SCT-1100 Advanced Series

Weight Transmitter

Technical Manual

RICE LAKE
WEIGHING SYSTEMS

Contents

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1.0 Introduction

The purpose of this manual is to help the user understand the *SCT-1100* functioning modes, key functions, display indications, setup and configuration. The *SCT-1100* features make it suitable for industrial use, satisfying the most current needs for transmitting and printing data through two bidirectional serial ports. In addition to having all the characteristics of a high precision indicator, the *SCT-1100* has the following features:

- unit of measure conversion
- switching of net/gross weight setpoint on the gross weight/net weight/pieces, in/out weighing, multi-scale
- repeater
- alibi memory
- hold function
- peak detector
- weighing totalizer
- piece counter

> Manuals can be viewed or downloaded from the Rice Lake Weighing Systems website at **www.ricelake.com/manuals**
>
> Warranty information can be found on the website at **www.ricelake.com/warranties**

1.1 Safety

IMPORTANT	*This instrument must not be opened by the user. Any attempt to repair or alter the unit can expose the user to the danger of electric shock and will void the warranty. If a problem with the unit or system is experienced, please notify the manufacturer or the dealer.*

Safety Signal Definitions:

DANGER	*Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.*
WARNING	*Indicates a potentially hazardous situation that, if not avoided could result in serious injury or death. Includes hazards that are exposed when guards are removed.*
CAUTION	*Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.*
IMPORTANT	*Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.*

General Safety

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

⚠ WARNING

Failure to heed could result in serious injury or death.

Electric shock hazard!

* *There are no user serviceable parts. Refer to qualified service personnel for service.*

* *The unit has no power switch, to completely remove D/C power from the unit, disconnect the D/C power cable from the main socket.*

* *For pluggable equipment the socket outlet must be installed near the equipment and must be easily accessible.*

* *Always disconnect from main power before performing any work on the device.*

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not use for purposes other then weighing applications.

Do not place fingers into slots or possible pinch points.

Do not use this product if any of the components are cracked.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not use near water.

IMPORTANT

Failure to follow could result in damage to equipment or corruption to and loss of data.

* *Keep away from heat sources and direct sunlight.*

* *Protect the instrument from environmental factors: rain, snow, dust, etc.*

* *Do not wash, dip in water or spill liquid on the instrument.*

* *Do not use solvents to clean the instrument.*

* *Do not install in areas subject to explosion hazard.*

* *Always mount the instrument and platform in a vibration free setting.*

* *All instrument connections must be made with respect to local zone and environment standards.*

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1.2   Overview

The indicator has a plastic case with external dimensions as shown in Figure 1-1.
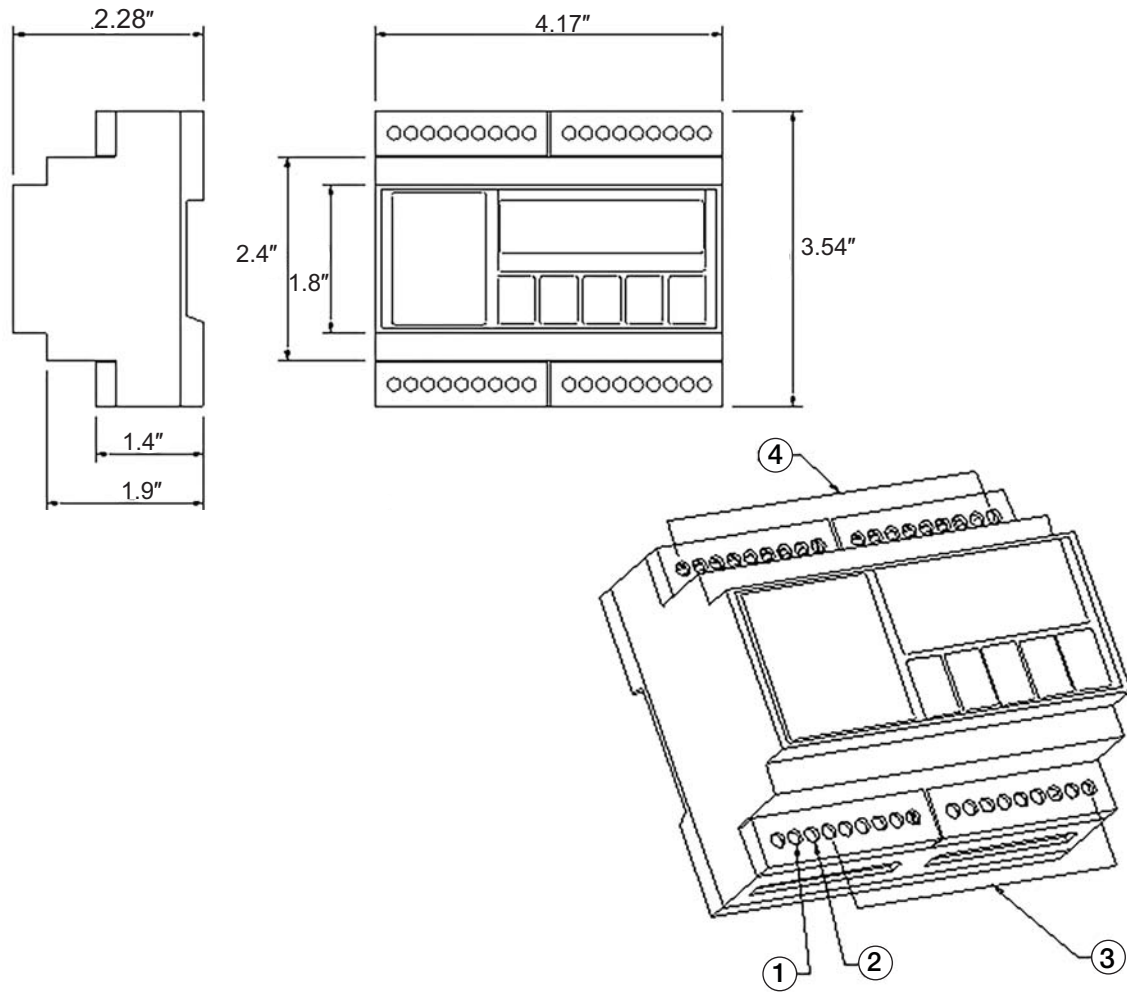
Figure 1-1. SCT-1100 Dimensions and Components

No.	Description
1	(+) 12/24 Vdc power supply input
2	GND power supply input
3	Connection for serial lines/inputs/outputs
4	Connection for load cell

Table 1-1. SCT-1100 Components

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

The front panel of the *SCT-1100* consists of a display with six digits that are 13 mm (0.5") high, six LED function annunciators and a five-key keyboard.
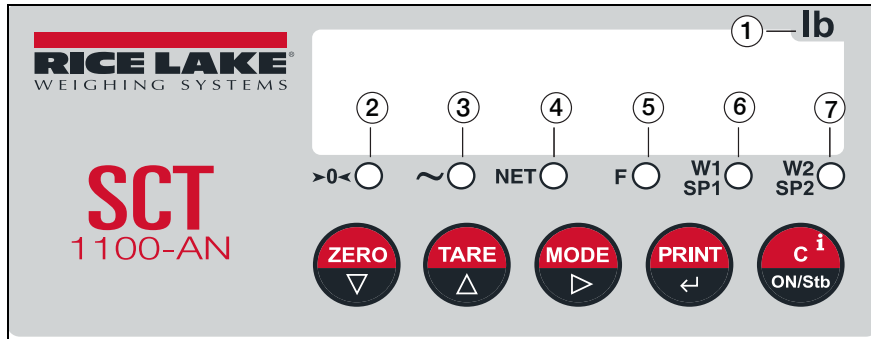
Figure 1-2. SCT-1100 Front Panel

Key or Item No.	Description
▼	**ZERO** – Clears the displayed gross weight of up to ± 2% of the total capacity; Cancels a negative tare value In setup: scroll through parameters In numeric input: decreases the digit to be modified
▲	**TARE** – Momentary press executes semiautomatic tare; Cancels negative tare value Long press allows for entering a manual tare from the keyboard In setup: scroll through the parameters In numeric input: increases the digit to be modified
▶	**MODE** – Executes a specific function (set in the setup mode) Long press allows for toggling the displayed channel (if configured in independent channels mode (ˡnd.Ch) In setup: quickly position the first step of a menu In numeric input: selects the digit to be modified, from left to right
↵	**PRINT** – Executes a specific function (set in the setup mode) Executes a printout or transmission of data from the serial port dedicated to the printer In setup: enter into a parameter or to confirm a setting In numeric input: confirms the entry made
C	**ON/OFF** – Turns the instrument on and off In setup: press multiple times to display 5AuEʔ and/or press to exit a step without confirming the setting In numeric input: momentary press clears the present value Visualization of the metric information of the scale (capacity, division, minimum weight for each configured range, gravitational acceleration value, number of configured channels)
1	**Units** – *lb* is printed on the instrument; *kg*, *Ton*, *g*, stickers are included for changing the units on the overlay
2	**0** – illuminates when the weighing system is within ±1/4 division of zero
3	**~** *(tilde)* – illuminates when the weight is unstable
4	**N** – illuminates when a tare is established, measuring net weight

5	**F** – Illuminates:
	    • when the specification function of the instrument is active (set in F.ⁿodE→FUⁿCt parameter)
	    • when a key is pressed
	Turns off:
	    • when the specification function of the instrument is disabled
	    • with an active function (a key is released)
	Blinking means the instrument function is active for five seconds

6	**1**– indicates the activation of the first output (Sp1)
7	**2** – indicates the activation of the second output (Sp2)

Table 1-2. SCT-1100 Front Panel

1.3   Quick Setup Menu

Press **C** to turn the instrument on. Enter the quick setup menu by pressing ▶ as the firmware version displays.

1	DIV.DEC	Press ▲ and ▼ to set decimals and minimum division.
2	CEL.CAP	Press ▲, ▼ and ▶ to set the total capacity of the load cells.
3	CEL.SEN	Press ▲, ▼ and ▶ to set the mV/V sensitivity of the load cell.
4	DEAD.LD	Press ▲, ▼ and ▶ to set the weight value present on the load cell.
5	RANGE	Press ▲, ▼ and ▶ to set the scale capacity.
6	ZERO	Quick calibration of zero.
7	WEIGHT	Press ▲, ▼ and ▶ to set the weight value used for the calibration.
8	ADC.MVV	Check the load cell signal in millivolts.

9	AN.OUT	MODE	Set the analog output on net or gross weight.
		AO MIN	Set the minimum value of the analog output.
		AO ZER	Set the analog output when the scale shows zero weight.
		AO MAX	Set the maximum value of the analog output.

10	INPUTS	INP.01	Set the key to be emulated by the input.
		INP.02	

11	OUTPUT	INP.01	FUNC	0 NONE	Disabled.
12	CLOCK	INP.02		1 GROS	Set point on the gross weight.
				2 NET	Set point on the net weight.
				3 PCS	Set point on the pieces.
				4 GRO.0	Gross weight at zero.
				5 NET.0	Net weight at zero.
				6 MOTI	Active on instability.
				23 K.PR	Active when ◀━ is pressed.
				25.K.MOD	Active when ▶ is pressed.
				26 K.C	Active when the **C** key is pressed.
				27.K.ZER	Active when ▼ is pressed.
				28.K.TAR	Active when ▲ is pressed.
				29 ERR	Error indication.

▭ = Optional Analog Model

NO/NC	Set the output normal state.
ONSTAT	Set the output switching condition.
RL.IST	Enable or disable the hysteresis.
ENAB.TM	Enable time to disable the output.
DELAY	Enable time to enable the output.

When settings are complete press **C** until the indicator displays *SAVE?*. Press ◀━ to save set up and return to the weigh mode.
Pressing any other key exits the setup and discards changes.

Figure 1-3. Quick Setup Menu

1.3.1   Default Factory Calibration

The instrument is shipped with the following default calibration settings:

- Capacity – 10,000 kg
- Load cell sensitivity – 2.000 mV/V
- Division – 1

To default the instrument to factory settings use the following steps.

1. Turn on the instrument and press ▲ while the firmware version displays. `ᴸYPᴱ` displays.

2. Press ▼ or ▲ until `5ᴱᴸUP` displays.

3. Press ◀━. `ᴄonF ıᴳ` displays.

4. Press ▼ or ▲ until *dEFAU* displays.
5. Press ◄┘. *dFLt?* displays.
6. Press ◄┘. *ConF iG* displays.
7. Press C until the instrument displays *SAuE?*.
8. Press ◄┘ to confirm. *StorE* displays momentarily and the instrument reboots.

1.4   Scale Setup

Use this procedure to set the scale(s). To connect more than four cells, it is necessary to trim the cells.

1. Turn on the instrument and press ▲ while the firmware version displays. *tYPE* displays. Press ◄┘.
2. Press ▼ or ▲ to scroll through channel types (*ind. Ch*, *trAAnSN*, *dEP. Ch*).
3. Press ◄┘ when the desired channel type is displayed to select it. *FNodE* displays.
4. Press ▼ until *SEtUP* displays.
5. Press ◄┘. *ConF iG* displays.
6. Press ◄┘. *nCh* displays. Press ◄┘.
7. Press ▼ or ▲ to scroll through channels (*Ch1 - Ch4*).
8. Press ◄┘ when the desired number or channels is displayed. *F iLt. 50* displays.
9. Press ▼ or ▲ until *CAL ib* displays.
10. Press ◄┘ *dEC i* displays.
11. Press ▼ or ▲ to scroll through decimal settings (*1. 0*, *1. 00*, **1. 000**, *100000*).
12. Press ◄┘ when the desired decimal place setting is displayed. *U. N* displays.
13. Press ▼ or ▲ to scroll through unit settings (*Lb, t, H9, G*).
14. Press ◄┘ when the desired unit setting is displayed. *d iu* displays.
15. Press ▼ or ▲ to scroll through divisions (**1**, 2, 5, 10, 20, 50).
16. Press ◄┘ when the desired division setting is displayed. *rAnGE 1* displays.
17. Press ◄┘. The rightmost digit flashes.
18. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the total capacity of the scale or the first range in case of multi-range functioning.
19. Press ◄┘ to confirm. *rAnGE2* displays. Press ◄┘.
20. Press ▶ to select the digit to be modified and ▼ or ▲ to set the second range or set to all zeros, if only one range.
21. Press ◄┘ to confirm. *CAL ib. P* displays.
22. Press C until the instrument displays *SAuE?*.
23. Press ◄┘ to confirm. *StorE* displays momentarily and the instrument reboots.

Note *Perform this procedure for each channel.*

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2.0 Installation

Rice Lake Weighing Systems recommends the instrument and the platform (transducer) be installed on a flat level surface, that is stable and vibration free.

2.1 Location Selection

IMPORTANT *The following should be considered when selecting a location for the equipment:*

* *Dust-free*
* *Free of strong breezes or vapors*
* *Moderate temperature and humidity (59 to 86°F and 40-70%)*
* *Use waterproof sheaths and couplings in order to protect the load cell cables*
* *Use a waterproof junction box to connect the cells*
* *Avoid welding with load cells installed*

2.2 Electrical Precautionary Measures

IMPORTANT *The following electrical precautionary measures must be considered when installing this equipment:*

* *Main power supply must be restricted to within ± 10% of the rated voltage*
* *Electrical best practices must be observed by the installing technician*
* *Follow recommended minimal separation distances given for cable categories. See Section 2.3.*
* *The extension leads of the load cells, or signal amplifiers connecting to the serial ports and analog output, must be within stated maximum lengths. See Section 2.3*
* *It is recommended that load cell cables are shielded and run in conduit at an acceptable distance from power transmission lines to avoid signal interference and signal noise*
* *All cable not in conduit or otherwise shielded should be of minimal length and terminated as close to conduit exit as possible to avoid extraneous signal noise*
* *If the instrument is situated inside an electric panel, the power supply cable must be shielded and as short as possible, separate from every coil supply cable, inverter, electromotive force, etc. In addition, dedicate an uncoupler transformer in order to feed the instrument only*
* *Install RC filters on the contact coils, solenoid valves and all devices producing electric disturbances*
* *It is recommended to leave the instrument powered on at all times to avoid condensation forming on the inside of the instrument*

2.3 Maximum Cable Length

Load Cell Cable

The maximum load cell cable length is 164' with cable 6 x 0.25 mm^2.

RS-232 Cable

The maximum length of the RS-232 cable is 50' with a maximum baud rate of 19200.

RS-485 Cable

The maximum RS-485 cable length is 400'. See Section 6.2 on page 54.

Analog Output Cable

The maximum length of the analog output cable is 300' with a cable 2 x 0.25 mm^2.

The maximum length of the analog output cable is 150' with a cable 2 x 0.25 mm^2.

2.4 Grounding the System

For proper grounding and optimal functioning of the system, it is necessary to create a single point ground in proximity of the instrument on which to connect the ground of the instrument connected cables. Connect the ground point of the instrument, load cells and weighing structure directly to the ground bar of the electric panel or to a grounding rod.

2.4.1 Instrument

Create a single point ground in proximity to the instrument, on which to connect the ground of the instrument and the connected shielded cables (load cell cable, serial ports cables, etc.).

Example: use an end connector terminal block and connect this point to ground with a 4 mm^2 cable.

In the **SCT-1100** indicator, connect the terminal 2 (GND) to earth with a ground cable having a diameter as large as possible (maximum diameter supported: 2.5 mm²).

2.4.2 Load Cells and Junction Box

When the load cells are connected to the instrument through a junction box, the shielding of the cell cables and the instrument must be connected to the grounding of the junction box.

When the load cells are directly connected to the instrument, the shielding of the cell cables must be connected to the single point ground. Use a cable having a 4 mm² diameter, if the single ground is a few feet away; use a copper cable having at least a 16 mm² diameter, for longer distances.

Use a ground plate of a length to obtain a total resistance of grounding lower than 1 Ω.

System cabling should be kept as short as possible to minimize noise potential. After exiting conduit or other shielding, a ferrite should be used prior to conductor termination.
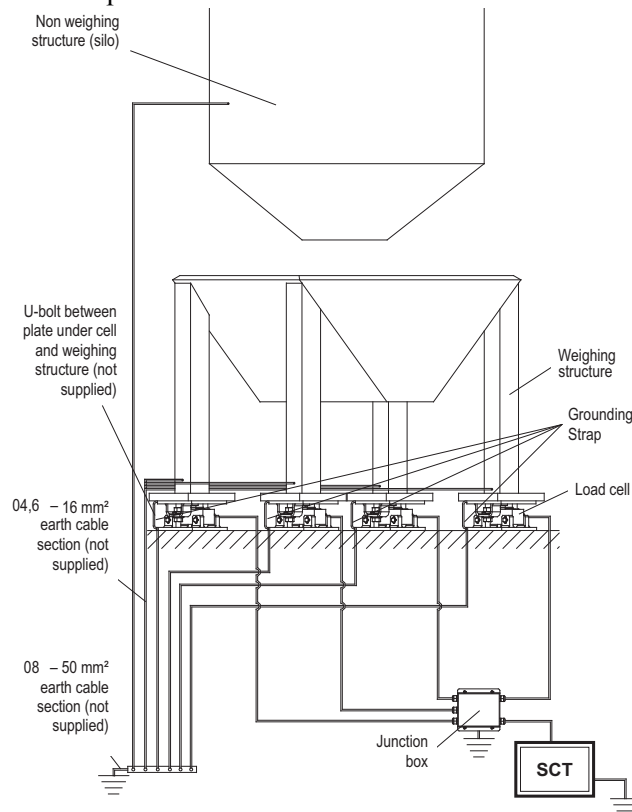
Figure 2-1. Grounding Example

IMPORTANT	*Procedures not expressly described in this manual are considered improper use of the equipment.*
	Ensure the platform is level or the loading cells are resting evenly.
	All connections must be made with respect to local zone and environment standards.
	Follow the recommended electrical precautionary measures described in Section 2.2 on page 7.
	Make sure that the grounding is made correctly. See Section 2.4 on page 8.

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2.5   Connection to the Load Cell

After proper grounding of the platform and the load cell, connect the shielded cable from the load cell to the instrument ground. See Figure 1-1 on page 3.

The load cell terminal board of the instrument may be connected to the 6-wire load cell; 4-wire load cell must jumper sense to the excitation.

IMPORTANT	*Sense is always enabled and must be jumpered to the same polarity excitation, when not using 6-wire load cell.*

The sense compensates for drops in voltage in the part of the cable connecting the instrument to the load cell. This is useful when the distance between the instrument and the load cell is greater than 32' (10 m). Normally this is based on the load cell being used. When exceeding the length of the load cell cable, six wires must be used to compensate for voltage drop. It is, however, recommended to use the cable supplied with the load cell and not to modify it in any way.
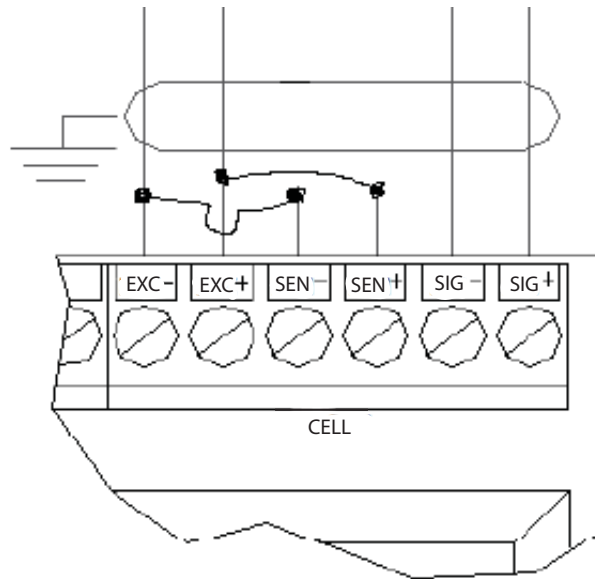
Figure 2-2. 6-Wire Connection
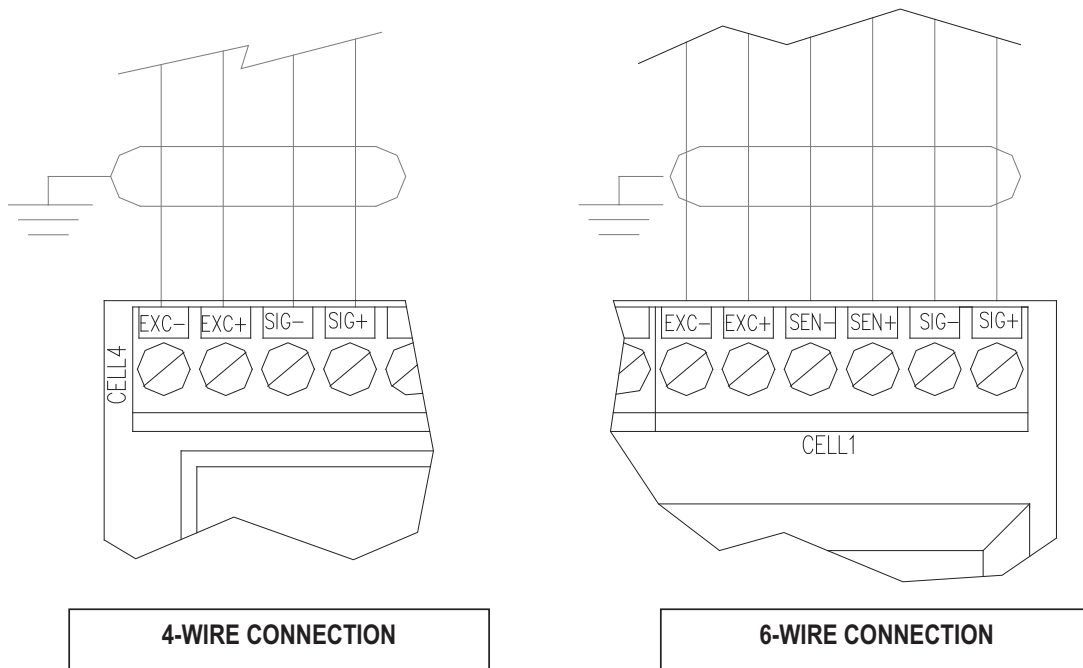
Figure 2-3. 4- and 6-Wire Connections

2.6 Wiring Schematic
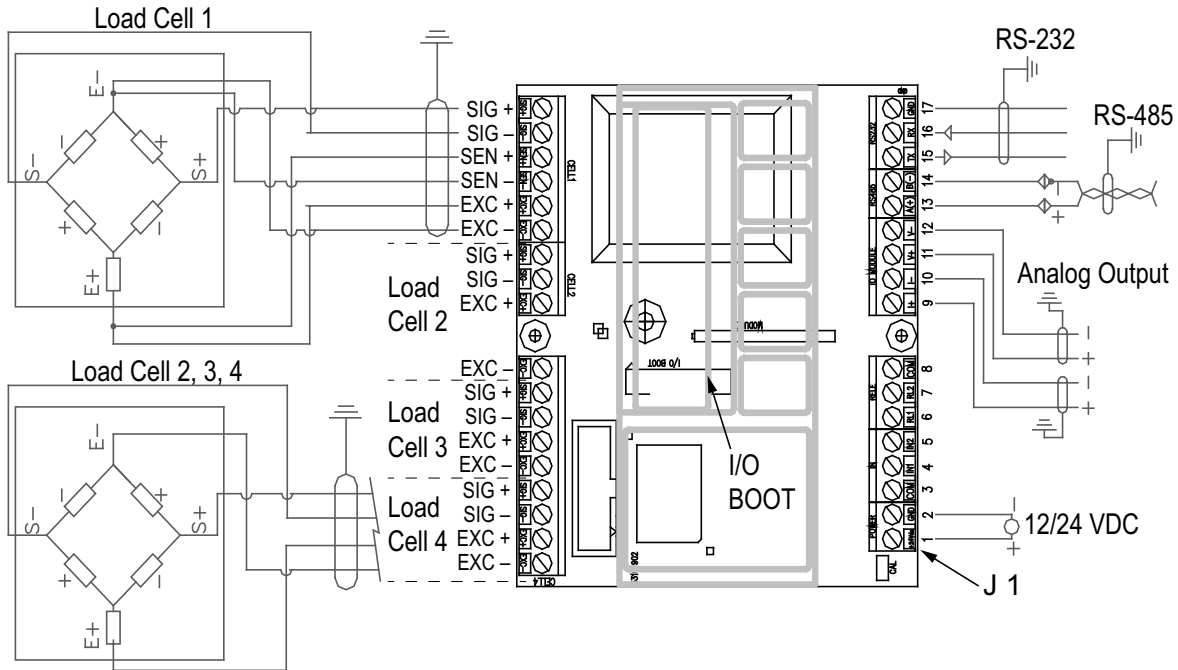
Figure 2-4. SCT-1100 Wiring Schematic

The **CELL1** terminal board of the indicator can be connected to a six-wire load receiver; **CELL2**, **CELL3** and **CELL4** are only for four-wire connection. See Figure 2-4.

The **I/O Boot** is the connector for the connection of the alibi memory board or for the clock board.

Connector	Pin	Function
J1	1	+12/24 VDC
	2	GND
	3	COM
	4	IN1
	5	IN 2
	6	RL1
	7	RL2
	8	COM
Analog Output	9	+20 mA
	10	0 mA (GND)
	11	+10 V
	12	0 V (GND)
RS-485 Serial Port	13	(A) 485 + Line
	14	(B) 485 - Line
RS-232 Serial Port	15	(TX) Transmit
	16	(RX) Receive
	17	GND

Table 2-1. SCT-1100 Connections

> **Note** *The maximum resistance applicable on the output current is 350 Ω and the minimum resistance applicable on the output voltage is 10 kΩ.*

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2.6.1 Inputs and Outputs

Figure 2-5. Input/Output Wiring

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 and 24 Vdc with current from minimum 5 mA to maximum 20 mA.

3.0 Operation

3.1 Power Supply and Start Up

The instrument must be powered with stabilized voltage at 12 VDC or 24 VDC supplied from an AC/DC external charger (not included) which should be connected to appropriately rated AC main voltage.

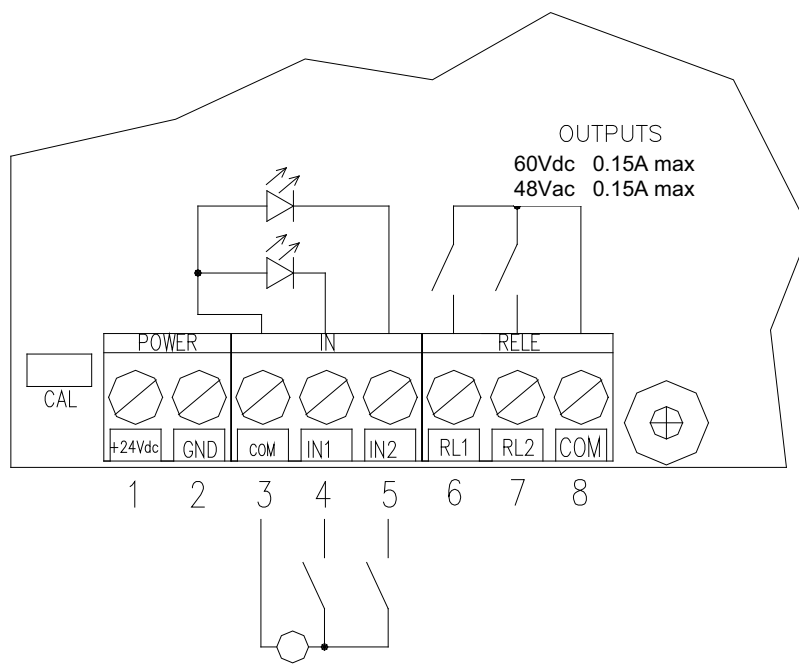To power the instrument, connect the two power supply cables to the appropriate terminal board (Figure 1-1 on page 3) on the side or the back of the instrument.

3.1.1 Turn on the Instrument

Press and hold ⊂ until the instrument turns on, then release. The instrument executes a start up procedure and displays the installed software version.

An auto zero function zeros the instrument at startup if the weight detected on the scale is ± 10% of the capacity. If the weight is not within this tolerance the instrument displays the current weight.

> **Note** *The auto zero function at start-up can be disabled in the setup mode.*
>
> *See* 5EEUP→ConF iG→PArAN→AUEo-0 *in* Table 4-8 on page 40.

Momentarily press ▼ while the version number displays to view the following settings:

- HH. YY – HH is the software release and YY is the sub release
- CLoCH – optional board required
- HH. YY – HH indicates the type of instrument, YY indicates the software version
- HH. YY. 22 – the installed software version
- HHHHHH – the name of the installed software
- n. Ch H – number of the configured channels
- HHH. HHH – capacity and division of channel 1
- h i rES – displayed together with the gravitational acceleration value of the area of use

The instrument then executes a self-check.

3.1.2 Standby

Press ⊂ until OFF displays. The LED at the left of the display remains on.

3.1.3 Power Off the Instrument

Remove the power supply.

3.2 Basic Operation

3.2.1 Zero

Press ▼ to zero a gross weight within ± 2% of the total capacity. Weight value displays as 0 and the relative annunciators illuminate.

3.2.2 Tare
Semiautomatic Tare

Press ▲ to tare the weight value on the scale. EArE displays momentarily and then 0 (net weight). The relative annunciators illuminate.

Manual Tare

Press ▲ for a few seconds. `-tn-` displays and then `000000`. Enter the desired tare value using the following keys:

- ▼ decreases the blinking digit
- ▲ increases the blinking digit
- ▶ selects the digit to be modified (moves left to right, selected digit blinks)
- C momentary press zeros the present value, long press returns to the weigh mode without saving changes
- ↵ confirms the entered tare value

The tare value is subtracted from the weight on the scale and the relative annunciators illuminate.

> 📝 **Note** *The entered tare will be rounded off to the nearest division.*

Cancel a Tare

A tare value can be manually canceled in multiple ways:

- Unload the scale and press ▲ or ▼
- Press C without unloading the scale
- Enter a manual tare equal to zero

Locked or Unlocked Tare

When a tare value is entered manually, automatically or from storage, the tare value displays with a negative sign when the scale is unloaded. This is known as a locked tare. An unlocked tare is automatically canceled each time the scale is unloaded.

To set the tare type:

1. Turn on the instrument and press ▲ while the firmware version displays. `F. nodE` displays.
2. Press ↵ to enter the menu.
3. Press ▼ or ▲ until `tArE` displays. Press ↵ to select.
4. Press ▼ or ▲ to scroll through options.
   - `LoCH` – locked tare
   - `UnLoCH` – unlocked tare
   - `diSAb` – disable tare
5. Press ↵ to confirm selection.
6. Press C until `SAuE?` displays.
   - Press ↵ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

Tare Function Limitations

It is possible to limit the tare functions by setting 𝘺𝘌𝘚 in the step 𝘚𝘌𝘵𝘜𝘗→𝗱. 𝗦𝗔𝗟𝗘. See . The tare operations will have the following specifications:

Scale Capacity	Function	
	SEtUP→d. SALE→rEN. dSP→no (no remote display for the visualization of the tare)	**SEtUP→d. SALE→rEN. dSP→YES** (remote display for the visualization of the tare)
<220 lb	All tare functions are disabled	• The SEMIAUTOMATIC TARE value cannot be modified with a manual tare • The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero • It is possible to cancel the tare value only with an UNLOADED scale, by pressing ▼ or by entering a manual tare equal to zero
≥220 lb	• The SEMIAUTOMATIC TARE value cannot be modified with a manual tare • The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero • It is possible to cancel the tare value only with an UNLOADED scale, by pressing ▼ or by entering a manual tare equal to zero	• The SEMIAUTOMATIC TARE value cannot be modified with a manual tare • The manual tare can be entered or modified only with an UNLOADED scale and tare equal to zero • It is possible to cancel the tare value only with an UNLOADED scale, by pressing ▼ or by entering a manual tare equal to zero

Table 3-1. Tare Function Limitation

3.3 Auto Power Off

The instrument can be set to turn off by setting a time of non-use (1 to 255 minutes). The auto power off occurs when the scale is unloaded and the weight has not changed or a key has not been pressed for the set amount of time. The blinking message ⁻𝗼𝗙𝗙⁻ displays and then instrument turns off.

To set the auto off function:

1. Turn on the instrument and press ▲ while the firmware version displays. 𝗙. 𝗡𝗼𝗱𝗘 displays.

2. Press ◀┘ to enter the menu.

3. Press ▼ or ▲ until 𝗔𝗨𝘁𝗼𝗙𝗙 displays. Press ◀┘ to enter the menu.

4. Press ▼ or ▲ to scroll through the options.
   • 𝗱 𝗶𝗦𝗔𝗯 – disabled
   • 𝗘𝗻𝗔𝗯 – enabled

5. Press ◀┘ to confirm. If 𝗘𝗻𝗔𝗯 is selected, a prompt displays to enter the number of minutes after which the instrument shuts off.

6. Enter a number between 1 and 255 using ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit.

7. Press ◀┘ to confirm once the desired value is entered.

8. Slowly press 𝗖 multiple times until 𝗦𝗔𝘂𝗘? displays.
   • Press ◀┘ to confirm and store to the instrument memory
   • Press any other key to cancel and exit without saving

3.4   Multi-Range Function

The multi-range function allows for subdividing the scale capacity in two, each up to 3000 divisions.

Example: with a 10 kg cell platform it is possible to approve the weighing system with:

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.)

Note *Multi-range functioning is indicated by illumination of the relative LED identifying the operating range; when the weight on the scale enters into the second range, the division of the second range is enabled. The first range division is restored only when the weight on the scale goes below the gross zero of the scale.*

The selection of the range number with multi-range functioning is made during the instrument's calibration. See Section 5.0 on page 44.

3.5   Optional Date/Time Adjustment

The instrument can be equipped with a date/time option. To set the date/time:

1. Turn on the instrument and press ▲ while the firmware version displays. F. NodE displays.
2. Press ◄─┘ to enter the menu.
3. Press ▼ or ▲ until CLoCH displays. Press ◄─┘ to enter the menu.
4. Enter the date and time in the following order: day, month, year, hour and minutes. Each entry must be confirmed by pressing ◄─┘.
5. Slowly press C multiple times until SAuEP displays.
    *   Press ◄─┘ to confirm and store to the instrument memory
    *   Press any other key to cancel and exit without saving

Note *The CLoCH parameter is not displayed if the date/time option is not installed.*

3.6   Optional Display Saver

If the instrument is equipped with the date/time option, it is possible to enable a display saver. The time displays in the HH-MM.SS format after there is no activity for the time specified and the scale is unloaded. The instrument returns to the weigh mode when a weight variation is detected, or a key is pressed.

To set the screen saver function:

1. Turn on the instrument and press ▲ while the firmware version displays. F. NodE displays.
2. Press ◄─┘ to enter the menu.
3. Press ▼ or ▲ until SCr. SAu displays. Press ◄─┘ to enter the menu.
4. Press ▼ or ▲ to scroll through the options.
    *   no – disabled,
    *   YES – enabled
5. Press ◄─┘ to confirm. If YES is selected a prompt to enter the number of minutes after which the instrument displays the time.
6. Enter a number between 1 and 255 using ► to select the digit to be modified and ▼ or ▲ to decrease or increase the digit.
7. Press ◄─┘ to confirm.
8. Slowly press C multiple times until SAuEP displays.
    *   Press ◄─┘ to confirm and store to the instrument memory
    *   Press any other key to cancel and exit without saving

Note *The SCr. SAu parameter is not displayed if there is no date/time option.*

3.7   Printing

The following weight data can be programmed to print to a connected printer. See Section 6.11 on page 71.

- 4 heading lines of 24 characters
- Gross weight
- Tare weight
- Net weight
- Ticket number
- Date and time (optional)
- A Code 39 barcode (with compatible printer)

In addition each single functioning mode has specific printouts, which are described in the various operating modes. See Section 3.10 on page 18.

Weight data can also be sent to a PC, with a standard or extended string, via the printer port (*ALL. Std/ALL. EHt* or *PrPC. Std/PrPC. EHt/PrPC. HH* in *Pr. NodE* parameter. See Section 6.5 on page 63.).

The following conditions must be met to print:

- the weight must be stable
- gross weight must be greater than or equal to 0
- printout always active

To print the totaled weight in a totalizer mode:

- the weight must be stable
- the net weight must be greater than or equal to a division, with normal or fast totalization
- the net weight must be greater than or equal to 10 divisions, with automatic totalization

Printing is reactivated depending on how the *rEACt* parameter has been set in the setup mode. See Section 3.7.2 on page 17.

3.7.1   Printouts

If the printer is on the secondary instrument:

- The printer must be selected in both the primary instrument and the secondary instrument in the *SEtUP→SEr iAL→CoN. Prn→Pr. NodE* parameter. See Section 4.2 on page 32.
- Press the dedicated key on the primary or secondary instrument (depending on the selected function of the primary instrument) to print the configured printouts in the active primary instrument. To configure print formats see section Section 6.11 on page 71.
- Press ◄┘ when the sum displays to execute a printout of all detected scale weights, their sum and the heading programmed in the secondary instrument. To configure a print format see section Section 6.11 on page 71.

To execute a printout from a primary instrument, the printer must be selected in the primary instrument *SEtUP→SEr iAL→CoN. Prn→Pr. NodE* parameter. See Section 4.2 on page 32. The printer does not need to be selected in the secondary instrument.

> 📝 **Note**   *Printing cannot be performed if a printer has been selected in the secondary instrument, but not in the primary instrument.*
>
> *If more than one primary instrument is present, the number of the primary instrument from which the weight is taken is added to each printout on the secondary instrument.*
>
> *The header is inserted by the primary instrument, if enabled.*
>
> *The primary instrument adds the ticket number and time and date, if enabled.*

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Figure 3-1. Printout Examples

The sum of multiple primary instruments can be displayed or printed from the secondary instrument, if the number of primary instruments is less than the number of primary instruments defined in **FUnCt→NAStr→nUNSL**. primary instruments not in use must be turned off to use this functionality.

3.7.2 Re-Enabling Printouts and instrument Functions

If the error **no. 0. UnS** displays when using the instrument, the print or function to be executed must be re-enabled.

Use the following procedure below to set re-enabling of functions:

1. Turn on the instrument and press ▲ while the firmware version displays. **F. NodE** displays.

2. Press ◄┘ to enter the menu.

3. Press ▼ or ▲ until **rEACt** displays. Press ◄┘ to enter the menu.

4. Press ▼ or ▲ to scroll through the options.
   - **2Ero** – prints when weight exceeds zero of the net weight
   - **inSt** – prints while in motion
   - **ALUAYS** – prints regardless of condition

5. Press ◄┘ to confirm.

6. Slowly press **C** multiple times until **SAuE?** displays.
   - Press ◄┘ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

3.8 Display Configuration Data

The **InFO** function makes it possible to view the metric data and other configuration data, such as:.

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

> **Note** *The minimum weight corresponds to 20 net weight divisions*
>
> *The data of the second range appears only if a range is configured*

To view the configuration data:

1. Press and hold **C** until **InFO** displays.

2. Release **C**. The capacity value of the first range displays.

3. Press ▼ or ▲ to scroll forward or back through the following data.

- First range capacity `Ch 1. NAH`
- First range minimum weight `Ch 1. N in`
- First range division `Ch 1. E`
- Second range division `Ch 1. NAH`
- Second range minimum weight `Ch 1. N in`
- Second range division `Ch 1. E`
- Gravitational Acceleration Value `GrAu it`
- Number of Configured Channels `ConF. Ch`

4. Press `C` to return to the weigh mode.

Pressing ▶ when information of the currently active channel is displayed allows for the metric data of the other configured channels to be viewed.

> *For example, if channels 2 and 3 are configured, for the maximum capacity of the 1st range:*
>
> *1st range capacity channel 1 (`1 Ch 1. NAH`). Press ▶. 1st range capacity channel 2 (`Ch2. NAH`). Press ▶. 1st range capacity channel 3 (`Ch 1. NAH`).*

3.9   Selecting the Channel to be Displayed

It is possible to select the channel to be displayed using the ▶ key, if the instrument is configured in the independent channels mode . This functionality does not work in the primary mode. See Table 4-3 on page 33 functioning mode `NAStr`.

1. Press and hold ▶. The currently selected channel displays first followed by `ChAn` displays.

2. Press ▼ or ▲ to select the channel to be displayed.

3. Press ◀┘ to confirm.

3.10   Selecting the Operating Mode

In addition to the standard weighing mode, with tare deduction and transmission of data, the instrument can be set to carry out various operational functions.

Each operating mode activates certain LEDs.

To set the operating mode:

1. Turn on the instrument and press ▲ while the firmware version displays. `F. NodE` displays.

2. Press ◀┘ to enter the menu.

3. Press ▼ or ▲ until `FUnCt` displays. Press ◀┘ to enter the menu.

4. Press ▼ or ▲ to scroll through the options.

- `Std` = Unit of measure conversion (Section 3.10.1 on page 19)
- `ntGS` = Net weight / gross weight conversion (Section 3.10.2 on page 19)
- `inoUt` = Input / output weighing (Section 3.10.3 on page 19)
- `NAStr` = Multi-scale repeater (Section 3.10.4 on page 20)
- `AL ib i` = Alibi memory (Section 3.10.5 on page 23)
- `rEPE` = Single scale repeater (Section on page 24)
- `u iSS` = Sensitivity times ten (Section 3.10.7 on page 26)
- `hLd` = Hold the weight value on the display (Section 3.10.8 on page 26)
- `PEAH` = Peak detector (Section 3.10.9 on page 26)
- `tot o` = Horizontal totalizer (Section 3.10.10 on page 27)
- `tot S` = Vertical totalizer (Section 3.10.11 on page 28)
- `CoUn` = Counting (Section 3.10.12 on page 28)

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5. Press ◄┘ to confirm selection.

6. Slowly press C multiple times until 5AⱯEᴖ displays.
   - Press ◄┘ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

> **Note** *ınoƜⱦ, ∩ASⱦr, ⱦoⱦ ∟, ⱦoⱦ 5 and ∟oƜn modes require additional parameter settings. See the following sections for detailed information on each operational mode.*
>
> *Once the functioning mode is set and a printer set up, the standard printouts, relative to the type of printer selected in the 5EⱦƜP➔5Er ıAL➔∟o∩. Prn➔Pr. ∩odE parameter, can be printed. See* Table 6-2 on page 51. *It is possible to activate default parameters by carrying out the selected print default. See* Section 6.11 on page 71.

3.10.1 Unit of Measure Conversion

This function toggles the displayed weight between the scale unit of measure and lb.

- Press ▶ to toggle between the scale unit of measure.
- Long press ◄┘ to enter the setpoint input menu. See Section 4.3 on page 41.

> **Note** *All scales connected to the instrument must have the same unit of measure to toggle between scales.*
>
> *The conversion takes place for any unit of measure set during the calibration.*

3.10.2 Net Weight/Gross Weight Conversion

This function toggles the display between net weight and gross weight.

- Press ▶ to toggle between net weight and gross weight.
- Long press ◄┘ to enter the setpoint input menu. See Section 4.3 on page 41.

3.10.3 Input/Output Weighing

Through operator confirmation, the instrument acquires two weights and calculates the difference. The data is then printed if a printer has been configured.

To Set Input/Output Weighing Mode

1. Select the ınoƜⱦ mode. ⱦYPE displays momentarily.
2. Select one of the print settings from Table 3-2
3. Press ◄┘ to confirm.

Setting	Description
∟. ⱦ. (gross/tare)	Printed data includes: • GROSS – gross weight and the unit of measure • TARE – tare weight and the unit of measure • NET – difference between the gross and tare weights and the unit of measure
I5ⱦ. 2nd (first weigh/second weigh)	Printed data includes: • WEIGH 1 – first weight and the unit of measure • WEIGH 2 – second weight and the unit of measure • NET – difference (without sign) between WEIGH 1 and WEIGH 2 and the unit of measure
ın. oƜⱦ (input/output)	Printed data includes: • INPUT – first weight and the unit of measure • OUTPUT – second weight and the unit of measure • NET – zero weight and unit of measure if WEIGH 1 = WEIGH 2 • INPUT NET – difference (without sign) between INPUT and OUTPUT and unit of measure if WEIGH 1 is greater than WEIGH 2 • OUTPUT NET – difference (without sign) between INPUT and OUTPUT and unit of measure if WEIGH 1is less than WEIGH 2

Table 3-2. Input/Output Weigh Mode Settings

To Use Input/Output Weighing Mode

1. Press ▶ to acquire first weight. `-- |---` displays.
2. Press ▶ again to acquire second weight. `--2---` displays. Data prints after acquisition of the second weight.

> **Note**
>
> *Press and hold ◀┘ to enter the setpoint input menu . See* Section 4.3 on page 41.
>
> *The weighing cycle can be interrupted by pressing* C *after the acquisition of the first weight.* `CLEAr` *displays. Press* ◀┘ *to confirm the cancellation or another key to continue.*
>
> *A weight is acquired when:*
>
>   * The weight is stable and greater than zero
>
>   *The* `rEACt` *parameter conditions have been met. See* Table 4-4 on page 33.

3.10.4 Multi-Scale Repeater

A system consists of one or more (up to 32) primary instruments connected to one or more weighing systems. All communicate with a secondary instrument, which acts as a weight repeater, on which it is possible to view or print the weight of each individual scale or the sum of the weight detected by the single scales.

primary instruments repeat all the keys pressed on the secondary instrument.

> **Note**
>
> *A network can be configured with a secondary instrument which remotely performs the connected scale functions and one or more listen only secondary instruments which only repeat the weight.*
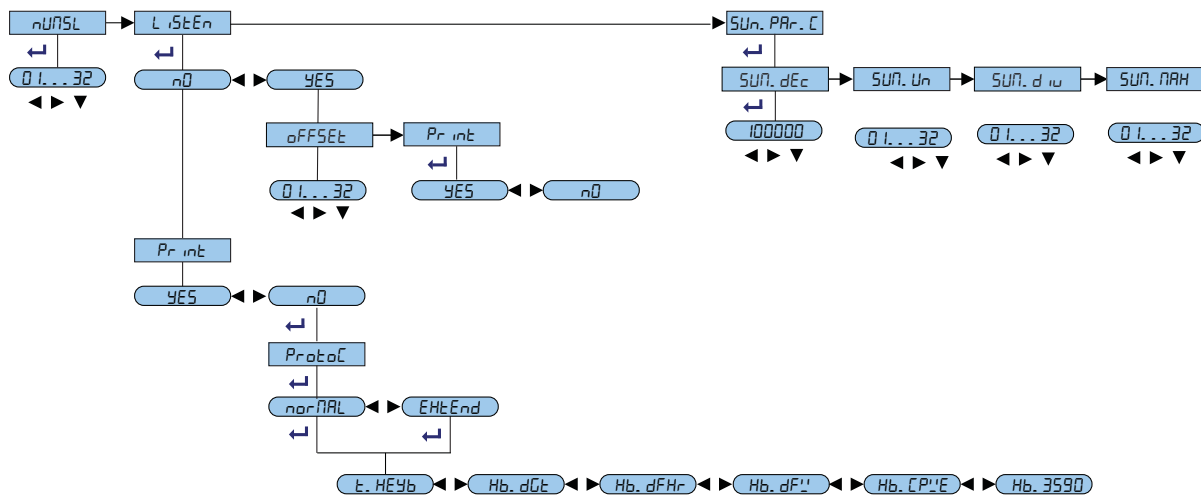
Figure 3-2. Multi-scale Repeater Flow Chart

Secondary Instrument Configuration

1. Turn on the instrument and press ▲ while the firmware version displays. `F. NodE` displays.
2. Press ◀┘ to enter the menu.
3. Press ▼ or ▲ until `FUnCt` displays. Press ◀┘ to enter the menu.
4. Press ▼ or ▲ until `NAStr` is displays. Press ◀┘ to enter the menu.
5. Press ▼ once. `nUNSL` displays, then a prompt to enter a number.
6. Enter a number between 01 and 32 using ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit.
7. Press ◀┘ to confirm. `LiStEn` displayed.

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8. Selecting one of the following and press ⏎ to confirm.
  - *nO* – the instrument controls all primary instruments. There cannot be more than one secondary instrument set to no. If *nO* is selected: *Protoc* displays. This parameter is used to set the type of communication protocol between the primary and secondary instruments.
    - *norNAL* – the primary instrument communicates with the secondary instrument transmitting all visible parameters on the display.
    - *EHtEnd* – The primary instrument communicates with the secondary instrument transmitting all visible parameters on the display and the weight value.
  - *YES* – the instrument is a secondary instrument weight repeater and does not control primary instruments. If *YES* is selected: *OFFSEt* displays and a prompt to enter a number.
    - Enter the number of the primary instrument from which the sum starts. Use ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit.
    - Press ⏎ to confirm. *Print* displays. Set the *Print* parameter to allow the visualized weight on the secondary instrument's printer.
9. Press ⏎ to confirm settings. *t.HEYb* displays.
10. Press ⏎. Set the primary instrument mode.
  - *Hbd9t* – SCT
  - *Hb.FHr* – Not applicable at this time
  - *Hb.dFU* – Not applicable at this time
  - *Hb.CPUE* – Not applicable at this time
  - *Hb.3590* – Not applicable at this time
11. Press ⏎ to confirm settings. If there is more than one primary instrument, the secondary instrument displays *SUN.PAr.C*.
12. Press ⏎. Set the parameters for the primary instruments.
  - *SUN.dEc* – set the decimals of the secondary instrument's visualized weight
  - *SUN.Un* – set the unit of measure of the secondary instrument's visualized weight
  - *SUN.div* – set the division of the secondary instrument's visualized weight
  - *SUN.NAH* – set the maximum of the secondary instrument's visualized weight

> **Note**
>
> *If the primary instruments are configured as totalizer, the secondary instrument cannot do totalization.*
>
> *In primary instruments, enter a code between 01 and 32 to uniquely identify each primary instrument in the menu SEtUP→SEriAL→CoN.PC→PCNodE→485. See* Section 4.2 on page 32.

Listen Only Secondary Instrument

Additional secondary instruments may be set as weigh repeaters. The keys pressed on these secondary instruments are not repeated on the primary instruments.

When the listen only secondary instrument is turned on, it displays the weight of the primary instrument or automatically selects the sum of the weights if there is more than one primary instrument connected.

If there is more than one primary instrument, the listen only secondary instrument can display:
  - The sum of the weights with *SUN* displaying every ten seconds
  - The weight of a selected primary instrument and *SCA n*, in which *n* is the number of the selected primary instrument

The the listen only secondary instrument displays the central segments alternated with the messages *SCA n* or *SUN* if communication is unsuccessful.

> **Note**
>
> *Listen only secondary instruments work only when one secondary instrument is set in a non listening mode.*

Operation

Once turned on, the secondary instrument is available to connect to a primary instrument. The message ECO n displays, in which n is the number of the primary instrument to be detected. When at least one primary instrument is detected, the secondary instrument places itself on the one with the lowest RS-485 address.

- Press ▶ to switch from primary instrument to primary instrument. SCA n displays, in which n is the number of the primary instrument. Then the weight transmitted by the selected primary instrument displays. SCA n displays about every 10 seconds, indicating which primary instrument the data is from.

- A long press of ▶ displays the sum of the weight on all the scales. SUN and then the sum of the net weight on all the scales displays. The SUN message displays about every 10 seconds.
    - The reference unit of measure is that of the connected primary instrument with the lowest address. If the other weights have different units of measure, they 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 the weights is not valid, because one or more primary instruments is underloaded or overloaded, the segments in the central part of the display are turned on.

- Press ▶ twice on the secondary instrument to produce a menu:
    - SLAuE – allows for quickly selecting a primary instrument (displays only if more than one primary)
    - SEt. Pnt – allows for input of a setpoint (only if there are functions linked to relays). If there are no functions linked to relays, the fast primary instrument selection displays and a prompt to enter the primary instrument number.

- Pressing ▼, ▲, ↵ or C on a primary instrument transmits that key's functionality.

To use the weight repeater function at least one primary instrument in the system must be turned on. When the secondary instrument is powered on it automatically places itself on the first powered on primary instrument with the lowest RS-485 address. If all the instruments are off or if the radio signal does not reach the secondary instrument, the ECo n message displays, in which n is the address of the primary instrument with which the secondary instrument is trying to communicate.

- If there are various primary instruments, it is not possible to transmit the functionality of the ▶ key to the active primary instrument.

- At least two primary instruments must have connection to carry out the sum function.

- It isn't possible to transmit functionality of the ▼, ▲, ↵ keys to the primary instruments, in sum mode.

- If connection with the primary instrument acting as a repeater is lost, the secondary instrument tries to reconnect. If it cannot reconnect within a second, it connects with the next primary instrument.

- If the connection with a primary instrument in the sum mode is lost, the secondary instrument tries to reconnect. If the reconnection is successful, it remains in the sum mode. If the reconnection is unsuccessful, it passes to the repeater mode of the next primary instrument.

Turning Off the Primary and/or secondary instruments

When the secondary instrument displays the sum of the weights:

- Press and hold C on the secondary instrument to turn it off.

- Press and hold C on a primary instrument to turn off only that instrument. The secondary instrument momentarily displays ECo n in which n is the number of the primary instrument turned off. The secondary instrument then displays the weight value transmitted by the next detected primary instrument.

When the secondary instrument displays the weight transmitted by a primary instrument:

- Press C on the secondary instrument. The action is repeated on the active primary instrument.

- Press and hold C on the secondary instrument until -OFF- displays. The active primary instrument powers off. After the -OFF- message, the secondary instrument displays ECo n, (n = the primary instrument turned off). The weight of the next detected primary instrument displays. The secondary instrument can be turned off by pressing and holding C when the -OFF- message displays.

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- Press and hold C on the active primary instrument to turn off only that instrument. The secondary instrument displays -OFF- message, and then displays ECo n (n = the primary instrument turned off). The weight of the next detected primary instrument is then displayed.
- Press and hold C on an inactive primary instrument to turn off only that instrument.

To to turn off only the secondary instrument, press and hold C when ECo n is displays. If auto-off is set on the secondary instrument, this works only when the message ECo n displays.

3.10.5 Alibi Memory

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

Storage of a weight value occurs following the reception of the serial command or by pressing ◄┘. The instrument transmits the gross and tare weights and an ID on the serial port.

The ID has the format: <Rewriting number>-<Weigh number>

- The rewriting number is a five digit number from 00000 to 00255; it indicates the number of complete rewritings of the alibi memory
- Weigh number is a six digit number from 000000 to 131072; it indicates the weigh number in the current rewriting of the alibi memory. The weigh number is increased by 000001 with each weigh storage. Once the value reaches 131072, it restarts from 000000

The weigh value relative to an ID can then be verified 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 greater than or equal to 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 value is
    PIDST,1,   1.000 lb,   1.00lb,00126-131072

    The following weigh value will be
    PIDST,1,   1.000lb,   1.00lb,00127-000000

The storage of a weigh value occurs only if the gross weight is greater than or equal to zero, it is stable and valid (not in under-load or overload).

Depending on how F. NodE→rEACt has been configured in the technical set up, the storage of a weight by pressing a key is possible only if the condition is met (weight exceeds zero, weight instability or always). See Table 4-4 on page 33.

If these conditions are not met:

- in response to the PID serial, NO replaces the ID
- there is no transmission if ◄┘ is pressed.

When ◄┘ is pressed and the weight is transmitted with the ID, tr. id displays and the transmitted string is as follows: **<ESC>[II]PIDSS,B,LLLLLLLLLLLUU,YYTTTTTTTTTTTUU,(ID | NO)<STX>**

See Section 6.4 on page 57 for more information on serial commands.

📝 **Note**   *The storage of a weigh value is possible for all weights from 0 to full capacity.*

Storage is possible by pressing ◄┘, if the serial protocol is set to ondE, rEPE. 4/6, Pr in. St/EH, 485, ALL. Std/EHt, *or* StAb. St/EH. *See* Section 6.2.2 on page 55 *for information on serial port set up.*

Reviewing Stored Weigh Information

To review stored information:

1. Press ►. rEU. id displays.
2. Enter the rewriting number (from 00000 to 00255).
3. Press ◄┘. id displays.
4. Enter the weigh number (from 000000 to 131072).

5. Press ⬅. The weigh information displays.

6. Press ▼ or ▲ to view the weigh information.
   - *ch. H – H* is the scale number (from 1 to 4)
   - *Un YY – YY* is the unit of measure (*Lb, HG, G*)
   - *Gross* momentarily displays and then the gross weight value
   - *tArE* or *tArEPt* (manual tare) momentarily displays and then the tare weight value

7. Press C to return to the weigh mode.

> **Note** *If the alibi memory is empty and ▶ is pressed, EMPtY displays momentarily and the instrument returns to the weigh mode.*
>
> *If the entered ID is not valid, no id displays and the instrument returns to the weigh mode.*
> **Clearing the Alibi Memory**

The alibi memory can be cleared directly on the instrument in the *SEtUP→ in i. AL* parameter.

1. Turn on the instrument and press ▲ while the firmware version displays. *F. ModE* displays.

2. Press ▼ until *SEtUP* displays. Press ⬅ to enter the menu.

3. Press ▼ or ▲ until *in i. AL* displays. Press ⬅. *i. AL ib. ?* displays.

4. Press ⬅ to clear the alibi memory or any other key to cancel.
   - *AL. OH* displays if the operation is successful
   - *AL. Err* displays if the memory was not successfully cleared (repeat procedure)

5. Press C to return to the weigh mode.

It is not possible to clear an individual weigh record.

Serial Commands in Alibi Memory Mode

In addition to the serial commands described in Section 6.4 on page 57, the following serial commands are available in the alibi memory mode. These commands are ignored if the program is not in alibi memory mode.

Weigh Storage

Command: [II]PID<CRLF> or <ESC>[II]PID<STX> and [II]PIDD<CRLF> or <ESC>[II]PIDD<STX>

In which:
- [II] is the RS-485 address
- <ESC> is the 27 ASCII decimal character
- <STX> is the 2 ASCII decimal character

Instrument response:
- to the [II]PID<CRLF> command: [II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO) <CRLF>
- to the <ESC>[II]PID<STX> command: <ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO)<STX>
- to the [II]PIDD<CRLF> command: [II]PIDDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|NO DATE TIME)<CRLF>
- to the <ESC>[II]PIDD<STX> command: <ESC>[II]PIDDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO),(dd/mm/yybbhh:mm:ss|NO DATE TIME)<STX>

In which:
- [II] is the RS-485 address (only when transmitting in RS-485 mode)
- SS can be – OL (weight in overload) or UL (weight in underload) or ST (stable weight) or US (unstable weight) or TL (TILT input closed).
- , is a comma character (ASCII decimal 44)
- B is the scale number (from 1 to 4)
- LLLLLLLLLL is the gross weight on 10 digits
- UU is the unit of measure

- YY is 2 spaces if a null tare or semiautomatic tare or PT if a manual tare
- TTTTTTTTTT is the tare on 10 digits
- ID is <Rewriting number>-<Weigh number>
- dd/mm/yy is the date (only with PIDD command)
- bb is 2 space characters, ASCII decimal 32 character (only with PIDD command)
- hh:mm:ss is the current time (only with PIDD command)

In the event of a negative or unstable gross weight, the weight is transmitted but not the ID. *NO* is transmitted in the ID space and the weight is not stored in the alibi memory.

If there is no alibi memory board detected, only the weight is sent without date and time, in response to the REXD command. NO DATE TIME is returned in the date/time space.

Weight Reading

Command: [II]ALRDXXXXX-YYYYYY <CR o CRLF>

In which:

- [II] is the RS-485 address
- XXXXX is the rewriting number (from 00000 to 00255)
- - is the hyphen character (ASCII decimal 45)
- YYYYYY is the weighing number (from 000000 to 131072)

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

In which:

- [II] is the RS-485 address (only when transmitting in RS-485 mode)
- B is the scale number (from 1 to 4)
- , is the comma character (ASCII decimal 44)
- LLLLLLLLLL is the gross weight on 10 digits
- UU is the unit of measure
- YY is 2 spaces if a null tare or semiautomatic tare or PT if a manual tare
- TTTTTTTTTT is the tare on 10 digits

Alibi Memory Cancellation

Command: [II]ALDL <CR o CRLF>

In which:

- [II] is the RS-485 address (only when transmitting in the RS-485 mode)

Instrument response:

- [II]ALDLOK <CR o CRLF> if the cancellation is effective
- [II]ALDLNO <CR o CRLF> if the cancellation did not work

3.10.6 Single Scale Repeater

The single scale repeater system is made up of one or more instruments (repeaters) which receive data transmitted from the display, or from the weight of another instrument or from a PC/PLC and then act as repeaters.

Once this functioning mode is set in the repeaters, the *rEPE.6* or *'.rEPE* parameter must be set in the communication mode of the PC port in *SEtUP→SEriAL→CoN.PC*. See Section 4.0 on page 31.

- If *rEPE.* communication protocol is set in the repeater, the *rEPE.6* communication protocol must be set to the desired port of the transmitter.
- If *'.rEPE* communication protocol is set in the repeater, the protocol of continuous weight transmission must be set to the desired port of the transmitter.

For further configuration details refer Section 4.0 on page 31.

Operation

Once the instrument is turned on, it waits for data. If it does not receive a correct communication string, the communication parameters are wrong, or it does not receive a character, the instrument remains in the test condition; all the central segments of the display are turned on.

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

IMPORTANT	*Keys pressed on the repeater are not duplicated on the transmitter and vice versa.*
	The instrument acts only as a weight repeater; ⊂ is the only key enabled and turns the instrument on/off.
	In the single scale repeater mode only the ⌐EPE6 transmission mode is enabled for the printer port. See Section 6.3 on page 55.

Example of settings for repeater/transmitter configuration:

Unit	FUnCt	PCNodE	bAUd	b it
Repeater	⌐EPE	⌐EPE. 6	9600	n-8-1
Transmitter	All modes except NA5t⌐	⌐EPE. 6	9600	n-8-1

Table 3-3. Set Up Example

3.10.7 Sensitivity Times Ten

This mode converts the weight to sensitivity time ten for display and is used for testing during calibration.

Operation

1. Press ▶ to toggle the weight display between standard sensitivity and sensitivity times ten.The last digit on the right of the display has a sensitivity equal to the scale's division divided by 10.

2. Press and hold ◀— to enter the setpoint input menu . See Section 4.3 on page 41.

Note	*If the SEtUP→d. SALE is set as YES the 10X display is possible only with capacities over 220 lb.*
	Printout and change of channel can only be performed when the instrument is in the standard sensitivity.

3.10.8 Hold the Weight on the Display

This mode allows the operator to hold a weight on the display.

1. Press ▶ to hold the weight on the display. HoLd displays alternately with the weight value.

2. Press ▶ again to release the weight value.

3. Press and hold ◀— to enter the setpoint input menu. See Section 4.3 on page 41.

Note	*Exit the hold mode to toggle from one scale to another when multiple scales are connected to the instrument.*

3.10.9 Peak Weight Detection

This mode can be used to store the maximum (peak) weight value measured during the weigh.

Operation

1. Press ▶ to enable the peak weight detection. -PEAH- displays alternately with the maximum weight value reached up to that point.

2. Press ▶ again to terminate the peak weight detection. Peak weight detection also terminates if the weight surpasses the maximum capacity of the instrument. In both cases, PEAH. oF displays and then the current weight on the scale displays. 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

3. Press and hold ◀— to enter the setpoint input menu. If an output setpoint has been configured, it is possible to enter a submenu and choose a parameter to modify. Select I nP. 5tP (Section 4.3 on page 41)

Note	*Exit the peak mode to toggle from one scale to another when multiple scales are connected to the instrument.*

Setting Sampling Time

To set the minimum sample time of the peak weight detection:

1. Press and hold ◀—.

2. If an output setpoint has been configured, it is possible to enter a submenu and choose a parameter to modify. Select PI C. tⴑN (Section 4.3 on page 41).-tP- displays followed by a number which corresponds

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to the minimum time length of the impulse expressed in hundredths of seconds.

3. Press ▼ or ▲ until the desired value displays. See Table 3-4 for a list of settable values.
4. Press ◄┘ to confirm. The instrument returns to the weigh mode.

Time in 1/100 sec	Sample per Second	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

Table 3-4. Sample Times in Peak Weight Detection

The peak detection function sensitivity is dependent on the parameter set. The higher the number of samplings, the greater the sensitivity. If an unexpected peak is detected immediately, decrease the sensitivity.

> *Example: If 0.000 kg is on the load cell of 20 kg (350 Ω), and the sampling time is equal to 1, when the peak function is enabled, 0.005 kg displays.*

3.10.10 Horizontal Totalizer

The horizontal totalizer is used to obtain a sum weight of multiple weighings.

1. Press ▼ or ▲ until the desired value displays.
   - *t.norM* – (normal) for each accumulation operation, weigh number and the net weight total display before the data prints
   - *t.FASt* – (fast) only *-tot-* displays before printing
   - *AUto* – (automatic) a stable weight is automatically acquired, *-tot-* displays and the data is printed
2. Press ◄┘ to confirm. *MAH.tot* displays.
3. Press ◄┘ to enter the menu.
4. Set the number of consecutive totalizations (0-63) after which the total is automatically printed and reset. Press ► to select the digit to be modified and ▼ or ▲ to increase or decrease the digit. Press ◄┘ to confirm. A setting of 0 disables the function.

Operation

1. Load the weight on the scale and press ► (if the automatic totalization is not 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 one division with normal or fast totalization
   - be at least ten divisions with automatic totalization
2. Press ► again (without re-enabling the totalization).
   - in normal totalization it is possible to momentarily view the number of weighings completed and the partial net total. If the accumulated values is more than five digits, the visualization takes place in two stages.
   - in fast totalization the error message *no.0.UnS* displays.
   - if the gross weight is equal to zero, *GroS.Er* displays
   - if the net weight is equal to zero, *nEt. Err* displays

Totalization with Printing

If a printer is configured, with each press of ► the data programmed in *SEtUP➔SEriAL➔CoM.Prn➔Pr.ConF* (Section 4.2 on page 32) is sent to the printer. For example: weighing number, gross weight, tare weight, net weight.

Printing and Zeroing Totals

The instrument has two different total levels, a partial total and a general total, which increase with each totalization. These can be printed and zeroed independently from each other.

To print and zero a partial total, press ◄┘. The number of weighs and the net weight total is printed.

- With normal totalization the number of weighs and the accumulated total displays
- With fast or automatic totalization `totAL` displays

To print and zero the general total, press and hold ◄┘. The number of weighs and the net weight total is printed. If an output setpoint is configured, it is possible to enter a submenu and choose the parameter to be modified; select `Pr. G. tot`.

- With normal totalization the number of weighs and the accumulated total displays.
- With fast or automatic totalization the message `G. totAL` displays.

> **Note** *All the accumulated values are automatically reset each time the instrument is turned off.*
>
> *If an output setpoint is configured, it is possible to enter a submenu and choose the parameter to be modified; select `Pr. G. tot`.*

Setpoint Setting

Press ◄┘ for about 3 seconds. If an output setpoint is configured, it is possible to enter a submenu and choose the parameter to be modified; select `InP. Stp`. (Section 4.3 on page 41).

3.10.11 Vertical Totalizer

The vertical totalizer is the same as the horizontal totalizer, except with each press of ▶ the indicated weight is totalized and automatically tared. It is used, for example, in filling a container with multiple products.

> **Note** *At the end of totalization functions, press C to view the gross weight on the scale.*

3.10.12 Counting

This mode allows for the instrument to be used as a counting scale. In the setup mode, `F. ModE`→`FUnCt`→`CoUn`, after pressing ◄┘ to confirm `CoUn`, the following parameters must be set.

1. `Un. AP` (unit of measure of the average piece weight) displays. Press ◄┘ to enter the menu.
2. Press ▼ or ▲ until the desired value displays. (`G`, `H9`, `t`, `Lb`)
3. Press ◄┘ to confirm.
4. Press C until `SAuE?` displays. Press ◄┘ to confirm and store to the instrument memory or press any other key to cancel and exit without saving.
5. `UA it. t` (sampling interval) displays. Press ◄┘ to enter the menu.
6. Set the desired time. Press ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit. Press ◄┘ to confirm.
7. Slowly press C multiple times until `SAuE?` displays.
   - Press ◄┘ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

Key Function

Press and hold ◄┘ to:

- enter a known average piece weight (APW). See Manual Entry of APW on page 30
- set a setpoint; if an output after reaching a setpoint is configured, it is possible to enter a submenu to choose the parameter to be modified; select `InP. Stp` (Section 4.3 on page 41)

Press and hold ▶:

- if there is not a reference – set a reference value. see Operation for more information
- if there is a reference – the reference value and number of pieces/weight on the scale alternate on the display

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Press C:
- cancels the previously set reference; *CLEAr* momentarily displays (if there is not a valid reference, the *CLEAr* message does not display)
- After canceling a reference press ▶ to set a new reference value

Operation

Use a reference quantity equal to or greater than 0.1% of the scale capacity. The weight of the reference quantity should not create an APW lower than the two internal points of the converter (intrinsic limit of the scale). If this condition occurs, during the sampling *Error* momentarily displays and the quantity put on the scale is not accepted. Repeat using a higher reference quantity.

1. Place an empty container on the scale and press ▲ to tare it.

2. Ensure the weight display is zero, then press ▶. A prompt for a reference quantity displays.

3. Press ▼ or ▲ until the desired value displays (5, *10*, *20*, *30*, *40*, *50*, *60*, *75*, *100*, *200*).

4. Place the quantity of pieces selected in Step 3 on the scale. Press ◀┘ to confirm. *SAMPL* displays and the instrument calculates the APW. After a few seconds, the quantity of pieces put on the platform displays and should equal the value selected in Step 3.

5. Add the rest of the items to count into the container. The count value displays.

6. Unload the scale. *PCS-0* displays.

Note *The APW remains stored until the instrument is turned off, allowing for the counting of similar pieces, without having to repeat the REFERENCE operation.*

Pressing ▶ toggles the display between the number of pieces and the net weight.

To perform a new reference operation:

1. Press C when the number of pieces displays. *CLEAr* displays to confirm the cancellation of the reference value.

2. Press ▶ to set a new REFERENCE value and repeat operations starting with Step 3.

Note *If the number of calculated pieces is greater than *999999*, only the first 6 digits are displayed.*

Switching from 1 channel to another does not cancel the reference and the currently selected mode (weight or pieces) remains and can be toggled by pressing ▶.

Piece Counting When Picking

1. Place a full container on the scale and press ▲ to tare it.

2. Ensure the weight display is zero, then press ▶. A prompt for a reference quantity displays.

3. Press ▼ or ▲ until the desired quantity to remove displays. (5, *10*, *20*, *30*, *40*, *50*, *60*, *75*, *100*, *200*).

4. Remove the quantity of pieces selected in Step 3 from the scale.

5. Press ◀┘ to confirm. *SAMPL* displays and the instrument calculates the APW. The removed quantity displays.

6. Continue the counting in extraction.

Note *If during the sampling phase the weight is unstable and it is not possible to calculate the APW correctly, *Er. Not* displays momentarily. Repeat the sampling operation.*

Manual Entry of APW

A known APW can be entered with the keyboard.

To display the stored APW:

- Press and hold ◄┘. *APU* and the stored nine digit value with five decimal places displays in the programmed unit of measure.

To enter a known APW:

1. Press C to clear the present value.
2. Press ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit.
3. Press ◄┘ to confirm.

   Example: Unit of measure of the APW in g

   0000.00000 is 0.0 g, therefore by entering 0001.05000 the weight is 1.05 g.

Printing

Press ◄┘ to print the data as it was programmed in the **SETUP➔SErIAL➔Con. Prn➔Pr. ConF** of the setup mode (Section 4.2 on page 32). For example: gross weight, tare weight, net weight, quantity of pieces (PCS) currently on the scale, calculated APW.

3.10.13 Simultaneous Transmitter Mode

The independent channel mode makes it possible to have simultaneous transmission of the values on each single channel via the serial line. In addition, through the optional alibi memory board, the transmitted weight values can be stored in a computer for data processing and/or integration. The filed values can then be recalled from the PC serial line or directly on the instrument's display.

> **Note** *In this mode the zero tracking and the scale keys ▼, ▲ and ◄┘ are disabled. It is not possible to set functioning modes and the alibi mode is set automatically.*

To set the transmitter mode:

1. Turn on the instrument and press ▲ while the firmware version displays. *TYPE* displays.
2. Press ◄┘ to enter the menu.
3. Press ▼ or ▲ until *trAnSN* displays. Press ◄┘ to select.
4. Slowly press C multiple times until *SAuEP* displays. Press ◄┘ to confirm.

Operation

In the simultaneous transmitter mode it is possible to view the weighing information. See Section 3.10.5 on page 23 regarding Reviewing Stored Weigh Information.

- Press ▶ to switch channels, if the scale is configured as multichannel.
- Only functions which can be enabled through serial commands can be performed. See Section 3.10.5 on page 23 regarding Serial Commands in Alibi Memory Mode. Not all serial commands can be performed. See Section 6.4 on page 57. It is not possible to carry out other operations in the simultaneous transmitter mode.
- The list of usable serial commands includes: *PID, ALRD, ALDL, VER, REXT, REXTA, READ, MVOL, RAZF, CGCHN, ECHO, DISP, DINT, PCOK, STAT, KEYP, KEYR, KEYEE,KEYED*

> **Note** *Pressing simulation of the scale keys through the KEYP and KEYR commands allows for management of the functions linked to the ▶ key.*

4.0 Setup Mode

The setup mode is used to set the functioning parameters of the instrument.

To enter the setup mode, turn on the instrument and while the firmware version displays, press ▲. The instrument displays the first parameter.

4.1 Setup Mode Navigation

Key	Function
▼	Scroll through parameters
	In numeric input: decreases the digit to be modified
▲	Scroll through the parameters
	In numeric input: increases the digit to be modified
▶	Quickly position at the first step of a menu
	In numeric input: selects the digit to be modified, from left to right
↵	Enter into a parameter or confirm a setting
	In numeric input: confirms the entry made
C	Exit a step without confirming the setting
	In setup: press multiple times to display 5Au*E?* prompt and/or press to exit a step without confirming the setting
	In numeric input: clears the present value

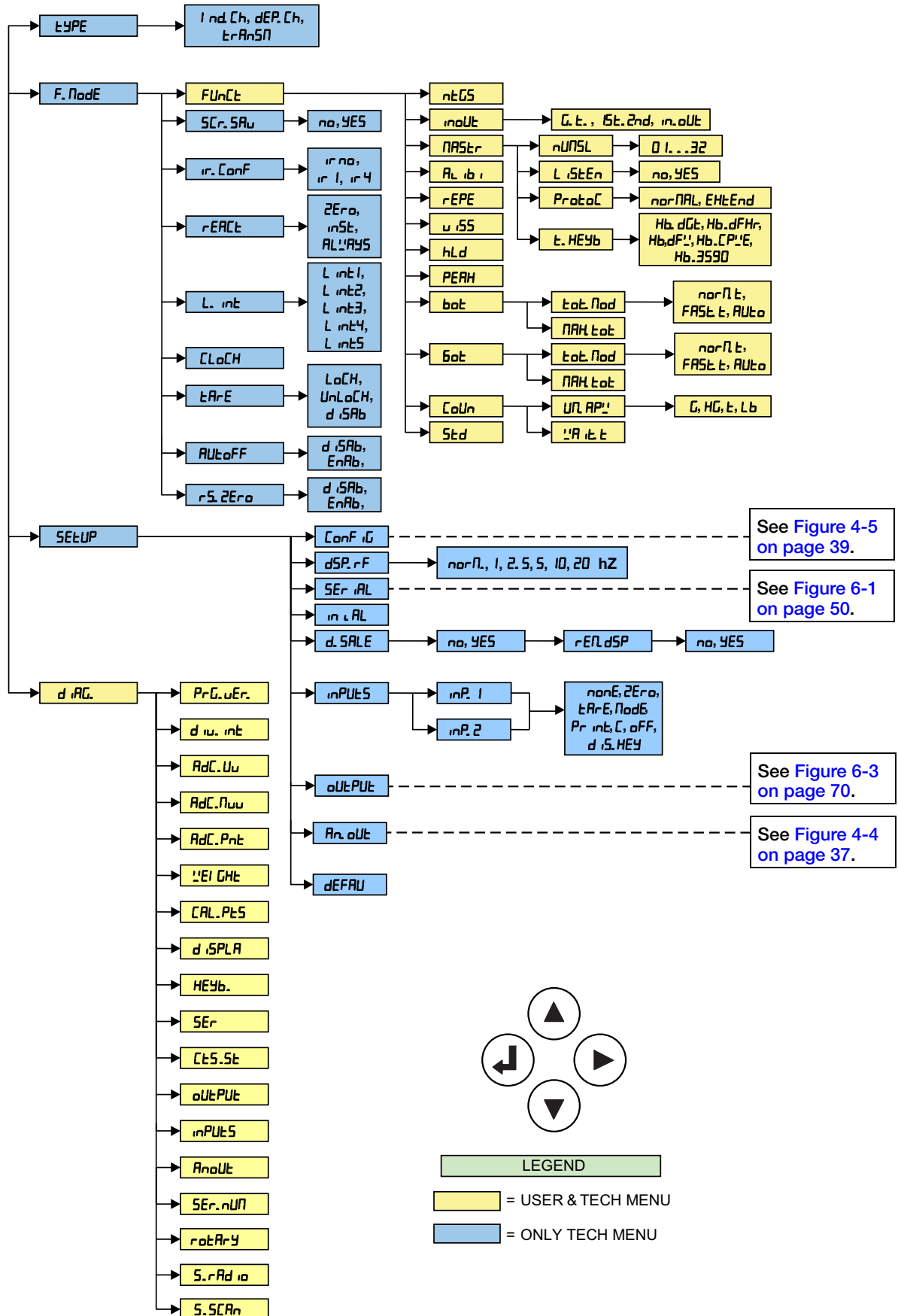*Table 4-1. Key Functions in Setup Mode*

4.2 Setup Mode Menu

Figure 4-1. Setup Mode Menu

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4.2.1 Type Parameter

Select the application type: a scale with independent channels, a scale with dependent channels or a scale with independent channels simultaneously viewable on the PC.

Settings	Description
ınd. Ch	Instrument connected to 1, 2, 3 or 4 independent scales.
dEP. Ch	Instrument connected to a scale with 2, 3, or 4 dependent load cells (could be digitally equalized).
trAnSn	Independent channel mode which makes it possible to have a transmission, through the serial line, of the values read by each single channel. See Section 3.9 on page 18.

Table 4-2. Type Parameter

4.2.2 F.Mode Parameters

The function mode parameters set the functionality of the scale.
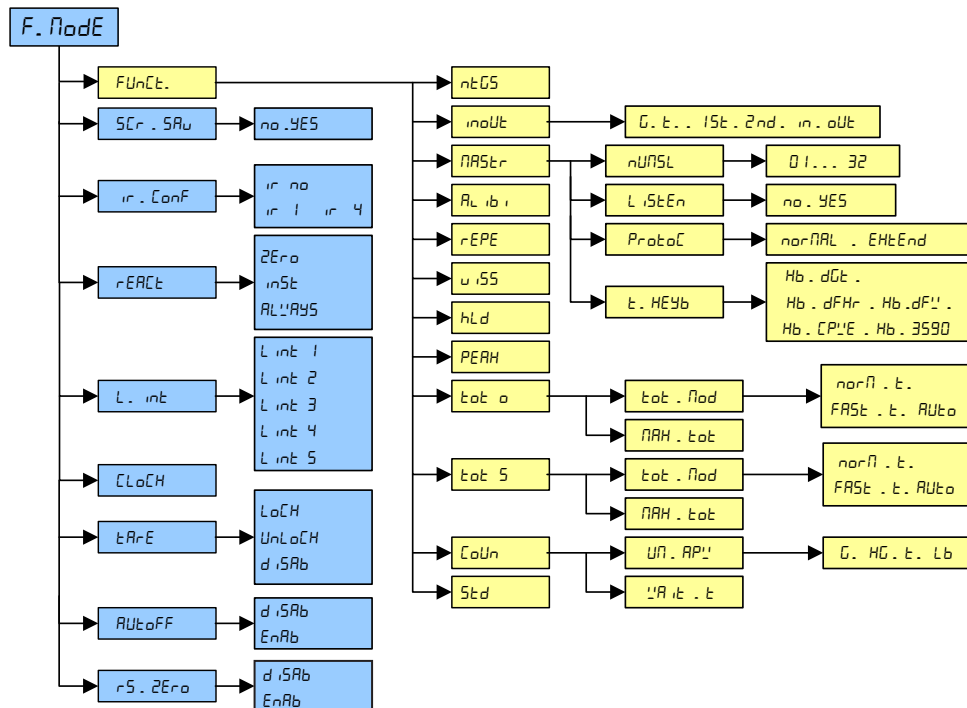
Table 4-3. F.Mode Menu

Parameter	Settings	Description
FUnct		Functioning Mode
		NOTE: For the details of the operating modes, see Section 3.10 on page 18.
		Once the functioning mode is selected, if a printer is configured, the printout is automatically enabled.
		This parameter is not displayed if trAnSM is set in the tYPE parameter.
		MAStr and rEPE are the only parameters displayed in the secondary mode.
	Std	Unit of measure conversion
	ntGS	Net weight / gross weight conversion
	ınoUt	Input / output weighing

		When the in/out mode is selected, tYPE displays momentarily and the setting for the print mode of the acquired data must be set; Press ◄┘ to confirm selection:
		    G. t – gross/tare
		    1St. 2nd – first weight/second weigh
		    ın. oUt – input/output

Table 4-4. Function Mode Parameter

Parameter	Settings	Description
FUnct (cont.)	NAStr	Multi-scale repeater (if equipped with available firmware) – used enter the number of primary instruments to be used; nUN5L is momentarily displayed, Enter the number of primary instruments (01 to 32); Choose the listen only secondary instrument, if desired, and set the protocol and primary instrument keyboard to be controlled
	AL ib i	Alibi memory
	rEPE	Single scale repeater (if equipped with available firmware)
	u i55	Sensitivity times ten
	hLd	Holding the weight value on the display
	PEAH	Peak detector
	tot o	Horizontal totalizer – if this mode is selected, the type of totalization must also be set: normal (t. norN), fast (t. FA5t) or automatic (AUto).
	tot 5	Vertical totalizer – if this mode is selected, the type of totalization must also be set: normal (t. norN), fast (t. FA5t) or automatic (AUto)
	CoUn	Counting – if this mode is selected, the unit of measure of the average piece weight (APW) (g / kg / t / Lb) and the sampling interval in seconds (UA it. t) must also be set
5Cr. 5Au		Screen Saver – if the instrument has the date/time option, a screen saver can be programmed to activate after (1 to 255 minutes) inactivity and the scale is unloaded; When the screen saver is active, the time displays in HH-MM.SS format; When a weight variation is detected or a key is pressed, the instrument returns to weigh mode
	n0	Disabled
	YE5	Enabled: a prompt to enter the time (1 to 255 minutes) of inactivity after which the instrument displays the screen saver
	NOTE: This parameter is not displayed if there is no date/time option, or if rEPE is the selected functioning mode.	
rEACt		Sets the re-enable function of printout and the instrument functions; The re-enable function can be set in the following modes: passage of the net weight by zero, weight instability or always; See Section 3.7.2 on page 17
	2Ero	Passage of the net weight by zero
	in5t	Instability
	AL!AY5	Always This parameter is not visible if the horizontal or vertical totalizer functions are selected and the automatic totalization mode is set
CLoCH		Sets the date and time of the instrument; enter in this order, the day, month, year, hour and minute; The entry of each parameter must be confirmed with ◀┘ The parameter is not displayed if the date/time option is not installed or if the rEPE functioning mode has been selected
tArE	LocH	Locked tare
	UnLocH	Unlocked tare
	d i5Ab	Disabled tare
	NOTE: See Section 3.2.2 on page 12.	
AUtoFF		Enables the instrument to shut down after a user programmable time (1 to 255 minutes); The scale must be unloaded and the weight unchanged and no key press during the set amount of time, then a blinking -oFF- message displays and the instrument shuts down; A change in weight on the scale or a key press reactivates the instrument. See Section 3.3 on page 14.
	d i5Ab	Auto shut down disabled
	EnAb	Auto switch off enabled
	NOTE: The parameter is not displayed if the rEPE functioning mode is selected in an instrument set up as a secondary.	
r5. 2Ero		Enables the restore zero function, when the zero function is performed the zero offset is stored; If at startup the auto zero fails or is disabled, the zero offset is restored; The scale displays the weight value that present at shutdown
	d i5Ab	Zero restore disabled
	EnAb	Zero restore enabled
	NOTE: This parameter does not display if trAn5N is selected in the tYPE parameter.	

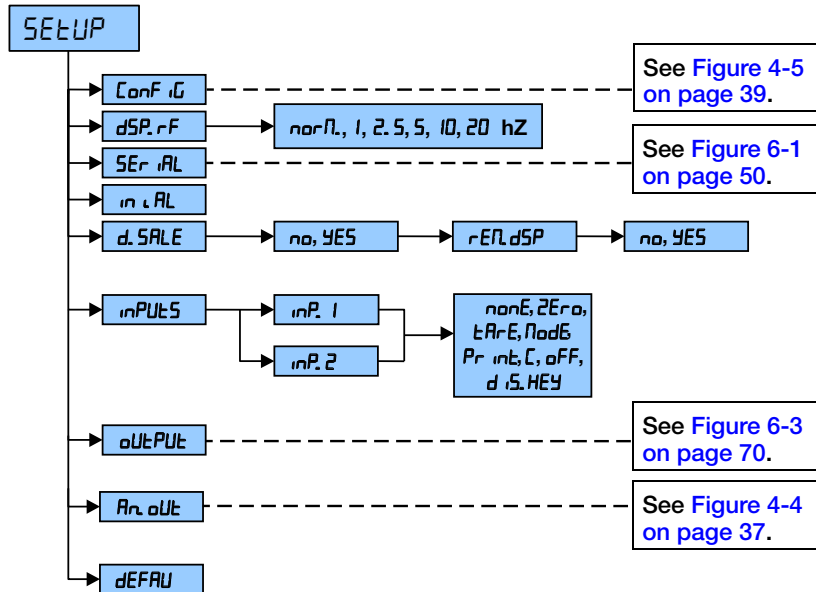*Table 4-4. Function Mode Parameter (Continued)*

Figure 4-2.

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4.2.3 Setup Parameters

Figure 4-3. Setup Menu

Parameter	Settings	Description
ConFiG		Metrics configuration - See Table 4-8 on page 40
dSP.rF		Sets the speed of the display refresh
	norN	The function is disabled
	20H2	20 display / sec refreshments
	10H2	10 display / sec refreshments
	5H2	5 display / sec refreshments
	2.5H2	2.5 display / sec refreshments
	1H2	1 display / sec refreshment
SEriAL		Serial Communications Setup; See Table 6-2 on page 51
in i.AL		Initialize alibi memory – The initialization cancels all the data stored in the alibi memory; Press ⏎ to enter the operation, then i.AL ib.? displays; Press ⏎ again to confirm or any other key to cancel; AL.OH displays if the operation is successful; if not, AL.Err displays; The parameter displays only if the alibi functioning mode is selected
d.SALE		Sets the tare function limitations; See Table 3-1 on page 14
		rEN.dSP displays if limitation is enabled • no – remote display disabled • YES – remote display enabled **NOTE: The parameter is not displayed in an instrument set up as a secondary.**
	no	Limitations disabled
	YES	Limitations enabled
inPUtS		Input Configuration – sets the function to link to each input
	inP.1 inP.2	Input 1 or Input 2 **NOTE: In the event two inputs are simultaneously enabled, only the input with the lower number is taken into consideration.**
		nonE = Disabled
		2Ero = Zero key
		tArE = Tare key
		NodE = Mode key
		Print = Print key
		C = C key – ON/OFF key
		oFF = Turning off the instrument
		diS.HEY = Disables the keyboard

Table 4-5. Setup Parameters

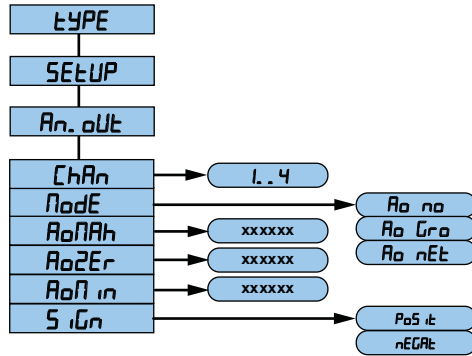| Parameter	Settings	Description
oUtPUt		Output configuration – Sets the function to be linked to each output
	out.1 - out.6	Configurations are valid for all outputs
	FUnC	Output function – sets the function to be linked to each output • 0 nonE – No function • 1 Gro5 – setpoint on the Gross Weight (*) • 2 nEt – setpoint on the Net Weight (*) • 2 UGht – setpoint on the Weight (**) • 3 PC5 – setpoint on the Pieces (*) • 4 Gro.0 – Gross Weight at zero (*) • 5 nEt.0 – Net Weight at zero (*) • 5 UGt.0 – Weight at zero (**) • 6 Not i – Instability • 23 H.Pr – Pressing of the PRINT key • 25. H.Nod – Pressing of the MODE key • 26 H.C – Pressing of the C - ON/OFF key • 27. H.2Er – Pressing of the ZERO key • 28. H.tAr – Pressing of the TARE key • 29 Err – Error indication • 30. nEt.t – setpoint on the Net Weight if the tare is activated(*) ***Note: (*) The parameter displays only if the instrument is set as a primary instrument.*** ***(**) The parameter displays only if the instrument is set as a secondary.***
	nor nc	NO/NC Contacts • no – Output 1 normally opened • nC – Output 2 normally closed
	on5tAt	Switching condition • drCt – The output is activated as soon as the weight reaches the set threshold, (independently from the stability) and is disabled in the moment the weight goes below the set disabling threshold • 5tbL – The output is activated in the moment the weight, after reaching the set activation thresholds, becomes stable and is disabled in the moment the weight goes below the set disabling threshold, it becomes stable
	rL. i5t	Hysteresis • i5t.oFF – Hysteresis disabled • i5t.on – Hysteresis enabled
	EnAb.tN	Enabling time – enter the length of time the output is enabled in seconds (4 digits with a decimal); The output is disabled once the set time has passed, starting from the moment of the activation (see the following parameter); By setting 000.0 the output remains always active ***NOTE: The delay time is considered only if a setpoint on gross weight, setpoint on net weight or setpoint on pieces is selected as an output function.***
	dELAY	Enables delay period – enter the enabling delay period in seconds (4 digits with a decimal); The output is enabled once the set time has passed, starting from the moment the condition takes place; By setting 000.0 the output is enabled when the enabling condition takes place ***NOTE: The output is enabled only if the enabling condition takes place for the length of time set.*** ***The delay is valid only for the enabling of the output. When the enabling condition no longer takes place the output is disabled.*** ***In a switching condition with stability, the output is enabled only when the weight is stable.*** ***The delay time is considered only if a setpoint on gross weight, setpoint on net weight or setpoint on pieces is selected as an output function.***
	5 iGn	Setpoint sign – The parameter displays only if a setpoint on net weight or setpoint on pieces is selected as an output function • PoS it – Functioning on positive weight • nEGAt – Functioning on negative weight
An. oUt		Analog output – see Table 4-6 on page 37
dEFAU		Default settings – Restores the instrument to default settings; Press ⬅. dEFAU? displays. Press ⬅ again to confirm or exit by pressing any other key ***NOTE: Returning the instrument to default settings cancels the present calibration.***

Table 4-5. Setup Parameters (Continued)

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4.2.4 Analog Output

Figure 4-4. Analog Output Menu

Parameter	Settings	Description
An. oUt	See Section 6.10 on page 70 for configuring the analog output;	
	This parameter is not displayed if rEPE is selected;	
	SLot – selects the slot to be used with the analog output: • SLot 1 • SLot 2	
	chAn	Select the active channel 1-4 in the scale with non dependent channels mode (ind. Ch/ trAnSM); The parameter is not displayed dEP. Ch is set in the tYPE parameter or in a single channel application, SEt UP→Conf iG→nChAn
	CAPAC	Sets the capacity of the scale;
		Enter the capacity set on the primary instrument (000000 to 800000);
		The parameter displays only in the secondary mode
	MOdE	Sets the analog operating mode
		If the instrument is a primary: • Ao no – analog output disabled. • Ao Gro – analog output on the gross weight • Ao nEt – analog output on the net weight
		If the instrument is a secondary: • Ao no – analog output disabled • Ao YES – analog output enabled
	AoMAH	Maximum value – Sets the maximum value of the analog output (00000 to 65535)
	Ao2Er	Scale zero value – Sets the analog output value when the scale is at zero weight (00000 to 65535)
	AoM in	Minimum value – Sets the minimum value of the analog output (00000 to 65535)
	S iGn	Sign – This parameter displays only if the selected operating mode is net weight; In the secondary mode, functioning on negative weight is not managed
		• PoS it = Functioning with positive weight. • nEGAt = Functioning with negative weight.

Table 4-6. Analog Output Parameters

4.2.5 Diagnostic Menu

See the for the diagnostic (*d ιAG*) menu structure.

Settings	Description
PrG.uEr	Press ◄┘ to display the software version
d ιu. ιnt	Press ◄┘ to display the calibration internal divisions; The parameter displays only in a primary instrument
AdC.Uu	Press ◄┘ to display the microvolts relative to the weight on the scale; Use ▼ or ▲ to display the microvolts for each configured channel of the scale; In the *dEP.Ch* mode it is also possible to view the sum of the microvolts of the configured channels; *SUN* displays briefly; If the instrument displays the message *ErrOr* check the connection of the SCT to the junction box and load cells; The parameter displays only in a primary instrument *NOTE: The maximum input voltage the instrument accepts is 30 mV (30000 µV); the weighing system is powered by the instrument at 5 Vdc.* *In a properly operating system there will be less than 30000 µV with full capacity on the weighing system.*
AdC.Nuu	Press ◄┘ to display the mV/V relative to the weight on the scale; Use ▼ or ▲ keys to display the millivolts for each configured channel. Press ► to zero the scale. Press ◄┘ to cancel; If *ErrOr* displays, check the connection of the SCT to the junction box and load cells. The parameter displays only in a primary instrument; *NOTE: If the load cell is not properly connected, or if the load cell signal is incorrect, 'IAI t displays momentarily and then ErrOr.* *In the dEP.Ch or trAnSN mode, if a channel is over the capacity, OuEr C displays, in which C is the number of the channel over capacity. If more than one channel is over capacity, OuEr C displays, in which C is the number of the channel with the lowest index.*
AdC.Pnt	Press ◄┘ to display the A/D converter points relative to the weight on the scale; Press ▼ or ▲ to display the A/D converter points for each configured channel; The parameter displays only in a primary instrument; In the *dEP.CH* mode the sum of the microvolts of the configured channels can be viewed. (*C SUN* displays momentarily)
'E ιGht	Press ◄┘ to display the weight on the scale; Press ▼ or ▲ to view the weight on each connected scale; The parameter displays only in a primary instrument
CAL.PtS	Press ◄┘ to alternately display the A/D converter points and the corresponding weight value; Use ▼ or ▲ to switch the display to each calibration point and relative weight value
d ιSPLA	Display Test – Press ◄┘ to turn on display segments one at a time; Continue pressing ◄┘; The instrument turns on the display segments, one at a time, then exits automatically from this step
HEYb	Keyboard Test – Press ◄┘, then 0000 displays; press the keys on the keyboard, one at a time, to display related codes; Press any key three times to exit
SEr	RS-232 Serial Port Test – Press ◄┘, then *S HY; H* displays, in which *Y* indicates the status of the PC serial port • *0* – Serial port is not working • *I* – Serial port is working Press ▼ or ▲ to change the status of the serial port
CtS.St	CTS Status Test – Press ◄┘ to view the CTS signal status of the printer connected to the PRN serial port
oUtPUt	Output Test – Press ◄┘, then *rEL. I* displays and output 1 is enabled; Press ▼ or ▲ to enable the other outputs
ιnPUtS	Input status – Press ◄┘, then *I. bH-Y; H* displays, in which *Y* indicates the input status • *0* – disabled • *I* – enabled Press ▼ or ▲ to change the input status

Table 4-7. Diagnostics Menu

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Settings	Description
An OUt	Analog Output Test – Provides a basic test to verify correlation of D/A and analog output, when equipped with analog output option; See Section 6.10 on page 70
	Pres ⏎, then 00000 displays. Enter a value between 00000 and 65535 and confirm by pressing ⏎; the instrument assigns the corresponding analog value in output
	To exit, press ⏎ on the same entered value
SEr.nUN	Serial Number – Displays the instrument's serial number
S.rAd io	Press ⏎ to select the desired radio channel; OH displays if the configuration is successful, Error displays if not successful
S.ScAn	Executes a RS-485 network scan on the set number of scales, skipping its own address; Press ▼ or ▲ to stop the automatic scan and manually change the active scale using ▼ or ▲; Press C to exit the step; The parameter displays only in a primary instrument and the parameter **Pc.NodE→Pb.NULt** is selected

Table 4-7. Diagnostics Menu (Continued)

4.2.6 Configuration Menu
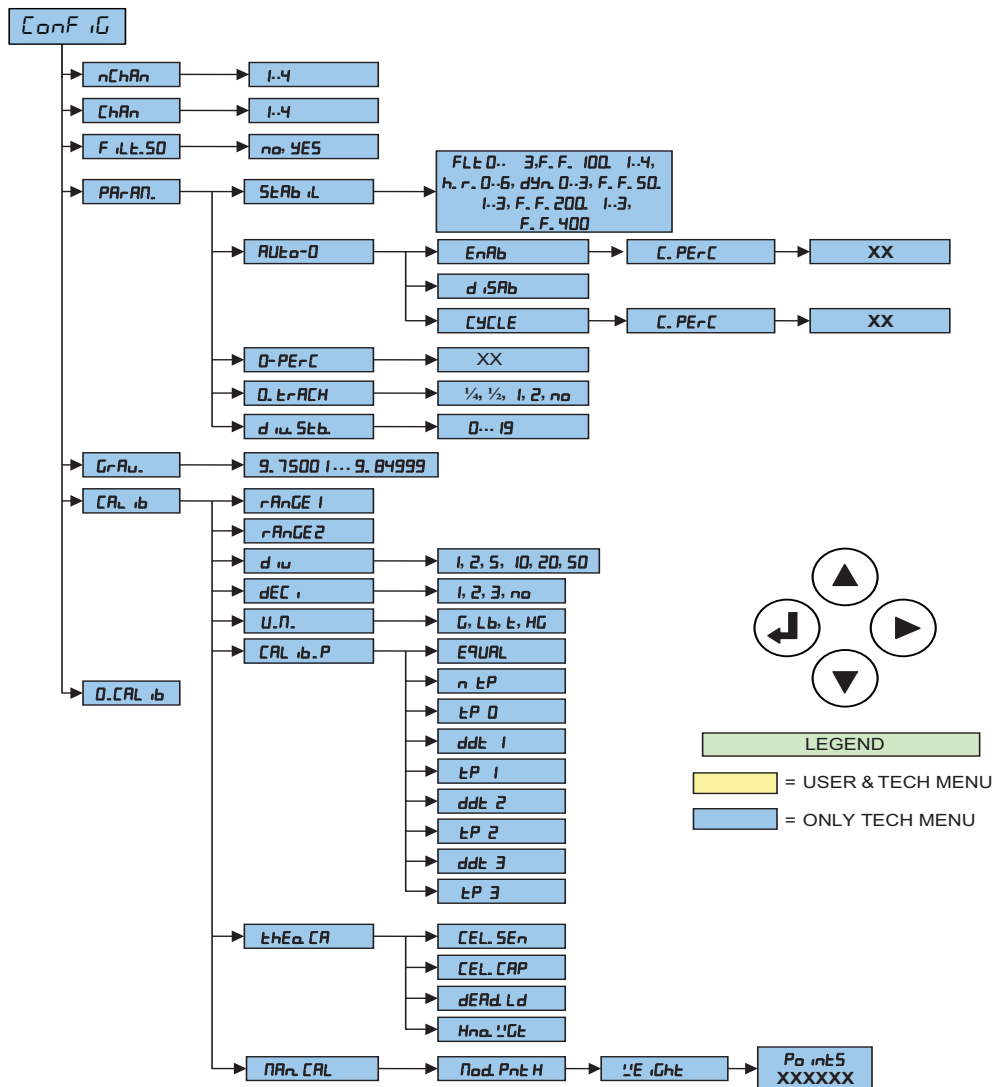
Figure 4-5. Configuration Menu

Parameter	Settings	Description
ChAn	_Ch. 1_ _Ch. 2_ _Ch. 3_ _Ch. 4_	Selection of active channel; 1 to 4 in scales with non dependent channels functioning mode (_ind. Ch/trAnSA_ **NOTE: The parameter is not displayed if _dEP. Ch_ is set in the _tYPE._ parameter or in the event of a single channel application, _SEtUP→ConF iG→ nChAn._**
F iLt. 50	**no** = disable yes = enable	Enable or disable the 50Hz filter
PArAA	Metrologic parameters	

	StAb iL	Select and set the type and degree of filtering
		  FLt 0 - 3 – Filter for simple weighing
		  _F. F. 100. 1 - 4_ – Filter at 100 Hz
		  _h. r. 0 - 6_ – Filter for high resolution
		  dYn. 0 - 3 – Filter for crane scale
		  _F. F. 50. 1 - 3_ – Filter at 50 Hz
		  _F. F. 200. 1 - 3_ – Filter at 200 Hz
		  _F. F. 400_ – Filter for serial conversion/transmission at 400Hz
		  CUStoA – Customizable filter for manufacturer use
		
		NOTE: The _F. F. 200. 1 - 3_ and _F. F. 400_ filters cannot be used in the _dEP. Ch_ 2, 3 and 4 channel functioning modes.

	AUto-0	Automatic acquisition of the gross zero at startup (up to ± 10% of capacity)
		  EnAb – Enabled on scale 1
		  d iSAb – Disabled
		  CYCLE – Executed cyclically on all the present scales. This parameter is not visible if there is only one scale
		
		NOTE: If auto zero is enabled, _0. PErC_ displays and a value between 1 and 50 as a percentage of the capacity of the auto zero must be set.

	0-PErc	Zero capacity – This menu allows to set (0 to 50%) of capacity that can be zeroed by pressing ▼ ; Entering 0% disables the ▼ key

	0. trACH	Zero tracking – This menu allows setting the zero tracking (compensation parameter of the scale's thermal drift); the set value corresponds to the number of divisions reset in 1 second
		  _tr. 1⁄2_ – ± half division
		  _tr. 1⁄4_ – ± one fourth of a division
		  _tr. 1_ – ± one division
		  _tr. 2_ – ± two divisions
		  _tr. no_ – tracking disabled

	d iv. Stb	Divisions by stability – Enter the number of divisions by which the instrument detects the weight stability; the higher the number of divisions the less sensitivity and stability is more easily detected; Settable values are 0 (weight always stable) to 99
GrAv.	9,75001-9,84999 default: 9,80655	Gravity acceleration – select the acceleration value of calibration and of use of the instrument; Manual entry of the g value: the gravitational acceleration value may be manually entered; The minimum decimal value is 9.75001m/s^2; any decimal number that is not between 9.75001 and 9.84999 m/s^2 (inclusive), is incorrect
CAL ib	- -	Scale calibration – See Section 5.0 on page 44
0. CAL ib	- -	Zero calibration – See Section 5.0 on page 44

Table 4-8. Config Menu Parameters and Settings

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4.3   Output Functions

The instrument is fitted with two opto-isolator photocoupler inputs and two Photo MOSFET outputs. See electric specifications in Section 2.6 on page 10.

In the setup ɒUʈPUʈ menu (Figure 4-6) the functioning mode of each of the outputs is set:

- the functioning mode (FUnɔ)
    - none
    - setpoint on the gross weight, net weight or pieces
    - gross weight at zero or net weight at zero
    - weight instability
    - totalization
    - setpoint on pieces total
    - error indication
    - Key presses
- the normal status (ɒPEn, ɔʟɒ5Ed, nɒɾnɔ)
- the switching condition; direct or with weight stability (dɾɔʈ / 5ʈbʟ)
- active hysteresis; enabling and disabling setpoints or single setpoint (ɪ5ʈ. FF / ɪ5ʈ. ɒn)
- the sign of the configured setpoint (Pɒ5 ɪʈ/nEɔRʈ) for setpoint on net weight and setpoint on pieces
- the output enabling time (EnRb. ʈɳ)
- the delay time for enabling the output (dEʟRY)

> **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.*
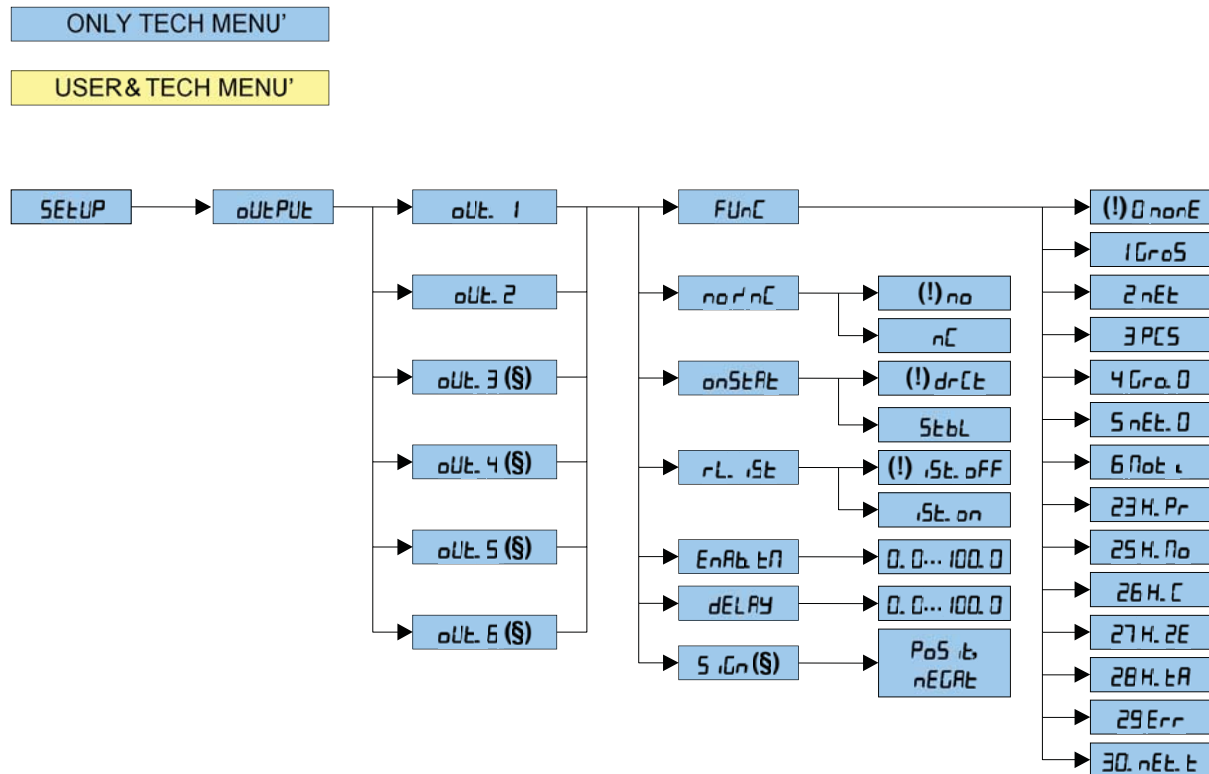
Figure 4-6. Output Menu

(*) The parameter displays only if the instrument is set as a primary instrument.

(**) The parameter displays only if the instrument is set as a secondary.

If the instrument is in a single range. The w1/sp1 and w2/sp2 LEDs turn on to indicate enabling of the corresponding output.

Parameter	Settings	Description
FUnC		Define the functionality of each output
	0 nonE	No function, the output is inactive
	1 GroS	Setpoint on the gross weight

Setpoint on the gross weight (continued)

Functioning with hysteresis (rL. iSt parameter set at iSt. on)

Enables output function on gross weight; Two setpoints for each output must be set; one which disables the output when the gross weight falls below it; and one which enables the output when the gross weight is equal or greater than it

1. Press and hold ◄┘ to enter the setpoint values for each configured output
2. Select InP. SEP. S. 1 on displays (output 1 – enabling setpoint)
3. Press ◄┘
4. Enter the weight value. See Section 4.1 on page 31 for key function
5. Press ◄┘ to confirm. S. 1 oFF displays (output 1 – disabling setpoint)
6. Press ◄┘
7. Enter the weight value
8. Press ◄┘ to confirm
9. Repeat steps 1 to 8 for all outputs
10. Slowly press C multiple times until SAvE? displays.

    -Press ◄┘ to confirm and store to the instrument memory
    -Press any other key to cancel and exit without saving

Functioning without hysteresis (rL. iSt parameter set at iSt. oFF)

Enables output function on gross weight; One setpoint for each output is set

1. Press and hold ◄┘ to enter the setpoint values for each configured output
2. InP. SEP. S. 1 on displays (output 1 – enabling setpoint)
3. Press ◄┘
4. Enter the weight value; See Section 4.1 on page 31 for key function
5. Press ◄┘ to confirm
6. Repeat steps 1 to 5 for all outputs
7. Slowly press C multiple times until SAvE? displays.

    -Press ◄┘ to confirm and store to the instrument memory
    -Press any other key to cancel and exit without saving

* *The configuration of setpoints cannot be accessed if all outputs are set in the nOnE functioning mode, or if the selected functioning mode does not require entry of a setpoint value.*

* *With the instrument off or in standby outputs are normally open.*

* *The disabling setpoint must be equal to or less than the enabling setpoint. If the disabling setpoint is set at a value greater than the enabling setpoint the instrument sets the setpoint to zero until a valid value is entered.*

* *If the enabling setpoint is set at a value lower than the disabling setpoint, the enabling setpoint is entered and accepted, however, the disabling setpoint will be set to zero.*

* *A 0 value is valid on both the enabling and disabling setpoints.*

* *A setpoint value remains active while modifying the setpoint until the new value is confirmed.*

* *The tare operations are active.*

* *These outputs are enabled by pressing a key (▼, ▲, ▶, C or ◄┘); if the key press time is greater than 2 seconds the output is disabled and remains disabled until the following pressing of the key.*

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

Channel	Unit of Measure	Decimals	setpoint Value
1	kg	3	1.000 kg
2	g	0	1000 g
3	kg	2	10.00 kg
4	g	1	100.0 g

Table 4-9. Output Menu

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Parameter	Settings	Description
FUnC	2 nEt	Setpoint on net weight. Setpoints are set in the same manner as gross weight; See1 GroS on page 42. In addition setpoints can be set and activated on a negative weight • Positive weight (5 iGn set at POS it) • Negative weight (5 iGn set at nEGAt)
	2 nGt	Setpoint on the net or gross weight. In this mode setpoints on a negative gross weight can be set. Accessing the submenu for entering the values of the setpoints differs depending on the functioning mode selected in the **F. NodE→FUnCt** step (Funct on page 33): • in the NAStr mode press ▶ twice in rapid succession • in the rEPE mode press and hold ◀┛ *NOTE: This type of output is possible in the NAStr mode with EHtEnd protocol (Funct on page 33), or in the rEPE mode with the PCNodE set to ". rEPE (CoM. PC on page 52).*
	3 PCS	Setpoint on the number of pieces, in the counting mode only. The setpoints can be set to positive or negative numbers
	4 Gro. 0	Setpoint when the gross weight is at zero
	5 nEt. o	Setpoint when the net weight is at zero
	5 nGt. o	Weight at zero; By selecting this functioning mode, the function of the outputs on the weight (net and gross) at 0 is enabled *NOTE: This type of output is possible in the NAStr mode with EHtEnd protocol (Funct on page 33), or in the rEPE mode with the PCNodE set to ". rEPE (CoM. PC on page 52).*
	6 not i	Instability. Function of outputs on an unstable weight is enabled *NOTE: This type of output is possible in the NAStr mode with EHtEnd protocol (Funct on page 33), or in the rEPE mode with the PCNodE set to ". rEPE or rEPEG (CoM. PC on page 52).*
	23 H. Pr	Print Key – function of the outputs is enabled when the ◀┛ is pressed
	25 H. Nod	Mode Key – function of the output s is enabled when ▶ is pressed
	26 H. c	C key – function of the outputs is enabled when ⊂ is pressed
	27 H. 2Er	Zero Key – function of the outputs is enabled when ▼ is pressed
	28 H. tAr	Tare Key – function of the outputs is enabled when ▲ is pressed
	29 Err	Error indication. Function of the output is enabled on an invalid weight (overload/underload), or without the signal coming from the cell (disconnected cell) **NOTES:** * **In the ind.Ch and trAnSN mode the output is enabled only when the condition takes place on the selected channel.** * **In the dEP. Ch mode the output is enabled when the condition takes place on any of the set channels.** * **In a secondary instrument the output is enabled when the repeater is not communicating with the weighing system; this occurs:** 　- *inside the setup mode of the secondary instrument, or when it displays ECo n* 　- *the repeater displays all the central segments in the rEPE mode*
	30. nEt. t	Setpoint on the net weight with tare activated; selecting this mode the function of the output on the net weight is activated if a tare is configured

Table 4-9. Output Menu

5.0   Calibration

The type of calibration used is dependent on the type of application chosen for the instrument: independent channels (ınd. Ch) and dependent channels for (dEP. Ch), which can be digitally equalized. See the parameter ŁYPE in Table 4-2 on page 33.

5.1   Procedure

Use this procedure to set the scale(s). To connect more than four cells, it is necessary to trim the cells.

1. Turn on the instrument and press ▲ while the firmware version displays. ŁYPE displays. Press ◂━┛.

2. Press ▼ or ▲ to scroll through channel types (ınd. Ch, ŁrAAnSN, dEP. Ch).

3. Press ◂━┛ when the desired channel type is displayed to select it. FNodE displays.

4. Press ▼ until SEŁUP displays.

5. Press ◂━┛. ConF ıG displays.

6. Press ◂━┛. nCh displays.

7. Press ◂━┛ and then press ▼ or ▲ to set the number of channels (Ch 1 - Ch4).

8. Press ◂━┛ to confirm. F ıLŁ. 5O displays.

9. Press ▼ or ▲ until CAL ıb displays.

10. Press ◂━┛. dEC ı displays.

11. Press ◂━┛ and then press ▼ or ▲ to set the decimal (1. O, 1. OO, 1. OOO, 1OOOOO).

12. Press ◂━┛ to confirm. U. N displays.

13. Press ◂━┛ and then press ▼ or ▲ to set the weight units (Lb, Ł, Hg, G).

14. Press ◂━┛ to confirm. d ıu displays.

15. Press ◂━┛. and then pess ▼ or ▲ to set divisions (**1**, 2, 5, 10, 20, 50).

16. Press ◂━┛ to confirm. rAnGE 1 displays.

17. Press ◂━┛. The rightmost digit flashes.

18. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the total capacity of the scale or the first range in case of multi-range functioning.

19. Press ◂━┛ to confirm. rAnGE2 displays.

20. Press ◂━┛ and then press ▶ to select the digit to be modified and ▼ or ▲ to set the second range or set to all zeros, if only one range.

21. Press ◂━┛ to confirm. CAL ıb. P displays.

22. Press C until the instrument displays SAuE?.

23. Press ◂━┛ to confirm. StorE displays momentarily and the instrument reboots.

📝 **Note** | *Perform this procedure for each connected channel.*

5.2 Calibration Single Channel (Known Weight)

Use this procedure to calibrate a scale in the ınd. Ch, dEP. Ch or trAAnSN functioning mode and with a known calibration weight.

1. Press C to turn the instrument on and press ▶ while the firmware version displays. tYPE displays.

2. Press ▼ or ▲ until ZEro displays.

3. Ensure all weight is off the scale then press ◀┘.

4. Wait until UEıGht displays. Press ◀┘.

5. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the weight used for calibration.

6. Place calibration weight on the scale. Press ◀┘.

7. Wait until AdC. NUU displays.

8. Remove the weight from the scale.

9. Press C . SAuEP displays.

10. Press ◀┘ to confirm. StorE displays momentarily and the instrument reboots.

5.3 Calibration Multi Channel (Known Weight)

Use this procedure to calibrate a scale in the ınd. Ch, dEP. Ch or trAAnSN functioning mode and with a known calibration weight.

1. Press C to turn the instrument on and press ▶ while the firmware version displays. tYPE displays.

2. Press ▼ or ▲ until nChAn displays.

3. Press ◀┘ and then press ▼ or ▲ to set the number of channels (Ch1 - Ch4).

4. Press ◀┘ to confirm. d ıu. dEC displays.

5. Press ▼ or ▲ until ZEro displays.

6. Ensure all weight is off the scale then press ◀┘.

7. Wait until UEıGht displays then press ◀┘.

8. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the weight used for calibration.

9. Place calibration weight on the scale and then press ◀┘.

10. Wait until AdC. NUU displays.

11. Remove the weight from the scale.

12. Press C . SAuEP displays.

13. Press ◀┘ to confirm. StorE displays momentarily and the instrument reboots.

5.4 Calibration With Linearization Points

5.4.1 Dependent Channels

Use this procedure to calibrate a scale in the dEP. Ch mode with linearization points.

1. Press C to turn the instrument on and press ▲ while the firmware version displays. tYPE displays.

2. Press ▼ or ▲ until SEtUP displays.

3. Press ◀┘. ConF ıG displays.

4. Press ◀┘. nChAAn displays.

5. Press ▼ or ▲ until CAL ıb displays.

6. Press ◀┘. dEC ı displays.

7. Press ▼ or ▲ until *CAL ib. P* displays.

8. Press ▼ or ▲ until *n tP* displays.

9. Press ◄┘ and then press ▼ or ▲ to set the number of calibration points (*n I - n3*).

10. Press ◄┘ to confirm. *tP 0* displays.

11. Ensure all weight is off the scale and then press ◄┘.

12. Wait until *ddt I* is displayed.

13. Press ◄┘ and then press ► to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the weight of the first point.

14. Press ◄┘. *tP I (tP2, tP3)* displays.

15. Place the calibration weight on the scale and then press ◄┘. *EQUAL* displays when all points are complete.

📝 **Note** *The unit advances to (dd2, dd3) if using multiple points. Repeat steps 14 to 15 for each point.*

16. Remove the weight from the scale.

17. Press ⊂ until the instrument displays *SAuEP*.

18. Press ◄┘ to confirm. *StorE* displays momentarily and the instrument reboots.

5.4.2   Independent Channels

Use this procedure to calibrate a scale in the *nd. Ch* or *trAAn5N* functioning mode with linearization points.

1. Press ⊂ to turn the instrument on and press ▲ while the firmware version displays. *tYPE* displays.

2. Press ▼ or ▲ until *SEtUP* displays.

3. Press ◄┘. *ConF iG* displays.

4. Press ◄┘ and then press ▼ or ▲ to set the channel to calibrate (*Ch I - Ch4*).

5. Press ◄┘ to confirm. *F iLt. 50* displays.

6. Press ▼ or ▲ until *CAL ib* displays.

7. Press ◄┘. *dEC i* displays.

8. Press ▼ or ▲ until *CAL ib. P* displays and then press ◄┘.

9. Press ▼ or ▲ until *n tP* displays.

10. Press ◄┘. *n I* displays.

11. Press ▼ or ▲ to set the number of calibration points (1-3).

12. Press ◄┘ to confirm. *tP 0* displays.

13. Ensure all weight is off the scale then press ◄┘.

14. Wait until *ddt I* is displayed then press ◄┘.

15. Press ► to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the weight of the first point.

16. Press ◄┘. *tP I (tP2, tP3)* displays.

17. Place the calibration weight on the scale and then press ◄┘. *ntP* displays when all points are complete.

📝 **Note** *The unit advances to (ddt2, ddt3) if using multiple points. Repeat steps 15 to 17 for each point.*

18. Remove the weight from the scale.

19. Press ⊂ until the instrument displays *SAuEP*.

20. Press ◄┘ to confirm. *StorE* displays momentarily and the instrument reboots.

5.5   Theoretical Calibration

A theoretical calibration can be used if a weight of known value is not available, or a manual calibration cannot be performed.

5.5.1   Independent Channels

Use this procedure to perform a theoretical calibration on a scale in the *ind. Ch* functioning mode

1. Turn on the instrument and press ▲ while the firmware version displays. *tYPE* displays.

2. Press ◄┘ and the press ▼ or ▲ until *ind. Ch* displays.

3. Press ◄┘. *F. NodE* displays.

4. Press ▼ or ▲ until *SEtUP* displays.

5. Press ◄┘. *ConF iG* displays.

6. Press ◄┘. *nChAn* displays.

7. Press ◄┘ and then press ▼ or ▲ to set the number of connected channels (*ch1 - ch4*)

8. Press ◄┘ to confirm. *F iLt50* displays.

9. Press ▼ or ▲ until *CAL ib* displays.

10. Press ◄┘. *dEC i* displays.

11. Press ◄┘ and then press ▼ or ▲ to set the decimal (*1. 0*, *1. 00*, *1. 000*, *100000*).

12. Press ◄┘ to confirm. *U. N* displays.

13. Press ◄┘ and then press ▼ or ▲ to set the weight unit (*Lb, t, H9, G*).

14. Press ◄┘ to confirm. *d iu* displays.

15. Press ◄┘ and then press ▼ or ▲ to set the divisions (**1**, 2, 5, 10, 20, 50).

16. Press ◄┘ to confirm. *rAnGE 1* displays.

17. Press ◄┘ . The rightmost digit flashes.

18. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the total capacity of the scale or the first range in case of multi-range functioning.

19. Press ◄┘ to confirm. *rAnGE2* displays.

20. Press ◄┘ and then press ▶ to select the digit to be modified and ▼ or ▲ to set the second range or set to all zeros, if only one range.

21. Press ◄┘ to confirm. *CAL ib. P* displays.

22. Press ▼ or ▲ until *thEo. CA* displays.

23. Press ◄┘ to confirm. *CEL. SEn* displays.

24. Press ◄┘ and then press ▶ to select the digit to be modified and ▼ or ▲ to set cell sensitivity.

25. Press ◄┘ to confirm. *CEL. CAP* displays.

26. Press ◄┘ and then press ▶ to select the digit to be modified and ▼ or ▲ to set cell capacity.

27. Press ◄┘ to confirm. *dEAd. Ld* displays.

28. Press ◄┘ and then press ▶ to select the digit to be modified and ▼ or ▲ to set the dead load. If unknown, enter all zeros.

> 📝 **Note**   **Cell Sensitivity - if several load cells are connected through a junction box enter the average sensitivity value of the cells.*
>
> **Cell Capacity - if several load cells are connected through a junction box, enter the sum of the load cells.*
>
> **By setting the value to zero, the dead load is acquired.*

29. *Repeat this procedure for each connected scale.*

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30. Press ⏎ to confirm. *Hno. UGt* displays.

31. Press C until the instrument displays *SAuEP*.

32. Press ⏎ to confirm. *StorE* displays momentarily and the instrument reboots.

5.5.2 Dependent Channels

Use this procedure to perform a theoretical calibration on a scale in the *dEP. Ch* functioning mode

1. Turn on the instrument and press ▲ while the firmware version displays. *tYPE* displays.

2. Press ⏎ and then press ▼ or ▲ until *dEP. Ch* displays.

3. Press ⏎. *F. ModE* displays.

4. Press ▼ or ▲ until *SEtUP* displays.

5. Press ⏎. *ConF iG* displays.

6. Press ⏎. *nChAn* displays.

7. Press ⏎ and then press ▼ or ▲ to set the number of connected channels (*ch2 - ch4*)

8. press ⏎ to confirm. *F iLt50* displays.

9. Press ▼ or ▲ until *CAL ib* displays.

10. Press ⏎. *dEC i* displays.

11. Press ⏎ and then press ▼ or ▲ to set the decimal (*1. 0*, *1. 00*, *1. 000*, *100000*).

12. Press ⏎ to confirm. *U. M* displays.

13. Press ⏎ and then press ▼ or ▲ to set the weight unit (*Lb*, *t*, *H9*, *G*).

14. Press ⏎ to confirm. *d iu* displays.

15. Press ⏎ and then press ▼ or ▲ to set divisions (**1**, 2, 5, 10, 20, 50).

16. Press ⏎ to confirm. *rAnGE 1* displays.

17. Press ⏎. The rightmost digit flashes.

18. Press ▶ to select the digit to be modified and ▼ or ▲ to decrease or increase the digit to set the total capacity of the scale or the first range in case of multi-range functioning.

19. Press ⏎ to confirm. *rAnGE2* displays.

20. Press ⏎ and then press ▶ to select the digit to be modified and ▼ or ▲ to set the second range or set to all zeros, if only one range.

21. Press ⏎ to confirm. *CAL ib. P* displays.

22. Press ▼ or ▲ until *thEo. CA* displays.

23. Press ⏎ to confirm. *CEL. SEn* displays.

24. Press ⏎ and then press ▶ to select the digit to be modified and ▼ or ▲ to set cell sensitivity.

25. Press ⏎ to confirm. *CEL. CAP* displays.

26. Press ⏎ and then press ▶ to select the digit to be modified and ▼ or ▲ to set cell capacity.

27. Press ⏎ to confirm. *dEAd. Ld* displays.

28. Press ⏎ and then press ▶ to select the digit to be modified and ▼ or ▲ to set the dead load. If unknown, enter all zeros.

> 📝 **Note** **Cell Sensitivity - if several load cells are connected through a junction box enter the average sensitivity value of the cells.*
>
> **Cell Capacity - if several load cells are connected through a junction box, enter the sum of the load cells.*
>
> **By setting the value to zero, the dead load is acquired.*

29. *Repeat this procedure for each connected scale.*

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30. Press ⏎ to confirm. *Hno. UGt* displays.

31. Press C until the instrument displays *SAuE?*.

32. Press ⏎ to confirm. *StorE* displays momentarily and the instrument reboots.

5.6   Gravity Setting

Use this procedure to correct the weight error caused by a different gravitational value between the calibration zone and the zone of use.

1. Turn on the instrument and press ▲ while the firmware version displays. *F. NodE* displays.

2. Press ▼ or ▲ until *SEtUP* displays. Press ⏎ to enter the menu.

3. Press ▼ or ▲ until *ConF iG* displays. Press ⏎ to enter the menu.

4. Press ▼ or ▲ until *GrAu* displays. Press ⏎ to enter the menu.

5. Set the gravity acceleration value for the **CALIBRATION ZONE.**

6. Perform and save a calibration. See Section 5.1 on page 44.

7. Turn off the instrument.

8. Turn on the instrument and press ▲ while the firmware version displays. *tYPE* displays.

9. Press ▼ or ▲ until *SEtUP* displays and then press ⏎.

10. Press ▼ or ▲ until *ConF iG* displays and then press ⏎.

11. Press ▼ or ▲ until *GrAu* displays and then press ⏎.

12. Set the gravity acceleration value for the **ZONE OF USER.**

13. Press C until *SAuE?* displays.

   • Press ⏎ to confirm and return to the weigh mode.
   • Press any other key to cancel and exit without saving

The weight error caused by a different gravitational value between the calibration zone and the zone of use is automatically corrected.

Press and hold ▼ when turning on the instrument. The g value relative to the gravitation zone of the user displays for a few seconds, after the name and the installed software version.

Listed are links to websites used to determine local latitude and altitude. Please note these website address are provided for reference only and may change.

National Geophysical Data Center: www.ngdc.noaa.gov

Measurement Canada: www.ic.gc.ca

Map Coordinates: www.mapcoordinates.net/

Once local latitude and altitude have been determined, use the following link to calculate local gravity
http://www.sensorsone.com/local-gravity-calculator/

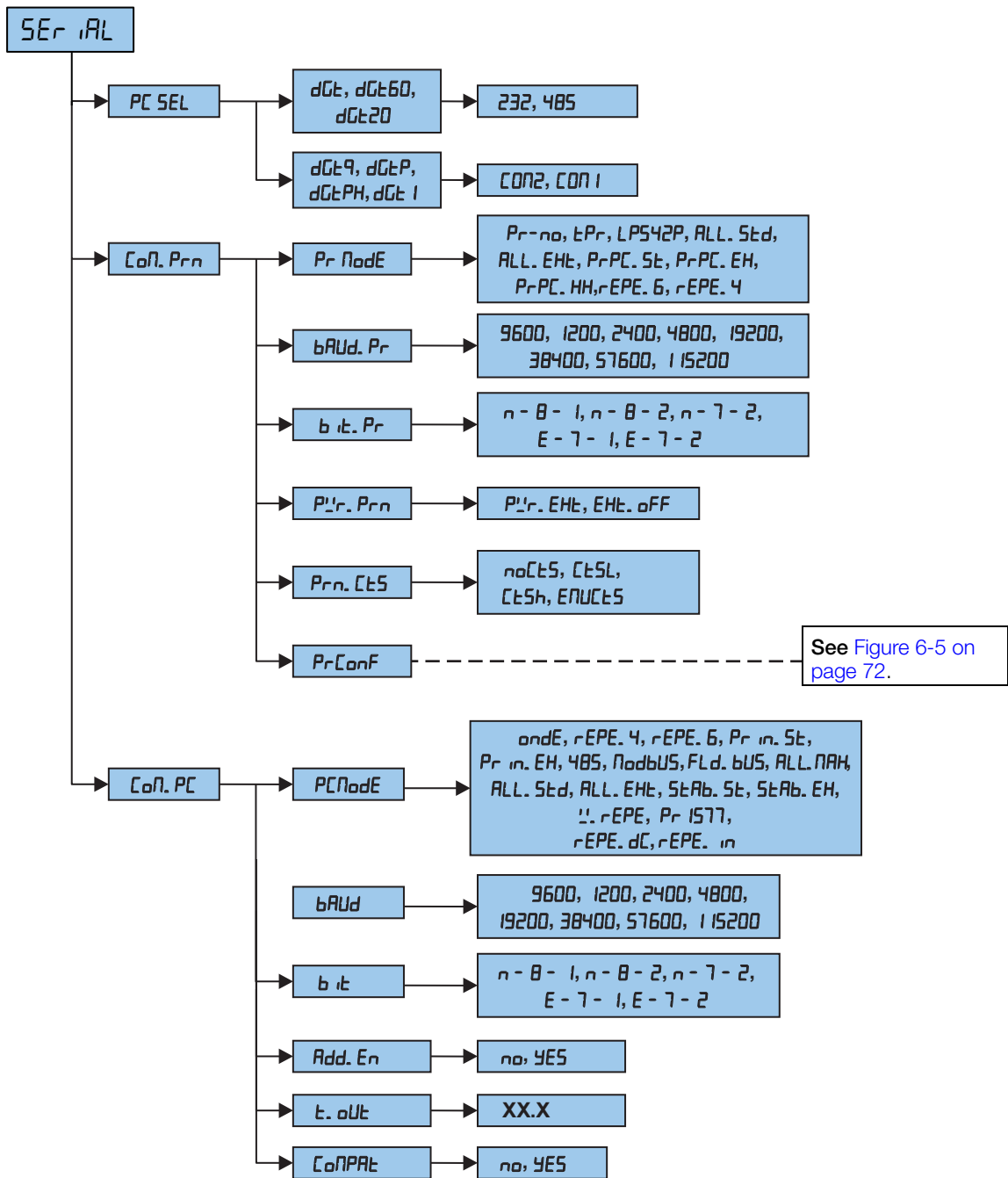| IMPORTANT	*The gravity correction function has not been evaluated by an approvals agency, therefore it is up to the authorized scale dealer to ensure the device is accurate at the intended point of use.*

6.0 Communications

6.1 Serial Menu


```
                    ┌─────────┐
                    │ 5Er iAL │
                    └────┬────┘
                         │
      ┌──────────┐   ┌─────────────┐   ┌──────────┐
  ┌──▶│  PC 5EL  │──▶│ dGt, dGt60, │──▶│ 232, 485 │
  │   └──────────┘   │    dGt20    │   └──────────┘
  │                  └─────────────┘
  │                  ┌─────────────┐   ┌──────────┐
  │              ┌──▶│ dGt9, dGtP, │──▶│ CON2,CON1│
  │              │   │  dGtPH,dGt 1│   └──────────┘
  │              │   └─────────────┘
```

PC SEL
- dGt, dGt60, dGt20 → 232, 485
- dGt9, dGtP, dGtPH, dGt 1 → CON2, CON1

CoN. Prn
- Pr NodE → Pr-no, tPr, LP542P, ALL. Std, ALL. EHt, PrPC. St, PrPC. EH, PrPC. HH, rEPE. 6, rEPE. 4
- bAUd. Pr → 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
- b it. Pr → n-8-1, n-8-2, n-7-2, E-7-1, E-7-2
- PUr. Prn → PUr. EHt, EHt. oFF
- Prn. CtS → noCtS, CtSL, CtSh, ENUCtS
- PrConF → See Figure 6-5 on page 72.

CoN. PC
- PCNodE → ondE, rEPE. 4, rEPE. 6, Pr in. St, Pr in. EH, 485, NodbUS, FLd. bUS, ALL.NAH, ALL. Std, ALL. EHt, StAb. St, StAb. EH, U. rEPE, Pr 1577, rEPE. dC, rEPE. in
- bAUd → 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
- b it → n-8-1, n-8-2, n-7-2, E-7-1, E-7-2
- Add. En → no, YES
- t. oUt → XX.X
- CoNPAt → no, YES

Figure 6-1. Serial Menu

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Parameter	Settings	Description
PC SEL	Select the PC communication port	
	485	Communication between the instrument and the PC takes place through the RS-485 port and transmission of data to the printer through the RS-232 port
	232	Communication between the instrument and the PC takes place through the RS-232 port and transmission of data to the printer through the RS-485 port
CoM. Prn	Serial Format	
Pr. NodE	Transmission to serial printer	
	Pr- no	Transmission disabled
	tPr	Enables printing with ASCII compatible printer
	LP542P	Enables printing with the LP542S labeling printer
	ALL. Std	Continuous transmission with standard string
	ALL. EHt	Continuous transmission with extended string (or multi-scale string in the trAnSN mode)
	PrPC. St	Allows for transmission of the standard string by pressing ◀━┛. See Section 6.5.1 on page 63
	PrPC. EH	Allows for transmission of the extended string by pressing ◀━┛. See Section 6.5.2 on page 64
	PrPC. HH	Transmission of the weight string by pressing ◀━┛ (weight must be stable) *NOTE: if the horizontal or vertical totalizer mode is active, the transmission is carried out by pressing ▶.* *Standard and extended string transmission is confirmed by trAnSN on the display.*
	rEPE. 6	Transmission to a 6-digit remote display (optional equipment)
	rEPE. 4	Transmission to a 4-digit remote display (optional equipment)
NOTE: In the rEPE. 6 protocol, the serial output is automatically set at 4800, N-8-1 but can be configured differently. *In the multi-scale repeater functioning mode, the transmission modes are enabled on the printer port and the rEPE. 6 or rEPE. 4 transmission mode for the printer port.* *For the protocol and transmission mode specifications, see Section 6.3 on page 55.*		
bAUd. Pr	Set baud rate - selection of the data transmission speed (baud = bit/second); 1200-115200 (9600 default)	
	1200 2400 4800 **9600** 19200 38400 57600 115200	
b it. Pr	Set parity, word, stop bit.	
	n-8- 1 n-8-2 n-7-2 E-7- 1 E-7-2	
PUr. Prn	Manufacturer use only.	
	PUr. EHt EHt. OFF	
Prn. CtS	Manufacturer use only.	
	noCtS CtSL CtSh EMUCtS	
Pr. ConF	See Section 6.11 on page 71 for printout configuration *NOTE: The parameter displays only if tPr or LP542P has been selected in the Pr. NodE step and single scale repeater mode (rEPE) is not enabled in the secondary mode.*	

Table 6-2. Serial Menu Parameters and Settings

Parameter	Settings	Description
CoN. PC	PC Serial	
PCNodE		Transmission on the PC Serial – In the secondary mode, this step is not displayed if the *NASEr* functioning mode has been set in the *F.NodE→FUnCE* step; if the *rEPE* mode has been set, only the *rEPE.dC*, *Pr 1577*, *rEPE.6*, *U.rEPE* and *A.rEPE* parameters are displayed.
	ondE	Transmission on external command (PC or PLC)
	rEPE.4	Transmission to 4 digit remote display
	rEPE.6	Transmission to 6 digit remote display / Reception of the "rEPE.6" string
	Pr in.SE	Transmission of standard string by pressing ◄┘. *ErAnSN* displays to confirm transmission
	Pr in.EH	Transmission of extended string by pressing ◄┘. *ErAnSN* displays to confirm transmission **NOTE: If the TOTALIZER mode (horizontal or vertical) is active, the transmission is carried out by pressing ►**
	485	Transmission with RS-485 protocol; selection of this parameter *Ad485* displays momentarily, enter the address of the unit (0 to 98), then prompts to enter baud rate and bit display
	NodbUS	Transmission with the MODBUS protocol; selection of this parameter *Nod.EYP* displays, select *ASc 11.rEU*; then *Nod.Add* displays, enter the address of the unit (0 to 98); then prompts to enter baud rate and bit display
	FLdbUS	Fieldbus type; selections are *ProF ib*, *EEh iP*, *FroF in*, *EEhcAE*, *CAnoPn*, *dEunEE*
	ALL.SEd	Continuous transmission of standard string; selection of this parameter prompts to enter baud rate and bit display
	ALL.EHE	Continuous transmission of extended string (or multi-scale string in the *ErAnSN* mode); selection of this parameter prompts to enter baud rate and bit display
	ALL.NAH	Selection of this parameter prompts to enter baud rate and bit display
	SEAb.SE	Transmission of each weigh with standard string: selection of this parameter prompts to enter baud rate and bit display
	SEAb.EH	Transmission of each weigh with extended string (or multi-scale string in the *ErAnSN* mode); selection of this parameter prompts to enter baud rate and bit display
	rEPE.dC	Transmission protocol that sends only a portion of the weight, for example only the tare weight by setting different parameters: this parameter displays only if *rEPE* is selected in the secondary mode
	rEPE.1n	Transmission protocol that allows management of the received string without setting any parameters: the parameter displays only if *rEPE* functioning mode is selected in the secondary mode
	A.rEPE	Transmission protocol that allows an ASCII string to be received; both numbers and letters can be displayed; the parameter displays only if *rEPE* functioning mode is selected in the secondary mode
	U.rEPE	Transmission protocol that allows for reception of a string from a remote scale. The parameter displays only if the *rEPE* functioning mode is selected in the secondary mode. When this protocol is selected, the following parameters for the management of the remote scale must also be set: • *EErN* – Remote scale terminator: Enter the decimal ASCII code (up to 2 characters) of the terminator characters of the weight string (e.g. 13 for CR or 10 for LF). • *UE i.PoS* – Remote scale weight position: Set the position of the first character of the weight value, in the string transmitted by the remote scale. The first character on the left of the string has the 00 position. A possible character sign is also part of the weight value. For example, if the received string is: |Received String|s|p|p|p|p|p|p|p|u|u|CR|LF| |Character Position|00|01|02|03|04|05|06|07|08|09|10|11| In this example, set the 00 value; It is possible to set up to 2 characters (from 00 to 39); Default 00 • *UE i.LEn* – Length of the weight data string: Enter the number of digits which make up the weight value (01 to 39); include the sign and the weight digits. For example, if the transmitted string spppppppuu + CR + LF, in which s is the weight sign, ppppppp is the weight value, uu is the unit of measure, the length of the weight string has a value of 08. Default is 01

Table 6-2. Serial Menu Parameters and Settings (Continued)

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Parameter	Settings	Description
PCⁿodE (cont)	⁙. rEPE (cont)	Str. LEn – String length: Enter the number of digits (00 to 39) which make up the entire string transmitted from the serial line scale, less the terminator character. For example, if the transmitted string is sppppppppuu + CR + LF, in which s is the weight sign, pppppp is the weight value, uu is the unit of measure, set the value at 11. Default is 00.
		dEC ı – Remote scale decimals: Enter the number of scale's decimal places (0 to 5). Default 0
		Un ıt – Remote scale unit of measure: Enter the scale's unit of measure (Ɠ, Lb, t, Hɠ)
		StАb – Stability: Enter the number of consecutive readings necessary to obtain stability (00 to 20). Default is 00.
		NOTE: If set at 00 the parameter is disabled.
		StА. ınt – Weight difference per stability: Enter the maximum value (00 to 20) of the difference between consecutive weight readings. If the weight difference between the readings is equal to or less than the set value, the weight is considered stable and the stability LED is off. If not, the weight is considered unstable and the stability LED is on. Default is 00.
		trShLd – Minimum and maximum threshold: Enter the minimum and maximum threshold for repeater mode. After entering the parameter tr.Lo displays. Enter the minimum value and con-firm by pressing ◀━┛. tr.hı displays and the maximum value can be entered. Confirm by pressing ◀━┛. When the weight received from remote scale is less than minimum value, the bot-tom segments of the LED display; when the weight received from remote scale is more than max-imum value, the top segments of the LED display.
		NOTE: MAX = 999999 MIN = -99999 Default tr.Lo= -99999; tr.hi = 999999
		Аdu. CEd – Advanced: Set the individual bits of the receipt string for sign, stability, zero and over/under load management. • ⁙. nEt – The string position that indicates if the weight is net • nEɠ.SІ Ɠ – The string position that indicates if the weight is positive or negative • StАbІ L – The string position that indicates if the weight is stable • ⁙. 2ErO – The string position that indicates if the weight is within ± ¼ of division with respect to 0 (ZERO LED on) • Und. Our – The string position that indicates if the weight is over/under load In the above parameters, the following must also be set: • ⁿАSH – Byte to extract the data, relative to step indicated in Аdu. CEd (from 0 to 255). *NOTE: If set at 0 the parameter is not active.* • n. bУtE – Indicates the character where the data will be extracted • uАLUE – Character value that defines what was selected in Аdu. CEd step; If the character of the string is a letter, the relative ASCII code value must be inserted *NOTE:* Und. Our – If this parameter is set, the tr.Lo and tr.hı parameters are ignored and the scale is considered to be in underload if the weight is less or equal to zero; otherwise it is considered to be in overload. StАb – If this parameter is set, StАbІ L settings, in the advanced submenu, are ignored. ⁙. 2ErO – If this parameter is not set (MASK = 0) the scale is considered to be in the zero range when the weight is equal to zero.
		Pr1577 – Reception of the Pr1577 string; This parameter displays only if the rEPE functioning mode is selected in the secondary mode; Default ondE
		NOTE: * *If a functioning mode other than rEPE is selected, selecting the rEPE6 or rEPE4 protocol, the serial output is automatically set at 4800, N-8-1.* * *Selecting the Pr1577 protocol, then the serial output is automatically set at 4800, E-7-1, but can be modified.* * *For transmission modes and protocol specifications, see the Section 6.3 on page 55.*
bАUd. Pr		Set baud rate - selection of the data transmission speed (baud = bit/second)
		1200 2400 4800 **9600** 19200 38400 57600 115200
bıt. Pr		Set parity, word, stop bit.
		n-8-1 n-8-2 n-7-2 E-7-1 E-7-2

Table 6-2. Serial Menu Parameters and Settings (Continued)

Parameter	Settings	Description
Add.En		RS-485 Serial Address – In the *rEPE* functioning mode it is possible to enable the RS-485 protocol and link its address to the instrument; the instrument then repeats the weight if the address in the received string is the same as set here
		NOTE: The parameter displays only in the secondary mode, when *rEPE* is selected as the functioning mode and the *PCNodE* is set to *rEPE. 6, Pr 1577* or *rEPE. dC.*
	no	RS-485 protocol is disabled
	YES	RS-485 protocol is enabled; prompt to enter the RS-485 address displays, *Adr-HH* in which *HH* is the RS-485 address; enter the RS-485 address (00 to 99 in repeater mode);
		Press the ▲ or ▼ to increases or decrease the digit and ▶ select the digit to be modified; when complete, confirm the address by pressing ◀┙
t. oUt		Communication time out – When in the *rEPE* functioning mode the communication time out can be set; Once the alloted time has passed with no communication, the center segments of the LED display. Default 01.5 sec
		NOTE: MAX=20.0 sec; MIN=00.5 sec ***This parameter displays when *rEPE* mode is selected in the secondary instrument.***

Table 6-2. Serial Menu Parameters and Settings (Continued)

6.2 Serial Outputs

The instrument has two bidirectional serial outputs which are ASCII code compatible with most printers, remote displays, PCs and other devices. See for connection information.

Transmission of data through the serial ports can be configured in the parameters *PC SEL*, *PCNodE* and *Pr. NodE* in the setup mode. See .

6.2.1 COM1 Serial Port

The COM1 serial port is bi-directional (half duplex) and uses RS-485 for transmitting data. It is mainly used to connect PCs, PLCs and additional remote displays. The transmission speed may be selected in the setup as: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 baud (bit/sec).

Terminal Position	Indicator Serial Line
TX+/RX+	22A(+)
TX-/RX	23B(-)

Table 6-3. RS-485 Connections

On the same RS-485 line, it is possible to connect up to 32 devices (instruments, RS-485/RS-232 signal converter).

Considerations when making RS-485 connections:

- Use an **STP** (Shielded Twisted Pair) cable to make the connection (twisted and shielded pair(s) with single shielding for each pair through aluminum band and total shielding through external shielding)
- Using 2x24 AWG duplex cable with external shielding, the RS-485 cable should not exceed 3937' (1200 m). See .
- With very long cables, cable capacity becomes a dominant factor in power consumption (normally near 50pF/m) and this increases when speed is increased; i.e. the maximum distance can't be covered with the maximum possible speed.

Baud Rate (bit/sec)	Total Cable Capacity (pF)
1200	400000
2400	200000
4800	100000
9600	50000
19200	25000
38400	12000
57600	8000
115200	4000

Table 6-4. Cable Capacity

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- Verify single point grounding on all equipment. See Section 2.4 on page 8.
- Use correct single point grounding to avoid forming ground loops.
- On the RS-485 network, two termination resistances equal to the impedance of the cable (typically 120 Ω) are normally connected on the two devices at the ends of the cable. The terminal resistance is not supplied with the ports of the instrument.
- The difference of potential between the A(+) and B(-) terminals in rest conditions must be of at least 0.2 V. To create a resistive divider which maintains this difference of potential also when all the transmitters are disabled, inert in the RS-485 port of the instrument where there are the termination resistances, the polarization or fail-safe resistance. The value of these resistances is between 390 Ω and 2.2K Ω.
- Consult the device product data sheet for all connected devices to ensure consistency in the markings.

6.2.2 COM2 Serial Port

The COM2 serial port is bi-directional (full duplex) and uses an RS-232 for transmitting data. It is mainly used to connect printers, PCs, and PLCs. The transmission speed may be selected in the setup as: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 baud.

6.3 Serial Port Transmission Modes

6.3.1 PC Port Selection

It's possible to select the serial port to be used as a PC port and therefore, invert the serial ports.

This setting is made in the *SETUP→SErIAL→PC SEL* step.

Select the RS-485 serial port as the PC PORT and the RS-232 serial port sets as the PRN PORT.

Select the RS-232 serial port as the PC PORT and the RS-485 port sets as the PRN PORT.

6.3.2 PC PORT

This section described the selectable serial weigh transmission modes of the PC serial port.
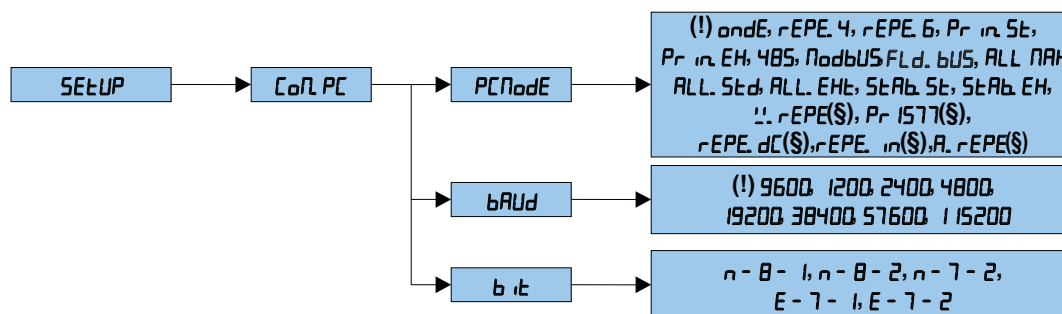

Figure 6-2. PC Port Menu

| Parameter	Description
ondE	Transmission requested from an external device – The instrument waits for a command before transmitting data; See Section 6.4 on page 57 With baud rate at 9600, up to 10-11 requests per second are possible through the READ command; with baud rate at 115200, up to16 requests per second are possible through the READ command; The transmission works with weight <, =, > 0
rEPE.4 *rEPE.6*	For manufacturer use only; Selecting a functioning mode other than *rEPE* in **F.ModE→FUnC**, the weight display occurs both in the instrument, as well as in a weight repeater of 4 or 6 digits.

Table 6-5. PC Port Parameters

Parameter	Description
Pr in.Std Pr inEH	Transmission when ⏎ is pressed – The instrument communicates the weight data through the serial port when ⏎ is pressed • Transmission takes place if the weight is stable and the net weight is > 20 divisions; Re-enabling transmission depends on how the rEACE is set in the setup mode (passing by zero of the NET weight, weight instability or always) • In the totalizer mode, transmission on the PC port takes place by pressing ▶. • Data is transmitted using the standard string Pr in. St or the extended string (multi-scale string in the trAnSN mode (Pr in. EH); see Section 6.5 on page 63 for description of the 3 strings. • The transmission is confirmed when trAnSN displays
485	Transmission in RS-485 serial mode – The protocol is the same as the transmission with request; the instrument responds only if its code is the one requested (before the request the machine code must be input, I.E. 00READ<CRLF>); If a broadcast address command (99) is received no answer is given; If the command is correct it is executed ***NOTE: In a primary/secondary connection, connect the primary instrument to the PC and configure*** ALL.Std ***parameter*** SEtUP→SEr iAL→Con. PC→PCNodE
ALL.Std ALL.EHt ALL.NAH	Continuous transmission – used for interfacing to the PC, remote displays and other devices which request a constant updating of the data independently from the weight stability; the instrument transmits data with each converter read operation: • Baud rate at 9600 up to 10 transmissions per second are possible • Baud rate at 115200 up to 16 transmissions per second are possible for the PC port and up to 12 for the printer port The transmission works with weight <, =, > 0 The data is transmitted using the standard string (ALL. Std) or the extended string (or multi-scale string in the TRANSM mode) (ALL. EHt); see Section 6.5 on page 63 for a description of the three strings • The ALL NAH transmission protocol is recommended for applications where a high frequency of transmissions is requested. (up to 250TX/sec. with baud rate equal to 115200); the weight is transmitted in hexadecimal format (for example: 03E8= 1000g), without decimal point. ***NOTE: The data transmission frequency increases or decreases depending on the configured filter.*** ***To obtain 250TX/sec configure the filter F.F.400*** (SEtUP→ConF iG→PA-AN. →StAb iL)
StAb. St StAb. EH	Transmission on stability – Each time a weight on the scale becomes stable, a communication string is transmitted on the PC serial port. • The transmission takes place when the weight is stable and the net weight is greater than 10 divisions • Re-enabling the transmission depends on how rEACE has been set in the setup mode • The data is transmitted using the standard string StAb. St or the extended string (or multi-scale string in the TRANSM mode StAb. EH; see Section 6.5 on page 63 for a description of the 3 strings
rEPE	For manufacturer use only
rEPE. dc	For manufacturer use only
rEPE. in	For manufacturer use only
A. rEPE	For manufacturer use only
U. rEPE	For manufacturer use only
Pr 1577	For manufacturer use only

Table 6-5. PC Port Parameters (Continued)

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6.3.3 PRN PORT

This section describes the selectable serial weight transmission modes of the PRN serial port through the corresponding *Pr. ΠodE* parameter in the setup mode.

Parameter	Description
tPr *LP542*	Transmission of data to the printer by pressing ◄┘ on the instrument; The print command is inhibited if the weight is in motion and in all other circumstances in which the data is not valid

ALL. 5td
ALL. EHt
	Continuous transmission for interfacing to a PC, remote displays and other devices which request a constant updating of the data independently from the weight stability; The instrument transmits data with each converter read operation
	  • Baud rate at 9600 up to 10 transmissions per second
	  • Baud rate at 115200 up to 16 transmissions per second for the PC port and 12 for the printer port
	The transmission works with weight <, =, > 0
	The data is transmitted using the standard string (*ALL. 5td*) or the extended string (or multi-scale string in the *trAn5Π* mode) (*ALL. EHt*); See Section 6.5 on page 63 for a description of the strings
	
	NOTE: The data transmission frequency increases or decreases depending on the frequency of the configured filter.
	
	To obtain 250TX/sec configure the filter F.F.400 (5EtUP→ConF iG→PArAΠ. →5tAb iL)

Pr. PC. 5t *PrPC. EH*	Transmission when ◄┘ is pressed – The instrument communicates the weight data through the serial port when ◄┘ is pressed (except for in the totalizer mode press ►); Transmission takes place if the weight is stable and the net weight is > 20 divisions; Re-enabling the transmission depends on how *rEACt* is set in the setup mode (passing by zero of the net weight, weight instability or always) Data is transmitted using the standard string *Pr in. 5t* or the extended string (multi-scale string in the *trAn5Π* mode (*Pr in. EH*)); See Section 6.5 on page 63 for a description of the strings The transmission is confirmed when *trAn5Π* displays *NOTE: In the totalizer mode, transmission on the PC port takes place by pressing ►.*
rEPE. 4 *rEPE. 6*	For manufacturer use only; Selecting a functioning mode other than *rEPE* in **F. ΠodE→FUnC**, the weight display occurs both in the instrument, as well as in a weight repeater of 4 or 6 digits

Table 6-6. PRN Port Parameters

📝 Note *In the multi-scale repeater mode, only transmission modes to the printer and rEPE. 4 rEPE. 6 transmission mode are enabled for the printer port. Connection and software configuration of the serial outputs must be configured by technical personnel familiar with the processes of the end user.*

6.4   Serial Commands Format

Legend	
[CC] o <II>	Instrument code, e.g. 00 (only with RS-485 protocol)
<CR LF>	Carriage Return plus Line Feed (ASCII characters 13 and 10)
<ESC>	ASCII character ASCII 27
<STX>	ASCII character ASCII 02
B	Space character, ASCII 32

Table 6-7. Serial Command Legend

Serial Errors

The instrument transmits a response string or it transmits one of the following indications with each serial command received:

Status Response	Description
OK<CR LF>	Displays when a correct command is transmitted from the PC to the instrument; The OK does not imply that the instrument executes the zero
ERR01<CR LF>	Displays when a correct command is transmitted from the PC to the instrument, however the command is followed by inadvertent letters; For example READF, TARES
ERR02<CR LF>	Displayed when a correct command is transmitted from the PC to the instrument, but contains wrong data
ERR03<CR LF>	Displayed when a disallowed command is transmitted; The command may not be used in the selected functioning mode or the command reaches the instrument when the keyboard buffer is already occupied by another command
ERR04<CR LF>	Displayed when a nonexistent command is transmitted
NOTE: *The instrument does not transmit an indication with momentary commands; for example, those made up of only one letter and then the parameter.*	

Table 6-8. Serial Status Response

Version Reading Command

[CC]VER<CR LF>

Instrument response: [CC]VER,vvv,DGT1S**bbb**<CR LF>

In which:

- vvv is the firmware version
- **b** space character, ASCII decimal 32 character

Extended Weight Read Command

[CC]REXT<CR LF>

Instrument response in the V mode or in the $dEP.Ch$ mode: extended string. See Section 6.5.2 on page 64.

Instrument response in the $trAnSN$ mode: multi-scale string. See Section 6.5.3 on page 65.

> **Note** *If the instrument is in the $ind.Ch$ mode (scale with independent channels) or in the $dEP.Ch$ mode (scale with dependent channels and digitally equalized) the weight value is read relative to the active channel; to read the values of the other channels (if configured) switch to the desired channel. See Converter Channel Switching Command on page 60.*
>
> *If the instrument is in the $trAnSN$ mode (scale with independent channels) it is possible to read simultaneously the values for all the configured channels*

Extended Weight With Average Piece Weight (APW) Reading Command

[CC]REXTA<CR LF>

Instrument response in the $ind.Ch$ or in the $dEP.Ch$ mode: extended string (Section 6.5.2 on page 64).

Instrument response in the $trAnSN$ mode: multi-scale string (Section 6.5.3 on page 65).

> **Note** *If the instrument is in the $ind.Ch$ mode (scale with independent channels) or in the $dEP.Ch$ mode (scale with dependent channels and digitally equalized) the weight value is read relative to the active channel; to read the values of the other channels (if configured) switch to the desired channel. See Converter Channel Switching Command on page 60.*
>
> *If the instrument is in the $trAnSN$ mode (scale with independent channels) it is possible to read simultaneously the values for all the configured channels.*

If the instrument is in the $trAnSN$ mode (scale with independent channels) it is possible to read simultaneously the values for all the configured channels

Extended Weight Read Command With Date and Hour

[CC]REXD<CR LF>

Instrument response in the *ınd. Ch* or in the *dEP. Ch* mode: extended string (Section 6.5.2 on page 64).

Instrument response in the *trAnSn* mode: multi-scale string (Section 6.5.3 on page 65).

Weight Read Command

[CC]READ<CR LF>

Instrument response: standard string (Section 6.5.1 on page 63).

Weight Reading Command With Sensitivity Times 10

[CC]GR10<CR LF>

Instrument response: standard string (Section 6.5.1 on page 63).

Reading Command of MicroVolts Relative to the Weight

[CC]MVOL<CR LF>

Instrument response in *ınd. Ch.* mode: standard string (Section 6.5.1 on page 63).

Response of the instrument in *trAnSn* and *dEP. Ch* mode: multi-scale string (Section 6.5.3 on page 65).

> **Note** *If the instrument is in the ınd. Ch mode (scale with independent channels) or in the dEP. Ch mode (scale with dependent channels and digitally equalized) the weight value is read relative to the active channel; to read the values of the other channels (if configured) switch to the desired channel. See* Converter Channel Switching Command on page 60*.*
>
> *If the instrument is in the trAnSn mode (scale with independent channels) it is possible to read simultaneously the values for all the configured channels.*

Reading Command of Converter Points Relative to the Weight

[CC]RAZF<CR LF>

Instrument response in *ınd. Ch.* mode: standard string (Section 6.5.1 on page 63).

Response of the instrument in *trAnSn* and *dEP. Ch* mode: multi-scale string (Section 6.5.3 on page 65).

> **Note** *If the instrument is in the ınd. Ch mode (scale with independent channels) or in the dEP. Ch mode (scale with dependent channels and digitally equalized) the weight value is read relative to the active channel; to read the values of the other channels (if configured) switch to the desired channel. See* Converter Channel Switching Command on page 60*.*
>
> *If the instrument is in the trAnSn mode (scale with independent channels) it is possible to read simultaneously the values for all the configured channels.*

Tare Command

[CC]TARE<CR LF> or [CC]T<CR LF>

Instrument response: [CC]OK<CR LF> if the command has been received; the instrument's response does not mean necessarily that the instrument executes the tare.

Zero Command

[CC]ZERO<CR LF> or [CC]Z<CR LF>

Instrument response: [CC]OK<CR LF> if the command has been received; the instrument's response does not mean necessarily that the instrument executes the zero.

Clear Command

[CC]CLEAR<CR LF> or [CC]C<CR LF>

Instrument answer: [CC]OK<CR LF> if the command has been received, no answer for the on/off command; the instrument answer does not imply that the command is executed.

The command works also inside the setup mode.

Converter Channel Switching Command

[CC]CGCHN<CR LF>

Instrument answer: [CC]OK<CR LF> if the CGCH command has been received.

In which: N is the number of the channel on which to position the instrument

Test Command

[CC]ECHO<CR LF>

Instrument response: [CC]ECHO<CR LF>

Print Command

[CC]PRNT<CR LF> or [CC]P <CR LF>

Instrument answer: [CC]OK<CR LF> if the command has been received; no answer for the P command; the instrument's response does not mean necessarily that the instrument executes the printout.

Tare Insertion Command

[CC]TMANVVVVVV<CR LF> or [CC]WVVVVVV <CR LF>

In which: VVVVVV is the manual tare value with the decimal point, from 1 to 6 characters; the non significant zeros can be omitted.

Instrument answer: [CC]OK<CR LF> if the command has been received; no answer for the W command; the instrument's response does not mean necessarily that the instrument executes the tare.

Command for Viewing Temporary Message on the Display

[CC]DISPNNVVVVVV <CR LF>

In which:

- NN is the instrument display number, standard 00 (ASCII hex)
- V is the message:
  - if present it is shown on the NN display
  - if not present, the command interrupts the possible visualization enabled using a previous DISP command, restoring the visualization of the weight data.

> **Note** *If the display shown in the command is numeric (for example the standard display 00) and in the transmitted message there are two consecutive points, the message is stopped after the first of the two points. When the display is showing a message transmitted serially through the DISP command, the instrument does not display those messages usually shown in the scale status (ZERO, TARE, HOLD, etc.).*
>
> *Instrument response: [CC]OK<CR LF>*
>
> *The message remains for the time set through the DINT command*
>
> *The ASCII characters having the decimal code greater than 31 are accepted.*

Command for Setting Display Visualization Interval

[CC]DINTNNNN<CR LF>

In which: NNNN is the visualization interval (in milliseconds), expressed in ASCII hex character; for example, in order to set a visualization time of 2 seconds (2000 milliseconds, which converted into hex it becomes 07D0), the command becomes [CC]DINT07D0<CR><LF>.

By setting a time equal to zero, the message transmitted with the DISP command remains permanently shown on the display.

Instrument response: [CC]OK<CR LF>

PC Confirmation Command

[CC]PCOK<CR LF>

The instrument shows on the display the ⁻PⳐOH⁻ message for about 2 seconds.

Instrument response: [CC]OK<CR LF>.

Serial Command for Setting the APW (only for the counting operating mode)

[CC]SPMUvvvvvvvv<CR LF> or [CC]Xvvvvvvvv<CR LF>.

In which: vvvvvvvv is the APW (up to 8 characters with decimal point); maximum value: 9999.999

System response: [CC]OK<CR LF>.

For example: to set a APW of 1.55 g, the command is the SPMU1.55<CR LF> or SPMU0001.550 <CR LF> and all the various combinations adding zeros to the right or to the left but taking into consideration that the maximum length of the APW field is 8 characters.

> **Note** *The APW are not accepted in the SPMU.12<CR LF> format; these must be in the SPMU0.12<CR LF> format.*
>
> *The APW are not accepted equal to zero.*

Serial Command Which Supplies the instrument Status

[CC]STAT<CR LF>

Instrument response: [CC]STATXX<CR LF>

In which: XX is a decimal value which supplies the status of the instrument; the possible values are:

XX	Instrument Status
00	Normal scale status
01	Normal scale status in input
02	Instrument in technical setup
03	Instrument in boot phase
04	Instrument in rx/tx setup phase
05	Instrument in test phase of the serial ports
06	Instrument in print test
07	Instrument in firmware update phase
08	Instrument in standby
09	Instrument in automatic zero phase
10	Instrument in change channel
11	Instrument in inputs test phase

Table 6-9. instrument Status Commands

Instrument response: [CC]OK<CR LF>: accepted command.

In the event the simulated key has two linked functions, key momentarily pressed or pressed at length), if the KEYP command is followed by the release command (KEYR) within a maximum time of 1.5 seconds, the momentary key press is executed; otherwise the key pressed at length is executed.

Key Pressure Simulation Command

[CC]KEYR<CR LF>

Response: [CC]OK<CR LF>

> **Note** *The instrument does not transmit the OK answer to the following momentary commands (P, Q, T, W, X, Z).*

Scale Information Reading

[CC]RALL<CR LF>

Instrument response:
[CC]SS,B,NNNNNNNUM,LLLLLLLUM,YYTTTTTTTTUM,XXXXXXXUM,SSS,AAA,CCC,TTT,XXXXX-YYYYYY<CR LF>.

In which:

SS=

UL	Underload
OL	Overload
ST	Stability of the display
US	Instability of the display
TL	Active inclination input
B	Number of platform on which the totalization has been made
NNNNNNNUM	Net weight with unit of measure
LLLLLLLUM	Gross weight with unit of measure
XXXXXXXUM	Last net weight totalized with unit of measure

SSS (Scale status)

000	Weighing
001	Numeric value input
002	Setup menu
AAA	Counter of pressed keys
CCCC	Code of last key pressed
TTT	Counter of totalizations
XXXXX	Last rewriting number stored in the alibi memory
YYYYYY	Last weigh number stored in the alibi memory

setpoint Command

[CC]STPTntxxxxxxtyyyyyy<CR LF>

In which: n indicates the setpoint number (1, 2)

t→F if the following weight value indicates disabling of the outputs (OFF).

t→O if the following weight value indicates the enabling of the outputs (ON). xxxxxx and yyyyyy take on the setpoint value of disabling or enabling: the digits must be entered without the decimal point, omitting the non-significant zeros.

Instrument responses:[CC]OK<CR LF>   correct syntax and correct values

[CC]NO<CR LF>   correct syntax but wrong values

Example of instrument with capacity 10,000 kg and division 1 g:

*Command: **STPT1F5000O6500** (Disabling first output at 5 kg and enabling at 6.5 kg)*

*Response: **OK***

📝 **Note**	*The ERR 02 code) displays when:*

*One of the two entered values is greater than the capacity.

*One of the two entered values has a minimum division that is inconsistent in comparison to the one set in the instrument.

*The disabling value is greater than that of enabling.

The transmitted values are valid until the instrument is turned off. To permanently save these on the instrument use the saving command (CMDSAVE). To save various setpoints set all of them and at the end transmit the saving command.

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Setpoint Saving Command

[CC]CMDSAVE<CR LF>

Response: [CC]OK<CR LF>

Enable/Disable Keyboard

To enable the keyboard: [CC]KEYEE<CR LF>

Response: [CC]OK<CR LF>

To disable the keyboard: [CC]KEYED<CR LF>

Response: [CC]OK<CR LF>

6.5   Transmission Protocols

The weight data transmission on the PC and PRN serial ports may take place in 3 formats: standard string, extended string or multi-scale string.

6.5.1   Standard String

String transmitted in the dependent or independent channel mode: [CC]hh,kk,pppppppp,uu <CR LF>

String transmitted in the TRANSM mode: [CC]hh,pppppppp,uu <CR LF>

In which:

[CC] is the instrument code as two ASCII decimal digits (RS-485 protocol).

hh

	UL	Underload (not transmitted in the TRANSM mode)
	OL	Overload (not transmitted in the TRANSM mode)
	ST	Stability of the display
	US	Instability of the display
,		Comma character

kk

	NT	Net weight
	GS	Gross weight
	GX	Gross weight with sensitivity times 10
	VL	Value in microvolts relative to the weight
	RZ	Value in converter points relative to the weight
,		Comma character

pppppppp   8 digits (including sign and decimal point) which identify the weight. The insignificant digits are filled with spaces. Through the MVOL and RAZF command the instrument transmits   the relative value on 10 digits instead of 8.

uu   Unit of measurement kg, **b**g, **b**t, lb, mv (microvolts), vv (converter points); (**b** signifies blank)

CR   Carriage Return (13 ASCII decimal character).

LF   Line Feed (10 ASCII decimal character).

The transmitted weight is gross weight (GS) if no tare weight has been entered; otherwise, net weight (NT) is transmitted.

6.5.2 Extended String

Without APW (any mode other than counting or in response to the REXT command):

[CC]B,hh,NNNNNNNNNN,YYTTTTTTTTTT,PPPPPPPPPP,uu,(dd/mm/yybbhh:mm:ss|NO DATE TIME)<CR LF>

With APW (in piece counting mode or in response to the REXT command):

[CC]B,hh,NNNNNNNNNN,YYTTTTTTTTTT,PPPPPPPPPP,AAAA.AAAAA,uu<CR LF>

In which:

[CC]	is the instrument code as two ASCII decimal digits (RS-485 protocol)
B	scale number (1 in a scale with equalized channel mode (DEP.CH)
	the channel number from 1–4 in scale with independent channels mode (IND.CH).
,	Comma character
hh	
UL	Under load
OL	Overload
ST	Stability of display
US	Instability of display
,	Comma character
NNNNNNNNNN	Net weight on 10 characters including possible sign and decimal point
,	Comma character
YY	PT if the tare is manual, if YY = two empty spaces display with semiautomatic tare
,	Comma character
TTTTTTTTTT	Tare weight on 10 characters including possible sign and decimal point
,	Comma character
PPPPPPPPPP	Number of pieces on 10 characters, equal to 0 if the instrument is in a functioning mode other than the counting mode
,	Comma character
AAAA.AAAAA	Average Piece Weight on 10 characters with 5 decimals. The Average Piece Weight is always reported in grams.
,	Comma character
uu	Unit of measure Kg, **b**g, **b**t, lb; (**b** signifies blank)
,	Comma character (only with REXD command)
dd/mm/yy	Date in the dd/mm/yy format (only with REXD command)
bb	2 space characters, ASCII decimal 32 character (only with REXD command)
hh:mm:ss	Time format (only with REXD command)
CR	Carriage Return (ASCII decimal 13 character)
LF	Line Feed (ASCII decimal 10 character)

The non significant digits of the net, tare, pieces and gross weights are filled with spaces (space characters, ASCII decimal 32 character).

If the optional TIME DATE board has not been detected, in response to the REXD command, only the weight is transmitted and not the date and time; in its place there is NO DATE TIME.

6.5.3 Multi-Scale String

The string can vary depending on the configured channels:

- [CC]hh,pppppppp,uu, (dd/mm/yybbhh:mm:ss|NO DATE TIME)<CR LF>
- [CC]hh,pppppppp,uu,hh,pppppppp,uu, (dd/mm/yybbhh:mm:ss|NO DATE TIME)<CR LF>
- [CC]hh,pppppppp,uu,hh,pppppppp,uu,hh,pppppppp,uu, (dd/mm/yybbhh:mm:ss|NO DATE TIME)<CR LF>
- [CC]hh,pppppppp,uu,hh,pppppppp,uu,hh,pppppppp,uu,hh,pppppppp,uu, (dd/mm/yybbhh:mm:ss|NO DATE TIME)<CR LF>

In which:

[CC]   is the instrument code as two ASCII decimal digits (RS-485 protocol)

For each set channel:

hh

ST	Stability of the display
US	Instability of the display
VL	Value in microvolts relative to the weight
RZ	Value in converter points relative to the weight
,	Comma character

pppppppp   8 digits (including eventual sign and decimal point) which identify the weight. The insignificant digits are filled with spaces. Through the MVOL and RAZF commands the instrument transmits the relative value on 10 digits instead of 8.

,	Comma character
uu	Unit of measure kg, **b**g, **b**t, lb, ,mv (microvolts), vv (converter points); (**b** signifies blank)
,	Comma character (only with REXD command)
dd/mm/yy	Date in the dd/mm/yy format (only with REXD command)
bb	2 space characters, ASCII decimal 32 character (only with REXD command)
hh:mm:ss	Time format (only with REXD command)
CR	Carriage Return (ASCII decimal 13 character)
LF	Line Feed (ASCII decimal 10 character)

6.5.4 Secondary Mode Strings

Standard string transmitted on the print port when *Pr. ΠOdE* = *ALL. Std* or *PrPC. St=*

 SS,NT,WWWWWWWW,UU<CR LF>

In which:

SS   Status:

NV	Weight not valid:
	SUM mode – one or more primary instruments are not connected or are under/overload
	Individual primary mode – the primary instrument is not connected
ST	Stable data
US	Unstable data
UL	Underload (only in single primary instrument)
OL	Overload (only in single primary instrument)

WWWWWWWW	Weight
UU	Unit of measure
<CR LF>	Carriage Return + Line Feed (ASCII decimal character 13 and 10).

Extended String

Extended string transmitted on the print port when $Pr.\Pi OdE = ALL.EHt$ or $PCPr.EH$

C, SS,NT,WWWWWWWW,UU<CR LF>

In which:

C	Secondary or sum:S, if the sum is sent;
	Secondary number, if 1 salve weight is sent
SS	Status (see standard string)
WWWWWWWW	weight
UU	unit of measure
<CR LF>	Carriage Return + Line Feed (ASCII decimal character 13 and 10).

Note *In $rEPE$ mode, when $rEPE.6$ is selected the weight value is always zero.*
When the $Pr.\Pi OdE = PcPr.HH$ is set, only the weight is transmitted on the printer port.

6.6   Remote Scale Configuration

This section describes how to set the remote scale string parameters.

Take the string:

REXT<CR>1,ST,_____6.000,PT_____0.000,_____0,kg<CR><LF>

Where:

<CR> = ASCII 013

<LF> = ASCII 010

1.   Insert every character into the table below:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
R	E	X	T	CR	1	,	S	T	,	_	_	_	_	_	6	.	0	0	0	,	P	T	_	_	_	_	_	0	.	0	0	0	,	_	_	_	_	_	_	_	_	_	_	0	,	k	g	CR	LF
										W	W	W	W	W	W	W	W	W	W		M	M	T	T	T	T	T	T	T	T	T	T																	E

Where:

W	W	W	W	W	W	W	W	W	W

Is the weight

M	M

Is the tare type

T	T	T	T	T	T	T	T	T	T

Is the tare weight

E

Is the character terminator. It is recommended the character terminator is unique and the last character of the string.

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2. Compile the parameters table.

Parameter	LCD Text	Value
tErN	Remote scale terminator	010
UE i.PoS	Remote scale weight position	10
UE i.LEn	Remote scale weight length	10
tAr.PoS	Remote scale tare position	23
tAr.LEn	Remote scale tare length	10
tAr.tYP	Remote scale tare type position	21
Str.LEn	Remote scale sting length	48

Table 6-10. Parameters Table

> **Note** *The string length is 49 chars (from 0 to 48 included), however, the field Str.LEn is set to 48 because to allow for the character terminator*

6.7   Primary, Secondary and Repeater Mode Configurations

These configurations are possible only if in the instrument is in the secondary mode.

6.7.1   Repeaters

rEPE.dC

The RepeaterDC rEPE.dC configuration is designed to control one or more remote displays connected via an RS-232 or RS-485 and to coordinate communications over the single serial line.

Packets are sent from the "Master" to the remote displays at 100ms intervals; one ID per loop and no acknowledge message will be received.

When the number of scales is defined in the "Master", the rEPE.dC command will return scale values for each as well as the sum for all connected scales. To limit the scale values returned, or remove readings from a particular scale, use the Add.En parameter to adjust.

SCT-1100 repeater	
F.NodE	FUnct: rEPE
PC.NodE	rEPE.dc
Add.En	X
PC SEL	485/232
b it	n-8-1

Table 6-11. Analog Cells

SCT-1100 repeater	
F.NodE	FUnct: rEPE
PC.NodE	rEPE.dc
Add.En	X
PC SEL	485
b it	E-7-1

Table 6-12. Digital Cells

REPE.6
Simple repetition of the DFW's screen in the SCT. Can be used both in 232 and in 485. The repeater keys are disabled.

Configuration:

SCT-1100 (repeater)	
F.ModE	FUnct: rEPE
PCModE	rEPE.6
Add.En	no
PC SEL	485/232

Table 6-13. DFW

SCT-1100 (repeater)	
F.ModE	FUnct: rEPE
PCModE	rEPE.6
Add.En	no
PC SEL	485/232

Table 6-14. 3590/CPWE

rEPE.In

Intelligent repeater reads all the string; the operator can select, in the technical setup, the string's start and the part of this referred to the weight. Both RS232 and RS485 can be used. The repeater keys are disable.

Configuration:

SCT-1100 (repeater)	
F.ModE	FUnct: rEPE
PCModE	rEPE. in
Add.En	no
PC SEL	485/232

Table 6-15. DFW

SCT-1100 (repeater)	
F.ModE	FUnct: rEPE
PCModE	rEPE. in
Add.En	no
PC SEL	485/232

Table 6-16. 3590/CPWE

1. Enter "PC mode" step, and set rEPE. in . CoM. A iP displays.
2. Press ⏎. if the communication is correct t uEr iFY displays and after, it receives the string.
3. Select the start of the string and press ⏎. SEtP displays.
4. Select the first and the last characters of the weight.
5. Escape from the setup and save the configurations.

Return to the weigh mode.

u.rEPE

Repeats the weight of the remote scale connected, with this protocol it is possible to simulate ▼ and ▲ keys.

The parameters to set in the repeater are described in Section 4.2.2 on page 33 and they are variable depending on the connected scale.

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Example of standard string sent from a DFW:

Example of configuration for the standard string parameters of DFW instruments:

ᵗEr�	10 (LF)		
ᵛEɩ.PoS→	06		
ᵛEɩ.LEn→	08		
Sᵗr.LEn→	18		
dEC ɩ→	2		
Un ɩᵗ→	KG		
SᵗAb→	10		
SᵗA.ɩnᵗ→	06		
ᵗrShLd→	ᵗr.Lo→	-999.99	
	ᵗr.h ɩ→9999.99		
Adu.CEd→	ᵛ.nEᵗ →	00ASH→255	
		n.bYᵗE→3	
		ᵥALUE →78 ("N" in the ASCII code)	
	nEG.S ɩG	00ASH→0	
	SᵗAb ɩL →	00ASH→255	
		n.bYᵗE→0	
		ᵥALUE→83 ("S" in the ASCII code)	
	ᵛ.2Ero	00ASH→0	
	Und.our	00ASH→255	
		n.bYᵗE→ ɩ	
		ᵥALUE→76 ("L" in the ASCII code)	

6.8   Connection to a Remote Display

Use the following steps to connect the SCT-1100 to a remote display.

1. Turn on the instrument and press ▲ while the firmware version displays. ᵗYPE displays.

2. Press ▼ or ▲ until SEᵗUP displays.

3. Press ◄┘. ConF ɩG displays.

4. Press ▼ or ▲ until SEr ɩAL displays and then press ◄┘.

5. Press ▼ or ▲ until Con.PC displays and then press ◄┘.

6. Press ▼ or ▲ until PCModE displays and then press ◄┘.

7. Press ▼ or ▲ until ALL.Sᵗd displays and then press ◄┘.

8. Press C until the instrument displays SAᵥE?.

9. Press ◄┘ to confirm. SᵗorE displays momentarily and the instrument reboots.

6.9   Primary/Secondary

Configuration for repetition of the weight on the SCT and the possibility of using the SCT keys to simulate those of the primary instrument.

For a RS-485 connection, connect the DF485 board and the two instruments, using the terminal of the board and setting `485` in `PCSEL` of the SCT.

Both the relays and the analog output and enabled with this configuration. The analog output is programmed as in, as well as for relays. For setting the relays switching, it is necessary to turn off the primary instruments.

6.10   Analog Output Option

An optional analog output is configurable at 0-20mA, 4-20mA, 0-10Vdc, 0-5Vdc; with minimum and maximum settable values. The voltage and the output current from the interface are proportional to the gross weight or net weight present on the scale. See Section 2.6 on page 10 for connection information.

The analog output is updated every 20ms and takes on the value corresponding to the converted weight; therefore, if the filter is slowed on the weight, the analog output also slows down.

To configure the parameters, enter the setup mode and `SETUP`→ `ConF iG`→`An. oUt`.
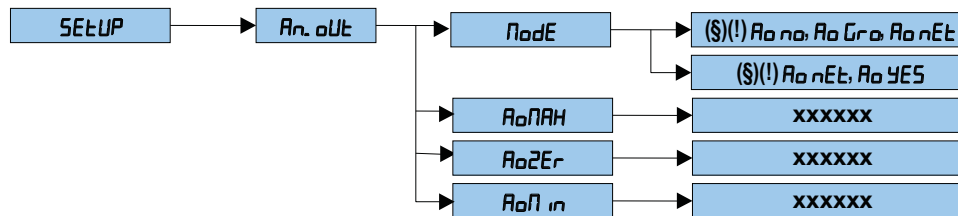
Figure 6-3. Analog Output Menu

Parameter	Description
`ModE`	Select the type of analog output: Parameters displayed in primary mode: `Ao no` – analog output disabled `Ao Gro` – analog output on gross weight `Ao nEt` – analog output on net weight. Parameters displayed in secondary mode: `Ao no` – analog output disabled. `Ao YES` – analog output enabled. Once the functioning mode is confirmed, set the values of the analog output; The digital/analog converter values are entered (between 0 and 65535) which corresponds to an output value in voltage or in current The instrument keys have the functions: ▼ – decreases the selected digit (blinking) ▲ – increases the selected digit (blinking) ▶ – selects the digit (blinking) from left to right ◀┘ – press once to enter a value, the corresponding output analog value is enabled; Press a second time to confirm and exit the step C – allows to quickly zero the present value ***NOTE: The set function is the same for all configured channels.***
`Ao MAH`	Set the maximum value of the analog output: <u>With a positive weight</u> – the value of the output when the weight is greater than or equal to the full scale capacity; also corresponds to the overload condition <u>With negative weight</u> – the value of the output when the negative weight is greater than or equal to the full scale capacity, also corresponds to the underload condition The value can be between 0 and 65535 (values of the digital/analog converter); if a higher value is entered, the instrument displays 0

Table 6-17. Analog Output Parameters

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Parameter	Description
Ao ZEr	Set the analog output value when the scale displays zero weight (supplied when the scale is in underload); This value can be between 0 and 65535 (values of the digital/analog converter); If a higher value is entered, the instrument displays 0
Ao Min	Set the minimum value of the analog output: <u>With positive weight</u> – the minimum value provided by the analog output, corresponding also to the underload condition. <u>With negative weight</u> – the minimum value provided by the analog output, corresponding also to the overload condition. This value can be between 0 and 65535 (values of the digital/analog converter); If a higher value is entered, the instrument displays 0

Table 6-17. Analog Output Parameters (Continued)

Approximate Values Between The DA Converter and Analog Output

DA Converter	Voltage	Current (mA)
1200	0	0
12700	--	4
58600	--	20
62650	10	--

Table 6-18. DA Converter and Analog Output
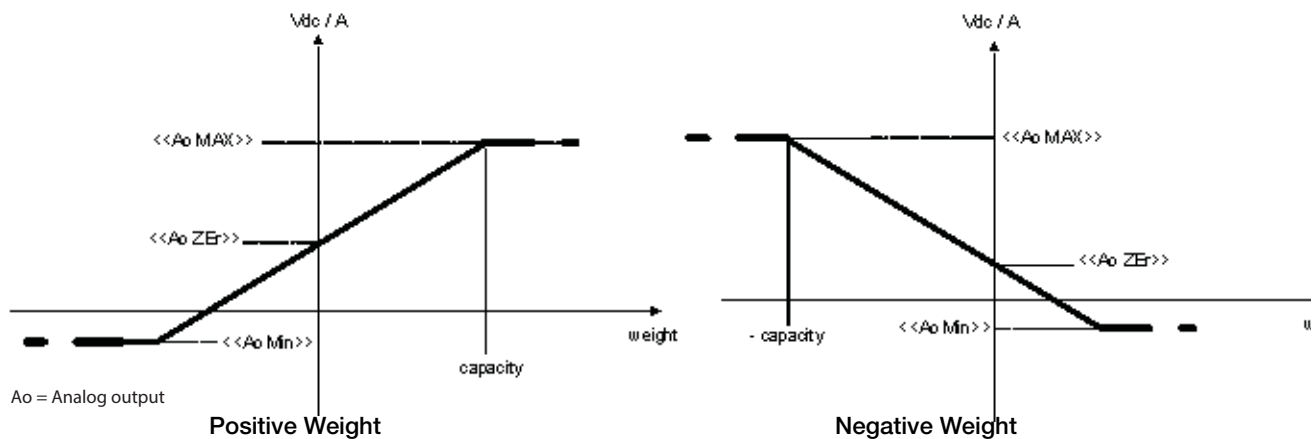
Figure 6-4. Analog Output

6.11   Print Programming

Once a printer has been configured correctly in the setup mode, the instrument carries out the print functions; each functioning mode has specific printouts, shown in the Section 3.7.1 on page 16. It is possible to define some printing fields, the size of the characters, a heading and other options depending on the printer and the predefined functioning mode. See Section 2.6 on page 10 for connection information.

1. Turn on the instrument and press ▲ as the firmware version displays. tYPE displays.

2. Press ▼ or ▲ until SEtUP displays and then press ◄┘.

3. Press ▼ or ▲ until SErIAL displays and then press ◄┘.

4. Press ▼ or ▲ until Con.Prn displays and then press ◄┘.

5. Press ▼ or ▲ until Pr.NodE displays and then press ◄┘.

6. Select the desired printer and then press ◄┘.

7. Configure bAUd.Pr, bIt.Pr, PUr.Prn, on.Prin and Prn.CtS (baud rate, number of transmission bits,

the printer's power supply and the CTS signal). See Table 6-2 on page 51.

8. Select **Pr.ConF** and press ⏎.

9. Configure the parameters for print programming as described in Table 6-19.

10. Once all parameters are configured, press **C** until the instrument displays SAuEP.
   - Press ⏎ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

Figure 6-5. Print Programming Menu

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Parameter	Description

LAnG	Select the language of the printouts:
	  ıtAL = Italian
	  EnGL = English
	  dEUt = German
	  FrAn = French
	  ESPA = Spanish

b. L ınE	Empty line at the beginning of the printout:
	  YES = an empty line is inserted at the beginning of each printout
	  no = no empty line

I ntES	Printing of a heading in:
	Secondary mode
	  h. no = no heading
	  h. I. SL = headers printed when the 1st primary instrument print is executed
	  h. StuS = headers printed when the primary instruments prints are executed
	  h. SUM = headers printed when the sum is printed
	  ALWAYS = headers always printed
	Primary mode
	  I nt no = no heading
	  I nt S ı = prints the heading; in the totalizer mode only the first totalization (partial total is zero)
	  I nt F ı = prints the heading; in the totalizer mode it is printed in all the totalizations
	  I nt.SUM = prints the heading; in the totalizer mode it is printed in all the totalizations and in the partial total

nUMVE	Prints the number of weighs (totalizer mode only):
	  no = does not print the number of weighs
	  tot = prints the number of weighs only in the single totalization
	  SUM = prints the number of weighs only in the partial total
	  both = prints the number of weighs in the totalizations as well as in the partial total
	
	NOTE: This parameter displays only if the totalizer mode has been selected.

doM	Prints date and time:
	Secondary mode
	  dt. no = the date and time are not printed
	  dt. ın. I = date and time are printed in the sum only and using the printer clock
	  dt. ın. 2 = date and time are always printed using the printer clock
	  dt. EH. I = date and time are printed in the sum only and using the scale clock, if detected
	  dt. EH. 2 = date and time are always printed using the scale clock, if detected
	Primary mode
	  dt. no = the date and time are not printed.
	  dt. ın. I = the date and time are printed; in the totalizer functioning mode the date and time are printed just in the total and not in the single totalization
	  dt. ın. 2 = as above, but in the totalizer functioning mode the date and time are printed also in the single totalizations
	  dt. EH. I = like dt. ın. I but the instrument's date and time board (optional) is used
	  dt. EH. 2 = like dt. ın. 2 but the instrument's date and time board (optional) is used
	
	NOTE: The date and time is printed, if programmed, before the possible barcode, which is always at the end of the printout

Table 6-19. Print Programming Menu

Parameter	Description

nt iH	Prints a ticket number – The ticket number is a sequential number between 1 and 65535; It is stored in memory even when the instrument is turned off
	Secondary mode
	    no = no ticket number is printed
	    5LAuES = ticket number is printed when the primary instrument prints are executed
	    5UN = ticket number is printed when the sum is printed
	    ALUAYS = ticket number is always printed
	    rESEt = reset the ticket number, sets it to 1 and leaves the NTIK step unchanged
	Primary mode
	    no = does not print the ticket number
	    YES.tot = prints the ticket number; in the totalizer functioning mode it is printed only in the single totalizations
	    5UN = prints the ticket number; in the totalizer functioning mode it is printed just in the partial total
	    both = prints the ticket number; in the totalizer functioning mode it is printed in the totalizations as well as in the partial total
	    rESEt = pressing ◀┘ resets the ticket sequence number
	NOTE: The ticket number, if programmed, is printed after the weight data.

EndPAG	Print two empty lines at the end of each printout (if tPr is selected in Pr. NodE) or an end label (if LP542P is selected in Pr. NodE)
	Secondary mode
	    no = does not print the page end
	    5LAuES = prints the end page when the primary instruments prints are executed
	    5UN = prints the end page when the sum is printed
	    ALUAYS = end page is always printed
	Primary mode
	    no = does not print the page end
	    YES.tot = prints the end page; in the totalizer functioning mode it is printed just in the single totalizations
	    5UN = prints the end page; in the totalizer functioning mode it is printed just in the partial total
	    both = prints the end page; in the totalizer functioning mode it is printed in the totalizations as well as in the partial total

tErN	Sets a terminator – When connecting a printer it is often necessary to transmit one of the following protocols in order to define the end of the print line
	    Cr = CR (for DP190, LP542P/S, TPR)
	    CrLF = CR LF (for EPSON LX300 and TMU295)

PForN	Print formatting – this parameter enters a submenu for selecting the weight data to print and the print layout. Depending on the type of printer selected in the Pr. NodE step (LP542P or tPr), the parameters displayed may differ. See Section 6.11.1 on page 74.
nr.CoP	Set the number of ticket copies to be printed, valid for any type of printout and functioning mode.

Table 6-19. Print Programming Menu (Continued)

6.11.1 Formatting Data and Layout

Depending on the printer selected in the Pr. NodE parameter (LP542P or tPr), the displayed parameters may differ.

Parameter	Description
dEFAUL	Enables the default printing of each parameter ***NOTE: This parameter is not displayed in the secondary mode.***

F iLd5	Select fields to be printed:
	   G n G **G t n**
	   n n t n G t
	   t t G n t G
	   G n t n t G n
	   G t G n t t n G
	G = gross weight; n = net weight; t = tare weight
	NOTE: This parameter is not displayed in the secondary mode.

Table 6-20. Data Format and Layout

RICE LAKE
WEIGHING SYSTEMS

Parameter	Description
hEıGht	Determines font height **ChAr 1** = normal height ChAr 2 = double height ***NOTE: This parameter is not displayed in the secondary mode.***
bArC	Enables bar code printing of the 39 CODE (tPr must be selected in Pr. NodE) and is printed before date and time **no** = does not print the bar code. YES.tot = prints the bar code; in the totalizer functioning mode it is printed just in the single totalizations SUN = prints the bar code; in the totalizer functioning mode it is printed just in the partial total both = prints the bar code; in the totalizer functioning mode it is printed in the totalizations as well as in the partial total ***NOTE: This parameter is not displayed in the secondary mode.*** * ***The weight values are expressed in 6 digits without decimal point and with the possible non significant zeros present*** * ***Prints barcode between a weight values; a line space is inserted*** * ***The bar code is printed as the last data, after the weight values, possible numeric codes and ticket number, but before the date and time (with DP190 or TPR printer)***
The following parameters are displayed only if a setting other than no is selected in the bArC parameter.	
	udbAr – Select the bar code vertical distance of preceding text: In lines with normal height font, programmable value is 0 to 9 (default 0)
	LNbAr – Select the left margin: Expressed in 1/8 of mm (from 01 to 99 (default 01)
	ʼbAr – Select the bar code font width: Programmable value W1 to W3 (default W1)
	hbAr – Select the bar code font height: Expressed in 1/8 of mm from 0 to 255 (default 000)
	bArFS – Select the print fields in the bar code: G n t G = gross weight; n = net weight; t = tare weight
	PntUb – Print the numeric field of the bar code: no = the numeric field is not printed UndEr = under the bar code **AbouE** = above the bar code AbrʼUn = both above as well as below the bar code.

	PtESt – Print test
	By pressing ◀━┛, a label with the previously selected fields, but with fixed weight values, is printed.
	The print test depends on the selected functioning mode:
	• Std mode: the first time the fields with the unit of measure in kg are printed, the second time the fields with the unit of measure in lb are printed, and on this way
	• ntGS. StP G. StP n. ul SS. AL ıb ı. ınoUt mode: simple printout
	• NAStEr mode: not settable
	• hoLd mode: the first time the fields without the HOLd indication are printed, the second time the fields with the HOLd indication, and on this way
	• PEAH mode: the first time the fields without the PEAH indication are printed, the second time the fields with the PEAH indication, and on this way
	• tot o mode and tot 5 mode: when ◀━┛ is pressed a selection menu displays with the following items:
	    *tOt. 1. 0 = simulates the printing of the first totalization relative to storage zero
	    *tOt. 2. 0 = simulates the printing of another totalization relative to storage zero
	    *SUN 0 = simulates the printing of the partial total relative to storage zero
	    *tOt. 1. 1 = simulates the printing of the first totalization relative to storage one
	    *tOt. 2. 1 = simulates the printing of another totalization relative to storage one
	    *SUN 1 = simulates the printing of the partial total relative to storage one
	    *GtotAL = simulates the printing of the general total
	• CoUn mode: the first time the fields are printed with the Number of Pieces and the APW, the second time the fields are printed without the Number of Pieces and the APW

Table 6-20. Data Format and Layout (Continued)

The purpose is to create a label directly onto the instrument by configuring the following parameters. Once the programming is complete, the label must be downloaded to the printer and saved in its permanent memory. See .

Parameter	Description
dEFAUL	Enables the default setting in each parameter ***NOTE: This parameter is not displayed in the secondary mode.***
F ıLdS	Select the fields to be printed: Ⴑn n Ł n Ⴑ Ł Ł Ł Ⴑ n Ł Ⴑ Ⴑ n Ł n Ł Ⴑ n Ⴑ Ł Ⴑ n Ł Ł n Ⴑ n Ⴑ **Ⴑ Ł n** Ⴑ = gross weight; n = net weight; Ł = tare weight ***NOTE: This parameter is not displayed in the secondary mode.***
ChAr. Ł	Select the font type: **ChAr. 1**= the data is printed using the font programmed in the ChAr 1 step **ChAr. 2**= the data is printed using the font programmed in the ChAr 2 step
LAbELⱵ	Set the label width: Enter a three digit value, expressed in mm (default 063)
LAbELh	Set the label height: Enter a three digit value, expressed in mm (default 080)
ChAr 1 ChAr 2	Select the font for character 1 associated data (default Font. 3d)
	Select the font for character 2 associated data (default Font. 3d)
	For each character type one of the following fonts can be set: | Font Parameter	Font Style (width x height)
Font. 1	1 x 1.5 mm
Font. 1d	1 x 3 mm
Font. 2	1.5 x 2.5 mm
Font. 2d	1.5 x 5 mm
Font. 3	2 x 3 mm
Font. 3d	2 x 6 mm
Font. 4	3 x 4 mm
Font. 4d	3 x 8 mm
Font. 5	4 x 6 mm

Font. 5d	4 x 12 mm |
	
	Example: To print 4 heading lines, with the first two double the height in respect to he second two, GROSS, TARE, NET, DATE and TIME
	
	Program the heading:
	    Line 1 and Line 2 = Char 2
	    Line 3 and Line 4 = Char 1
	Char.t = Char 1
	Char 1 = Font.3
	Char 2 = Fon.3d
	
	DIMENSION = ChAr 2 → HEADING 1 / HEADING 2
	DIMENSION = ChAr 1 → HEADING 3 / HEADING 4
	
	Resulting Label

Ł. MArⳄ	Set the distance data is printed from the label upper margin; Enter a three digit value, expressed in mm (default 010)
L. MArⳄ	Set the distance data is printed from the label left margin; Enter a three digit value, expressed in mm (default 004)

Table 6-21. Label Creation Parameters

RICE LAKE
WEIGHING SYSTEMS

Parameter	Description

bArC	Set bar code print option. (code 39 type only):
	    no = does not print the bar code.
	    YES. tot = prints the bar code; in the totalizer functioning mode it is printed just in the single totalization
	    SUN = prints the bar code; in the totalizer functioning mode it is printed just in the partial total
	    both = prints the bar code; in the totalizer functioning mode it is printed both in the totalization as well as in the partial total
	NOTE: The parameter is not displayed if the mode is secondary.
	*** *The weight values are expressed with 6 digits without decimal point and possibly with non significant zeros.* **
	*** * A line space is inserted weight values.* **
	*** *The bar code is printed as the last data, after the weight values, numeric codes and ticket number, but before the time and date.* **
	The following parameters are displayed only if a setting other than no is selected in the bArC parameter.
	u. d. bArC – Select the bar code vertical distance from the preceding text:
	Enter a three digit value, expressed in mm (default 005)

bArC	L. N. bArC – Select the left margin Enter a two digit value, expressed in mm (default 15)
	h. bArC – Select the bar code font height Enter a two digit value, expressed in mm (default 10)

	bArFS – Select the print fields in the bar code:
	
	    Gn n t n G t
	    t t G n t G
	    G n t n t G n
	    G t G n t t n G
	    n G **G t n**
	
	G = gross weight; n = net weight; t = tare weight

	PntUb – Print the numeric field of the bar code
	    no = the numeric field is not printed.
	    YES = the numeric field is printed under the bar code.

	PtESt – Print test
	By pressing ◀━, a label with the previously selected fields, but with fixed weight values, is printed.
	The print test depends on the selected functioning mode:
	• Std mode: the first time the fields with the unit of measure in kg are printed, the second time the fields with the unit of measure in lb are printed, and on this way
	• ntGS. StP G. StP n. ui SS. AL ib i. inoUt mode: simple printout
	• NAStEr mode: not settable
	• hoLd mode: the first time the fields without the HOLd indication are printed, the second time the fields with the HOLd indication, and on this way
	• PEAH mode: the first time the fields without the PEAH indication are printed, the second time the fields with the PEAH indication, and on this way
	• tot o mode and tot S mode: when ◀━ is pressed a selection menu displays with the following items:
	    *tOt. I. 0 = simulates the printing of the first totalization relative to storage zero
	    *tOt. 2. 0 = simulates the printing of another totalization relative to storage zero
	• SUN 0 = simulates the printing of the partial total relative to storage zero
	    *tOt. I. I = simulates the printing of the first totalization relative to storage one
	    *tOt. 2. I = simulates the printing of another totalization relative to storage one
	    *SUN I = simulates the printing of the partial total relative to storage one
	    *GtotAL = simulates the printing of the general total
	• CoUn mode: the first time the fields are printed with the Number of Pieces and the APW, the second time the fields are printed without the Number of Pieces and the APW

PEEL	Enable the sensor which peels off the labels • on = sensor active • oFF = sensor not active

*Table 6-21. Label Creation Parameters (Continued)*

Parameter	Description
GAP	Set the vertical distance between labels Enter a value, expressed in mm; if using continuous form labels set the value at 00

dirECn	Set the print direction
	    dirECt = direct printing
	    rEuErSE = upside down printing

d'n. EHt	Set the format type
	    F. int = format created through the instrument
	    F. EHtn = format created with the program or on PC

do'nLd	Transmit and temporarily save the programmed label to the labeler. Turning the labeler off deletes the label data. See .
L. AL iGn	Alignment of the label in the printer

PtESt	By pressing ◄┛, a label with the previously selected fields, but with fixed weight values, is printed
	The print test depends on the selected functioning mode:
	• *Std* mode: the first time the fields with the kg unit of measure are printed, the second time the fields with the lb unit of measure are printed, and so on
	• *ntGS, ul SS, AL ib i, i noUt* modes: simple printing
	• *MAStEr* mode: not settable
	• *HOLd* mode: the first time the fields without the *HOLd* message are printed, the second time the fields with the *HOLd* message are printed, and so on
	• *PEAH* mode: the first time the fields without the *PEAH* message are printed, the second time the fields with the *PEAH* message are printed, and so on
	• *tot o* and *tot S* mode: when the ◄┛ is pressed a selection menu appears with the following items:
	    *tOt. 1. 0 = simulates the printing of the first totalization relative to the zero registry
	    *tOt. 2. 0 = simulates the printing of a further totalization relative to the zero registry
	    *SUM 0 = simulates the printing of the partial total relative to the zero registry
	    *tOt. 1. 1 = simulates the printing of the first totalization relative to the one registry
	    *tOt. 2. 1 = simulates the printing of a further totalization relative to the one registry
	    *SUM 1 = simulates the printing of the partial total relative to the one registry
	    *GtotAL = simulates the printing of the general total
	• *COUn* mode: the first time the fields with the pieces number and APW are printed, the second time the fields without the pieces number and APW are printed

Table 6-21. Label Creation Parameters (Continued)

6.11.2 Save the Label to Permanent Memory

The formats must be saved to the label printer permanent memory once format programming is complete.

To download the label format to the label printer:

1. Press ⬅ when 𝚍𝚘𝚞𝚗𝙻𝚍 displays.

2. Press 𝙲 . 𝙻.𝚂𝙰𝚞𝙴𝚁 displays.

3. Press ⬅ to save the formatted label to the labeler permanent memory.

The green LED blinks when saving the data to the labeler and stops once the save process is complete.

> **Note** *Do not press buttons on the labeler or the instrument while the green LED is blinking.*

The label format is now saved to the labeler and is ready to print. The data remains in the labeler memory even when the labeler is turned off.

Repeat the format download and saving process each time the label or data in it is modified, or if it is necessary to change the functioning mode after programming the label.

> **Note** *It may be possible to create or customize labels using software supplied with the labeler. Refer to the labeler manual for specific instructions.*

7.0   Troubleshooting

Use the following table to troubleshoot error messages on the instrument.

Message	Description
AL.Err	Displays when not connected at start-up, if there are communication problems between the instrument and the board or when the alibi memory operation is selected; The unit of measure conversion is automatically set, but not saved in the setup mode
bUSY	Printing - PRN serial port is occupied or the instrument is waiting to transmit a print job to a PC
UnStAb	Trying to print with an unstable weight
Un.OuEr	Trying to print with the weight in underload or in overload; with a weight of 9 divisions greater than the capacity or 100 divisions below the gross zero
- - - - - (upper)	The weight is 9 divisions above the maximum capacity
- - - - - (lower)	The weight is under the gross zero (- capacity – 9 divisions)
GroS.Er	Trying to print with a negative gross weight (equal or less than 0)
nEt.Err	Trying to print with a negative net weight (equal or less than 0)
LoW	Net weight less than the minimum necessary for the printing or the totalization
no.0.UnS	Weight did not exceed net 0 or was not stable
Conu.	Trying to print while the instrument is converting the unit of measure
no in	Second attempt to acquire the input weight (input/output mode, set as *in.oUt*)
no oUt	Second attempt to acquire the output weight (input/output mode, set as *in.oUt*)
no 1	Second attempt to acquire the input weight (input/output mode, set as *G.t. or 1St.2nd*)
no 2	Second attempt to acquire the output weight (input/output mode, set as *G.t. or 1St.2nd*)
Er.Not	In the counting mode, sampling has not been completed because the weight is unstable
Error	In the counting mode, sampling has not been completed because a higher reference quantity should be used
Err.CLH	Communication problems with the date/time of the instrument: check the *F.ModE→CLoCH* in the setup; See Section 4.2.2 on page 33
PrEC	Displays when trying to calibrate a point without first having confirmed the number of calibration points
ErNot	Weight is unstable during the acquisition of a point during calibration
ErPnt	During the acquisition of a calibration point a null value has been read by the converter
Er-11	Calibration error – the sample weight used was too small. Use a weight equal to at least half of the scale capacity
Er-12	Calibration error – the acquired calibration point (*tP1 o tP2 o tP3*) is equal to the zero point (*tP0*)
Er-37	Scale must be calibrated. Perform a technical default (*dEFAU*) parameter, before proceeding; See *dEFAU* parameter in Table 4-5.
Er-39	Scale must be calibrated. Perform a technical default (*dEFAU*) parameter, before proceeding; See *dEFAU* parameter in Table 4-5.
Eco x	Displays momentarily if the secondary connects to primary X; if connection is not possible, the error message remains fixed and the secondary instrument emits an audible signal
C_Er_-36	During calibration some internal negative points have been calculated: • The calibration point is less than the zero point • the signal is negative (check the connections)
C_Er_-37	During the calibration some internal points less than the minimum value have been calculated: • The calibration point is equal to the zero point • a capacity too high in relation to the division has been set
HW-Err	HARDWARE ERROR: software not compatible with the installed hardware; the hardware expansion component which allows the software to function is missing

Table 7-1. Error Messages

8.0 Specifications

Power DC

Power Supply	12/24 VDC
Power Consumption	5 mA min to 20 mA max
Excitation Voltage	5 VDC
Analog Signal Input Range	±39 mV
Analog Signal Sensitivity	0.1 µV/gradation minimum 1.0 µV/gradation recommended

Operator Interface

Display	LED 6 digits 13 mm (0.5'') high
Keypad	5-key, membrane panel
LED	6 status indicator red LEDs

Enclosure

Case	Plastic console suitable for mounting on DIN rail or on the wall

Operation

Resolution:	
Internal	3 million counts
Weight display	1 million
A/D Sample Rate	4 channel A/D 24-bit sigma-delta conversion; up to 3200 conv./sec auto select
Tare Function	Entire capacity can be subtracted
Auto Switch Off	Programmable form 1 to 255 minutes

Communication

Digital inputs/Outputs	
2 inputs	opto isolated 12-24 VDC
2 outputs	150 mA 48 VAC/150 mA 60 VDC
Serial ports	1 RS-485 bidirectional port configurable for connection to a PC/PLC or weight repeater 1 RS-232 bidirectional port for connection to a PC/PLC or printer
Analog Output	Opto isolated, 16 bit 0-20 mA; 4-20 mA (max 350,000 Ω) 0-5 VDC, 0-10 VDC (min 10,000 Ω)
Optional Communication	Modules PROFIBUS-DP, DeviceNet, PROFINET IO, Ethernet/IP, Ethernet TCP/IP, Modbus TCP

Environmental

Operating Temperature	5°F to 104°F (-15°C to 40°C)
Storage Temperature	-22° to 179°F ((-30°C to 80°C)
Humidity	85% (non-condensing)

Load Cell

Connection	6 wires (CELL1) with Remote Sense, 4 wires (CELLS 2, 3, 4)