLE and GREATER than 20 divisions.  
If the setting of the *PERC* parameter in the set-up environment has been respected (passage by zero of the weight, instability, or always); see the "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS" section.

## 7.4 MULTISCALE REPEATER (MASTER)

The system is made up of one or more indicators (up to 32, called **SLAVES**), connected to one or more weighing systems, which communicate with another indicator (called **MASTER**) which acts as weight repeater, on which it is possible to view (or printed if the printer is provided) the weight of each single scale or the sum of the weight detected by the single scales. Slaves repeat all the keys pressed on the master.

**NOTE:** It is possible to achieve a network with a **MASTER**, which remotely performs the functions of the scales connected, and one or more **LISTEN ONLY MASTER** having the sole function of repeating the weight.



## 7.4.1 MASTER CONFIGURATION

Enter in setup and go to parameter  $F.\Pi odE \rightarrow F.unct \rightarrow \Pi ASLr$ , here will be possible configure the master.

Once confirmed  $\Pi ASLr$ 's functioning mode by pressing the PRINT button, it will be ask:

- To enter the number of the SLAVES to be used. For an instant, " $nu\Pi SL$ " is displayed, and then, the number must be entered (between 01 and 32).
- Configure (or not) the listen mode:
  - An indicator with  $L.\text{ISLEn}$  parameter set on  $no$  will have the possibility to remote control every single SLAVE connected to it. Can't be more than one MASTER indicators with  $L.\text{ISLEn}$  parameter set on  $no$ .
  - Instead, if  $L.\text{ISLEn}$  parameter will be set on  $YES$ , the indicator will be only a MASTER's weight repeater, without being able to have control on SLAVES. There may be many indicators with  $L.\text{ISLEn}$  parameter set on  $YES$ , only if there is an indicator with  $L.\text{ISLEn}$  parameter set on  $no$ .
  - In case the  $L.\text{ISLEn}$  parameter is set on  $YES$ , the display will show for an instance " $OFFSEt$ ". After that it is necessary enter the slave's number which the sum starts from.
- Now will be ask to set  $Print$  parameter, which will allow to print the visualized weight on the MASTER's printer (only if  $L.\text{ISLEn}$  is set on  $YES$ ).
- If the  $L.\text{ISLEn}$  parameter is set on  $no$ , the indicator will show  $Protocol$ . In this parameter will be set the type of communication protocol between MASTER and SLAVES.
  - In case the  $Protocol$  parameter is set on  $normal$ , the SLAVE will communicate with MASTER transmitting all the parameters visualized on display.
  - Instead, in case the  $Protocol$  parameter is set on  $ExtEnd$ , the SLAVE will communicate with MASTER transmitting all the parameters visualized on display and transmitting the weight value.
- Now will be ask to set  $keyb$  parameter, which will be the same as SLAVE's instrument type:  $fb.dGt$  (for DGT instrument type),  $fb.dFkr$  (for DFWKR instrument type),  $fb.dFW$  (for DFW instrument type),  $fb.cPWE$  (for CPWE instrument type) or  $fb.3590$  (for 3590 instrument type).
- When are set more than one SLAVE, the MASTER indicator will show on display the submenu  $SuM.PAr$  that contains the parameters to be set as those of SLAVES.
  - $SuM.dEC$ : Set decimals of MASTER's visualized weight;
  - $SuM.uM$ : Set unit of measure of MASTER's visualized weight;
  - $SuM.dIV$ : Set division of MASTER's visualized weight;
  - $SuM.MAX$ : Set maximum MASTER's visualized weight.
- **In the case where SLAVES are configured as totalizer, MASTER can't do totalization.**

In the SLAVES, instead, it is necessary to enter a code (between 01 and 32, to identify each single SLAVE) in  $SEtup \rightarrow SEr.\Pi AL \rightarrow COn.PC \rightarrow PC\Pi odE \rightarrow \text{YES}$  (see set-up environment, TECH.MAN.REF.).

### NOTE:

DGT as Master key map:

Pressed key	3590 key	CPWE key	DFW key
ZERO	ZERO	F6	ZERO
TARE	TARE	TARE	TARE
MODE	RIGHT ARROW	F9	MODE
ENTER	ENTER	ENTER	ENTER

## 7.4.2 LISTEN ONLY MASTER

It is possible to add other masters (see previous paragraph) which must be set as weigh repeater. The keys pressed on these masters are not repeated on the slaves.

When the listen only master is turned on, it displays the weight of the slave, or automatically selects the sum of the weights if there are more slaves connected to the master.

If there are more slaves, the listen only master can display:

- the sum of weights, if it is selected on the listen only master and also on the master the sum is displayed; the "ΣΠ" message is displayed every 10 seconds;
- the weight of the selected slave, if the master displays the weight of the same slave or the sum of weights; the "ΣΑ n" message is displayed (n is the number of the selected slave).

If it is not possible to set the communication, the listen only master displays the central segments alternated to the messages "ΣΑ n" or "ΣΠ".

**NOTE: this type of master works if there is at least one master in no listen mode.**

## 7.4.3 FUNCTIONING

- When turned on, the MASTER predisposes itself for the connection to the SLAVES present ("ΕΛα n" message appears, in which n is the SLAVE number which is to be detected): when at least one SLAVE is detected, it positions itself on the one with the lowest 485 address.
- By pressing the **MODE** key many times switching from SLAVE to SLAVE occurs (order: 485 addresses). The display shows "ΣΑ n" (in which n is the SLAVE number); after this, the weight transmitted by the selected SLAVE is displayed. In this mode, about every 10 seconds, the message "ΣΑ n" appears, indicating the meaning of the data shown, and in which n is the number of the active scale in that moment..
- By pressing at length the **MODE** key the sum of the weight on all the scales is shown: the display shows "ΣΠ", and then the sum of the net weight on all the scales.

### In the display of the sum:

- the "ΣΠ" message appears about every 10 seconds and it indicates that the sum of the weights present on the scales is being displayed
  - The reference unit of measure is that of the connected SLAVE with the lowest address; if the other weights have different units of measure, these are automatically converted.
  - If the sum of the weights is greater than 999999, the segments in the upper part of the display are turned on.
  - If the sum of the weights is less than -999999, the segments in the lower part of the display are turned on.
  - If the sum of weights is not valid (because one or more slaves is in under load or overload), the segments in the central part of the display are turned on.
  - By pressing the **MODE** key two times in master mode a menu appears:
    - **SLAVE**: allows to quickly select a slave (available only with more than 1 slave)
    - **SET . Pnt**: input setpoint (available only if there are functions linked to relays)
- If there are no functions linked to relays the fast slave selection is displayed, the user is asked to insert the slave to select.
- By pressing the **ZERO**, **TARE**, **PRINT** and **C – ON/OFF** keys the functionality of the key pressed in the selected slave is transmitted.

### WARNING:

- To carry out the weight repeater function it is sufficient that just one SLAVE instrument in the system be turned on. When turned on, the MASTER places itself automatically on the first turned on SLAVE (lowest 485 address); if all the instruments are off or if the radio signal does not reach the MASTER, on the same display the "ΕΛα n" message is displayed in which n is the address of the SLAVE with which one is trying to communicate.
- If there are various slaves, it is not possible to transmit the functionality of the **MODE** key to the active slave.
- To carry out the sum function, it is necessary to have a connection with at least two SLAVES.
- In the sum mode, it isn't possible to transmit the functionality of the **ZERO**, **TARE** and **PRINT** keys to the SLAVES.
- If the connection is lost with the SLAVE which is acting as a repeater, the MASTER will try to reconnect it; if after about a second this does not happen, it connects with the following SLAVE.
- If the connection is lost with a SLAVE in the sum mode, the MASTER tries to reconnect it. If this happens, it remains in the sum mode. Otherwise, it passes to the repeater mode of the following SLAVE.

## 7.4.4 EXECUTION OF THE PRINTOUTS

If there is a printer on the master:

- the printer has to be selected both in the SLAVE and in the MASTER (*SEtUP→SErIAL→CoN.Prn→Pr.NoDE* parameter, **TECH.MAN.REF.**).
- it is possible to direct on it the printouts and the heading configured in the active slave, by pressing on the MASTER or on the SLAVE the dedicated key (depending on the selected function on the SLAVE). In order to configure this format refer to section "PROGRAMMING THE PRINTOUTS", **TECH.MAN.REF.**.
- by pressing the ENTER/PRINT key when the sum is displayed, it is possible to execute a printout with the weights of all the detected scales and their sum. In order to configure this format refer to the section "PROGRAMMING THE PRINTOUTS", **TECH.MAN.REF.**; the heading is the one programmed in the MASTER.

If there is a printer on a slave:

- the printer has to be selected in the SLAVE (*SEtUP→SErIAL→CoN.Prn→Pr.NoDE* parameter, **TECH.MAN.REF.**), but not in the MASTER.
- it is possible to execute the printout configured in the SLAVE.

### Examples of printout:

2 slaves connected to the master (TPR printer)

Slave 1	Slave 2	Master
<pre> SCALES 1 MASTER LINE 1 MASTER LINE 2 MASTER LINE 3 MASTER LINE 4  SLAVE 1 LINE 1 SLAVE 1 LINE 2 SLAVE 1 LINE 3 SLAVE 1 LINE 4 GROSS      1.091 kg TARE       0.091 kg NET        1.000 kg           </pre>	<pre> SCALES 2 MASTER LINE 1 MASTER LINE 2 MASTER LINE 3 MASTER LINE 4  SLAVE 2 LINE 1 SLAVE 2 LINE 2 SLAVE 2 LINE 3 SLAVE 2 LINE 4 GROSS      1.091 kg TARE       0.091 kg NET        1.000 kg           </pre>	<pre> MASTER LINE 1 MASTER LINE 2 MASTER LINE 3 MASTER LINE 4 SCALES 1      1.000 kg SCALES 2      1.413 kg SUM           2.413 kg           </pre>

### NOTES:

- If the printer has been selected in the MASTER but not in the SLAVE, it is not possible to print.
- If more than one SLAVE is present, the number of the SLAVE from which the weight comes from will be added on each printout on the MASTER.
- If enabled, the header is inserted by the master.
- If enabled, the master adds at the end of the format the ticket number and date & time.

On the MASTER it is also possible to display and print the sum of the weights of a number of SLAVES lower than the value programmed in the *Funct→MASTER→nuNSL* step, by turning off the SLAVES that are not used.

## 7.4.5 TURN OFF THE MASTER AND THE SLAVES

If the MASTER displays the sum of the weights:

- by pressing and holding the **C** key on the MASTER it is possible to turn off only this indicator.
- by pressing and holding the **C** key on a SLAVE it is possible to turn off only that indicator: after a few instants the MASTER displays the "E<sub>0</sub> n" message, in which n is the number of the SLAVE that has been turned off, and then the weight transmitted by the next detected SLAVE.

If the MASTER displays the weight transmitted by a SLAVE:

- by pressing briefly the **C** key on the MASTER this is repeated on the active SLAVE.
- by pressing the **C** key on the MASTER until the "- 0FF-" message is displayed, it is possible to turn off the active SLAVE; the "- 0FF-" message is displayed on the MASTER for a few seconds, then it displays the "E<sub>0</sub> n" message in which "n" is the number of the SLAVE that has been turned off and then the weight transmitted by the possible next detected SLAVE.  
Note: while the "- 0FF-" message is displayed it is possible to turn off the MASTER by pressing again at length the **C** key.
- by pressing the **C** key on the MASTER until the "- 0FF-" message is displayed for the second time it is possible to turn off only the MASTER indicator.
- by pressing at length the **C** key on the active SLAVE it is possible to turn off only that indicator: the MASTER displays the "- 0FF-" message and then the "E<sub>0</sub> n" message in which n is the number of the SLAVE that has been turned off; then the MASTER displays the weight transmitted by the possible next detected SLAVE.
- by pressing at length the **C** key on a SLAVE that is not active it is possible to turn off only that indicator.

It is also possible to turn off only the MASTER indicator while it displays the "E<sub>0</sub> n" message, by pressing at length the **C** key. If the auto-off is set on MASTER indicator, it works only while the MASTER indicator displays the "E<sub>0</sub> n" message.

## 7.5 ALIBI MEMORY (ALIBI) (OPTIONAL)

The alibi memory allows to file the transmitted weight values in the computer for data processing and/or integration. The filed values may be then recalled from the PC serial line or directly on the indicator's display for a following check.

The storage of a weigh takes place either following the reception of the serial command or following the pressure of the **PRINT** key: the indicator transmits on the PC serial line the gross and tare weights and an ID which clearly identifies the weigh.

**The ID has the following format:**

<Rewriting number> — <Weigh number>

- Rewriting number: number of 5 digits which may go from 00000 to 00255; it indicates the number of complete rewritings of the alibi memory.
- Weigh number: number of 6 digits which may go from 00000 to 131072; it indicates the weigh number in the current rewriting of the alibi memory.

With each storage the weigh number is increased of 000001; when this reaches the 131072 value, it restarts from 000000 and the rewriting number increases of 00001.

Therefore the weigh relative to an ID may be verified just if:

- it has a rewriting number equal to the current one of the alibi memory and a weighing number equal or less than the last value received with the "PID" command;
- it has a rewriting number equal or greater than zero, but less than 1, in comparison to the current value of the alibi memory, and a weigh number greater than the last value received with the "PID" command.

**example:**

If the stored weigh is the following:

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

and the following will be:

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

The storage of a weight is possible only if it is stable and valid (in other words not in under load nor in overload), if the gross weight is equal or greater than zero.

The storage of the weighing by pressing a key is possible only if the function is active (or passage from 0 or weight instability, or always depending on how the *F.MODE* → *FACT* step has been configured in the technical set-up, **TECH.MAN.REF.**, and minimum weight of 20 divisions with approved instrument.).

If these conditions are not respected:

- in the response to the PID serial, "NO" replaces the ID.
- there is no transmission if **PRINT** has been pressed.

When the weight is transmitted with the ID following the pressing of the **PRINT** key, the display shows for about 2 seconds the message "ID", and the transmitted string is the following:

**<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTUU,(ID | NO)<STX>**.

See the section "Serial commands" for the string description.

#### NOTES:

- With approved or non-approved instrument, the storage of the weighing through the PID serial command is always possible for all the weights from 0 to full range value.
- The PRINT key works if the serial protocol is set on *andE, rEPE.4/6, Pr in.5t/EH, 485, ALL.5td/EHt, 5tAb.5t/EH* (**TECH.MAN.REF.**).

### READING OF THE WEIGHS CARRIED OUT

In order to read the information relative to the weighing carried out:

- Press the **MODE** key.
- The message "rEH. ID" appears; then, enter the rewriting number (from 00000 to 00255) and press **PRINT**.
- The message "ID" appears. Then, enter the weigh number (from 000000 to 131072) and press **PRINT**.
- Now it is possible to view on the display the weigh information in sequence, and scroll through it with the **ZERO** key (ahead) or the **TARE** key (backwards):
  - "ch. H", in which x is the scale number (from 1 to 4).
  - "UN YY" in which yy is the unit of measure (HG, G, t o Lb).
  - Gross weight (for about a second the message "Gross" appears, and then the gross weight value).
  - Tare weight (for about a second the message "TARE" appears, or "TAREP" in case of manual tare. Then the tare value appears).
- Press **C – ON/OFF** to return to weighing.

#### NOTES:

- If the alibi memory is empty, when the **MODE** key is pressed the message "EMPTY" appears for about a second, and the programme returns to the weighing mode.
- If the entered ID is not valid, that is, if there is no stored weigh relative to the entered ID, the message "no ID" appears and the programme returns to the weighing mode.

### INITIALISATION OF THE ALIBI MEMORY

It is possible to cancel all the weighing made, initialising the alibi memory; this operation can be carried out directly on the indicator (see the parameter "*SEtUP*" → "*in .AL*" of the set-up environment, **TECH.MAN.REF.**) or through the serial command (see "SERIAL COMMANDS" below).

#### NOTES:

- It is not possible to cancel just a single weigh.
- The initialisation is possible only with a non-approved instrument.

## SERIAL COMMANDS:

Besides the commands described in the section "FORMAT OF THE SERIAL COMMANDS", **TECH.MAN.REF.**, in this functioning mode also the commands below are available:

### WEIGH STORAGE

**Command:**

**[II]PID<CRLF>** or **<ESC>[II]PID<STX>**

and

**[II]PIDD<CRLF>** or **<ESC>[II]PIDD<STX>**

in which:

[II] : 485 address

<ESC>: 27 ascii decimal character

<STX> : 2 ascii decimal character

**Instrument response** to the **[II]PID<CRLF>** command:

**[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO) <CRLF>**

**Instrument response** to the **<ESC>[II]PID<STX>** command:

**<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO)<STX>**

**Response of the instrument** to the **[II]PIDD<CRLF>** command:

**[II]PIDDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|"NO DATE TIME")<CRLF>**

**Response of the instrument** to the **<ESC>[II]PIDD<STX>** command:

**<ESC>[II]PIDDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|"NO DATE TIME")<STX>**

In which:

[II]	485 address (only when transmitting in 485 mode)
SS	"OL" (weight in overload) or "UL" (weight in under load) or "ST" (stable weight) or "US" (unstable weight) or "TL" (TILT input closed).
,	comma character (ASCII decimal 44)
B	scale number (from 1 to 4)
LLLLLLLLLL:	gross weight on 10 digits
UU:	unit of measure
YY:	2 spaces in the case of null tare or semiautomatic tare, "PT" in case of manual tare
TTTTTTTTTT	tare on 10 digits
ID	XXXX-YYYYYY in which: XXXXX is the rewriting number (5 digits, from 00000 to 00255) and YYYYYY is the weigh number (6 digits, from 000000 to 131072).
dd/mm/yy	Date in the "dd/mm/yy" format (only with PIDD command)
bb	2 space characters, ascii decimal 32 character (only with PIDD command)
hh:mm:ss	Now in the "hh:mm:ss" format (only with PIDD command)

In the case of negative or unstable gross weight, the weight is transmitted but not the ID; "NO" is in its place. In these cases there is no storage in the alibi memory.

In case no ALYBI MEMORY board is detected, in response to REXD command, only the weight is sent – without date and time, which are replaced by "NO DATE TIME".

### WEIGH READING

**Command:**

**[II]ALRDXXXXX-YYYYYY <CR o CRLF>**

In which:

[II] 485 address (only when transmitting in 485 mode)

XXXXX rewriting number (from 00000 to 00255)

- character (ASCII decimal 45)

YYYYYY weighing number (from 000000 to 131072)

**Instrument response:****[II]B,LLLLLLLLLLUU,YYTTTTTTTTTUU<CR o CRLF>**

In which:	[II]	485 address (only when transmitting in 485 mode)
	B	scale number (from 1 to 4)
	,	comma character (ASCII decimal 44)
	LLLLLLLLLL	gross weight on 10 digits
	UU	unit of measure
	YY	spaces in the case of null or semiautomatic tare, PT in the case of manual tare
	TTTTTTTTTT	tare weight on 10 digits

**ALIBI MEMORY CANCELLATION (only with non-approved instrument)****Command:****[II]ALDL <CR o CRLF>**

In which [II] 485 address (only when transmitting in the 485 mode)

**Instrument response:****[II]ALDLOK <CR o CRLF>** if the cancellation has been effective**[II]ALDLNO <CR o CRLF>** if the cancellation has not worked

The commands are ignored if the programme is not in the alibi memory functioning mode.

**7.6 SINGLE SCALE REPEATER (r-EPE)**

The system is made up of one or more indicators (named **REPEATERS**) which receive the data of the display or of the weight from another indicator or from a PC/PLC (named **TRANSMITTER**) and which therefore act as repeaters.

In the **REPEATERS**, once this functioning mode has been set, it is necessary to configure the "r-EPE.B" or "H.r-EPE" parameter in the communication mode of the PC port, *SEtUP→SErIAL→COn.PC* step (**TECH.MAN.REF.**).

For further configuration and functioning details refer to the technical manual (*SEtUP→SErIAL→COn.PC* step and section "TRANSMISSION MODES OF THE SERIAL PORTS", **TECH.MAN.REF.**).

If "r-EPE.B" communication protocol has been set in the **REPEATER**, it is necessary to set the "r-EPE.B" communication protocol in the **TRANSMITTER** on the desired port.

If "H.r-EPE" communication protocol has been set in the **REPEATER**, it is necessary to set the protocol of the continuous weight transmission on the desired port of the **TRANSMITTER**.

For further configuration details refer to the technical manual of the connected indicator.

**FUNCTIONING**

When the indicator is turned on it waits for the data; if it does not receive a correct communication string, the communication parameters are wrong, or it does not receive any character, it remains in the test condition, that is, with all the central segments of the display turned on.

When the serial string of the connected instrument is identified, the indicator repeats the data of the display or the weight string of the instrument to which it is connected.

**CAREFUL:**

- The keys pressed in the **REPEATER** are not repeated on the **TRANSMITTER** and vice versa.
- The indicator acts as a simple weight repeater: only the **C – ON/OFF** key is enabled for turning on/off.
- In this functioning mode for the printer port only the "r-EPEB" transmission mode is enabled; see section "TRANSMISSION MODES OF THE SERIAL PORTS", **TECH.MAN.REF.**.



#### Example of Dini Argeo REPEATER/TRASMITTER configuration:

	FunCt	PCModE	bAud	bit
REPEATER (DGT4)	rEPE	rEPE .5	9600	n-B-1
TRANSMITTER	(*)	rEPE .5	9600	n-B-1

(\*) all function (except "PASS")

### 7.7 DISPLAY WITH SENSITIVITY X 10 (U .55) (TO BE USED IN TESTING DURING THE CALIBRATION)

Simple display functioning mode with the function of switching the weight for display with sensitivity increased 10 times.

#### FUNCTIONING:

- By pressing the **MODE** key, the switch of the weight display occurs (between normal sensitivity and sensitivity ten times greater). Notice that the last digit on the right of the display has a sensitivity equal to the scale's division divided by 10.
- The printout and the change of channel can only be done when the indicator has the standard sensitivity.
- By pressing the **PRINT** key at length: it is possible to enter directly to the SETPOINT INPUT menu (see section "OUTPUTS FUNCTIONS").

**NOTE:** In case the instrument is LEGAL FOR TRADE, when **MODE** is pressed, the sensitivity times 10 is displayed for five seconds after which the instrument returns to standard weight displaying. Furthermore, with the **Setup → d.SALE** parameter set as **YES (TECH.MAN.REF.)**, this displaying is possible only with capacities over or equal to 100 kg (220 lb).

### 7.8 HOLD: FREEZING THE WEIGHT ON THE DISPLAY (hLd)

Simple display functioning mode with the function of freezing the weight shown on the display.

#### FUNCTIONING:

- By pressing **MODE**, the value of the weight is held on the display, and the display shows "hLd" alternately with the weight held value (every 5 sec).
- To release the weight value on the display, press **MODE** key again.
- By pressing the **PRINT** key at length: it is possible to enter directly to the SETPOINT INPUT Menu (see section "OUTPUTS FUNCTIONS").

**NOTE:** if various scales are connected to the indicator, in order to pass from one scale to the other, exit from the HOLD mode, unblocking the possible frozen weight.

### 7.9 PEAK: WEIGHT PEAKS DETECTION (PEAK)

It is possible to use the instrument to store the maximum weight value measured during the weigh (PEAK), useful to measure, for example, the breaking load of the materials.

#### FUNCTIONING:

- By pressing the **MODE** key: the peak mode is enabled, and the display shows "PEAK", every 5 seconds, alternated with the maximum weight reached up until that moment.
- The test terminates by pressing the **MODE** key again or when the weight peak surpasses the maximum capacity of the instrument (for an instant "PEAK .OF" is displayed and then the display shows the weight on the scale once again). The detected weight value will be:
  - The maximum before a rapid decrease of the weight (measurement of the ultimate load).
  - The maximum and persistent weight detected on the scale.
- To set a SET POINT press and hold (for about 3 seconds) the **PRINT** key:  
If the functioning of an output upon reaching a set point has been configured, it is possible to enter in a submenu in which to choose the parameter to modify; select "n.P .5LP" (see section "OUTPUTS FUNCTIONS").

**NOTE:** if various scales are connected to the indicator, in order to pass from one scale to the other, exit from the PEAK mode, unlocking the weight peaks detection.

LENGTH	SAMPLINGS PER SECOND (SENSITIVITY)	ACQUIRED VALUES	MEDIATED VALUES
1	400	1	1
2	200	1	1
3	100	1	1
4	100	4	2
5	50	4	2
10	25	4	2
20	12	4	2
50	6	4	2
100	6	8	2
127	6	12	2

## FUNCTIONING

### TOTALISATION OPERATIONS

In order to carry out the totalisation it is necessary to load the weight on the scale and press the MODE key (if the automatic totalisation has not been set): the weight is accumulated in two total levels (a partial total and a general total).

#### To totalize, the net weight must be

- at least 1 division with non approved instrument and with normal or fast totalisation;
- at least 10 division with non approved instrument and with automatic totalisation;
- at least 20 divisions with approved instrument.

To avoid undesired accumulations, the "MODE" key is active just once; it reactivates depending on the setting of the "REACT" parameter in the SET-UP environment, in other words, either after passing by the net zero of the scale, by instability or always (see section "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS").

If the presence of a printer has been configured, the "MODE" key causes also the printing of the weight values.

By pressing the MODE key again, **without having reenabled the totalisation**:

- with the normal totalizer, it is possible to view temporarily on the display the number of weighing carried out and the PARTIAL NET TOTAL accumulated until that moment (Subtotal). If the accumulated digit is more than 5 digits, the visualisation takes place in two stages.
- with the fast totalizer the "no. 0.005" error message is displayed.

#### NOTES:

- If the gross weight is equal to zero, the indicator displays the "Gross. Err" message.
- If the net weight is equal to zero, the indicator displays the "Net. Err" message.

### TOTALISATION WITH PRINTING

If the presence of a printer has been configured, upon each pressing of MODE, the data programmed in step  $SETUP \rightarrow SET \rightarrow AL \rightarrow CONF \rightarrow PR \rightarrow CONF$  of the set-up environment (**TECH.MAN.REF.**) are printed, for example:

- Weighing number
- GROSS weight
- TARE weight
- NET weight

### PRINTING AND ZEROING OF THE TOTALS

The instrument has two different total levels, a partial total and a general total, which increase upon each totalisation; these may be printed and zeroed independently from each other.

To print and zero the PARTIAL TOTAL press for an instant the PRINT key (brief pressing); depending on the type of totalisation, various messages will be displayed:

- With **normal totalisation** the number of weighing and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message "TOTAL" will be displayed.

The number of weighs made and the NET WEIGHT TOTAL is printed.

To print and zero the GENERAL TOTAL press and hold the PRINT key;

If the functioning of an output upon reaching a set point is configured, it is possible to enter in a submenu in choose the parameter to be modified; select "Pr. 0.005".

Depending on the type of totalisation; various messages will be displayed:

- With **normal totalisation** the number of weighing and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message "TOTAL" will be displayed.

The number of weighing made and the NET WEIGHT TOTAL is printed.

**NOTE:** All the accumulated values are automatically reset each time the instrument is turned off.

## SETTING OF SET POINT

To set a **SET POINT** (like for the General Total printout) press the **PRINT** key for about 3 seconds.

If the functioning of an output upon reaching a set point is configured, it is possible to enter in a submenu in which to choose the parameter to be modified; select " *inP . SETP .* " (see section "OUTPUTS FUNCTIONS").

## 7.11 VERTICAL TOTALIZER (Sum by recipe) (тот 5)

Like the horizontal totaliser, but with each pressing of **MODE** the indicated weight is totalised and automatically tared. In this way it is possible for example to fill a container with various products.

**Note:** At the end of the totalisation operations, to view the gross weight on the scale press the **C – ON/OFF** key.

## 7.12 PIECE COUNTING (Сосн)

This functioning mode allows to use the instrument as a counting scale, after making a "reference operation" (described in the "Counting Procedure") which consists in linking a sample weight to a specific quantity of pieces (REFERENCE value), calculating in this way the "Average Piece Weight" (APW).

Upon the selection of the functioning mode in the SET-UP ENVIRONMENT ("F . ModE" → "FunctE" → "Сосн") the setting of some parameters is requested:

- "**Сн . APW**" : **Unit of Measure of the average piece weight (APW).**
  - Press **PRINT** to enter in the step.
  - With the **ZERO** or **TARE** keys select the unit of measure (G / Hg / t / Lb).
  - Confirm with **PRINT**.
  - Press many times the **C – ON/OFF** key until the display shows the message "SAVE?".
  - Press **PRINT** to confirm the changes made or another key to exit without saving.

Independently from the unit of measure selected, the APW has always three fixed decimals.

- "**HA . t . t**" : **sampling interval.**

Setting of the sampling time (in seconds, with a decimal). The greater the time set, the more precise the calculation of APW.

  - Press **PRINT** to enter in the step.
  - Set the desired time.
  - Confirm with **PRINT**.
  - Press many times the **C – ON/OFF** key until the display shows the message "SAVE?".
  - Press **PRINT** to confirm the changes made or another key to exit without saving.

## FUNCTIONING:

By pressing and holding **PRINT** it is possible to:

- enter the known APW value (see "DISPLAY AND MODIFICATION OF AVERAGE PIECE WEIGHT" described below)
- set a **SET POINT**:

If the functioning of an output upon reaching a set point is configured, it is possible to enter in a submenu in which to choose the parameter to be modified; select " *inP . SETP .* " (see section "OUTPUTS FUNCTIONS").

By pressing the **MODE** key:

- If there is NOT a reference, set the **REFERENCE VALUE** (see "COUNTING PROCEDURE" described in the following paragraph)
- If there is a reference the display of **NR. OF PIECES / WEIGHT ON THE SCALE** alternates.

By pressing the **C – ON/OFF** key

- The **REFERENCE** previously set is **CANCELLED** (the display shows for an instant "CLEAR-"; if there is no valid reference to be cancelled the message does not appear).
- With the following pressing of the **MODE** key (equivalent to a first pressing of the key) it is possible to set a **NEW REFERENCE**.

## COUNTING PROCEDURE

The operations to be carried out are the following:

- 1) Place the empty container on the scale and press **TARE** to tare it.
- 2) Check that the zero is on the display and press the **MODE** button: the counting function activates
- 3) The display suggests a REFERENCE QUANTITY. The possible options are: 5, 10, 20, 30, 40, 50, 60, 75, 100, 200.
- 4) Press **ZERO** or **TARE** the number of times needed to reach the desired sample size.
- 5) Put the quantity of pieces chosen for the SAMPLE on the scale and press **ENTER/PRINT** to confirm or **C – ON/OFF** to cancel the operation and return to weighing.

### APW calculation:

- 6) Press **PRINT**; the display will show **SAMPL** and the indicator will calculate the **Average Piece Weight (APW)**. After a few instants the display will indicate the quantity selected put on the platform.
- 7) Add the rest of the items to count in the container and whose value will appear on the display.
- 8) Unload the scale (with the unloaded plate the message "**PES-0**" will appear on the display).  
The APW will remain stored until the indicator is turned off, allowing for the counting of similar pieces, without having to repeat the REFERENCE operation.
- 9) By pressing the **MODE** key, the switch from the display of the number of pieces to the display of the net weight and vice versa occurs.
- 10) To carry out a new reference operation, press the **C – ON/OFF** key when the instrument displays the number of pieces. The message "**CLR**" will appear to show the cancellation of the REFERENCE value. With the following pressing of the **MODE** key it is possible to set a new REFERENCE value, repeating the operations as described from point 3) onwards.

## NOTES:

- If the number of calculated pieces is greater than 999999, the display shows just the first 6 digits on the right.
- By changing the visualisation from 1 channel to the other, the reference is not cancelled and the chosen type of visualisation (weight or pieces) remains with the possibility of switching it by pressing **MODE**.

## PIECE COUNTING WHEN PICKING

- 1) Load a FULL container on the scale and press "**TARE**" to tare it.
- 2) Press "**MODE**": The display suggests various REFERENCE QUANTITIES: 5,10,20,30,40,50,60,75,100,200
- 3) Press "**ZERO**" or "**TARE**" various times until the chosen quantity is displayed.
- 4) From the container, take off the same number of pieces and press "**PRINT**" to confirm. The display shows "**SAMPL**" while the indicator calculates the Average Piece Weight. The display shows in negative the picked up quantity.
- 6) Continue the counting in extraction.

## "Err. Inst" ERROR DUE TO WEIGHT INSTABILITY DURING THE SAMPLING

If during the sampling phase the weight is unstable, it is not possible to calculate the APW correctly. The "Err. Inst" message appears, lasting for about three seconds. Repeat the sampling operation.

## MINIMUM WEIGHT OF THE SAMPLE

It is advisable to use a reference quantity equal or greater than 0,1% of the scale capacity.

In any case, the weight of the reference quantity should not create an APW lower than the two internal points of the converter (intrinsic limit of the instrument); if this condition takes place, during the sampling, the display will indicate for an instant: "Error" and the quantity put on the plate will not be accepted. Use a higher reference quantity.

## DISPLAY AND MODIFICATION OF AVERAGE PIECE WEIGHT (APW)

It is possible to view or enter with the keyboard a known APW to speed up the reference operations.

- Press and the **PRINT** key.
- If the functioning of an output upon reaching a set point is configured, it is possible to access a submenu in which to choose the parameter to set. Select "**IMP. PNL**".
- The display shows "**APW**" and then the stored value expressed with 9 digits with five decimals, in the programmed unit of measure.
- Enter the APW value using the keys in the following way:
  - **MODE** key to choose the digit (blinking)
  - **ZERO** key to decrease, **TARE** key to increase

- **C – ON/OFF** key to quickly clear the present value
- confirm with **PRINT** or press twice **C – ON/OFF** to exit without confirming

#### Example

Unit of measure of the APW in g

"0000.00000" means 0,0 g, therefore by entering "0001,05000" the weight is 1,05 g.

### PRINTING UNDER COUNTING MODE

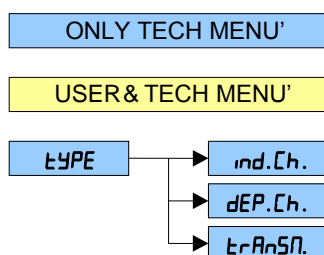
If the presence of a printer has been configured, every time PRINT is pressed (both in weight and pieces visualization), the data programmed in the *SEtUP* → *SErIAL* → *Con.Prcn* → *Pr.ConF* of the set-up environment (**TECH.MAN.REF.**) are printed. For example:

- GROSS weight
- TARE weight
- NET weight
- Quantity of PIECES (PCS) on the scale in that moment.
- calculated APW, expressed in the set unit of measure, with three decimal digits

### 7.13 SIMULTANEOUS TRANSMITTER OF THE CHANNEL VALUE (*TYPE: E-rAnSn*)

Independent channel mode which makes it possible to have the simultaneous transmission (through the serial line) of the values read by each single channel and, through the optional alibi memory board, to store the transmitted weight values in the computer for data processing and/or integration. The filed values may then be recalled from the PC serial line or directly on the indicator's display for a following check.

**NOTE:** in this mode the zero tracking and the scale **ZERO**, **TARE** and **PRINT** key are disabled; it is not possible to set the functioning modes and the ALIBI mode is set automatically.



To set this mode, carry out the following procedure:

- Turn on the scale, press **TARE** while the firmware version is displayed (the display shows the "TYPE" menu).
- Press **PRINT** to enter in the "TYPE" menu (the display shows the configured mode of the channels use)
- Select "E-rAnSn" and press **PRINT**.
- The instrument automatically passes to the following step.
- Press many times the **C – ON/OFF** key until the display shows the message "SAVE?".
- Press **PRINT** to confirm the changes made, or another key to exit without saving.

### FUNCTIONING

By pressing the **MODE** key it is possible to read on the indicator the information relative to the weighing carried out, see paragraph "ALIBI MEMORY", "Reading of the weighs carried out" section.

- By pressing and holding the **MODE** key it is possible to SWITCH THE CHANNEL (if the scale has been configured as multichannel). See section "SELECTION OF THE CHANNEL TO BE DISPLAYED".
- It is not possible to carry out other operations.

It is only possible to manage the functions which can be enabled through the serial commands described in the **ALIBI** mode, paragraph "ALIBI MEMORY", section "SERIAL COMMANDS", and only some serial commands described in section "SERIAL COMMANDS FORMAT" (**TECH.MAN.REF.**).

#### List of usable commands:

PID, ALRD, ALDL, VER, REXT, REXTA, READ, MVOL, RAZF, CGCHN, ECHO, DISP, DINT, PCOK, STAT, KEYP, KEYR, KEYEE, KEYED.

**Note:** the pressing simulation of the scale keys through the **KEYP** and **KEYR** commands allows to manage the functions linked to the **MODE** key.

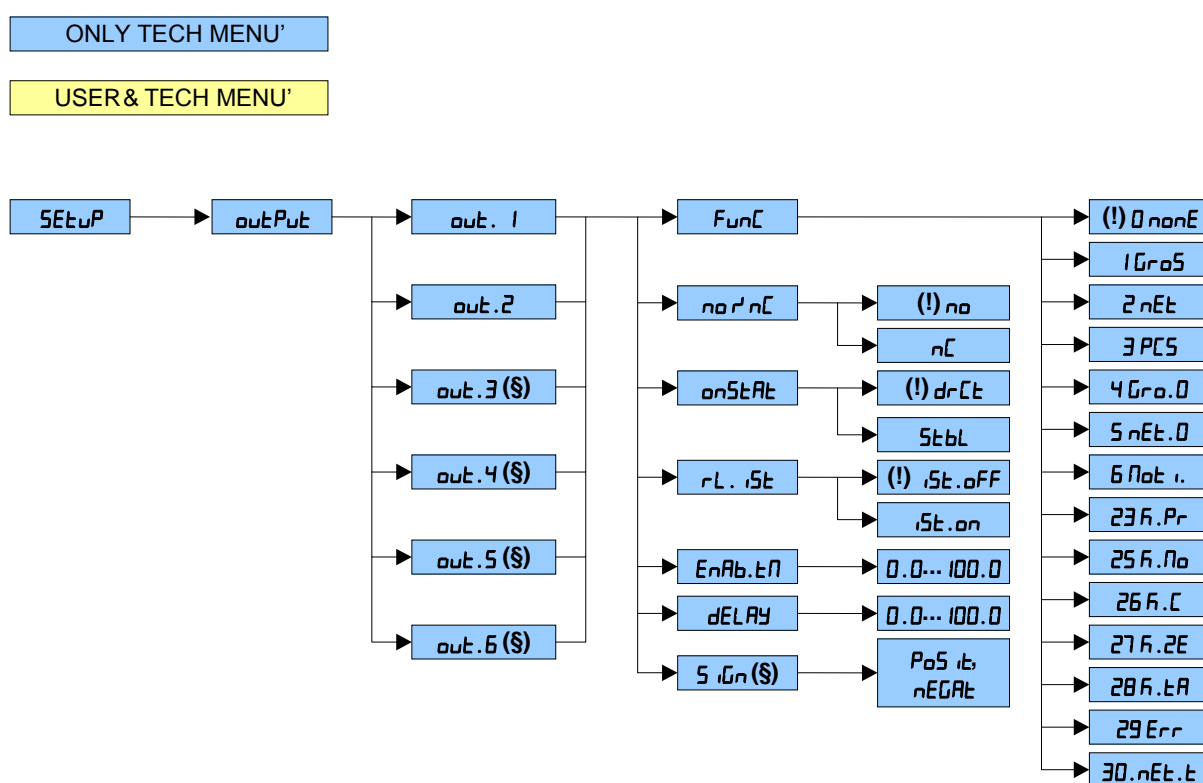
## 8. OUTPUTS FUNCTIONS

The indicator is fitted with **2** inputs (optoisolator photocouplers, 4 for DGTP/DGTPK version) and **2 photomofet outputs** (expandable to 6 as an option in the DGTQ model, while it is standard fitted in the DGTP/DGTPK version), whose electric specifications are shown in the section "CONNECTION SCHEMES" of the Technical Manual.

In the **outPut** menu of the SET-UP (**SEtUP** → **outPut**; **TECH.MAN.REF.**) it is possible to set the functioning mode of each of the outputs: the functioning mode (**FunC**), the normal status (open or closed, **no r'nC**), the switching condition (direct or upon weight stability (**drCt** / **StbL**), active hysteresis (enabling and disabling set points) or not (single set point) (**iSt.FF** / **iSt.on**), the sign of the configured set point (**Pos it** / **NEGAt**, only for the "set point on net weight" and "set point on pieces" functioning modes), the output enabling time (**EnAb.tn**) and the delay time for enabling the output (**dELAY**).

Specifically, for the "**FunC**" step, the following functioning modes are possible: none, set point on the gross weight, set point on the net weight, set point on pieces, gross weight at zero, net weight at zero, weight instability, totalisation, set point on the pieces' total, pressing of the KEYS (PRINT, MODE, C, ZERO, TARA), error indication.

**NOTE: some of functioning modes of the outputs are relative to the specific functioning modes of the instrument; see the following descriptions for the details.**



**Figure 9.1 – Steps in the SET-UP ENVIRONMENT for the OUTPUT SETTINGS**

(§) The step is displayed in the DGTQ model with the expansion board; it is standard fitted in the DGTP/DGTPK version, while it is not displayed in the DGTQ model.

(\*) The parameter is displayed only if the firmware is STANDARD type.

(\*\*) The parameter is displayed only if the firmware is MASTER type.

If the instrument is in a single range, or in non approved dual range:

The **w1/sp1** and **w2/sp2** leds turn on to indicate respectively the enabling of OUTPUT 1 (sp1) and OUTPUT 2 (sp2).

## Description of the configurable functionalities for the outputs ("FunC"):

### **0 none – "No Function"**

No functionality is linked to the outputs, which therefore are completely inactive.

### **1 Gross – "Set point on the GROSS WEIGHT" (\*)**

**Functioning with hysteresis** (rL . 5t "HYSTERESIS" parameter set at 5t . on)

This mode enables the output function on the GROSS weight. It is necessary to enter two SET POINTS for each output; a DISABLING one, which, when the gross weight is below it, disables the output; and an ENABLING one, which when the gross weight is equal or greater than it, enables the output. By pressing and holding **PRINT** it is possible to enter the SET POINT value (DISABLING and ENABLING) for each configured output:

- If the functioning mode includes for the modification of a parameter, it is possible to access a submenu where to choose which parameter to modify; select **inP . 5tP**.
- The display shows "5 . 1 on" (output 1 ENABLING SET POINT): press **PRINT**, enter the weight value using the keys in the following way:
  - **MODE** key to choose the digit (blinking)
  - **ZERO** key to decrease, **TARE** key to increase
  - **C – ON/OFF** key to quickly clear the present value
- confirm with **PRINT** or press twice **C – ON/OFF** to exit without confirming
- The display shows "5 . 1 oFF" (output 1 DISABLING SET POINT): press **PRINT**, enter the weight value with the keyboard and confirm with **PRINT** (use the **C – ON/OFF** key to quickly clear the present value).
- Do the same for the following outputs (if present).
- When the programming of the set points is done, exit with the **C – ON/OFF** key.

**Functioning without hysteresis** (rL . 5t "HYSTERESIS" parameter set at 5t . oFF)

The functioning mode is the same as the previous one, except for the entering of one SET POINT for each output ("5 . 1 on"); due to this **it is not possible to enter the "5 . 1 oFF" parameter.**

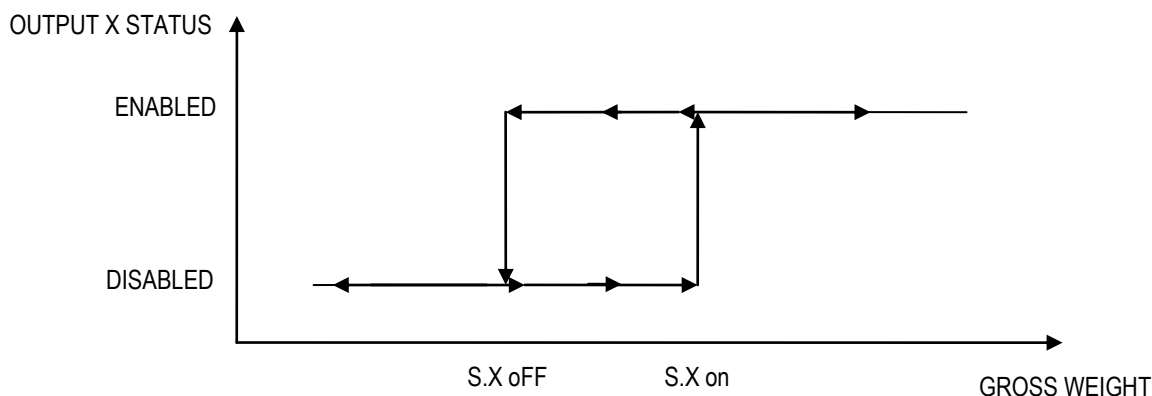
### **NOTES**

- If all the outputs have the "none" functioning mode, or if the selected functioning mode does not require the entry of a SET POINT value, the pressing of the **PRINT** key at length **does not allow to access the configuration of the set points.**

With the indicator off or in standby the outputs are normally open (**no**).

- The DISABLING SET POINT must be equal or less than the ENABLING one; if in the DISABLING SET POINT a value greater than the ENABLING one is entered and confirmed, the indicator will set the set point at 0, until a valid value is entered.  
If in the ENABLING SET POINT a value lower than the DISABLING one is entered and confirmed, it will be accepted, but the DISABLING SET POINT will be put at 0.
- The 0 value is valid on both the set point values.
- The check on the weight remains active on this value also while modifying the SET POINT, until the new value is confirmed.
- If the weight is not valid the outputs will not be disabled.
- At start-up, the outputs are managed from the moment in which the weight is displayed. They assume the configuration set in the set-up environment, and are not managed inside the set-up.
- The tare operations are active.
- The length of the outputs enabling impulse for the keys linked to them is about 2 seconds (PRINT, MODE, C, ZERO, TARE keys). These outputs are enabled by pressing the key; if the key pressing time is greater than 2 seconds the output is disabled after 2 seconds and remains in the same state until the following pressing of the key.





**Figure 9.2** – Diagram showing the output functioning with active hysteresis, in which X indicates the output number.

**IMPORTANT:** the weight thresholds set with the **PRINT** key are common to all the connected scales; therefore it is not possible to have different thresholds for different scales. The value assumes the unit of measure and the decimals of the selected channel; for example, if 1000 is the set value, the set point values will be the following:

Channel	Unit of Measure	Decimals	Set Point Value
1	kg	3	1,000 kg
2	g	0	1000 g
3	kg	2	10,00 kg
4	g	1	100,0 g

## 2 net – "Set point on NET WEIGHT" (\*)

By selecting this functioning mode, in the normal scale status, the function of the output on the NET weight is enabled; the SET POINTS and the specifications are entered the same way as for the functioning on the gross weight but it is possible to set the functioning of the set points on the negative weight.

### FUNCTIONING WITH HYSTERESIS (FL . 5t "HYSTERESIS" parameter set at 5t . on)

#### Functioning on negative weight (5 . 5n parameter set at P05 . t)

The specifications are the same for the functioning mode on the gross weight.

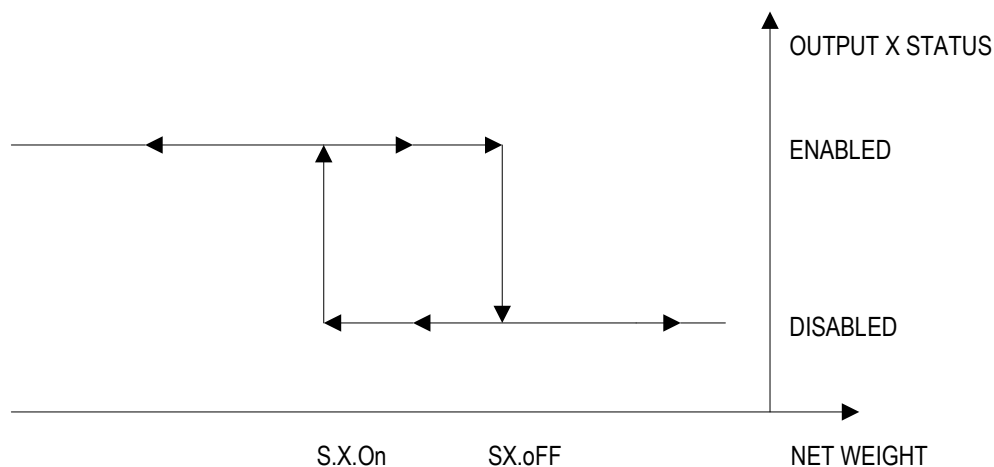
#### Functioning on negative weight (5 . 5n parameter set at nEGAt)

By selecting the functioning mode on the negative weight, the output function on the NEGATIVE WEIGHT is enabled. Enter two NEGATIVE SET POINTS for each output; a DISABLING one in which (when the net weight is greater than it) the output is disabled; an ENABLING one in which (when the net weight is equal or less than it) the output is enabled. By pressing and holding **PRINT** it is possible to enter the NEGATIVE SET POINT values (DISABLING and ENABLING) for each configured output:

- If the functioning mode includes the modification of a parameter, it is possible to enter in a submenu in which to choose the parameter to modify; select "nP . 5tP".
- The display shows "5 . 1 on" (output 1 ENABLING SET POINT): press **PRINT**, enter the weight value using the keys in the following way:
  - **MODE** key to choose the digit (blinking)
  - **ZERO** key to decrease, **TARE** key to increase
  - **C – ON/OFF** key to quickly clear the present value
- confirm with **PRINT** or press twice **C – ON/OFF** to exit without confirming
- The display shows "5 . 1 off" (output 1 DISABLING SET POINT): press **PRINT**, enter the weight value with the keyboard and confirm with **PRINT** (use the **C – ON/OFF** key to quickly clear the present value).
- Do the same for the following outputs (if present).
- When the programming of the set points is done, exit with the **C – ON/OFF** key.

## FUNCTIONING WITHOUT HYSTERESIS (rL . 5L "HYSTERESIS" parameter set at 5L .oFF)

The functioning mode is the same as the previous, except that one enters just one SET POINT for each output ("5 . 1 oFF"); due to this it's not possible to enter the "5 . 1 oFF" parameter.



**Figure 9.3** – Diagram showing the negative functioning of the outputs with active hysteresis, in which X indicates the output number.

**IMPORTANT:** the weight thresholds set with the **PRINT** key are common to all the connected scales; therefore it is not possible to have different thresholds for different scales. The value assumes the unit of measure and the decimals of the selected channel; for example, if 1000 is the set value, the set point values will be the following:

Channel	Unit of Measure	Decimals	Set Point Value
1	kg	3	1,000 kg
2	g	0	1000 g
3	kg	2	10,00 kg
4	g	1	100,0 g

## 2 HgHt – "Set point on the WEIGHT" (\*\*)

By selecting this functioning mode, the output function on the weight (net and gross) is enabled. The specifications are the same as the ones regarding the net weight, but the functioning of the set-points on the negative gross weight can be set. The modes in which it is possible to access the submenu for entering the values of the setpoints are different depending on the functioning mode selected in the **F . ModE → Funct** step (**TECH.MAN.REF.**):

- in the **PLASER** mode, press two times in rapid succession the **MODE** key;
- in the **rEPE** one, press and hold the **PRINT** key.

**NOTE:** The functioning of this type of output is possible in the "**PLASER**" mode with "**EHLEnd**" protocol (see the section "**MULTISCALE REPEATER (PLASER)**"), or in the "**rEPE**" mode with the **PCModE** step set on "**H . rEPE**" (**TECH.MAN.REF.**).

## 3 PCS – "Set point on the PIECES" (only for Counting mode) (\*)

By selecting this functioning mode, in the normal scale status the function of the outputs on the number of pieces shown on the display is enabled. The SET POINTS and the specifications are entered in the same way as for the functioning on the **NET** weight, that is, it is possible to set the functioning of the set points on the negative number of pieces.

## 4 GROSS . 0 – "GROSS WEIGHT AT ZERO" (\*)

By selecting this functioning mode, in the normal scale status, the function of the outputs on the GROSS weight at 0 is enabled.

## 5 nEt . 0 – "NET WEIGHT AT ZERO" (\*)

By selecting this functioning mode, in the normal scale status, the function of the outputs on the NET weight at 0 is enabled.

## **5 HGE . 0 – “WEIGHT AT ZERO” (\*\*)**

By selecting this functioning mode, the function of the outputs on the weight (net and gross) at 0 is enabled.

**NOTE:** The functioning of this type of output is possible in the “MASTER” mode with “EHLEED” protocol (see the section “MULTISCALE REPEATER (MASTER)”), or in the “rEPE” mode with the PCMODE step set on “H . rEPE” (**TECH.MAN.REF.**).

## **6 HGE . 1 – “INSTABILITY”**

By selecting this functioning mode, in the normal scale status, the function of the outputs on the unstable weight is enabled.

**NOTE:** The functioning of this type of output is possible in the “MASTER” mode with “EHLEED” protocol (see the section “MULTISCALE REPEATER (MASTER)”), or in the “rEPE” mode with the PCMODE step set on “H . rEPE” or “rEPE . 6” (**TECH.MAN.REF.**).

## **23 H . Pr – “PRINT KEY”**

By selecting this functioning mode, in the normal scale status, the output is enabled (for about 2 seconds) when the PRINT key is pressed.

## **25 H . Mod – “MODE KEY”**

By selecting this functioning mode, in the normal scale status, the output is enabled (for about 2 seconds) when the MODE key is pressed.

## **26 H . C – “C KEY”**

By selecting this functioning mode, in the normal scale status, the output is enabled (for about 2 seconds) when the **C – ON/OFF** key is pressed.

## **27 H . ZEr – “ZERO KEY”**

By selecting this functioning mode, in the normal scale status, the output is enabled (for about 2 seconds) when the ZERO key is pressed.

## **28 H . tAr – “TARE KEY”**

By selecting this functioning mode, in the normal scale status, the output is enabled (for about 2 seconds) when the TARE key is pressed.

## **29 Err – “ERROR INDICATION”**

By selecting this functioning mode in the STANDARD firmware type, in the normal scale status, the output is enabled on the invalid weight (OVERLOAD / UNDERLOAD), or without the signal coming from the cell (DISCONNECTED CELL).

### **NOTES:**

- In the “ind . Ch” and “tArAn5n” mode the output is enabled only when the condition takes place on the selected channel.
- In the “dEP . Ch” modes the output is enabled when the condition takes place on any of the set channels.

By selecting this functioning mode in the MASTER firmware type, the output is enabled when the repeater is not communicating with the weighing system; depending on the functioning mode selected in the F . PCMODE → FuneCt step (**TECH.MAN.REF.**); this occurs when:

- inside the setup environment of the master indicator, or when it shows “ECo n” (in the “MASTER” mode);
- the repeater displays all the central segments (in the “rEPE” mode).

## **30 HGE . t – “Set point on NET WEIGHT whif TARE activated”**

By selecting this functioning mode in the STANDARD firmware type (normal scale status), the function of the output on the NET weight is activated if a tare is configured.

## 9. INSTRUMENT MESSAGES WHILE IN USE

MESSAGE	DESCRIPTION
<i>AL.Err</i>	It is displayed when the alibi memory functioning is selected, or if it is not connected at start-up. Or, if there are communication problems between the indicator and the board. The "unit of measure conversion" is automatically set, but not saved in the set-up environment.
<i>bu5y</i>	Print under way (PRN serial port is occupied) or indicator waiting to transmit a printing to a PC.
<i>unStAb</i>	Trying to print with an unstable weight.
<i>un.oUEr</i>	Trying to print with the weight in under load or in overload, that is, with a weight of 9 divisions greater than the capacity or of 100 divisions below the gross zero.
<i>- - - - -</i>	The weight is 9 divisions above the <b>Maximum Capacity</b> .
<i>- - - - -</i>	Approved instrument: the weight is under the gross zero (-100 divisions). Non approved instrument: the weight is under the gross zero (- capacity – 9 divisions).
<i>Gross.Err</i>	Trying to print with a not positive gross weight (equal or less than zero).
<i>net.Err</i>	Trying to print with a not positive net weight (equal or less than zero).
<i>LoB</i>	Net weight less than the minimum one necessary for the printing or the totalisation.
<i>no.0.un5</i>	Weight not passed by net 0 or by instability.
<i>ConU.</i>	Trying to print while the instrument is converting the unit of measure (standard mode, approved instrument).
<i>no in</i>	Trying to acquire a second time the input weight (input/output mode, set as "in.out").
<i>no out</i>	Trying to acquire a second time the output weight (input/output mode, set as "in.out").
<i>no 1</i>	Trying to acquire a second time the input weight (input/output mode, set as "G.E." or "15t.2nd").
<i>no 2</i>	Trying to acquire a second time the output weight (input/output mode (set as "G.E." or "15t.2nd").
<i>Er.NoB</i>	In the counting mode, the sampling has not been made because the weight is unstable.
<i>Error</i>	In the counting mode, the sampling has not been made because a higher reference quantity should be used.
<i>Err.CLH</i>	Communication problems with the date/time of the indicator: check the <i>F.NoDE→CLoCH</i> step of the setup ( <b>TECH.MAN.REF.</b> ).
<i>PrEC.</i>	It is displayed when trying to calibrate a point without first having confirmed the number of calibration points
<i>ErNoB</i>	Weight unstable during the acquisition of a point during calibration.
<i>ErPnt</i>	During the acquisition of a calibration point a null value has been read by the converter.
<i>Er- 11</i>	Calibration error; a too small sample weight has been used. It is advisable to use a weight equal to at least half of the scale capacity.
<i>Er- 12</i>	Calibration error: the acquired calibration point ( <i>EP1</i> o <i>EP2</i> o <i>EP3</i> ) is equal to the zero point ( <i>EP0</i> ).
<i>Er-37</i>	Scale to be calibrated, <b>TECH.MAN.REF.</b> (it is advisable to carry out a technical default, "dEFAU" parameter, before proceeding). NOTE: press the <b>TARE</b> key to access the setup.
<i>Er-39</i>	Scale to be calibrated, <b>TECH.MAN.REF.</b> (it is advisable to carry out a technical default, "dEFAU" parameter, before proceeding). NOTE: press the <b>TARE</b> key to access the setup.
<i>Eco x</i>	It is displayed for an instant if the master can connect to the slave X; if the connection is not possible, the message remains fixed and the master emits an acoustic signal.

## 10. PRINT EXAMPLES

WEIGHING NR.	00000001
GROSS	2,000 kg
TARE	0,500 kg
NET	1,500 kg

WEIGHING NR.	00000002
GROSS	3,000 kg
TARE	1,000 kg
NET	2,000 kg

WEIGHING NR.	00000002
TOTAL NET	2,862 kg
TICKET NR.	2
24/08/06 16:54:10	

Totalizer Mode

GROSS (HOLD)	3,326 kg
TARE (HOLD)	1,364 kg
NET (HOLD)	1,926 kg
TICKET NR.	1
24/08/06 16:54:10	

Hold Mode

SCALE 1	0.000 kg
SCALE 2	4.000 kg
SCALE 3	5.000 kg
SCALE 4	10.000 kg
SUM	19.000 kg
TICKET NR.	1
16/08/06 11:56:10	

Master Mode (Sum mode)

### HEADING 1

HEADING 2

HEADING 3

HEADING 4

GROSS	8,000 kg
-------	----------

TARE	3,000 kg
------	----------

NET	5,000 kg
-----	----------

TICKET NR.	1
------------	---

24/08/06 16:54:10

Standard Weight Indicator Mode  
(VISS, Std, ntGS)

GROSS	1,000 kg
-------	----------

TARE	0,500 kg
------	----------

NET	0,500 kg
-----	----------

PCS	100
-----	-----

APW	0,005 kg
-----	----------

TICKET NR.	2
------------	---

24/08/06 16:54:10

Piece Counting Mode

GROSS (PEAK)	1,500 kg
--------------	----------

TARE (PEAK)	0,000 kg
-------------	----------

NET (PEAK)	1,500 kg
------------	----------

TICKET NR.	1
------------	---

24/08/06 16:54:10

Peak Mode

## DECLARATION OF CONFORMITY

This device conforms to the essential standards and norms relative to the applicable European regulations. The Declaration of Conformity is available in the web site [www.diniargeo.com](http://www.diniargeo.com)

## WARRANTY

The TWO YEAR warranty period begins on the day the instrument is delivered. It includes spare parts and labour repair at no charge if the INSTRUMENT IS RETURNED prepaid to the DEALER'S PLACE OF BUSINESS. Warranty covers all defects NOT attributable to the Customer (such as improper use) and NOT caused during transport.

If on site service is requested (or necessary), for any reason, where the instrument is used, the Customer will pay for all of the service technician's costs: travel time and expenses plus room and board (if any).

the Customer pays for the transport costs (both ways), if the instrument is shipped to DEALER or manufacturer for repair.

The WARRANTY is VOIDED if any of the following occurs: repairs or attempted repairs are made by unauthorised personnel, connected to equipment installed by others, or is incorrectly connected to the power supply, or instrument has defects or damage due to carelessness or failure to follow the guidelines in this instruction manual.

This warranty DOES NOT provide for any compensation for losses or damages incurred by the Customer due to complete or partial failure of instruments, even during the warranty period.

## AUTHORIZED SERVICE CENTRE STAMP





## EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSEKLRUNG, DÉCLARATION UE DE CONFORMITÉ, DECLARACIÓN DE CONFORMIDAD, DICHIARAZIONE DI CONFORMITA' UE, DECLARAÇÃO UE DE CONFORMIDADE, DECLARAȚIA UE DE CONFORMITATE, ES - IZJAVA O SKLADNOSTI, ES ATITIKTIES DEKLARACIJA, ES VYHLÁSENIE O ZHODE, EU DECLARATI DEKLARACJA ZGODNOŚCI, EU MEGFELELŐSÉGI NYILATKOZAT

English	We declare under our sole responsibility that the products to which this declaration refers to, conform with the following standard(s) or other regulations document(s).
Deutsch	Wir erklären unter unserer alleinigen Verantwortung, dass die Produkte auf die sich diese Erklärung bezieht, den folgenden Normen und Regulierungsbestimmungen entsprechen.
Français	Nous déclarons sous notre responsabilité que les produits auxquels se rapporte la présente déclaration, sont conformes à la/aux norme/s suivante/s ou au/aux document/s normatif/s suivant/s.
Español	Nosotros declaramos bajo nuestra responsabilidad que los productos a los que se refiere la presente declaración, están en conformidad con la/s siguiente/s norma/s o documento/s normativo/s.
Italiano	Noi dichiariamo sotto nostra unica responsabilità che i prodotti ai quali si riferisce la presente dichiarazione, sono conformi alla/e seguente/i norma/e o documento/i normativo/i.
Portugues	Declaramos sob nossa exclusiva responsabilidade que os produtos que se referem a esta declaração, são conformes ao seguinte padrão eo documento de regulamentação.
Romana	Declaram pe propria raspundere ca produsele la care se refera aceasta declaratie sunt conforme cu urmatoarele standarde sau alte documente normative.
Slovene	S polno odgovornostjo izjavljamo, da so izdelki, na katere se nanaša ta izjava o skladnosti, skladni s sledečim/imi standardom/i ali normativom/i dokumentom/i.
Lietuvių	esame visiškai atsakingi už tai, kad produktai, kurie nurodyti šioje deklaracijoje, atitinka šiuos standartus ar kitus reglamentavimo dokumentus.

Fabbricante/Manufacturer/Fabricant/Hersteller/Gamintojas:	DINI AR GEO S.r.l. Via della Fisica, 20 Fiorano Modenese (MO) Italy
Tipo/Type/Tipas/Tipas/Typ/: Modello/Model/Code/Modell/Modello:	DGT20IAN-1
Numero di serie/Serial number/Numéro de série/Seriennummer/Serijinis numeris/Sériové číslo:	34830064
N° CE del Tipo/ EC type Examination certificate/ CE de type/ EU-Baumusterprüfbescheinigung/ /EB tipo patvirtinimo sertifikatas/ES certifikát typu :	0200-NAWI-06080 Notified Body FORCE CERTIFICATION
Certificato di prova / Parts (Test) Certificate / Certificat (d'essai) de partie / Teilegutachten (Prüfschein)/ Bandygų sertifikatas/Test certifikát/Tipusengedély :	0200-WL-05741

EU Directive	Standards
2014/30/EU EMC	EN 61326-1 : 2013
2014/35/EU LVD (*)	EN 61010-1 : 2010 + A1 : 2019
2011/65/EU (RoHS)	EN IEC 63000:2018

We declare that the products are only affected by minor or formal changes with respect to the new edition of the standards and they still comply with the above mentioned Directives. These changes are not relevant for the compliance with the essential health and safety requirements. This declaration is therefore valid if the marking and the certificates of the above mentioned products correspond to the previous edition of the standards.

(\*) The LVD Directive is not applicable for the following instruments/La directive LVD ne s'applique pas aux instruments suivants/La Direttiva non è applicabile ai seguenti strumenti

Die LVD-Richtlinie gilt nicht für die folgenden Instrumente/La Directiva LVD no se aplica a los siguientes instrumentos:

CPWE, 3590EGTB8, DGT1SX, DGT1SX-AN, DGT1SX-PRONET, DGT1SX-ETHIP, DGT1SX-MODTCP, DGT1SX-ETHCAT, DGT1SX-PB, DGT1SX-DEVNET, DGT1SP, DGT1SP-AN, DGT1SP-PRONET, DGT1SP-ETHIP, DGT1SP-MODTCP, DGT1SP-ETHCAT, DGT1SP-PB, DGT1SP-DEVNET, DGT4X, DGT4XAN, DGT4XPRONET, DGT4XPB, DGT4XETHCAT, DGT4XETHIP, DGT4XDEVNET, DGT4XMODTCP, DGT1P, DGT1PAN, DGT1S, DGT1SAN, DGT1, DGT1IO, DGT1AN, DGT4, DGT4AN, DGT4ETHIP, DGT4PRONET, DGT4PB-1, DGT4ETHCAT, DGT4DEVNET, DGT4MODTCP, DGTQ, DGTQAN, DGTQPB-1, DGTP, DGTPAN, DGTPPB-1, DGTQF, DGTQFAN, DGTPF, DGTPFAN, MCWNT1-3, MCWNT1M-3, MCWNT3-3, MCWNT3M-3, MCWNT6-3, MCWNT6M-3, MCWNT9-3, MCWNT9M-3

Signature  
Mark Johnson Jr.  
President



Fiorano Modenese (MO) Italy, 07/12/2023



## EU DECLARATION OF CONFORMITY

ES - IZJAVA O SKLADNOSTI, EU DECLARATI DEKLARACJA ZGODNOŚCI, EU MEGFELELŐSÉGI NYILATKOZAT, EU-FÖRSÁKRAN OM ÖVERENSSTÄMMELSE

<b>English</b>	We declare under our sole responsibility that the products to which this declaration refers to, conform with the following standard(s) or other regulations document(s).
<b>Slovak</b>	Na svoju vlastnú zodpovednosť vyhlasujeme, že výrobky na ktoré sa toto vyhlásenie vzťahuje sú v súlade s nasledujúcim/i štandardom/mi alebo inými smernicami.
<b>Polski</b>	Deklarujemy, na naszą wyłączną odpowiedzialność, że produkty, do których odnosi się niniejsza deklaracja, są zgodne z następującymi normami lub innymi dokumentami prawnymi.
<b>Magyar</b>	Kijelentjük, kizárólagos felelősségünkre, hogy a termékek, amelyekre ez a nyilatkozat vonatkozik, megfelelnek az alábbi szabvány(ok) vagy más szabályozó rendelet(ek)nek.
<b>Svenska</b>	Vi intygar under vårt ansvar att de produkter som denna försäkran hänvisar till, överensstämmer med följande standard(er) eller andra föreskrifter.
<b>Česky</b>	Prohlašujeme na svou výlučnou odpovědnost, že výrobky, na které se toto prohlášení vztahuje, jsou v souladu s následujícími normami nebo jinými právními

Manufacturer/Proizvajalec/Producent/Gyártó/Tillverkare/Výrobce:	DINI ARGEO S.r.l. Via della Fisica, 20 Fiorano Modenese (MO) Italy
Type/Vrsta/Típus: Model/Code/Modell/Modello/Typ:	DGT20IAN-1
Serial number/Serijska Stevilka/Numer seryjny/Sorozatszám/Serienummer/Sériové číslo:	34830064
EC type Examination certificate / EC Certifikat o tipskem pregledu / Numer zatwierdzenia typu / EK-típusvizsgálati tanúsítvány / EU typgodkännande certifikat / EU-certifikát typu/EU-certifikát typu:	0200-NAWI-06080 Notified Body FORCE CERTIFICATION
Parts (Test) Certificate / Testni certifikat /Certyfikat (test) podzespołu / EK-típusvizsgálati tanúsítvány /Test certifikat :	0200-WL-05741

EU Directive	Standards
2014/30/EU EMC	EN 61326-1 : 2013
2014/35/EU LVD (*)	EN 61010-1 : 2010 + A1 : 2019
2011/65/EU (RoHS)	EN IEC 63000:2018

We declare that the products are only affected by minor or formal changes with respect to the new edition of the standards and they still comply with the above mentioned Directives. These changes are not relevant for the compliance with the essential health and safety requirements. This declaration is therefore valid if the marking and the certificates of the above mentioned products correspond to the previous edition of the standards.

(\*) The LVD Directive is not applicable for the following instruments/La directive LVD ne s'applique pas aux instruments suivants/La Direttiva non è applicabile ai seguenti strumenti

Die LVD-Richtlinie gilt nicht für die folgenden Instrumente/La Directiva LVD no se aplica a los siguientes instrumentos:

CPWE, 3590EGTB8, DGT1SX, DGT1SX-AN, DGT1SX-PRONET, DGT1SX-ETHIP, DGT1SX-MODTCP, DGT1SX-ETHCAT, DGT1SX-PB, DGT1SX-DEVNET, DGT1SP, DGT1SP-AN, DGT1SP-PRONET, DGT1SP-ETHIP, DGT1SP-MODTCP, DGT1SP-ETHCAT, DGT1SP-PB, DGT1SP-DEVNET, DGT4X, DGT4XAN, DGT4XPRONET, DGT4XPB, DGT4XETHCAT, DGT4XETHIP, DGT4XDEVNET, DGT4XMODTCP, DGT1P, DGT1PAN, DGT1S, DGT1SAN, DGT1, DGT1IO, DGT1AN, DGT4, DGT4AN, DGT4ETHIP, DGT4PRONET, DGT4PB-1, DGT4ETHCAT, DGT4DEVNET, DGT4MODTCP, DGTQ, DGTQAN, DGTQPB-1, DGTP, DGTPAN, DGTPPB-1, DGTQF, DGTQFAN, DGTPF, DGTPFAN, MCWNT1-3, MCWNT1M-3, MCWNT3-3, MCWNT3M-3, MCWNT6-3, MCWNT6M-3, MCWNT9-3, MCWNT9M-3

Signature  
Mark Johnson Jr.  
President

Fiorano Modenese (MO) Italy, 07/12/2023



### UKCA DECLARATION OF CONFORMITY

We declare under our sole responsibility that the products to which this declaration refers to, conform with the following standard(s) or other regulations document(s).

Manufacturer:	DINI AR GEO S.r.l. Via della Fisica, 20 Fiorano Modenese (MO) Italy
Type: Model:	DGT20IAN-1
Serial number:	34830064
Type Examination certificate :	0200-NAWI-06080 Notified Body FORCE CERTIFICATION
Parts (Test) Certificate :	0200-WL-05741

UK Regulations	Standards
The Electrical Equipment (Safety) Regulations 2016 (SI 2016/1101)	EN 61326-1: 2013
UK Electromagnetic Compatibility Regulations 2016 (SI 2016/1091)	EN 61000-6-3:2007
Restrictions of the Use of Certain Hazardous Substances Regulations 2012 (SI 2012/481)	BS 50581:2012

We declare that the products are only affected by minor or formal changes with respect to the new edition of the standards and they still comply with the above mentioned Regulations. These changes are not relevant for the compliance with the essential health and safety requirements.

This declaration is therefore valid if the marking and the certificates of the above mentioned products correspond to the previous edition of the standards

Signature  
Mark Johnson Jr.  
President



Fiorano Modenese (MO) Italy, 07/12/2023

**EU Declaration of Conformity  
EU - Konformitätserklärung  
Déclaration UE de Conformité  
Declaración UE de Conformidad**

We, Thames Side Sensors Europe Limited,

declare that the product  
erklärt dass das Produkt  
déclare que le produit  
declara que el producto

**JB4T-INTELLIGENT**

is in conformity with the essential requirements in the directives:  
in Übereinstimmung mit den wesentlichen Forderungen der Richtlinien:  
d'après les exigences essentielles des directives:  
conforme a los requisitos esenciales de las directivas:

**2014/30/EU EMC Electromagnetic compatibility****2014/35/EU LVD Low voltage directive****2015/863/EU RoHS directive**

is in conformity with the following standards:  
folgende Normen erfüllt:  
est conforme les normes suivantes:  
conforme a las siguientes normas:

**EN 61326-1:2013****EN 61326-2-3:2013****EN 61010-1:2010+A1:2019**

Signed for and on behalf of: Thames Side Sensors Europe Limited



Reading, 12<sup>th</sup> December 2024

Jean-Pierre Gale, Managing Director



**EU Declaration of Conformity  
EU - Konformitätserklärung  
Déclaration UE de Conformité  
Declaración UE de Conformidad**

We, Thames Side Sensors Limited,

declare under our sole responsibility that the product  
erklärt unter unseren exklusiven Verantwortung, dass das Produkt  
déclare sous notre responsabilité exclusive que le produit  
declara bajo nuestra exclusiva responsabilidad que el producto

**Load Cell / Wägezelle / Capteur / Célula de carga  
Model / Modell / Modèle / Modelo: Thames Side VC3500**

is in conformity with the essential requirements in the directives:  
in Übereinstimmung mit den wesentlichen Forderungen der Richtlinien:  
d'après les exigences essentielles des directives:  
conforme a los requisitos esenciales de las directivas:

**2011/65/EU Restriction of the use of certain hazardous substances (RoHS);**

is in conformity with the following standards:  
folgende Normen erfüllt:  
est conforme les normes suivantes:  
conforme a las siguientes normas:

**EN IEC 63000 :2018 Technical documentation for the assessment of electrical and  
electronic products with respect to the restriction of hazardous substances;**

Signed for and on behalf of: Thames Side Sensors Limited



Reading, 28 February 2023

J. Mason, Quality Manager

**Certificate**  
**of**  
**Calibration**



Unit 10, io Trade Centre, Deacon Way, Reading, RG30 6AZ, UK

Tel: +44 (0) 118 941 1387

www.thames-side.com  
sales@thames-side.co.uk

Unit Type : VC3500

Serial Number : 2845183

Unit Range : 30000 kg

Date : 10/06/2024

**CALIBRATION DATA**

Zero Balance : -0.01 mV/V

Sensitivity : 1.9961 mV/V

Combined Error ( Non-Linearity & Hysteresis ) :  $\leq \pm 0.03$  % of F.S

Input Resistance : 786 Ohms

Output Resistance : 705 Ohms

Recommended Excitation : 10 Volts

Maximum Excitation : 18 Volts

Compensated Temperature Range : -10°C to +40 °C

Operable Temperature Range : -50°C to +80 °C

Thermal Zero Shift :  $\leq \pm 0.002$  % of F.S./°C

Thermal Span Shift :  $\leq \pm 0.0012$  % of F.S./°C

**WIRING COLOUR CODE**

Excitation (+) RED  
Excitation (-) BLUE  
Screen

Output (+) GREEN  
Output (-) YELLOW

Signed : ....  .....

Quality Assurance

**Certificate**  
**of**  
**Calibration**



Unit 10, io Trade Centre, Deacon Way, Reading, RG30 6AZ, UK

Tel: +44 (0) 118 941 1387

www.thames-side.com  
sales@thames-side.co.uk

Unit Type : VC3500

Serial Number : 2845184

Unit Range : 30000 kg

Date : 10/06/2024

**CALIBRATION DATA**

Zero Balance : 0.00 mV/V

Sensitivity : 1.9982 mV/V

Combined Error ( Non-Linearity & Hysteresis ) :  $<\pm 0.03$  % of F.S

Input Resistance : 787 Ohms

Output Resistance : 706 Ohms

Recommended Excitation : 10 Volts

Maximum Excitation : 18 Volts

Compensated Temperature Range :  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$

Operable Temperature Range :  $-50^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$

Thermal Zero Shift :  $<\pm 0.002$  % of F.S./ $^{\circ}\text{C}$

Thermal Span Shift :  $<\pm 0.0012$  % of F.S./ $^{\circ}\text{C}$

**WIRING COLOUR CODE**

Excitation (+) RED  
Excitation (-) BLUE  
Screen

Output (+) GREEN  
Output (-) YELLOW

Signed : .........

Quality Assurance

**Certificate**  
**of**  
**Calibration**



Unit 10, io Trade Centre, Deacon Way, Reading, RG30 6AZ, UK

Tel: +44 (0) 118 941 1387

www.thames-side.com  
sales@thames-side.co.uk

Unit Type : VC3500

Serial Number : 2845185

Unit Range : 30000 kg

Date : 10/06/2024

**CALIBRATION DATA**

Zero Balance : 0.00 mV/V

Sensitivity : 2.0026 mV/V

Combined Error ( Non-Linearity & Hysteresis ) :  $<\pm 0.03$  % of F.S

Input Resistance : 786 Ohms

Output Resistance : 706 Ohms

Recommended Excitation : 10 Volts

Maximum Excitation : 18 Volts

Compensated Temperature Range : -10°C to +40 °C

Operable Temperature Range : -50°C to +80 °C

Thermal Zero Shift :  $<\pm 0.002$  % of F.S./°C

Thermal Span Shift :  $<\pm 0.0012$  % of F.S./°C

**WIRING COLOUR CODE**

Excitation (+) RED

Excitation (-) BLUE

Screen

Output (+) GREEN

Output (-) YELLOW

Signed : ...  .....

Quality Assurance

**Certificate**  
**of**  
**Calibration**



Unit 10, io Trade Centre, Deacon Way, Reading, RG30 6AZ, UK

Tel: +44 (0) 118 941 1387

www.thames-side.com  
sales@thames-side.co.uk

Unit Type : VC3500

Serial Number : 2845189

Unit Range : 30000 kg

Date : 10/06/2024

**CALIBRATION DATA**

Zero Balance : 0.00 mV/V

Sensitivity : 1.9985 mV/V

Combined Error ( Non-Linearity & Hysteresis ) :  $<\pm 0.03$  % of F.S

Input Resistance : 787 Ohms

Output Resistance : 705 Ohms

Recommended Excitation : 10 Volts

Maximum Excitation : 18 Volts

Compensated Temperature Range : -10°C to +40 °C

Operable Temperature Range : -50°C to +80 °C

Thermal Zero Shift :  $<\pm 0.002$  % of F.S./°C

Thermal Span Shift :  $<\pm 0.0012$  % of F.S./°C

**WIRING COLOUR CODE**

Excitation (+) RED

Excitation (-) BLUE

Screen

Output (+) GREEN

Output (-) YELLOW

Signed : ....  .....

Quality Assurance