SCT-1100 Advanced Series

Weight Transmitter

Technical Manual

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RICE LAKE WEIGHING SYSTEMS

PN 185658 Rev D

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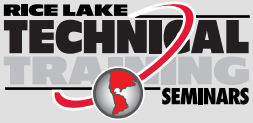

Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at ***www.ricelake.com/training*** *or obtained by calling 715-234-9171 and asking for the training department.*

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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, and display indications. This manual applies to indicators using version 8.00 or higher of the STC-1100 firmware. Configuration and calibration of the indicator can be accomplished by pressing the indicator front panel keys, the serial command set or RLTools utility. The SCT-1100 is designed to work with up to 4 load cells in either a dependent or independent channel mode.

Manuals and additional resources are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

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 DC power from the unit, disconnect the DC 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.

General Safety Continued

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.

1.2 Options

Features Include

- 5-key, dual function, tactile feel keypad
- 6-digit LED display, 0.50" (13 mm) high
- (6) red LED Annunciators
- NEMA type 1 plastic enclosure
- 12 - 24 VDC power
- Mountable to a DIN 35mm rail
- (1) 6-wire load cell connection with Remote Sense
- (3) 4-wire load cell connections
- Two configurable digital inputs and two configurable digital outputs
- Analog Output
  - 0-20 mA, 4-20 mA (Maximum 350,000 ohm)
  - 0-5 VDC, 0-10 VDC (Minimum 10,000 ohm)
- (1) RS-485 bidirectional port configurable for connection to a PC/PLC
- (1) RS-232 bidirectional port for connection to a printer or PC
- Unit of measure conversion
- Switching of net/gross weight setpoint on the gross weight/net weight/pieces,
- Alibi memory
- Peak detector
- Weight or Theoretical calibration with up to 3 linearity points
- Diagnostic information via serial port, message display, printing, simulation of key pressure
- Reading of the net, gross and tare weights. Clearing and entering tare, scale switch, setting of output values

1.3 Overview

The indicator has a plastic case with external dimensions as shown in Figure 1-1.

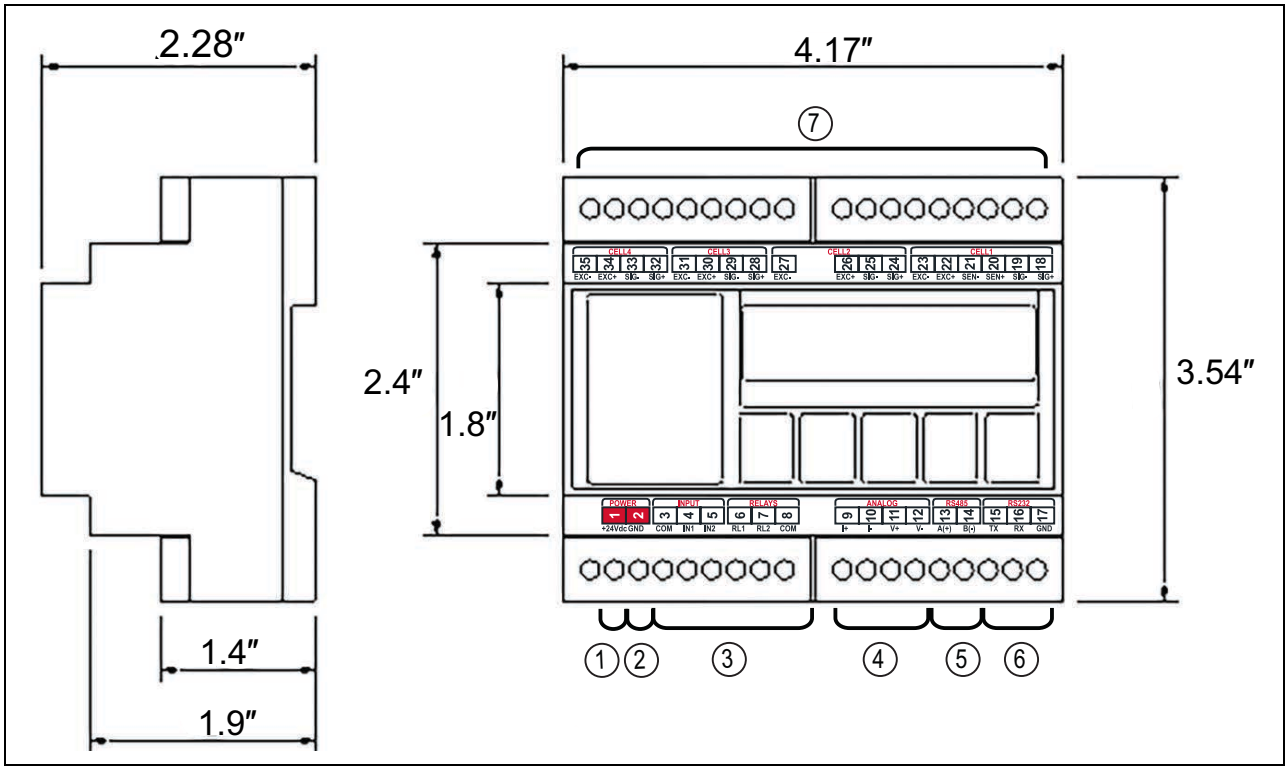

Figure 1-1. SCT-1100 Dimensions and Components

No.	Description
1	(+) 12-24 Vdc power supply input
2	GND power supply input
3	Digital I/O
4	Analog output
5	Connection for serial line RS-485
6	Connection for serial line RS-232
7	Connections for load cell

Table 1-1. SCT-1100 Components

Note ***For detailed call out of pin designations, See*** Section 2.5 on page 7***.***

1.3.1 Panel Display

The front panel of the *SCT-1100* consists of a display with six digits that are 0.5 in (13 mm) high, six LED annunciators and a five-key keyboard.

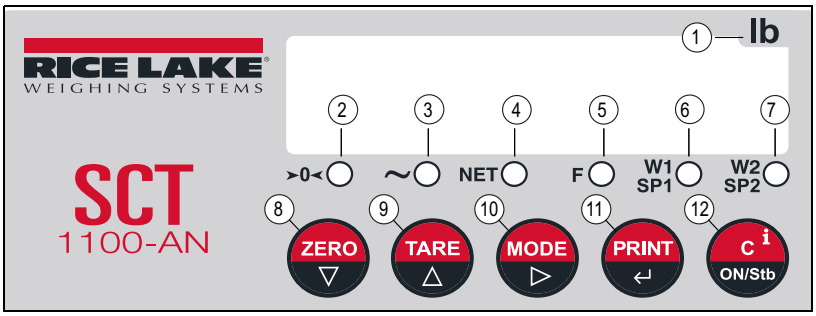

Figure 1-2. SCT-1100 Front Panel

Item No.	Symbol	Description
1	***lb***	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	**NET**	Illuminates when a tare is established, measuring net weight
5	**F**	Illuminates: • when the specification function of the instrument is active (set in F .ModE→FunCt parameter) See Section 3.7 on page 14 • 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	**W1**	Indicates the activation of the first output (Sp1)
7	**W2**	Indicates the activation of the second output (Sp2)
8	▼	**ZERO** – Clears the displayed gross weight of up to ± 2% of the total capacity; Cancels tare At power up: Momentary press during startup displays current settings. See Section 3.1.1 on page 10 In setup: scroll through parameters In numeric input: decreases the digit to be modified
9	▲	**TARE** – Momentary press executes semiautomatic tare; Cancels tare At power up: Momentary press during startup displays setup mode. See Section 4.1 on page 17 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
10	▶	**MODE** – Executes a specific function (set in the setup mode) See Section 3.7 on page 14 Long press allows for toggling the displayed channel (if configured in independent channels mode (ind .Ch) At power up: Momentary press during startup displays quick setup menu. See Section 4.2 on page 18 In setup: enter into a parameter or to confirm a setting In numeric input: confirms the entry made
11	↵	**PRINT** – Executes a specific function (set in the setup mode) See Section 4.4.1 on page 26 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
12	C	**ON/OFF** – Turns the instrument on and off In setup: press multiple times to display SAVEP and/or press to exit a step without confirming the setting In numeric input: momentary press clears the present value Long press beyond -oFF-: Displays information of the scale (capacity, division, minimum weight for each configured range, gravitational acceleration value, number of configured channels)

Table 1-2. SCT-1100 Front Panel

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 conduit 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 maintained 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, and others. In addition, provide dedicated power supply to the instrument***
- ***Install RC filters on the contact coils, solenoid valves and all devices producing electric fields***
- ***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 length of a standard load cell cable with sense wires is:

- 150’ at 30#AWG
- 300’ at 24#AWG

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 4000', See Section 6.3 on page 43.

Analog Output Cable

The maximum length of the analog current output cable at 4-20mA is 300'.

The maximum length of the analog voltage output cable at 0-10Vdc is 150'.

2.4 Grounding the System

A centrally located, single point ground, such as the ground bar of the electric panel, must be created and/or identified for proper grounding and functioning of the system. The ground must be sized so that the total resistance of grounding is lower than 1Ω. Connect grounding points of all instrumentation, load cells, and weighing structure to this single point ground.

2.4.1 Load Cells and Junction Box

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

When the load cells are directly connected to the instrument, the load cell cable shielding must be connected to the single point ground.

System cabling should be kept as short as possible to minimize noise potential. After exiting conduit or other shielding, a ferrite device should be used prior to conductor termination.

After platform and the load cell are properly grounded, connect the shield from the load cell cable to the instrument ground. See Figure 1-1 on page 3.

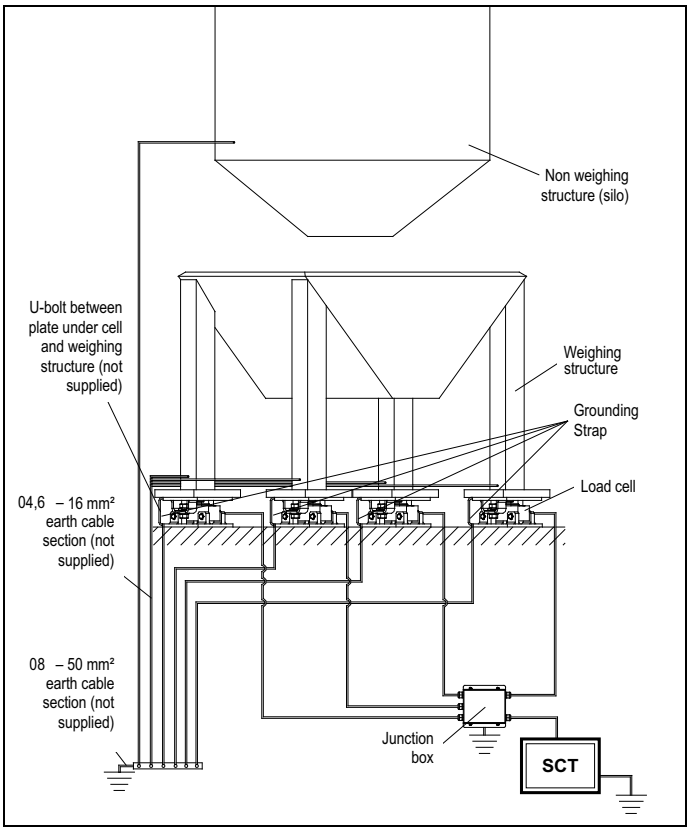

Figure 2-1. Grounding Example

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 shimmed evenly.

All connections must meet all local zone and environment standards.

Follow the recommended electrical precautionary measures described in Section 2.2 on page 5.

Make sure that the grounding is made correctly, See Section 2.4.

2.5 Wiring Schematic

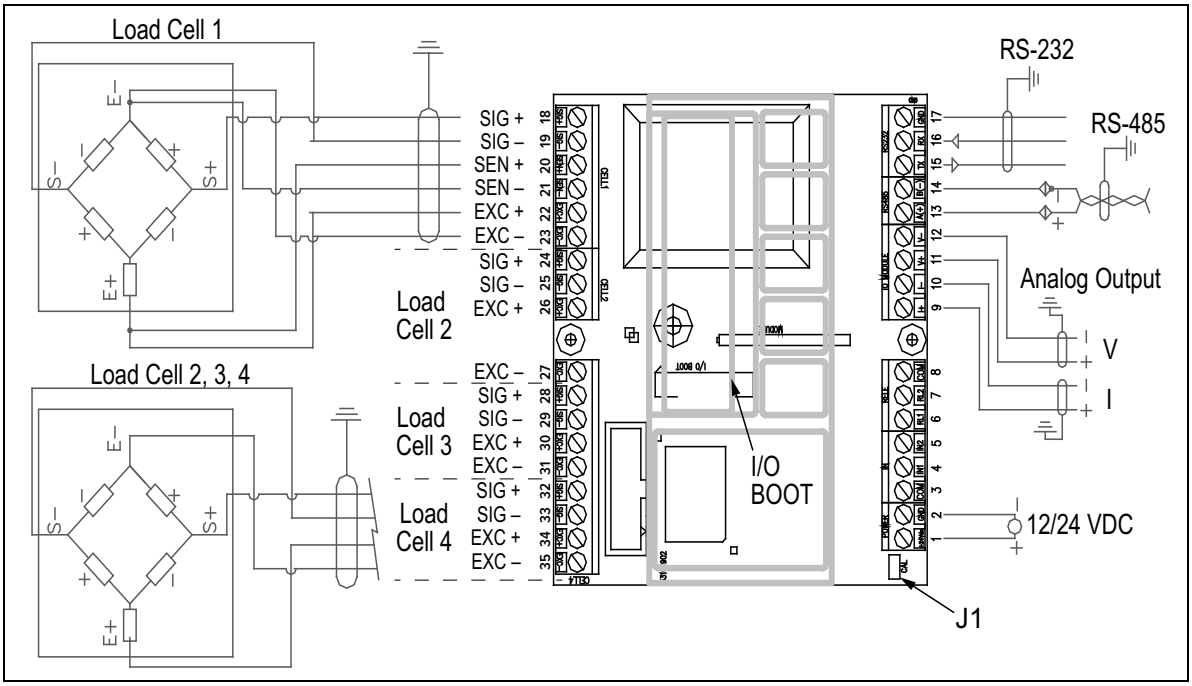

Figure 2-2. SCT-1100 Wiring Schematic

The CELL1 terminal board of the indicator can be connected to a six-wire load receiver (wiring must be jumpered if connecting to 4-wire load cell. See Figure 2-3 on page 8); CELL2, CELL3 and CELL4 are only for four-wire connection. See Figure 2-2.

Pin Number	Label	Description
VE 12-24 Vdc Power Supply		
1	+Vdc	+12-24 Vdc
2	GND	0Vdc (GND)
Inputs and Outputs		
Optoisolated Inputs Positive Logic (12-24Vdc,5-20mA max)		
3	COM	Common Output
4	IN1	Input 1
5	IN 2	Input 2
Relays		
6	RL1	Relay 1
7	RL2	Relay 2
8	COM	Common Relay

Pin Number	Label	Description
Analog Output		
Voltage		
9	I+	+20mA
10	I-	-0mA (GND)
Current		
11	V+	+10V
12	V-	0V (GND)
Serial Port		
RS-485		
13	(A) 485 + Line	
14	(B) 485 - Line	
RS-232		
15	TX	Transmission
16	RX	Reception
17	GND	Ground

Pin Number	Label	Description
Load Cell 1		
18	SIG+	Signal +
19	SIG-	Signal -
20	SEN+	Sense +
21	SEN-	Sense -
22	EXC+	Excitation +
23	EXC-	Excitation -
Load Cell 2		
24	SIG+	Signal +
25	SIG-	Signal -
26	EXC+	Excitation +
27	EXC-	Excitation -

Pin Number	Label	Description
Load Cell 3		
28	SIG+	Signal +
29	SIG-	Signal -
30	EXC+	Excitation +
31	EXC-	Excitation -
Load Cell 4		
32	SIG+	Signal +
33	SIG-	Signal -
34	EXC+	Excitation +
35	EXC-	Excitation -

Table 2-1. SCT-1100 Wiring Schematic

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

2.6 Connection to the Load Cell

The load cell 1 terminal board of the SCT-1100 must be connected to the 6-wire load cell; if using a 4-wire load in the load cell 1 terminal board, cell excitation must jumper to sense, See Figure 2-3. Load cells 2, 3, and 4 must be connected to 4-wire load cells, See Figure 2-4.

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

Note ***The sense compensates for drops in voltage along the cable that connects the instrument to the load cell. Voltage is lost when the instrument and the load cell are greater than 30ft apart. A cable is typically provided with a load cell. When exceeding the length of the provided load cell cable, six wires must be used to compensate for voltage drop. It is, however, recommended to never cut or shorten the load cell cable.***

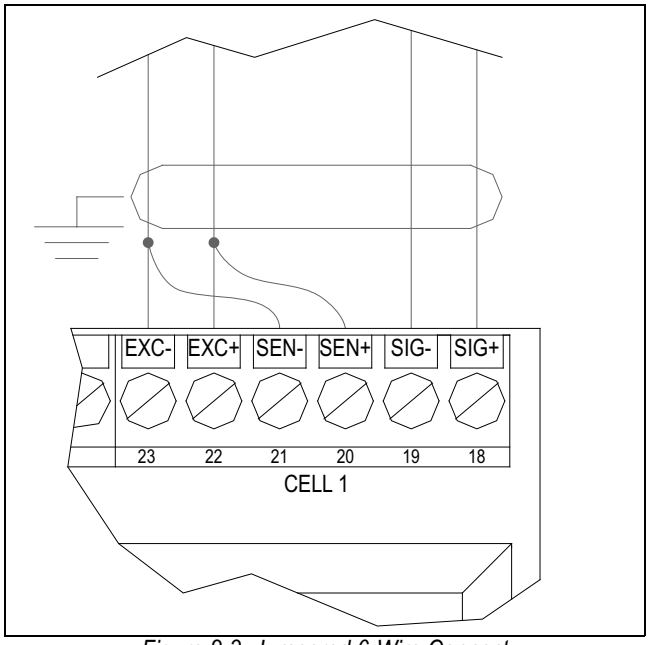

Figure 2-3. Jumpered 6-Wire Connect

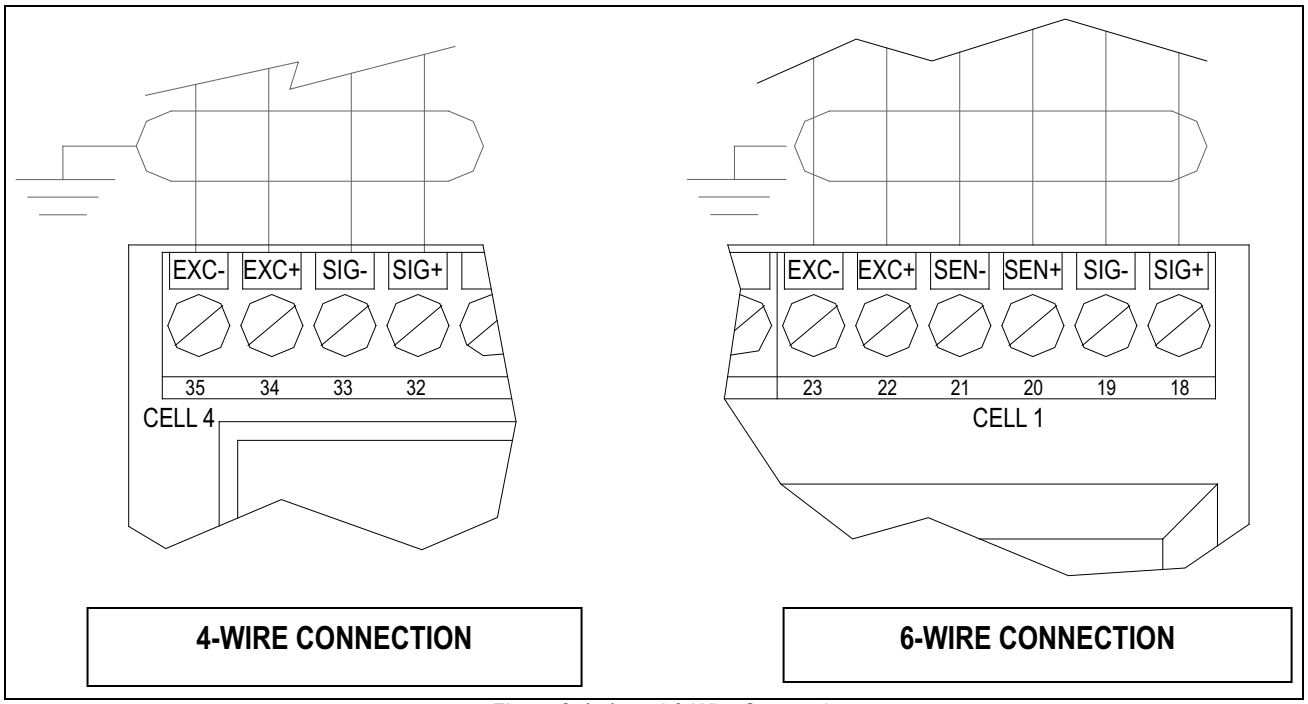

Figure 2-4. 4- and 6-Wire Connections

2.6.1 Input/Output Wiring

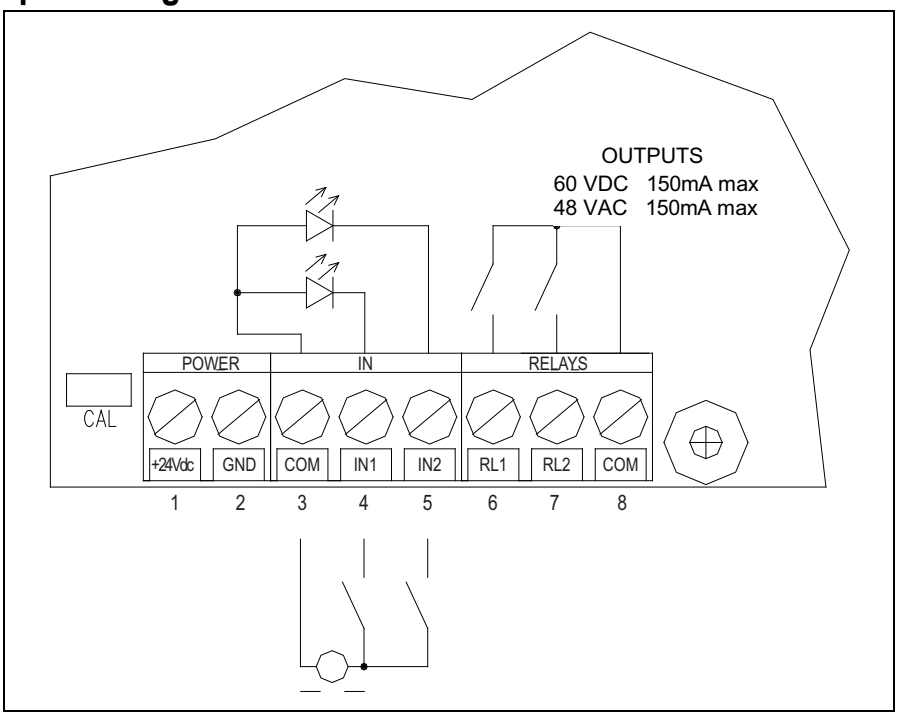

Figure 2-5. Input/Output Wiring

- Output power: 48 Vac, 150mA max (or 60 Vdc, 150mA max)
- Input voltage: 12Vdc - 24 Vdc max
- Input current: 5 mA min - 20 mA max

2.7 Legal for Trade

The SCT-1100 indicator is sealed in Legal for Trade applications using a tamper proof sticker placed on the side seam of the indicator. The Audit menu can be accessed from weigh mode without power cycling the indicator. (See Section 4.7 on page 32)

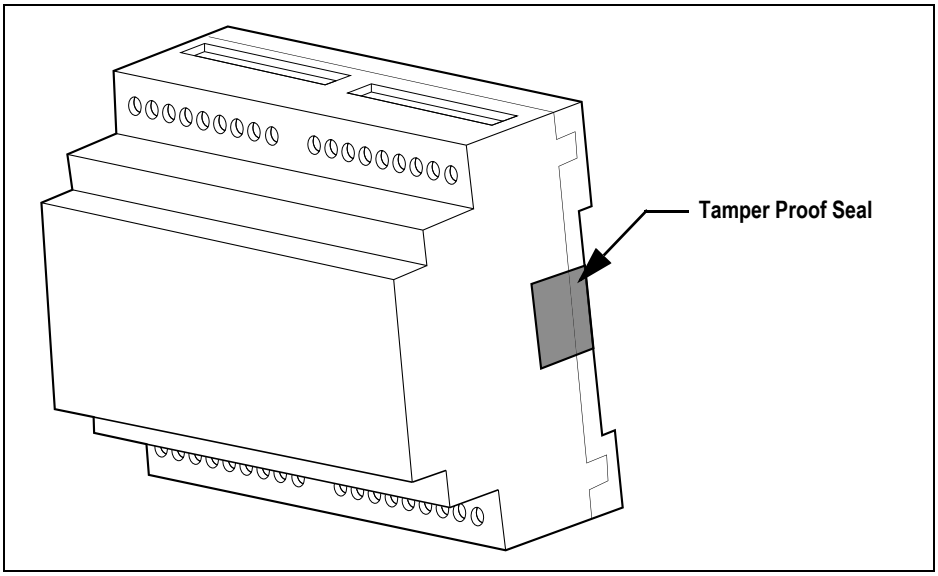

Figure 2-6. Location of Legal for Trade Seal

3.0 Operation

3.1 Basic Operation

Power must be provided to the SCT-1100 through an external AC/DC charger that supplies a stabilized voltage of 12 VDC to 24 VDC while connected to an appropriately rated AC power supply. Connect the two power supply wires to the appropriate terminals on the side of the instrument, See Figure 1-1 on page 3.

3.1.1 Turn on the Instrument

Press C 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 ZErO and, after 10 seconds, the current weight is displayed.

Note

The auto zero function at start-up can be disabled in the setup mode.

See SEtuP→ConF iG→PArAM→Auto-O in Table 4-6 on page 24.

To view the following settings momentarily press ▼ while the display self-check is running:

- HH.YY – HH is the software release and YY is the sub release
- 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
- HHH.HHH – capacity and division of channel 1
- h irES – displayed together with the gravitational acceleration value of the area of use

The instrument then executes a self-check.

3.1.2 Standby

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

3.1.3 Power Off the Instrument

To completely power off the unit, remove the power supplied voltage.

3.1.4 Zero

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

3.1.5 Tare

Semiautomatic Tare

Press ▲ to tare the weight value on the scale. tArE 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 with the following keys:

- ▶ selects the digit to be modified (moves left to right, selected digit blinks)
- ▼ decreases the blinking digit
- ▲ increases the blinking digit
- C momentary press clears 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 .ModE displays.
2. Press ↵ to enter the menu.
3. Press ▼ or ▲ until tArE displays. Press ↵ to select.
4. Press ▼ or ▲ to scroll through options.
   - LoCk – locked tare
   - unLoCk – unlocked tare
   - d iSAb – disable tare
5. Press ↵ to confirm selection.
6. Slowly press C multiple times until SAVEP displays.
   - Press ↵ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

3.2 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 33.

3.3 Display Configuration Data

The inFO function makes it possible to view the 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

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. Press ▼ or ▲ to scroll forward or back through the following data.
   - First range capacity Ch 1.MAX
   - First range minimum weight Ch 1.Min
   - First range division Ch 1.E
   - Second range division Ch 1.MAX
   - Second range minimum weight Ch 1.Min
   - Second range division Ch 1.E
   - Gravitational Acceleration Value GrAU it
   - Number of Configured Channels Conf.Ch
3. Press C to return to the weigh mode.

Pressing ▶ when information of the currently active channel is displayed allows for the data of the other configured channels to be viewed. This selects and pauses the information for each channel, otherwise the information automatically cycles through all channels.

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.MAX). Press ▶. 1st range capacity channel 2 (Ch2 .MAX). Press ▶. 1st range capacity channel 3 (Ch3 .MAX).

3.4 Selecting the Channel to be Displayed

When indicator has multiple scale channels configured in trAnSM type mode or ind.Ch type mode, it is possible to select the channel to be displayed using the ▶ key. See Section 4.3.1 on page 21 for configuring type parameters and Section 4.4 on page 24 for configuring the number of channels.

1. Press and hold ▶. The currently selected channel displays first followed by ChAn momentarily. A menu of available chanels displays.
2. Select the channel to be displayed. Press ↵ to confirm.

3.5 Simultaneous Transmitter Mode

The tRANSM 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. See Section 4.3.1 on page 21 for configuring type parameters and Section 4.4 on page 24 for configuring the number of channels.

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. Press ↵ to enter the menu.
2. Navigate to select tRANSM displays. Press ↵ to select.
3. Slowly press C multiple times until SAVEP displays. Press ↵ to confirm.

Operation

In the simultaneous transmitter mode it is possible to view the weighing information. See Section 3.7.2 on page 14 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; not all serial commands can be performed; See Section 6.3 on page 43; 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***

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

3.6 Selecting Printing Functions

Use the following procedure below to set printing functions (See Section 4.3.2 on page 21):

1. Turn on the instrument and press ▲ while the firmware version displays. F.MODE 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 – rearms print at zero; only prints after rearming
   - inSt – rearms print when weight becomes stable
   - ALWAYS – prints when print key is pressed, regardless of condition
5. Press ↵ to confirm.
6. Slowly press C multiple times until SAVEP displays.
   - Press ↵ to confirm and store to the instrument memory
   - Press any other key to cancel and exit without saving

3.7 Selecting the Operating Mode

In addition to the standard weighing mode, the instrument can be set to carry out four alternative 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 .ModE displays. Press ↵ to enter the menu.
2. Navigate to FunCt. Press ↵ to enter the menu.
3. Select operating mode:
   - ConUEr – convert displayed value to a calculated value, See Section 3.7.1
   - AL ib i - Alibi memory, See Section 3.7.2
   - U .SS – sensitivity times ten, See Section 3.7.3 on page 15
   - PEAK – peak hold detector, See Section 3.7.4 on page 16
4. Press ↵ to confirm selection.
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

3.7.1 Conversion

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

- Long press ▶ to set the conversion factor
- Short press ▶ to toggle between the unit of measures
- Press ↵ to save the conversion value

3.7.2 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 00000-00255; it indicates the number of complete rewritings of the alibi memory
- Weigh number is a six digit number from 000000-131072; 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 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 .ModE→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).

Reviewing Stored Weigh Information

To review stored information:

1. Press ▶. rEW . id displays.
2. Enter the rewriting number (from 00000-00255).
3. Press ↵. id displays.
4. Enter the weigh number (from 000000-131072).
5. Press ↵. The weigh information displays.
6. Press ▼ or ▲ to view the weigh information.
   - ch . H-H is the scale number (from 1-4)
   - uN YY-YY is the unit of measure (Lb, kG, 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 .P displays.
4. Press ↵ to clear the alibi memory or any other key to cancel.
   - AL .OK 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.

3.7.3 Sensitivity Times Ten

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

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.

3.7.4 Peak Hold Weight Detection

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

Operation

If Peak Hold Weight Detection has been set as the functioning mode, the following functions are enabled while in weigh mode:

1. Press ▶ to enable the peak weight detection. -PEAK- 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, PEAK 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 highest weight)
   - The maximum and persistent weight detected on the scale

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 while in weigh mode:

1. Press and hold ↵.
2. Select P iC .tLn. -tP- displays followed by a number which corresponds to the minimum time length of the impulse expressed in hundredths of seconds.
3. Press ▼ or ▲ until the desired value displays. See Table 3-1 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 3-1. 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 lb is on the load cell of 20 lb (350 Ω), and the sampling time is equal to 1, when the peak function is enabled, 0.005 lb displays.

4.0 Setup Mode

The setup mode is used to set the functioning parameters of the instrument. There are two setup menus in the SCT-1100.

- The **Quick Setup** Menu is a limited menu that includes settings essential to basic scale configuration such as quick calibration and communication. To enter the quick setup menu, press C to turn the instrument on. Press ▶ as the firmware version displays. See Section 4.2 on page 18 for more information on the quick setup menu.
- The **Setup Mode** Menu is a more in-depth menu that incorporates all configuration settings. To enter the Setup Mode, press C to turn the instrument on. Press ▲ as the firmware version displays. See Section 4.3 on page 20 for more information on the Setup Mode menu.

4.1 Setup Mode Navigation

Use the keys on the front panel of the indicator to navigate trough the menu options as follows:

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 SAVE? 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 Quick Setup Menu

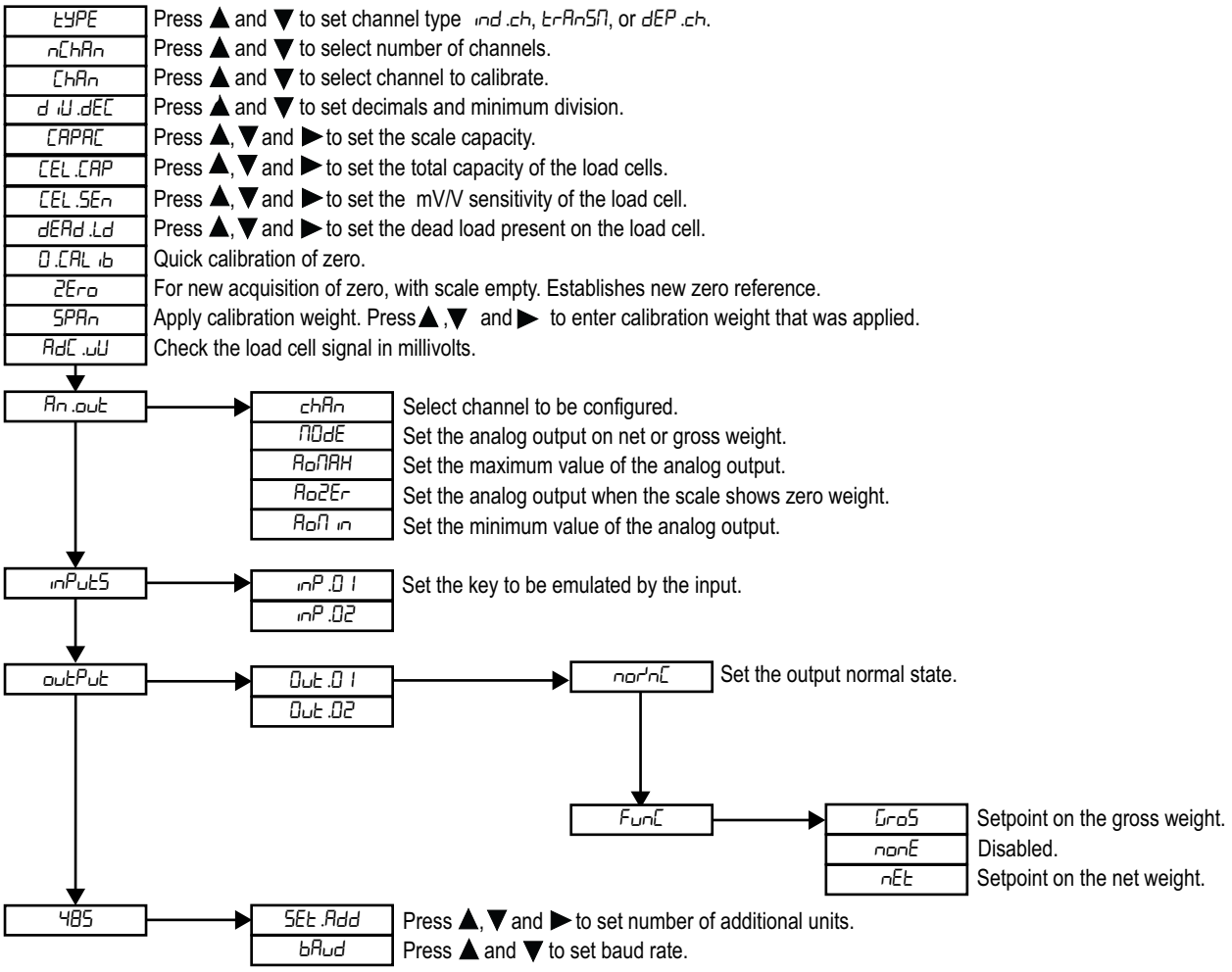

Figure 4-1. Quick Setup Menu

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

4.2.1 Default Factory Calibration

The instrument is shipped with the following default calibration settings: See Table 4-4 on page 22 to return indicator to default settings.

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

4.2.2 Quick Scale Setup

Use this procedure to set the scale(s). Cells may need to be trimmed and summed with a junction box if more than one is connected. See Section 5.2 on page 34 for full calibration procedures.

1. Restart indicator. Momentarily press ▶ during startup to display quick setup menu. TYPE displays. Press ↵ to set parameter.
2. Navigate to select desired channel type. Press ↵. nCHAn displays. Press ↵ to set parameter.
3. Navigate to select number of channels to be used. Press ↵. If multiple channels are chosen, CHAn displays. Press ↵ to set parameter.
4. Navigate to select a channel to configure. Press ↵ d iU .dEC displays. Press ↵ to set parameter.
5. Navigate to select decimal and minimum division settings. Press ↵. CAPAC displays. Press ↵ to set parameter.
6. Set the total capacity of the scale. Press ↵ to confirm. CEL .CAP displays. Press ↵ to set parameter.
7. Set the total capacity of the load cells. Press ↵ to confirm. CEL .SEn displays. Press ↵ to set parameter.
8. Set the mV/V sensitivity of the load cells. Press ↵ to confirm. dEAd .Ld displays. Press ↵ to set parameter.
9. Set the dead load. If unknown, enter all zeros. Press ↵ to confirm.
10. If configuring multiple channels, navigate to return to CHAn. Repeat steps 6-18 for each channel to be configured.
11. Press C until the instrument displays SAVEP.
12. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

4.2.3 Analog Output

See Section 4.6 on page 30 for Analog Output Settings.

4.2.4 Inputs

See Section 4.5.1 on page 27 For Input setup parameters.

4.2.5 Output Functions

SeeSection 4.5.2 on page 28 for Output Functions.

4.3 Setup Mode Menu

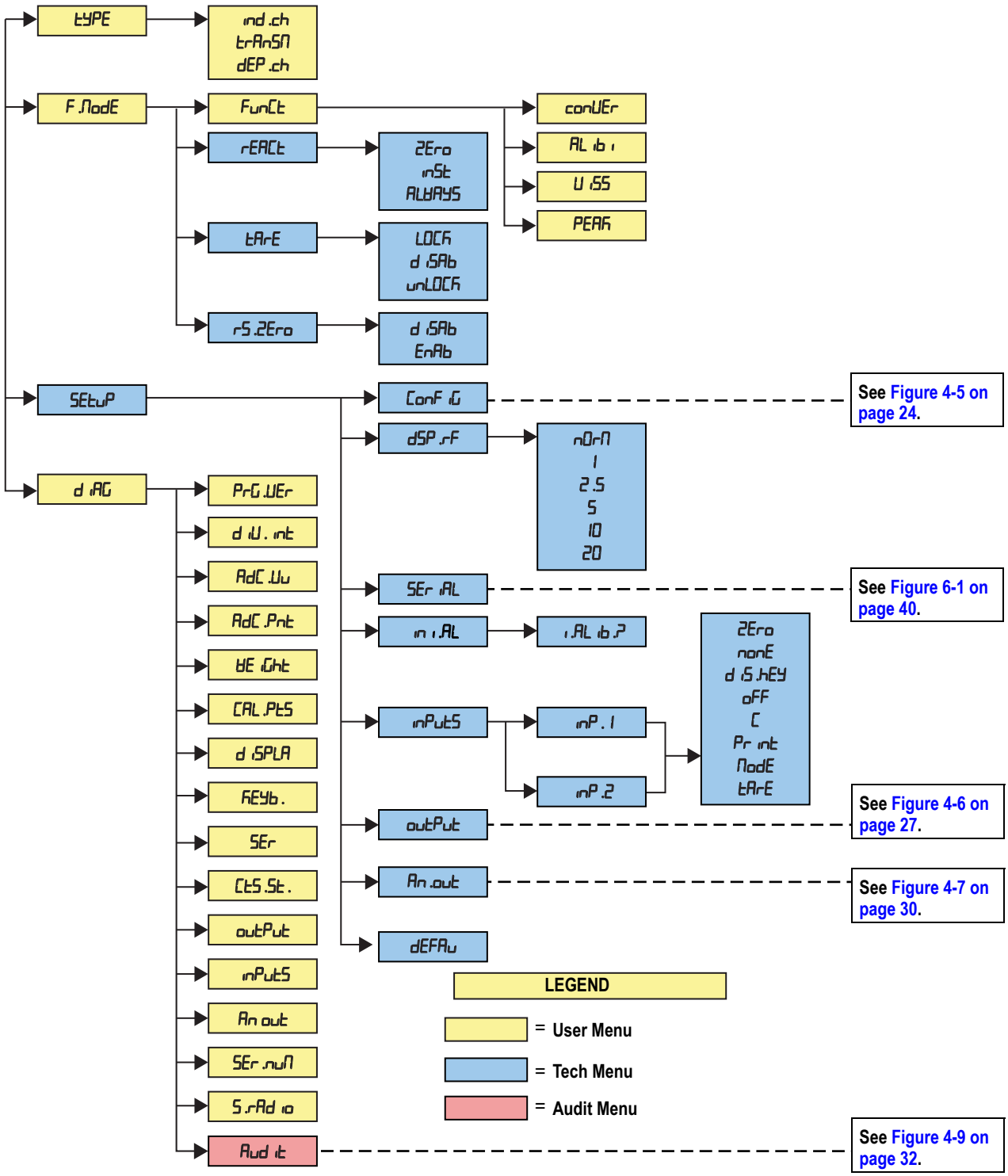

Figure 4-2. Setup Mode Menu

Note ***Settings adjusted in Tech Menu will Increment the Audit Trail. Settings Adjusted in User menu will not.***

4.3.1 Type Parameters

Select the application type:

- an independent scale on each channel
- a scale with dependent channels summed or
- scales with independent channels simultaneously viewable on the PC.

Setting	Description
ind.Ch	Instrument connected to 1, 2, 3 or 4 independent scales; to set channels, see Section 3.4 on page 12.
dEP.Ch	Instrument connected to a scale with 2, 3, or 4 dependent load cells (could be digitally summed)
trAnSn	Independent channel; transmits values read by each chanel through the serial line; See Section 3.5 on page 13

Table 4-2. Type Parameter

4.3.2 F.Mode Parameters

The function mode parameters set the functionality of the scale. The function mode parameters set four operations that can be accessed with the > key. It also sets the functionality of printing, taring and zeroing.

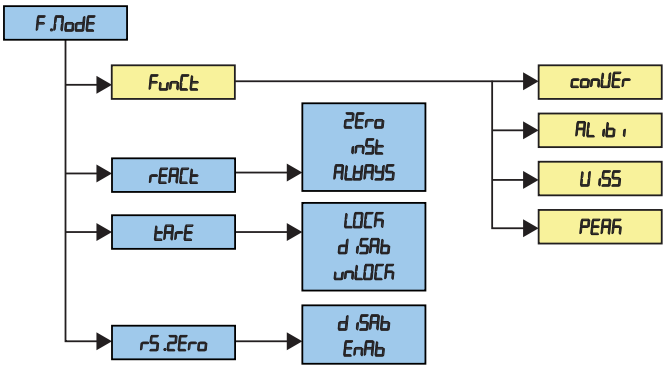

Figure 4-3. F.Mode Menu

Parameter	Setting	Description
Funct	Functioning Mode ***NOTE: For the details of the operating modes, see Section 3.7 on page 14. Once the functioning mode is selected, if a printer is configured, the printout is automatically enabled. This parameter is not displayed if trAnSn is set in the tYPE parameter***	
	ConVEr	Convert the current displayed value to a calculated value; if the Mode key is pressed for 1 second, the conversion value can be edited, See Section 3.7.1 on page 14
	AL.ib.	Alibi memory, See Section 3.7.2 on page 14
	U.SS	Sensitivity times ten when the mode key is pressed, See Section 3.7.3 on page 15
	PEAK	Peak hold detector displays PEAK and alternates with displaying the highest captured value after the mode key is pressed, See Section 3.7.4 on page 16
rEACt	Sets the re-enable function of printout based on this criteria: rearm at zero, rearm when weight is unstable, or always print when the print button is pressed, See Section 3.6 on page 13	
	2Ero	Rearms print function after weight returns to zero; only prints once after rearming
	inSt	Always prints when print key is pressed
	ALWAYS	Instability rearms the print function when the weight becomes unstable; only prints once after rearming and weight becomes stable
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, See Section 3.1.5 on page 11	
	LoCK	Retains tare value until manually cleared
	d.SAb	Tare value cannot be entered
	unLoCK	Tare value is automatically cleared when gross weight is zero
rS.2Ero	Enables restoring the last captured zero after a power cycle	
	d.SAb	Disables restore zero after power cycle
	EnAb	Enables restore zero after power cycle
	NOTE: This parameter does not display if trAnSn is selected in the tYPE parameter.	

Table 4-3. Function Mode Parameter

4.3.3 Setup Parameters

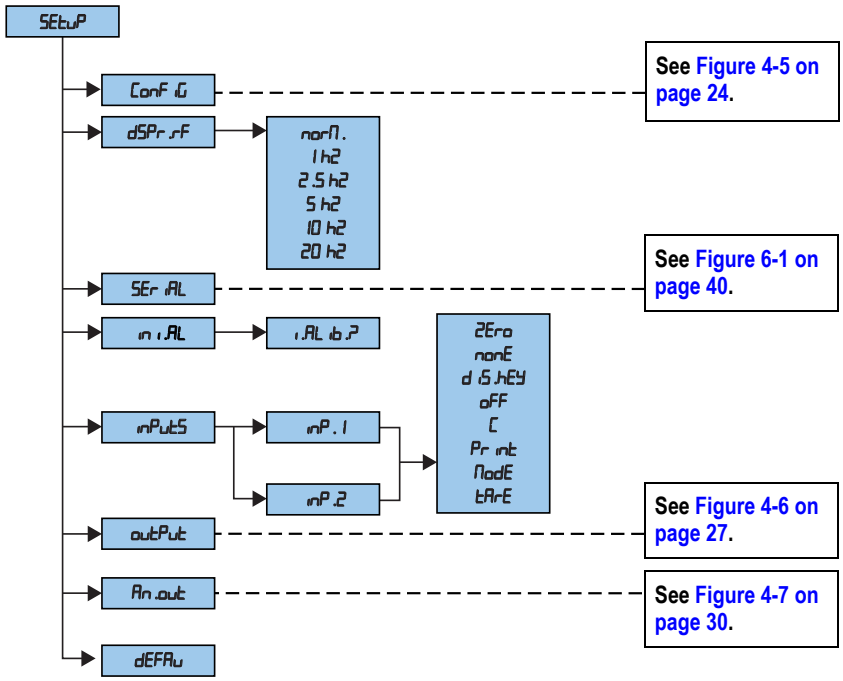

Figure 4-4. Setup Menu

Parameter	Setting	Description
ConF iG	Configuration Parameter - See Table 4-6 on page 24	
dSP .rF	Sets the speed of the display refresh	
	norn	The function is disabled
	20 h2	20 display update / sec refresh rate
	10 h2	10 display update / sec refresh rate
	5 h2	5 display update / sec refresh rate
	2 .5 h2	2.5 display update / sec refresh rate
	1 h2	1 display update / sec refresh rate
SEr iAL	Serial Communications Setup, See Table 6-3 on page 41	
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.P displays; press ↵ again to confirm or any other key to cancel; AL .Ok displays if the operation is successful; if not, AL .Err displays; the parameter displays only if the alibi functioning mode is selected	
inPutS	Input Configuration – sets the function of each input	
outPut	Output Configuration; See Table 4-9 on page 28	
An.out	Analog Output Configuration; See Table 4-10 on page 30	
dEFAu	Default settings – restores instrument default settings; press ↵; dEFAuP displays; press ↵ to confirm or exit by pressing any other key ***NOTE: Returning the instrument to default settings cancels the present calibration.***	

Table 4-4. Setup Parameters

4.3.4 Diagnostic Menu

See the Figure 4-2 on page 20 for the diagnostic (d iAG) menu structure.

Setting	Description
PrG.UEr	Press ↵ to display the software version
d iU. int	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; SuM 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 scale 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 scale system***
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; in the dEP.Ch mode the sum of the microvolts of the configured channels can be viewed. (C SuM displays momentarily)
WEiGHt	Press ↵ to display the weight on the scale; press ▼ or ▲ to view the weight on each connected scale
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
diSPLA	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
KEYb	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 • 1 – 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.1 displays and output 1 is enabled; press ▼ or ▲ to enable the other outputs
inPutS	Input status – press ↵, then 1.bH-Y; H displays, in which Y indicates the input status • 0 – disabled • 1 – enabled Press ▼ or ▲ to change the input status
AnOut	Analog Output Test – provides a basic test to verify correlation of weight and analog output; See Section 4.6 on page 30 Press ↵, then 00000 displays. Enter a value between 00000 and 65535 and confirm by pressing ↵; the instrument assigns the corresponding analog value in output Press ↵ on the same entered value
SEr.nuM	Serial Number – displays the instrument's serial number
S.rAd io	Press ↵ to select the desired radio channel; OK displays if the configuration is successful, Error displays if not successful
Aud it	Press ↵ to view counters for System Configuration, Scale Configuration, and Scale Calibration; See Section 4.7 on page 32

Table 4-5. Diagnostics Menu

4.4 Configuration Menu

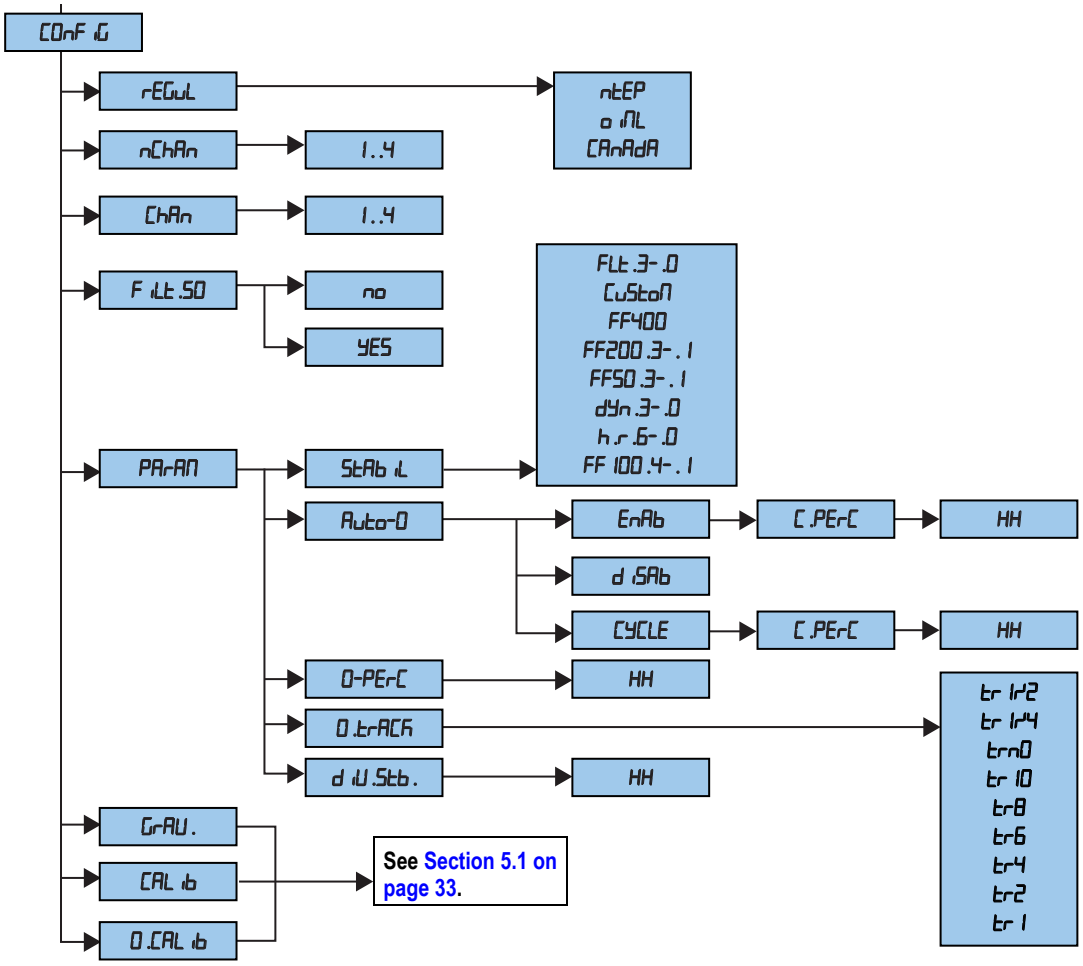

Figure 4-5. Configuration Menu

Parameter	Setting	Description
rEGuL	nLEP o iML CAnAdA	Selection of regulatory body NTEP OIML Measurement Canada
nCHAn	Ch.1 Ch.2 Ch.3 Ch.4	Selection of number of channels to be utilized
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/trAnSM) ***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

Table 4-6. Config Menu Parameters and Settings

Parameter	Setting	Description
PAr-AM	Metrologic parameters	
	StAb iL	Select and set the type and degree of filtering; See Section 4.4.1 on page 26 FLt 0-3 – filter for simple weighing CuStoM – customizable filter for manufacturer use F.F.200.1-3 – filter at 200 Hz F.F.50.1-3 – filter at 50 Hz dYn.0-3 – filter for crane scale h.r.0-6 – filter for high resolution F.F.100.1-4 – filter at 100 Hz F.F.400 – filter at 400 Hz ***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.*** ***With a Legal for Trade instrument, only the FLt0, FLt 1, FLt2, FLt3 parameters can be selected.***
	Auto-0	Automatic acquisition of the gross zero at startup (default is 2% of capacity) d iSAb – disabled EnAb – enabled on scale 1 CYCLE – Executed cyclically on all the present scales. This parameter is not visible if there is only one scale ***NOTE: If auto zero parameter 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 (0-50%) of capacity that can be zeroed by pressing zero key (▼); Entering 0% disables the zero key (▼)
	0.trACk	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 tracked off in 1 second tr 1/2 – ± half division tr 1/4 – ± one fourth of a division tr no – tracking disabled tr 10 – ± ten divisions tr 8 – ± eight divisions tr 6 – ± six divisions tr 4 – ± four divisions tr 2 – ± two divisions tr 1 – ± one division
	d iU.Stb	Divisions by stability – enter the number of divisions by which the instrument detects the weight stability; a higher number of divisions makes stability more easily detected; Settable values are 0 (weight always stable) to 99
GrAU.	--	Gravity acceleration – See Section 5.7 on page 38
CAL ib	--	Scale calibration – See Section 5.0 on page 33
0.CAL ib	--	Zero calibration – See Section 5.0 on page 33

Table 4-6. Config Menu Parameters and Settings (Continued)

4.4.1 Filter Parameters

Standard digital filtering uses mathematical averaging to compensate for the noise that the A/D converter sends periodically because of external vibration. This filter compensation makes data less susceptible to a DC signal bias error for some signals.

Each of the filters of the SCT-1100 are intended to compensate for different types and intensities of digital noise and vibration. Below, find general usage for each family of filters and the A/D Rate and Window for each filter within those families:

Name	A/D Rate	Window
Static Weighing on platform		
FLt3	25	24
FLt2	25	16
FLt 1	25	12
FLt0	25	8
CuStOn	For manufacturer use only	
High Speed Weight Capture		
F.F.400	400	24
Filling or Dosing		
F.200.3	200	30
F.200.2	200	32
F.200.1	200	32
Instability, motion or vibration		
F.50.3	50	20
F.50.2	50	22
F.50.1	50	22

Name	A/D Rate	Window
Suspended and oscillating loads		
dYn.3	6	12
dYn.2	6	12
dYn.1	6	12
dYn.0	6	12
High Resolution Weighing		
h.r.6	6	32
h.r.5	6	24
h.r.4	6	24
h.r.3	6	12
h.r.2	6	12
h.r.1	6	10
h.r.0	6	8
Filling or Dosing		
F.100.4	100	26
F.100.3	100	24
F.100.2	100	20
F.100.1	100	10

Table 4-7. Filter Values

4.5 Input/Output Functions

The instrument is fitted with two opto-isolated inputs and two dry contact outputs. See specifications in Section 2.5 on page 7.

Some of functioning modes of the outputs are relative to the specific functioning modes of the instrument; see the following descriptions for the details.

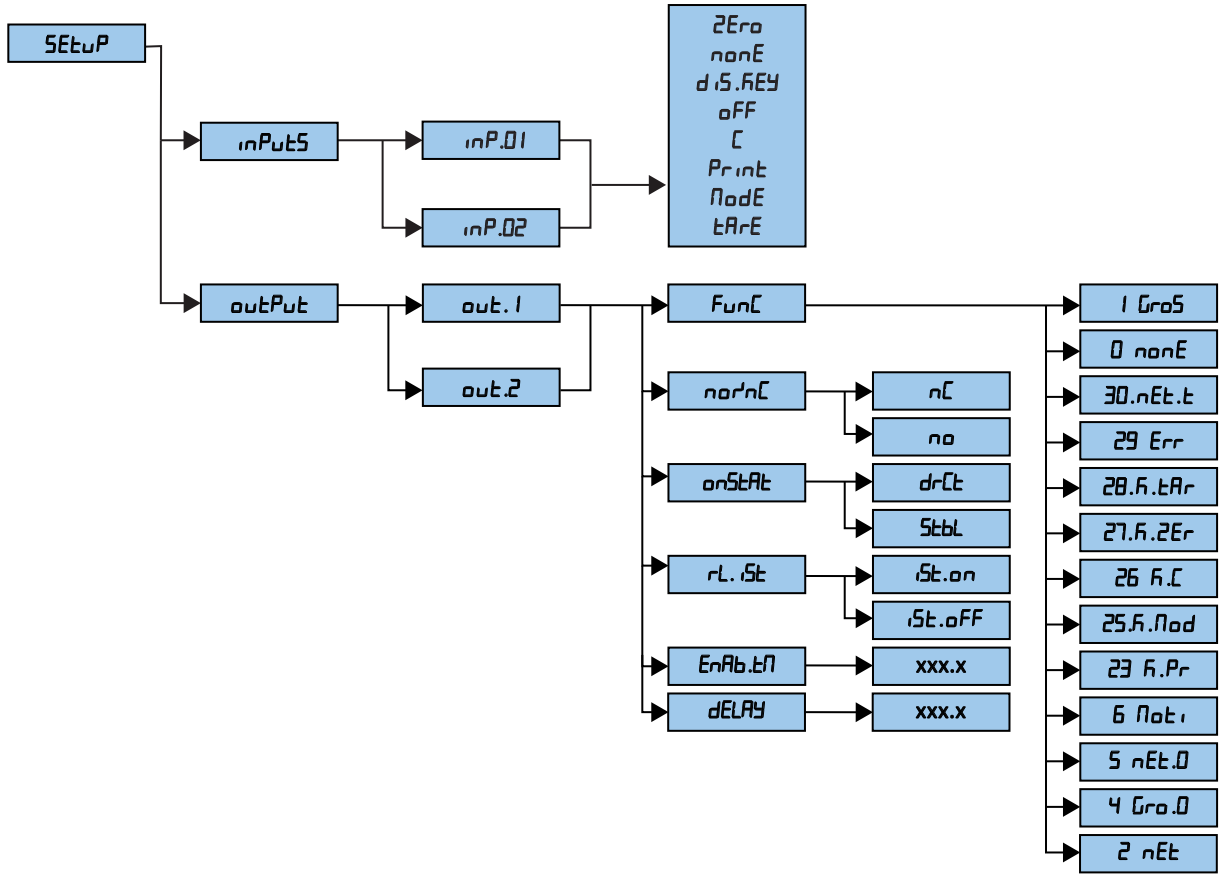

Figure 4-6. Output Menu

4.5.1 Input Functions

The input configuration menu sets the function of each of the inputs

Parameter	Setting	Description
inPutS	inP .0 1 inP .02	Input 1 or Input 2 ***NOTE: In the event two inputs are simultaneously enabled, only the lowest number input will activate.***
		2Ero – Zero key
		nonE – Disabled (Default for input 1)
		d iS .kEY – Disables the keyboard
		oFF – Turning off the instrument
		C – C key – ON/OFF key
		Pr int – Print key
		NodE – Mode key (Default for input 2)
		tArE – Tare key

Table 4-8. Input Functions

4.5.2 Output Functions

The parameters of each of the outputs is set in the setup OUTPUT menu. See Figure 4-6 on page 27.

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.***

Parameter	Setting	Description
FUNC	Define the functionality of each output	
	1 GROS	Setpoint based on the gross weight (Default) **Functioning with hysteresis** (RL. 1ST parameter set at 1ST. ON) Setpoint based on gross weight; Two setpoints for each output must be set; one which disables the output when the gross weight falls below that setpoint; and one which enables the output when the gross weight is equal or greater than that setpoint 1. Press and hold ↵ to enter the setpoint values for each configured output 2. Select 1NP.1SP. S.1 ON displays (output 1 – this enables the setpoint). Press ↵. 3. Enter the weight value. See Section 4.1 on page 17 for key function. Press ↵ to confirm. S.1 OFF displays (output 1 – this disables setpoint) Press ↵. 4. Enter the weight value. Press ↵ to confirm 5. Repeat steps 1 to 8 for all outputs 6. Slowly press C multiple times until SAVEP displays. - Press ↵ to confirm and store to the instrument memory - Press any other key to cancel and exit without saving
		Functioning without hysteresis (RL.1ST parameter set at 1ST.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. Select 1NP.1SP. S.1 ON displays (output 1 – enabling setpoint) Press ↵. 3. Enter the weight value; See Section 4.1 on page 17 for key function. Press ↵ to confirm. 4. Repeat steps 1 to 5 for all outputs 5. Slowly press C multiple times until SAVEP 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 zero 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 two 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 Functions

Parameter	Setting	Description
FunC	0 nonE	No function, the output is inactive
	2 nEt	Setpoint based on net weight. Setpoints are set in the same manner as gross weight; See 1 Gro5 in Table 4-9 on page 28. 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)
	30 .nEt .t	Setpoint based 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 entered
	29Err	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.
	28 K .tAr	Tare Key – function is enabled when TARE key is pressed
	27 K .2Er	Zero Key – function is enabled when ZERO key is pressed
	26 K .c	C Key – function is enabled when C is pressed
	25 K .Mod	Mode Key – function is enabled when MODE key is pressed
	23 K .Pr	Print Key – function is enabled when PRINT key is pressed
	6 not i	Instability – Output is on for an unstable weight
	5 nEt .o	Setpoint based on net weight being at zero
	4 Gro .0	Setpoint based on gross weight being at zero
nornc	NO/NC Contacts • no – output normally opened • nC – output normally closed	
onStAt	Switching condition • drCt – the output is activated when the weight reaches the set threshold, (independently from the stability) and is disabled when the weight goes below the set disabling threshold • StbL – the output is activated when the weight, after reaching the set activation thresholds, becomes stable; the output is disabled when the weight, after going below the set disabling threshold, becomes stable	
rL . iSt	Hysteresis • iSt .oFF – hysteresis disabled • iSt .on– hysteresis enabled	
EnAb .tM	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 dELAY); by setting 000.0 the output remains always active ***NOTE: The delay time is only evaluated when a setpoint on gross weight, setpoint on net weight or 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 evaluated when a setpoint on gross weight or setpoint on net weight is selected as an output function.***	

Table 4-9. Output Functions (Continued)

4.6 Analog Output

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

The analog output is updated every 20ms and takes on the value corresponding to the weight converted in that instant; therefore, as the filter is increased, the analog output update rate will slow down.

Note ***Scale needs to be calibrated per Section 5 before analog output can be calibrated***

To configure the parameters, enter the setup mode and SEtuP→An.out.

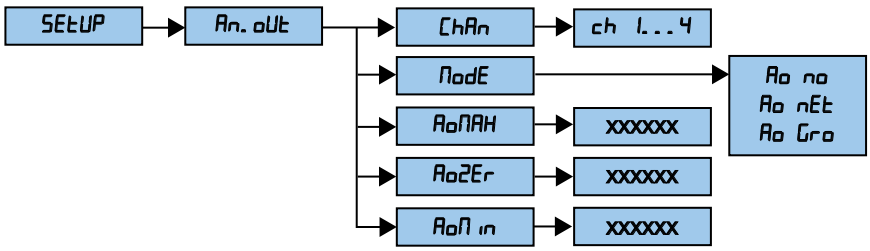

Figure 4-7. Analog Output Menu

Parameter	Description
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, SEtUP→ConF iG→nChAn
ModE	**Select the type of analog output:** Ano – analog output disabled AoGro – analog output tracks gross weight AonEt – analog output tracks net weight Once the functioning mode is confirmed, set the values of the analog output; the digital/analog converter values are entered (between 0-65535) 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 – press to quickly zero the present value to 000000
AoMAX	Set the maximum value of the analog output: • **With a positive weight** – the value of the output when the weight is greater than or equal to the full scale capacity; also corresponds to the overload condition • **With negative weight** – 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 zeros the value
Ao2Er	Set the analog output value when the scale displays zero weight (supplied when the scale is in underload); this value can be between 0-65535 (values of the digital/analog converter); if a higher value is entered, the instrument zeros it
AoMin	Set the minimum value of the analog output: • **With positive weight** – the minimum value provided by the analog output, corresponding also to the underload condition • **With negative weight** – 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 zeros it.

Table 4-10. Analog Output Parameters

Calibrating Analog Output

The following calibration procedure requires a multimeter to measure voltage or current output from the analog output module.

1. Enter setup mode and go to the Ao out menu (see Table 4-10 on page 30).
   - Set Ao Min to lowest weight value to be tracked by the analog output
   - Set Ao MAX to highest weight value to be tracked by the analog output
2. Connect multimeter to analog output:
   - For voltage output, connect voltmeter leads to pins 3 and 4
   - For current output, connect ammeter leads to pins 1 and 2
3. Adjust zero calibration: Scroll to the Ao 2Er parameter. Check voltage or current reading on multimeter. Press and hold ▼ or ▲ to adjust the zero value up or down.
4. Return to normal mode. Analog output function can be verified using test weights.

Approximate Values Between The DA Converter and Analog Output

D/A Converter	Voltage	Current (mA)
1200	0	0
12700	--	4
58600	--	20
62650	10	--

Table 4-11. DA Converter and Analog Output

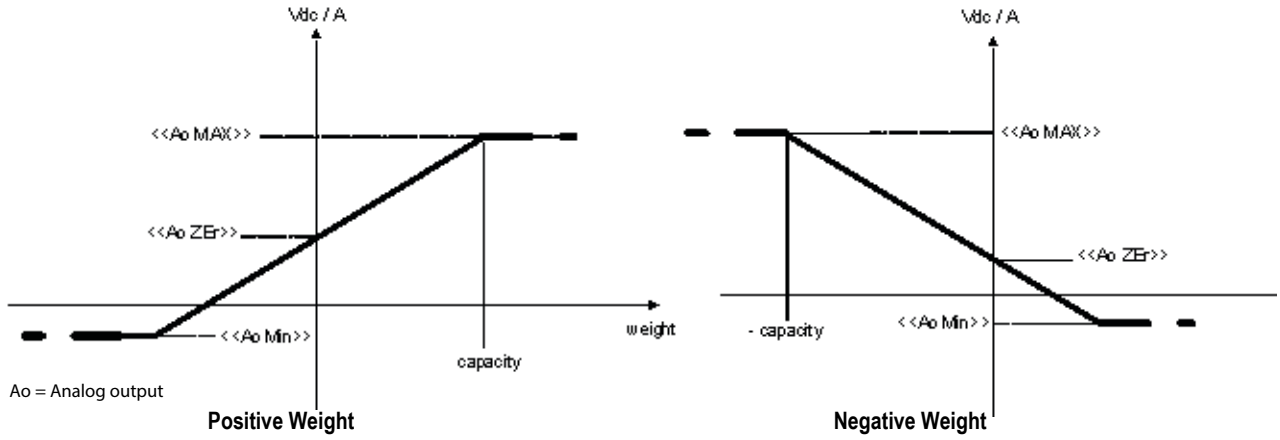

Figure 4-8. Analog Output

4.7 Audit Menu

Audit menu enables the user to view the number of times that configurations have been changed on the SCT-1100. The Audit menu is accessed from weigh mode.

4.7.1 Access the Audit Menu

The audit menu is accessed through the Setup mode or, in legal for trade applications, from weigh mode without power cycling the indicator. Indicator must be sealed as in Section 2.7 on page 9 for legal for trade applications.

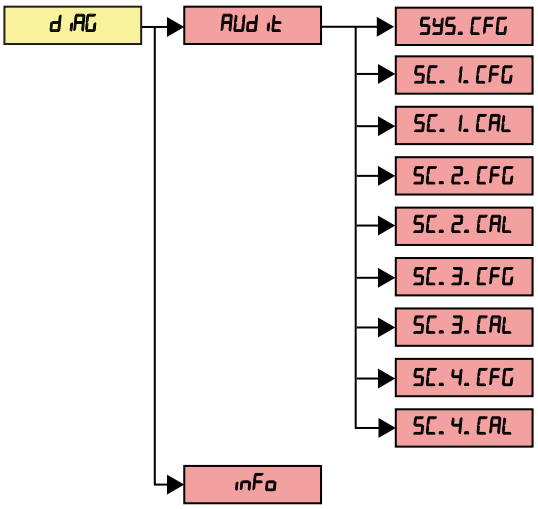

Figure 4-9. Audit Menu

Menu	Parameter	Description
AUdit	SYS.CFG	**System configuration audit trail** - Displays number of times that any of the following system parameters has been changed TYPE, TARE, RS.ZERO, NCHAN, AUTO-0, C.PERC, 0.PERC, GRAV, REGUL, OV.LOAD
	SC.1.CFG SC.2.CFG SC.3.CFG SC.4.CFG	**Scale configuration audit trail** - Displays number of times at any of the following scale parameters has been changed STABIL, 0.TRACK, DIV.STB, DEC1, UM, DIV, RANGE
	SC.1.CAL SC.2.CAL SC.3.CAL SC.4.CAL	**Scale calibration audit trail** - Displays number of times the scale has been calibrated
inFO		Indicator scrolls through settings as configured

Table 4-12. Audit Menu Parameters

Access Audit Menu From Weigh Mode

1. Press and hold C until AUdit displays.
2. Press ▼. inFo displays. Press ▼ again, AUdit displays.
3. Press ↵. Displays LRV number then displays SYS.CFG.
4. Press ▼ or ▲ to toggle between audit counter options.
5. Press ↵ to view Audit trail number for the selected audit counter.
6. Press C to exit to audit counter options. Repeat Steps 4 and 5 as needed.
7. Press C to return to weigh mode.

5.0 Calibration

The type of calibration used is dependent on the type of application chosen for the instrument: independent channels (ind .Ch) and dependent channels for (dEP .Ch), which can be digitally equalized. See the type parameter in Table 4-2 on page 21.

5.1 Calibration Menu

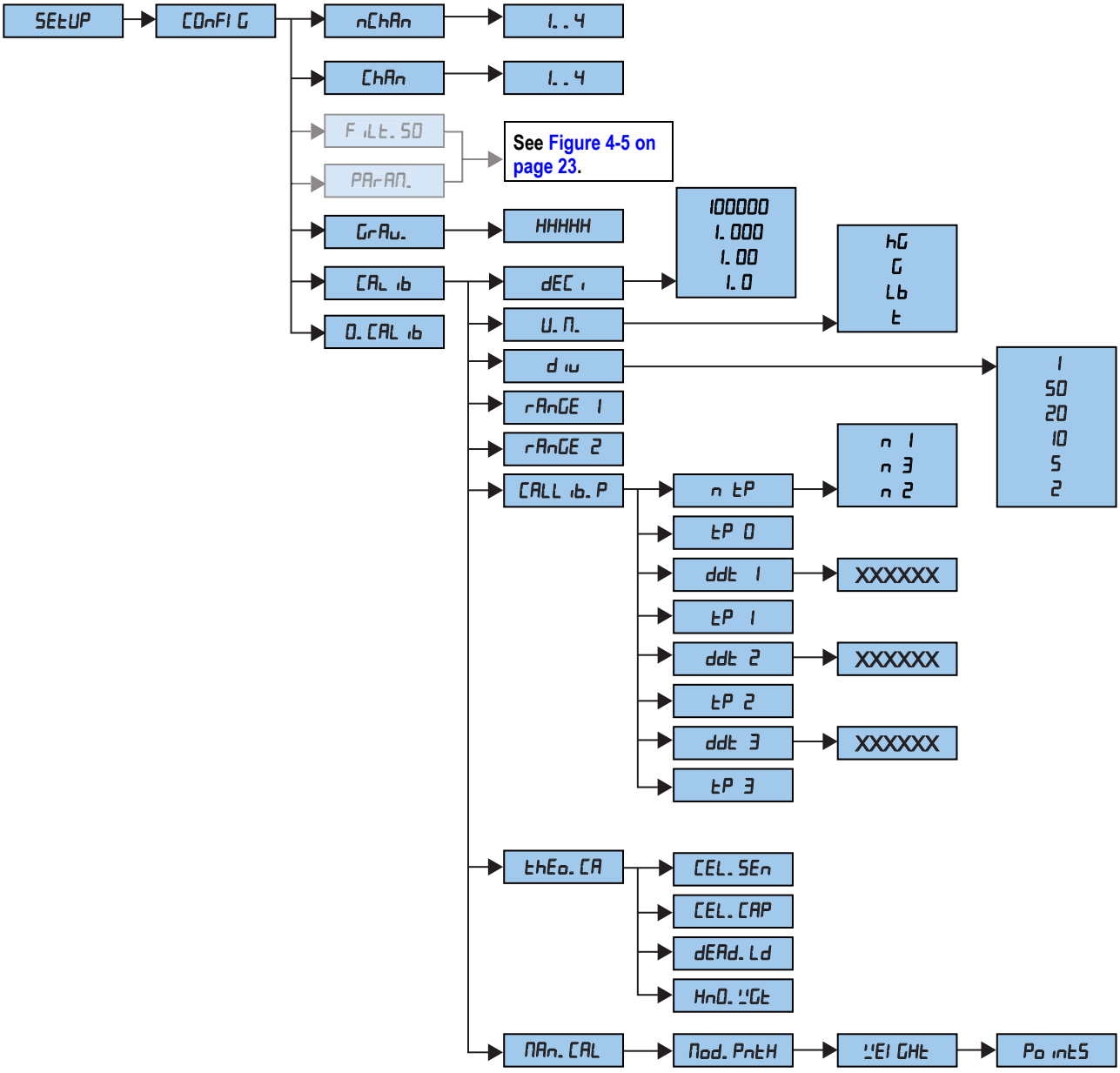

Figure 5-1. Calibration Menu

5.1.1 Calibration Parameters

Parameter	Settings	Decription
nCHAn	Select number of channels. See Table 4-6 on page 24	
CHAn	Select current channel to configure. See Table 4-6 on page 24	
GrAU.	9.7500 1-9.84999 default: 9.80655	Gravity acceleration – select the acceleration value of calibration location and installation location 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.
dEc	Decimal Point Location – when combined with the decimal point location, specifies the location of the decimal point or dummy zeroed in the unit display	
u.n.	Units – specifies units for displayed and printed weight	
d iU	Display Divisions – selects the minimum division size for the displayed weight; scale capacity is determined by display division x graduations	
rAnGE 1	Maximum weight for first range or interval	
rAnGE2	Maximum weight for second range or interval	
CALL ib.P	Calibration	
	nEP	Number of calibration points
	EPO	Set weight value of unloaded scale
	ddE 1	Enter weight value of first sample weight
	EP 1	Add first sample weight and set calibration point
	ddE2	Enter weight value of second sample weight
	EP2	Add second sample weight and set calibration point
	ddE3	Enter weight value of third sample weight
	EP3	Add third sample weight and set calibration point
tHEO.CA	Theoretical Calibration	
	CEL.SEn	Cell sinsitivity in mV/V
	CEL.CAP	Cell Capacity in the configured unit of measure
	dEAd.Ld	Weight of the structure bearing on the load cells
	KnO.WGt	Known value of the sample weight
MAn.CAL	Manual Calibration - manually change the weight and ADC value of calibration points	
	MOd.PntH	Select calibration point to change
	WE iGHt	Enter or confirm weight value
	PO int5	Enter or confirm ADC value
0.cAL ib	Performs a zero calibration	

Table 5-1. Calibration Parameters

Note ***In the case that a number needs to be entered to set a parameter, press ▶ to select the digit to be modified and ▼ or ▲ to increase or decrease the digit.***

To navigate a menu to select an option, Press ▼ or ▲.

5.2 Procedure

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

1. Restart indicator. Momentarily press ▲ during startup to display setup mode. tYPE displays. Press ↵.
2. Navigate to select channel type. Press ↵ when the desired channel type is displayed to select it.
3. Navigate to SEtuP→ConF iG→nCHAn. Press ↵ to set parameter.
4. Navigate to set the number of channels (Ch 1 - CH4). Press ↵ to confirm the desired number of channels. F iLt.50 displays.
5. Navigate to CAL ib. Press ↵ to set parameter. dEC 1 displays. Press ↵ to set parameter.
6. Navigate menu to select the decimal point location. Press ↵ to confirm selection. u.n. displays. Press ↵ to set parameter.

Note ***By setting the divisions of the first range, the divisions for the second range are automatically set.***

7. Navigate to select the unit of measure. Press ↵ to confirm selection. d iU displays. Press ↵ to set parameter.
8. Navigate to select the scale's minimum division, or the first range of dual range. Press ↵ to confirm value. rAnGE 1 displays. Press ↵ to set parameter.
9. Enter the total capacity of the scale, or rAnGE 1 if using multi-range functioning. Press ↵ to confirm. See Section 3.2 on page 12 for more information on multi-range functioning.
10. For dual range scale only:
    - Navigate to select rAnGE2 . Press ↵ to set parameter
    - Enter the second range. Press ↵ to confirm. CAL ib .P displays.
11. Press C until the instrument displays SAUEP. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

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

5.3 Calibration Single Channel (Known Weight)

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

1. Restart indicator. Momentarily press ▶ during startup to display quick setup menu.
2. Navigate to 2Ero. Ensure all weight is off the scale then press ↵.
3. Wait until UE iGht displays. Press ↵ to set parameter.
4. Enter the weight value of first sample weight. Press ↵.
5. Place calibration weight on the scale. Press ↵ to confirm.
6. Wait until AdC .nuU displays, then remove the weight from the scale.
7. Press C . SAUEP displays.
8. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.4 Calibration Multi Channel (Known Weight)

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

1. Restart indicator. Momentarily press ▶ during startup to display quick setup menu.
2. Navigate to nChAn. Press ↵ to set parameter.
3. Select number of channels. Press ↵ to confirm. ChAn displays.
4. Select channel to be calibrated. Press ↵ to confirm.
5. Navigate to 2Ero. Ensure all weight is off the scale then press ↵.
6. Wait until UE iGht displays. Press ↵ to set parameter.
7. Enter the weight value of first sample weight. Press ↵.
8. Place calibration weight on the scale. Press ↵ to confirm.
9. Wait until AdC .nuU displays, then remove the weight from the scale.
10. Navigate to ChAn. Repeat Steps 4-9 for each channel to be calibrated.
11. Press C . SAUEP displays.
12. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.5 Calibration With Linearization Points

5.5.1 Dependent Channels

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

1. Restart indicator. Momentarily press ▲ during startup to display setup mode.
2. Navigate to SEtuP→ConF iG→CAL ib→CAL ib.P→n tP. Press ↵ to set parameter.
3. Navigate to set the number of calibration points. Press ↵ to confirm. tP 0 displays.
4. Ensure all weight is off the scale and then press ↵.
5. Wait until ddt 1 is displayed. Press ↵ to set parameter
6. Enter the calibration weight of the first point. Press ↵ to confirm. tP 1 (tP2, tP3) displays.
7. Place the calibration weight on the scale and then press ↵. n tP displays when all points are complete.

Note ***The unit advances to (dd2, dd3) if using multiple points. Repeat steps 4 to 7 for each point.***

8. Remove the weight from the scale.
9. Press C until the instrument displays SAUEP.
10. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.5.2 Independent Channels

Use this procedure to calibrate a scale in the ind.Ch or trAnSM functioning mode with linearization points.

1. Restart indicator. Momentarily press ▲ during startup to display setup mode.
2. Navigate to SEtuP→ConF iG→ChAn. Press ↵ to set parameter.
3. Select channel to calibrate (Ch 1 - Ch4). Press ↵ to confirm. F iLt.50 displays.
4. Navigate to CAL ib→CAL ib.P→n tP. Press ↵ to set parameter. n 1 displays.
5. Enter the number of calibration points. Press ↵ to confirm. tP 0 displays.
6. Ensure all weight is off the scale then press ↵.
7. Wait until ddt 1 is displayed. Press ↵ to set parameter.
8. Enter the calibration weight of the first point. Press ↵ to confirm. tP 1 (tP2, tP3) displays.
9. Place the calibration weight on the scale and then press ↵. n tP displays when all points are complete.

Note ***The unit advances to (ddt2, ddt3) if using multiple points. Repeat steps 7 to 9 for each point.***

10. Remove the weight from the scale.
11. Repeat Steps 2 through 10 to calibrate each channel.
12. Press C until the instrument displays SAUEP.
13. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.6 Theoretical Calibration

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

5.6.1 Independent Channels

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

1. Restart indicator. Momentarily press ▲ during startup to display setup mode.
2. Navigate to SEtuP→ConF iG→ChAn. Press ↵ to enter the menu.
3. Select channel to calibrate (Ch 1 - Ch4). Press ↵ to confirm. F iLt.50 displays.
4. Navigate to CAL ib. Press ↵. to enter menu. dEC i displays. Press ↵ to set parameter.
5. Navigate to set the decimal place. Press ↵ to confirm. u.n. displays. Press ↵ to set parameter.

6. Navigate to set the weight unit. Press ↵ to confirm. d iU displays. Press ↵ to set parameter.
7. Navigate to set the display divisions. Press ↵ to confirm. rAnGE 1 displays. Press ↵.
8. Enter the total capacity of the scale or the first range in case of multi-range functioning. Press ↵ to confirm. rAnGE 2 displays. Press ↵ to set parameter.
9. Enter the second range or enter all zeros, if only one range. Press ↵ to confirm. CAL ib.P displays.
10. Navigate to thEo.CA displays. Press ↵ to confirm. CEL.SEn displays. Press ↵ to set parameter.
11. Enter cell sensitivity. Press ↵ to confirm. CEL.CAP displays. Press ↵ to set parameter.
12. Enter cell capacity. Press ↵ to confirm. dEAd.Ld displays. Press ↵ to set parameter.
13. Enter the dead load. If unknown, enter all zeros. Press ↵ to confirm. Fno.dGt displays.

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.

14. Repeat steps 3-13 for each connected scale.
15. Press C until the instrument displays SAUEP. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.6.2 Dependent Channels

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

1. Restart indicator. Momentarily press ▲ during startup to display setup mode. tYPE displays. Press ↵ to set parameter.
2. Navigate to select dEP.Ch. Press ↵ to confirm. F.ModE displays.
3. Navigate to SEtuP→ConF iG→nChAn. Press ↵ to set parameter.
4. Navigate to set the number of channels (Ch 1 - Ch4). Press ↵ to confirm. F iLt.50 displays.
5. Navigate to CAL ib. Press ↵. dEC i displays. Press ↵ to set parameter.
6. Navigate to set the decimal place. Press ↵to confirm. u.M. displays. Press ↵ to set parameter.
7. Navigate to set the weight unit. Press ↵ to confirm. d iU displays. Press ↵ to set parameter.
8. Navigate to set divisions. Press ↵ to confirm. rAnGE 1 displays. Press ↵ to set parameter.
9. Enter the total capacity of the scale or the first range in case of multi-range functioning. Press ↵ to confirm. rAnGE2 displays. Press ↵ to set parameter.
10. Enter the second range or enter all zeros, if only one range. Press ↵ to confirm. CAL ib.P displays.
11. Navigate to thEo.CA. Press ↵ to enter menu. CEL.SEn displays. Press ↵ to set parameter.
12. Enter cell sensitivity.Press ↵ to confirm. CEL.CAP displays. Press ↵ to set parameter.
13. Enter cell capacity. Press ↵ to confirm.↵ dEAd.Ld displays. Press ↵ to set parameter.
14. Enter 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.

15. Press ↵ to confirm. Fno.dGt displays.
16. Repeat Steps 3-15 for each connected scale.
17. Press C until the instrument displays SAUEP.
18. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

5.7 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. Calibrate the indicator. Restart.
2. Navigate to SEtuP→ConF iG→GrAU . Press ↵ to set parameter.
3. Enter the local gravity. Press ↵. Default is 9.80390.
4. Slowly press C multiple times to exit the menus until SAUEP 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.

Note

To find the local gravity, enter the latitude and elevation into the International Gravity Formula.

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

Map Coordinates uses Google maps to find latitude and elevation: ***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.

5.8 Zero Dead Load A/D Counts

Table 5-2 lists the ideal A/D counts that result from input signals of 0Ð45 mV with zero deadload. Actual values will typically be higher than the values shown in Table 5-2 but the ideal values can be used when calibrating the indicator with no attached scale.

Input Signal (mV)	Raw A/D Count
0	1830
2.5	543564
5.0	1085373
7.5	1627166
10	2168897
12.5	2710715
15	3252467

Table 5-2. Ideal A/D Raw Counts

6.0 Communications

6.1 Serial Outputs

The instrument has two bidirectional serial outputs which are ASCII code compatible with most printers, remote displays, PCs and other devices. See Section 2.5 on page 7 for connection information.

Transmission of data through the serial ports can be configured in the parameters *PC SEL*, *PCMODE* and *Pr MODE* in the setup mode. See Section 6.2 on page 40.

6.1.1 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).

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 a 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 4000' (1200 m); See Section 2.3 on page 5
- With very long cables, cable capacity becomes a dominant factor in power consumption (normally near 50pF/m); cable capacity decreases as length increases; capacity also decreases when speed is increased; the maximum distance cannot 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 6-1. Cable Capacity

- Verify single point grounding on all equipment; See Section 2.4 on page 6
- 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
- Consult the device product data sheet for all connected devices to ensure consistency in the markings

6.1.2 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.

6.2 Serial Port Transmission Modes

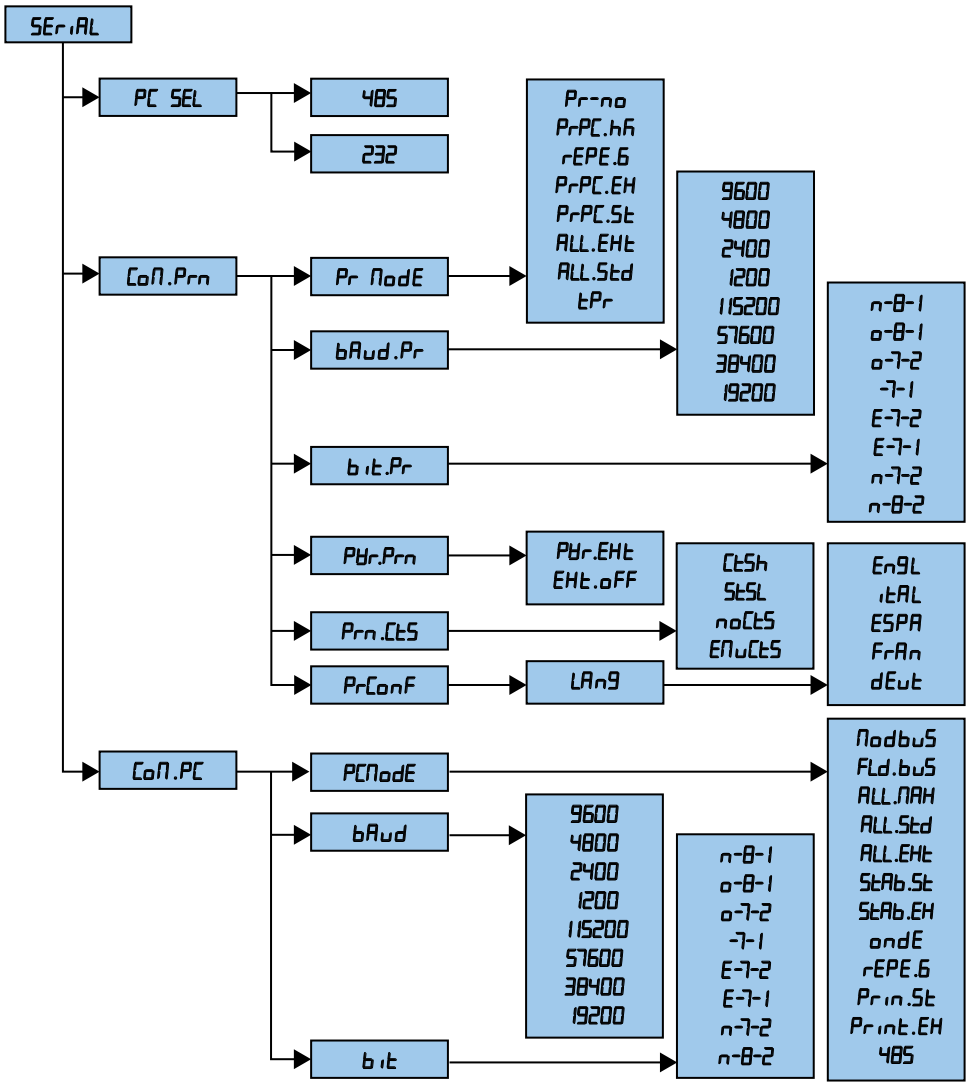

Figure 6-1. Serial Menu

6.2.1 PC Port Selection

It's possible to select the serial port to be used as a PC port. When a port is selected for PC port transmission, the other serial port is selected as default for PRN port transmission.

This setting is made in the SEtuP→SEr iAL→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.

Parameter	Settings	Description
PCSEL	Select the communication carrier for the ports	
	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

Table 6-2. PC Port Selection

6.2.2 PRN PORT

This section describes the selectable serial weight transmission modes of the PRN serial port through the parameter set in *PrNodE*

Parameter	Settings	Description
CoN.Prn	Serial Format for the printer port	
Pr.NodE	Transmission to serial printer	
	Pr-no	Transmission disabled
	PrPC.hA	Transmission of the weight string by pressing enter
	rEPE.6	The weight is displayed on the instrument and is transmitted to a 6 digit remote display
	PrPC.EH *PrPC.St*	*PrPC.EH* allows for transmission of the extended string by pressing enter See Section 6.4.2 on page 48; (or multi-scale string in the *trAnSN* mode)
		PrPC.St allows for transmission of the standard string by pressing enter See Section 6.4.1 on page 48
		Transmission when ↵ is pressed – the instrument transmits 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 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 with the standard string *Pr in.St* or the extended string; See Section 6.4 on page 48 for a description of the strings; The transmission is confirmed when *trAnSN* displays
	ALL.EHt *ALL.Std*	Continuous Transmission for interfacing to the PC, remote displays and other devices which request a constant stream of the data independently from the weight stability; the instrument transmits data with each A/D cycle: • 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 data transmits both positive and negative values • *ALL.Std* - The data is transmitted using the standard string • *ALL.EHt* - The data is transmitted using the extended string; (or multi-scale string in the *trAnSN* mode) - See Section 6.4 on page 48 for a description of the strings ***NOTE: Filter selection directly affects data transmission; To obtain 250TX/sec configure the filter*** *F.F.400* ***(SEtuP→ConF iG→PArAM.→StAb iL)***
	tPr	Enables printing with ASCII compatible printer Data is transmitted 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
NOTE: In the rEPE.6 protocol, the serial output is automatically set at 4800, N-8-1 but can be configured differently. For the protocol and transmission mode specifications, see Section 6.2 on page 40.		
bAud.Pr	Set baud rate - selection of the data transmission speed (baud = bit/second); (9600 default)	
bit.Pr	Set parity, word, stop bit	
PAr.Prn	Manufacturer Use Only	
Prn.CtS	Manufacturer Use Only	
Pr.ConF	*LAnG*	Select Language of Printouts ***NOTE: Language selection only available if*** *tPr* ***is selected***

Table 6-3. Serial Menu Parameters and Settings

6.2.3 PC PORT

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

Parameter	Settings	Description
CoM.PC	PC Serial	
PCmodE	Transmission on the PC Serial	
	modbuS	Transmission with the MODBUS protocol • mod.tYP displays; press ↵; select ASC or rtu; press ↵ • mod.Add displays; press ↵; enter the address of the unit (0 to 98); press ↵ • Enter baud rate; press ↵ • Enter bit parameters; press ↵
	ALL.MAH ALL.Std ALL.EHt	Continuous Transmission for interfacing to the PC, remote displays and other devices which request a constant stream of the data independently from the weight stability; the instrument transmits data with each A/D cycle: • 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 data transmits both positive and negative values • ALL.Std - The data is transmitted using the standard string • ALL.EHt - The data is transmitted using the extended string (or multi-scale string in the trAnSM mode) - See Section 6.4 on page 48 for a description of the strings • ALLMAH2 The weight is transmitted in hexadecimal format (for example: 03E8= 1000g), without decimal point - This transmission protocol is recommended for applications where a high nubmer of output transmissions is required (up to 250TX/sec. with baud rate equal to 115200) ***NOTE: Filter selection directly affects data transmission; To obtain 250TX/sec configure the filter*** *F.F.400 (SEtuP→ConF iG→PArAM.→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 port; • The transmission takes place when the weight is stable and the net weight is greater than 10 display divisions • Re-enabling the transmission depends on how rEACt has been set in the setup mode; See Table 4-3 on page 21 • The data is transmitted with the standard string StAb.St or the extended string StAb.EH (or multi-scale string in the trAnSM mode); See Section 6.4 on page 48 for a description of the three strings
	ondE	Transmission requested on demand, from an external device – the instrument waits for a command before transmitting data; See Section 6.3 on page 43 With baud rate at 9600, up to 10-11 requests per second are possible through the READ command; with baud rate at 115200, up to 16 requests per second are possible through the READ command; The data transmits both positive and negative values
	rEPE.6	Transmission to 6 digit remote display / Reception of the "rEPE.6" string The weight display occurs both in the instrument and is transmitted to a 6 digit remote display
	Pr in.St Pr in.Eh	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 rEACt is set in the setup mode (passing by zero of the NET weight, weight instability or always) • Pr in.St - The data is transmitted using the standard string • Pr in.EH - The data is transmitted using the extended string - See Section 6.4 on page 48 for a description of the strings • The transmission is confirmed when trAnSM displays
	485	Transmission in RS-485 serial mode; Protocol mimics the command that was sent; the instrument responds only if its ID is the one requested (before the request the module ID 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
bAud	Set baud rate - selection of the data transmission speed (baud = bit/second)	
bit	Set parity, word, stop bit.	

Table 6-4. PC Port Parameters and Settings

6.3 Serial Commands Format

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

Table 6-5. 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, but the command is followed by unexpected letters; for example READF, TARES instead of READ, TARE
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 an incorrect command is received; when the command may not be used in the selected functioning mode; or when the command is received while the keyboard buffer is already full
ERR04<CR LF>	Displayed when a nonexistent command is received

Table 6-6. Serial Status Response

Note ***NOTE: The instrument does not transmit an indication with momentary commands; for example, those made up of only one letter and then the parameter.***

Version Reading Command

[CC]VER<CR LF>

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

In which:

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

Extended Weight Read Command

[CC]REXT<CR LF>

Instrument response in the V mode or in the dEP.Ch mode: extended string. See Section 6.4.2 on page 48.

Instrument response in the trAnSM mode: multi-scale string. See Section 6.4.3 on page 49.

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 44.***

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

Weight Read Command

[CC]READ<CR LF>

Instrument response: standard string (Section 6.4.1 on page 48).

Weight Reading Command With Sensitivity Times 10

[CC]GR10<CR LF>

Instrument response: standard string (Section 6.4.1 on page 48).

Reading Command of MicroVolts Relative to the Weight

[CC]MVOL<CR LF>

Instrument response in ind.Ch. mode: standard string (Section 6.4.1 on page 48).

Response of the instrument in trAnSM and dEP.Ch mode: multi-scale string (Section 6.4.3 on page 49).

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.

If the instrument is in the trAnSM 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>

Zero Command

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

Instrument response: [CC]OK<CR LF>

Clear Command

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

Instrument response: [CC]OK<CR LF>

The command also works in 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 response: [CC]OK<CR LF> if the command has been received, no answer for the P command.

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 response: [CC]OK<CR LF> if the command has been received; no answer for the W command.

Command for Displaying Temporary Message on an Instrument

[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 with a previous DISP command, restoring the visualization of the weight data

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 Message 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 -PCOH- message for about two seconds.

Instrument response: [CC]OK<CR LF>

Serial Command which Returns the Instrument Status

[CC]STAT<CR LF>

Instrument response: [CC]STATXX<CR LF>

In which: XX is a decimal value which returns 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 6-7. Instrument Status Commands

Key Press Simulation Command

[CC]KEYPXX<CR LF>

In which:

XX	Code of Pressed Key
00	▼ - ZERO key
01	▲ - TARE key
02	▶ - MODE key
03	↵ - PRINT key
04	C - C key
05	Numeric 1 key
06	Numeric 2 key
07	Numeric 3 key
08	Numeric 4 key
09	Numeric 5 key
0A	Numeric 6 key
0B	Numeric 7 key
0C	Numeric 8 key
0D	Numeric 9 key
0E	Numeric 0 key

Table 6-8. Key Press Simulation 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.

Release Key Press Simulation Command

[CC]KEYR<CR LF>

Instrument response: [CC]OK<CR LF>

Note ***The instrument does not respond OK 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:

Characters	Description
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
YY	Tare Type; Blank spaces if semi-automatic tare; PT If preset tare
TTTTTTTTUM	Tare value with unit of measure
XXXXXXXUM	Not used

Table 6-9. RALL Command Response Characters

Characters	Description
SSS	Scale status • 000 Weighing • 001 Numeric value input • 002 Setup menu
AAA	Counter of pressed keys
CCC	Code of last key pressed
TTT	Not used
XXXXX	Last rewriting number stored in the alibi memory
YYYYYY	Last weigh number stored in the alibi memory

Table 6-9. RALL Command Response Characters (Continued)

Setpoint Command

[CC]STPTntxxxxxxtyyyyyy<CR LF>

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

t→F if the following weight value indicates that the setpoint will disable the outputs (OFF).

t→O if the following weight value indicates that the setpoint will enable the outputs (ON).

xxxxxx and yyyyyy represent the weight value of the setpoint that disables or enables the outputs: 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 have been recieved
[CC]NO<CR LF> correct syntax but wrong values have been recieved

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)*

Instrument 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.

Setpoint Saving Command

[CC]CMDSAVE<CR LF>

Response: [CC]OK<CR LF>

Enable/Disable Keyboard

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

Instrument response: [CC]OK<CR LF>

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

Instrument response: [CC]OK<CR LF>

6.4 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.

6.4.1 Standard String

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

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

In which:

Characters	Description
[CC]	The instrument ID as two ASCII decimal digits (RS-485 protocol)
hh	UL Underload OL Overload 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
ppppppp	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, bg, bt, lb, mv (microvolts), vv (A/D counts); (b signifies blank)
<CR LF>	Carriage Return + Line Feed (ASCII decimal character 13 and 10)

Table 6-10. Standard String Characters

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

6.4.2 Extended String

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

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

In which:

Characters	Description
[CC]	The instrument ID as two ASCII decimal digits (RS-485 protocol)
B	Scale number is always 1
,	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

Table 6-11. Extended String Characters

Characters	Description
TTTTTTTTTT	Tare weight on 10 characters including possible sign and decimal point
,	Comma character
PPPPPPPPPP	Always 0
,	Comma character
uu	Unit of measure Kg, **b**g, **b**t, lb; (**b** signifies blank)
,	Comma character
dd/mm/yy	Date in the dd/mm/yy format (only with REXD command)
bb	Two space characters, ASCII decimal 32 character (only with REXD command)
hh:mm:ss	Time format (only with REXD command)
<CR LF>	Carriage Return + Line Feed (ASCII decimal character 13 and 10)

Table 6-11. Extended String Characters (Continued)

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.

6.4.3 Multi-Scale String

The string can vary depending on the configured channels:

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

In which:

Characters	Description
[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
ppppppp	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 (**b** signifies blank) • kg • **b**g • **b**t • lb , • mv (microvolts) • vv (converter points)
,	Comma character
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)

Table 6-12. Multi-Scale String Characters

6.4.4 Secondary Mode Strings

Secondary Standard String

Standard string transmitted on the print port when Pr .MOdE = ALL .Std or PrPC .St; SS,NT,WWWWWWWW,UU<CR LF>

In which:

Characters	Description
SS	Status: • NV Weight not valid
,	Comma character
NT	ST Stable data US Unstable data UL Underload OL Overload
,	Comma character
WWWWWWWW	Weight
,	Comma character
UU	Unit of measure

Table 6-13. Secondary Standard String Characters

Secondary Extended String

Extended string transmitted on the print port when Pr .MOdE = ALL .EHt or PCPr .EH

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

In which:

Characters	Description
C	Secondary or sum: • S, if the sum is sent
,	Comma character
SS	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
WWWWWWWW	weight
,	Comma character

Table 6-14. Secondary Extended String Characters

Note ***When the Pr .MOdE = PcPr .hA is set, only the weight is transmitted on the printer port.***

6.5 Connection to a Remote Display

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

1. Restart indicator. Momentarily press ▲ during startup to display setup mode. tYPE displays.
2. Navigate to SEtuP→ConF iG→SEr iAL→CoM .PC→PCModE→ALL .Std. Press ↵ to confirm selection.
3. Press C until the instrument displays SAVEP. Press ↵ to confirm. StorE displays momentarily and the instrument reboots.

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
-----	The weight is 9 divisions above the maximum capacity
-----	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)
noout	Second attempt to acquire the output weight (input/output mode, set as in.out)
no1	Second attempt to acquire the input weight (input/output mode, set as G.t. or 1St.2nd)
no2	Second attempt to acquire the output weight (input/output mode, set as G.t. or 1St.2nd)
PrEC	Displays when trying to calibrate a point without first having confirmed the number of calibration points
ErMot	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 Table 4-4 on page 22 ***NOTE: Press ▲ to access the setup.***
Er-39	Scale must be calibrated. Perform a technical default (dEFAu) parameter, before proceeding; See Table 4-4 on page 22 ***NOTE: Press ▲ to access the setup.***
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 Compliance

CE

EU DECLARATION OF CONFORMITY

EU-KONFORMITÄTSERKLÄRUNG
DÉCLARATION UE DE CONFORMITÉ

Rice Lake Weighing Systems
230 West Coleman Street
Rice Lake, Wisconsin 54868
United States of America

RICE LAKE WEIGHING SYSTEMS

Type/Typ/Type: SCT indicator series

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

Deutsch Wir erklären unter unserer alleinigen Verantwortung, dass die Produkte auf die sich diese Erklärung bezieht, den folgenden Normen und Regulierungsbestimmungen entsprechen.

Francais Nous déclarons sous notre responsabilité que les produits auxquels se rapporte la présente déclartion, sont conformes à la/aux norme/s suivante ou au/aux document/s normatif/s suivant/s.

EU Directive	Certificates	Standards Used / Notified Body Involvement
2014/30/EU EMC	-	EN 61000-6-2:2015, EN 61000-6-4:2007+A1:2011, EN61326-1:2013, EN55011:2009 +A1:2010
2014/35/EU LVD	-	EN 61010-1:2010
2011/65/EU RoHS	-	EN 50581:2012

Signature: Richard Shipman

Type Name: Richard Shipman

Title: Quality Manager

Place: Rice Lake, WI USA

Date: May 3, 2019

RICE LAKE WEIGHING SYSTEMS

UKCA

UK DECLARATION OF CONFORMITY

Rice Lake Weighing Systems
230 West Coleman Street
Rice Lake, Wisconsin 54868
United States of America

RICE LAKE WEIGHING SYSTEMS

Type: SCT indicator series

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

UK Regulations	Certificates	Standards Used / Approved Body Involvement
2016/1101 Low Voltage	-	EN 61010-1:2010
2016/1091 EMC	-	EN 61000-6-2:2015, EN 61000-6-4:2007+A1:2011, EN61326-1:2013, EN55011:2009 +A1:2010
2012/3032 RoHS	-	EN 50581:2012

Signature: Brandi Harder

Name: Brandi Harder

Title: Quality Manager

Place: Rice Lake, WI USA

Date: December 30, 2021

9.0 Specifications

Power DC

Power Supply	12-24 VDC LPS or with Class 2 Power Supply
Power Consumption	70 mA min to 100 mA max
Excitation Voltage	5 VDC, 120 mA, 8 x 350Ω
Analog Signal Input Range	±39 mV
Analog Signal Sensitivity	0.3 µV/gradation minimum 0.3 µV/gradation recommended

Operator Interface

Display	LED 6 digits 0.51" (13 mm high)
Keypad	5-key, membrane panel, tactile feel
LED	6 status indicator red LEDs

Enclosure

Case	Plastic console suitable for mounting on DIN rail or on the wall NEMA Type 1 plastic pluggable connectors
Dimensions (W x H x D)	4.17" x 3.54" x 2.28" (106mm x 90mm x 58mm)
Weight	1lb (0.5kg)

Operation

Resolution:	
Internal	1.5 million counts
Weight display	800,000 minimum
A/D Sample Rate	4 channel A/D 24-bit sigma-delta conversion; up to 200 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 Standard	Opto isolated, 16 bit 0-20 mA; 4-20 mA (max 350,000 Ω) 0-5 VDC, 0-10 VDC (min 10,000 Ω)

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)

Compliance

NTEP

CoC Number	20-046
Accuracy Class	III/IIILn_{max} : 10 000

Measurement Canada

Approval No.	AM-6165C
Class	III/IIIHDn_{max} : 10 000

OIML

Approval No.	R76/2006-A-GB1-19.17
Accuracy Class	III/III n_{max} : 10 000

cULus

EU Legal for Trade

Approval No.	0200-WL-05947
Accuracy Class	III/IIII n_{max} : 10 000

9.1 FCC Compliance

United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescites dans le Règlement sur le brouillage radioélectrique edicté par le ministère des Communications du Canada.

Radio certificate number:

When paired with optional module:

WiFi: US: ZXVHLK-RM04

Note ***Not certified for use in Canada.***

RICE LAKE®
WEIGHING SYSTEMS

230 W. Coleman St. • Rice Lake, WI 54868 • USA
U.S. 800-472-6703 • Canada/Mexico 800-321-6703 • International 715-234-9171 • Europe +31 (0)26 472 1319