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AN ISO/IEC 17025:2017
ACCREDITED CALIBRATION COMPANY

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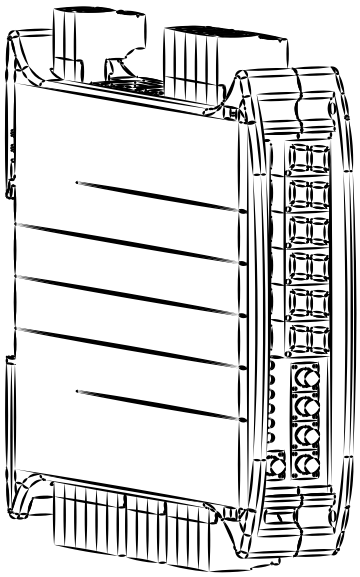
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SCT-1SX-AN

Quick Start Guide

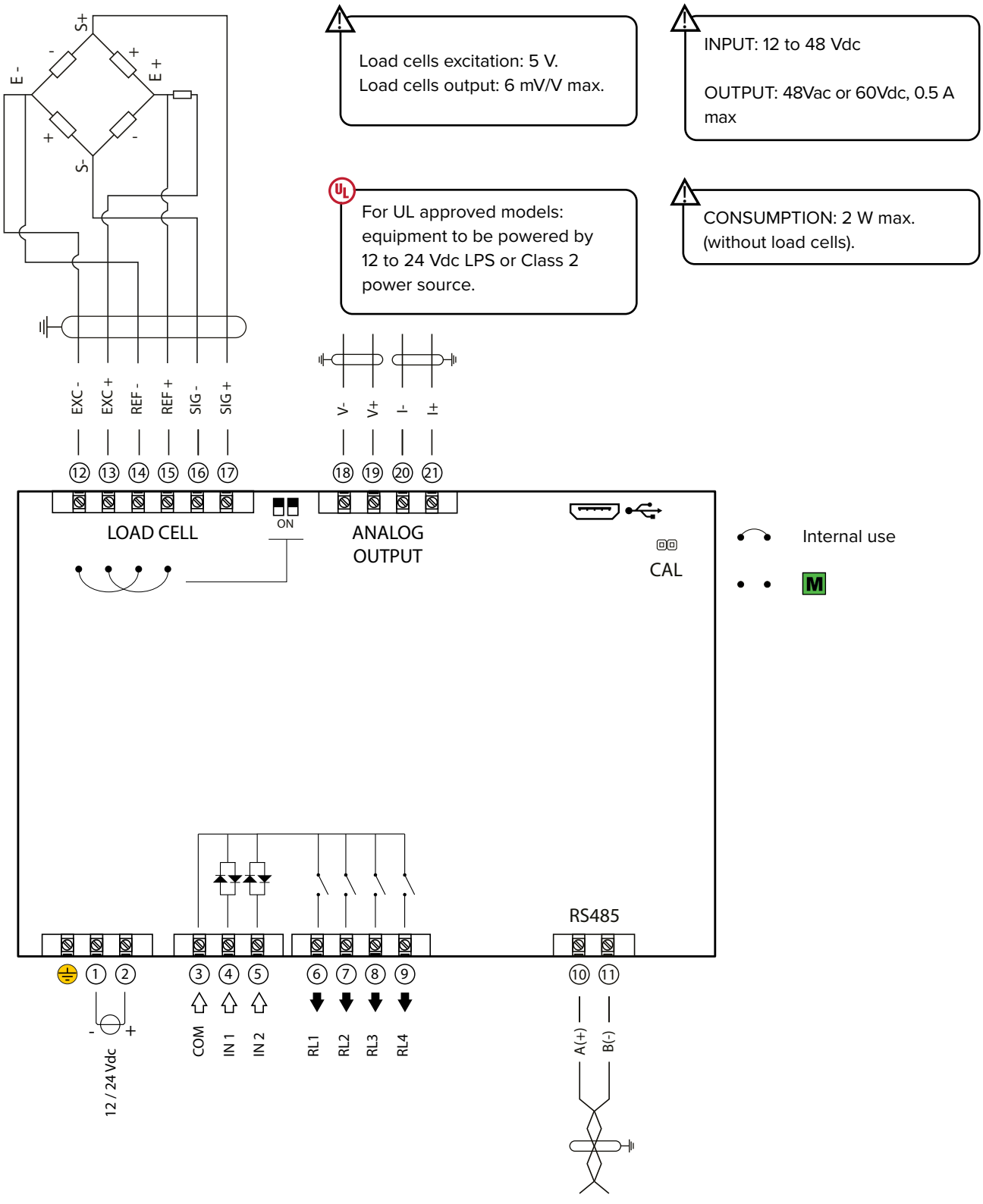


RICE LAKE®
WEIGHING SYSTEMS

October 27, 2023

PN 219714 Rev A

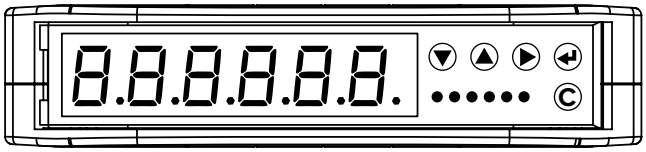
1. Electrical Schematic



Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals
Warranty information is available at www.ricelake.com/warranties

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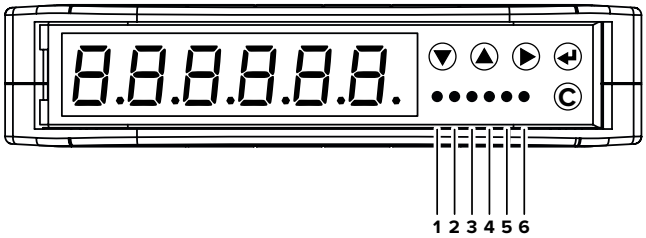
2. Key Functions



Configuration menu	
▼	Decreases digit / Scrolls down.
▲	Increases digit / Scrolls up.
▶	Enters the setup. Selects digit to modify.
↵	Enters a step / Confirms.
C	Clears / Exits a step (no save).

Weighing mode	
▼	Clears the displayed gross weight.
▲	Short press: executes semiautomatic tare. Long press: allows to enter known tare.
▶	Activates / deactivates the function.
↵	Short press executes data transmission on the printer serial port. Long press: Setpoint configuration.
C	ON/Standby of the instrument.

3. Indicator Light Descriptions

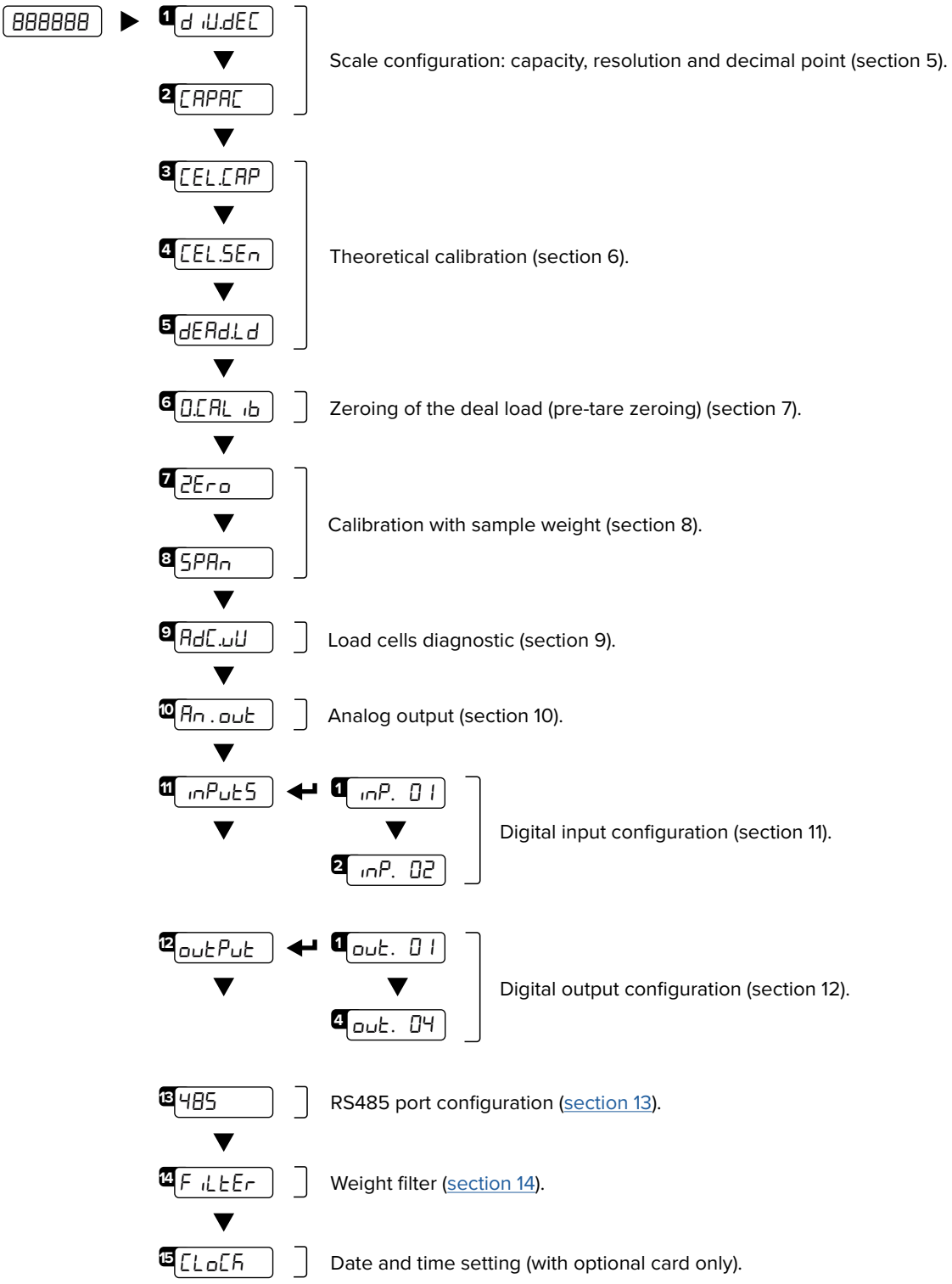


1	Weight on zero.
2	Unstable weight.
3	A tare is active.
4	A function is active.
5	Digital output 1 is active.
6	Digital output 2 is active.

4. Configuration Menu

1. Reboot the weight transmitter

2. Press the ▶ key when display shows the *888888* message:

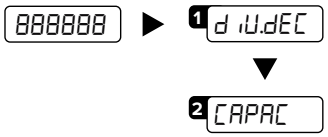


HOW TO EXIT THE MENU AND SAVE YOUR CONFIGURATION

1. Press **C** key repeatedly until *SAVE?* appears; press ↵ to save or press **C** to exit without saving.

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5. Maximum Scale Capacity, Increment and Decimal Point Settings



Set the decimal point position and the minimum scale increment*1
(0.001 - 0.002 - 0.005 - 0.01 - 0.02 - 0.05 - 0.1 - 0.2 - 0.5 - 1 - 2 - 5 - 10 - 20 - 50).

Set the maximum scale capacity*2 *(max 999999).*

Examples:

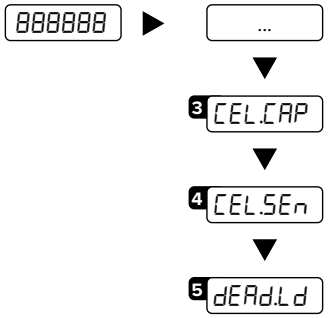
For a 60000 lb scale, with 2 lb increment:
d iU.dEC = 2
CAPAC = 60000

For a 10000 g scale, with 0.1 g increment:
d iU.dEC = 0.1
CAPAC = 10000.0

For a 3000 lb scale, with 0.05 lb increment:
d iU.dEC = 0.05
CAPAC = 3000.00

*1 *Increment = the amount that the scale will increment by as weight is added or removed.*
*2 *Maximum capacity = the maximum weight that can be measured using the scale you are creating.*

6. Theoretical Calibration



Set the total load cells capacity *(up to 999999).*

Set the load cells sensitivity *(up to 999999).* ✱

Dead load weight *(from -9999.9 to 99999.9).*

1. Set d iU.dEC and CAPAC (section 4).

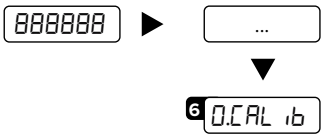
2. Set in CEL.CAP the total load cells capacity *(sum of the nominal load cell capacities).*

3. Set in CEL.SEn the theoretical signal value of the load cells. ●

4. Enter in dEAd.Ld step. The display shows the theoretical dead load value. Modify the value and/or confirm with ↵.

5. Save calibration (Press **C** key many times until SAVE? message will appear, then press ↵ to confirm).

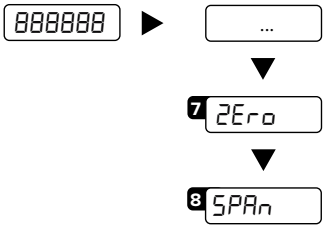
7. Zero Mechanical Tare (pre-tare zeroing)



Zeroing of the pre-tare (or mechanical tare).

This functionality allows to zero the weigh of the scale structure (e.g. empty silo, conveyor, etc.) without changing the calibration in memory.

8. Calibration with Sample Weight



Zero point acquisition.

Sample weight acquisition.

1. Unload the scale.

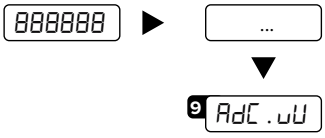
2. Enter the 2Ero step to adjust the zero point.

3. Load the scale with span weight.

4. Enter the SPAn step, type the span weight value and press ↵ to adjust.

5. Save adjustment (Press **C** key many times until SAVE? message will appear, then press ↵ to confirm).

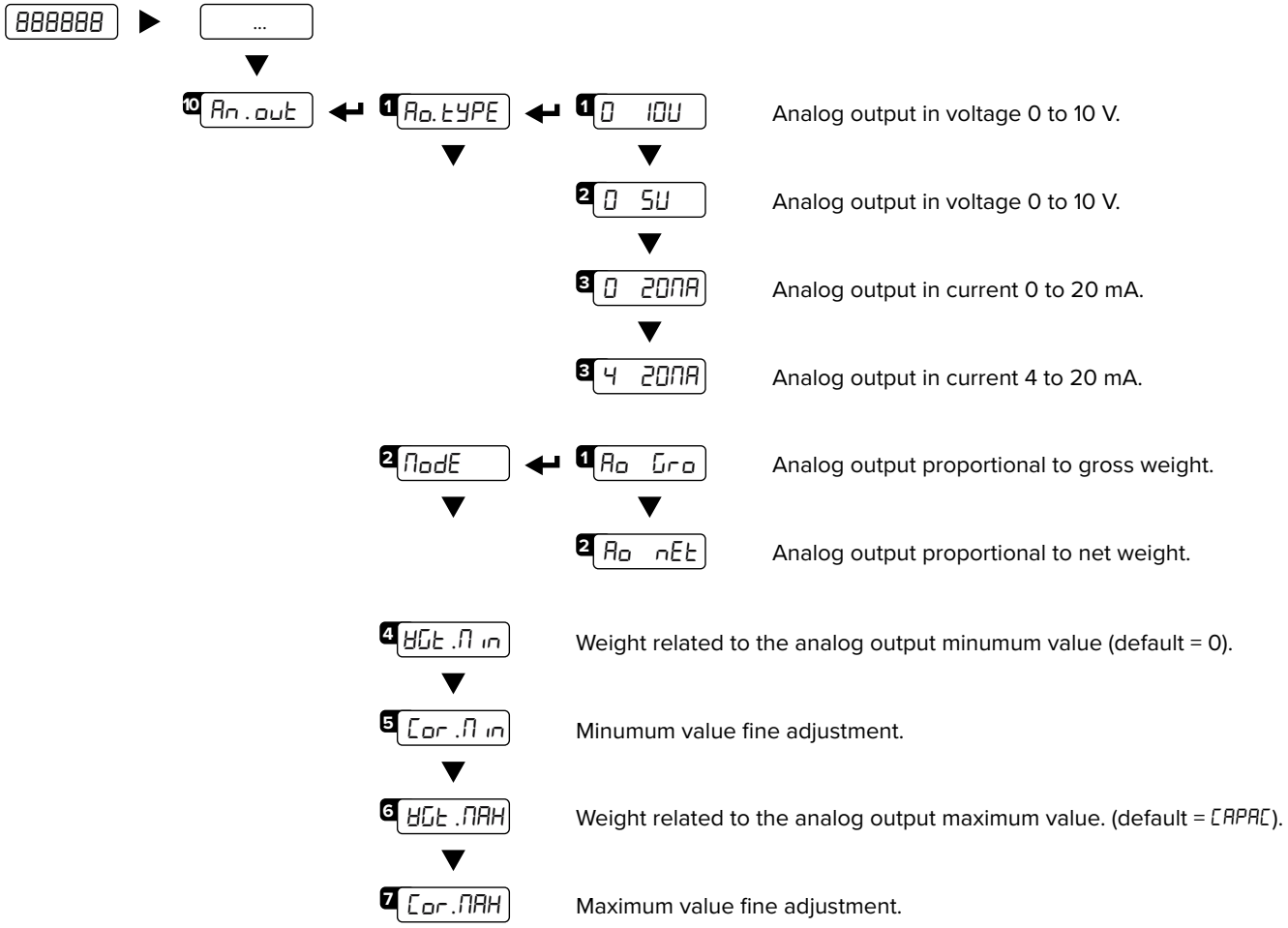
9. Load Cell Diagnostics (µV/V)



It allows to verify signal of each channel. It must be included into the range 0 to 3 mV/V. Signal have to be stable and it have to increase by increasing the weight on the scale.

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10. Analog Output

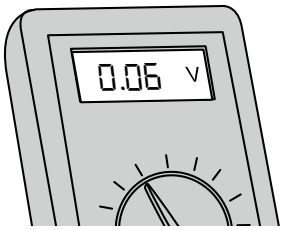


10.1 ANALOG OUTPUT FINE ADJUSTMENT

1. Connect a multimeter to pin 19 (+) and 18 (-) for the voltage analog output or 21 (+) and 20 (-) for the current analog output.
2. Follow the procedure:

A. Enter the parameter Cor.0.

B. Check the value on the multimeter



C. Use ▲ and ▼ keys to increase or decrease the output value on the multimeter.

By keeping the ▲ or ▼ key pushed, the value will change faster.

Confirm with ↵.

D. Repeat the operation from point "**A**" for Cor.MAH parameter.

E. Save setting (Press **C** key many times until SAVE? message will appear, then press ↵ to confirm)

10.2 EXAMPLES

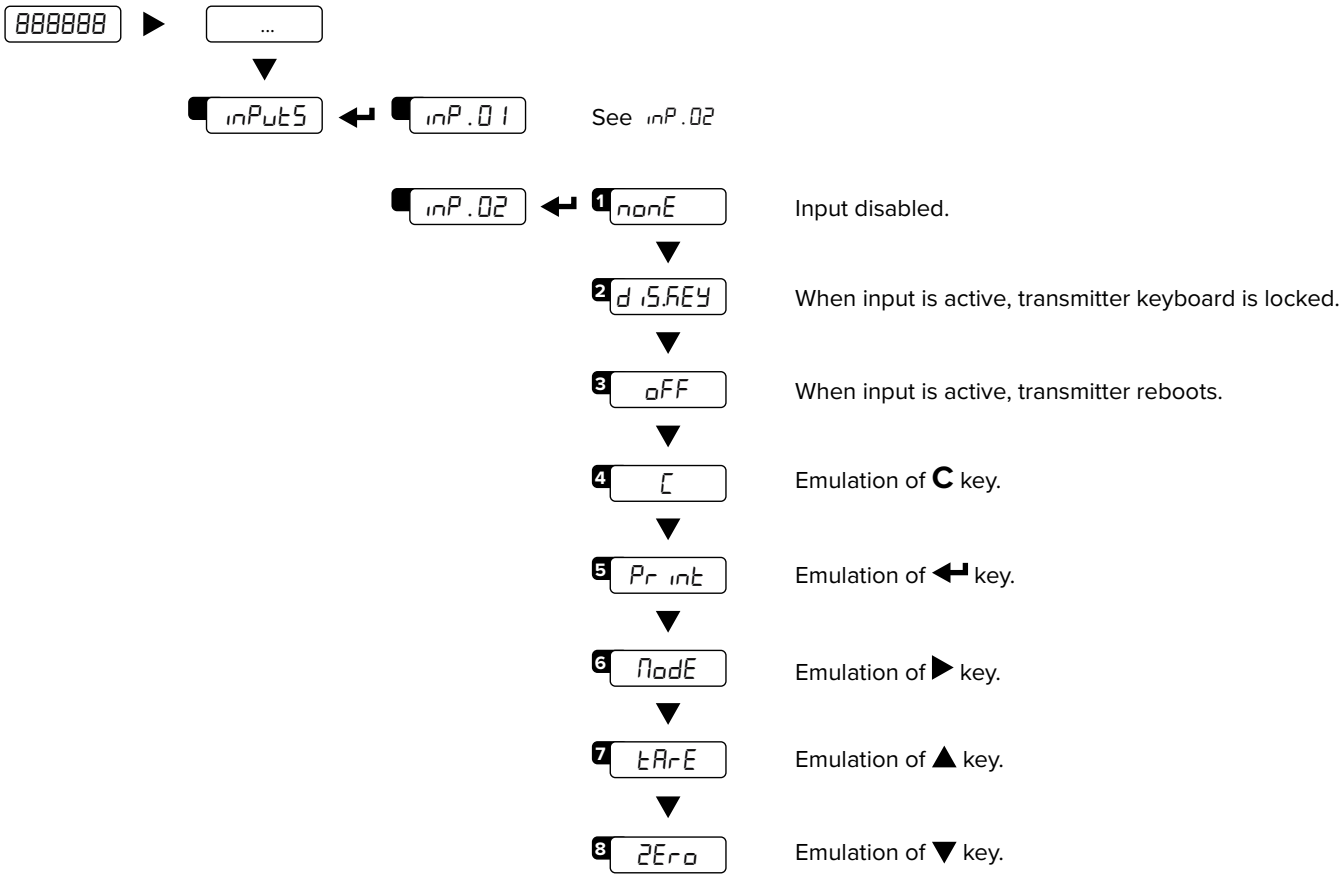
Setting analog output to gross weight 10 V, for a 1000 lb scale:

- Connect a multimeter to pins 21 (+) e 20 (-).
- Select 0- 10 U in the parameter Ao.tYPE.
- Select Ao Gro in the parameter ModE.
- Select the channel (if necessary) in the parameter ChAn.
- Set the weight at 0 V in the parameter WGt.M in (default = 0 lb).
- Set the weight at 10 V in the parameter WGt.MAX (default = 1000 lb).
- Correct, if necessary, the output values as shown in section **10.1**.

Setting analog output on net weight 4 20 mA, for a 20000 lb scale:

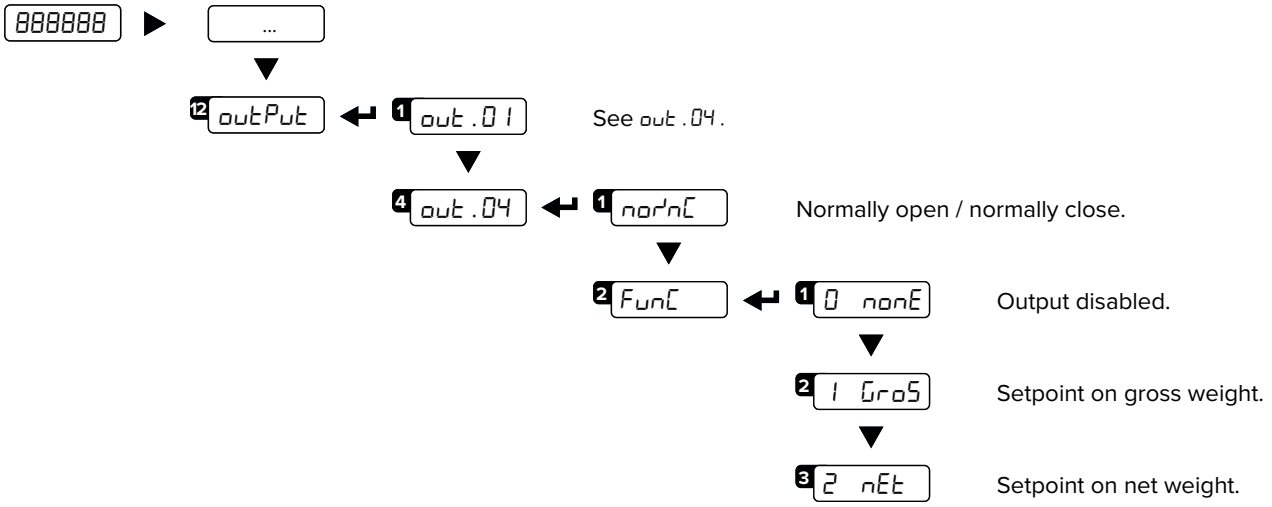
- Connect a multimeter to pins 19 (+) e 18 (-).
- Select 4-20.mA in the parameter Ao.tYPE.
- Select Ao nEt in the parameter ModE.
- Select the channel (if necessary) in the parameter ChAn.
- Set the weight at 4 mA in the parameter WGt.M in (default = 0 lb).
- Set the weight at 20 mA in the parameter WGt.MAX (default = 20000 lb).
- Correct, if necessary, the output values as shown in section **10.1**.

11. Input Setting



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12. Output Settings



12.1 HOW TO PROGRAM SETPOINTS

1. In weighing mode, press ↵ for 3 second.

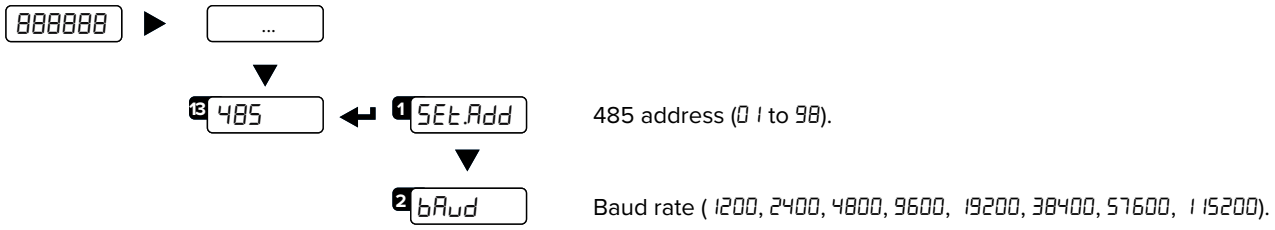
2. Select the setpoint to modify:

5.1 on — Set the output 1 setpoint value.

5.2 on ↵ — Set the output 2 setpoint value.

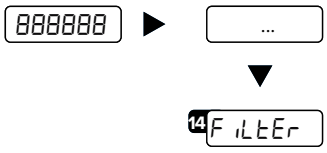
3. Press **C** key to save and exit the menu.

13. RS485 Port



The RS485 port is configured by default to communicate in Modbus RTU (section 16).

14. Weight Filter



The active weight filter is displayed, alternating with the weight value.
Press ▲ and ▼ keys to scroll through the available filters (from slowest to fastest, F1 to F11).

15. Programming Errors

MESSAGE	DESCRIPTION	SOLUTION
PrEC.	Calibration error	First calibrate the zero point (ZEro), then proceed with sample weight acquisition (SPAn) (section 9).
Err.Pnt	Calibration error	Check the connection of the load cell. Verify the load cell signal is stable, valid and greater than the previously acquired point.
Er 11	Calibration error	Increase the calibration weight.
Er 12	Calibration error	Check the signal from the load cell increases when weight is incremented on the scale.
Er 37	Calibration error	Repeat calibration and verify capacity and division have been correctly set.
Er 39	Instrument not configured	Transmitter needs to be configurated.
C.Er.36	Calibration error	Verify the signal from the load cell is not negative.
C.Er.37	Calibration error	Verify the signal from the load cell is not negative.
Err.Not	Weight unstable	Check in AdC.uU parameter that the signal is stable. If the connection of the cells is with 4 wires, check that the sense jumpers are inserted.
AdC.Err	A/D converter error	Converter failure. Reboot the instrument.
CEL.Err	Global load cell error	Signal anomaly: check the load cells connection.

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16. Modbus

16.1 MODBUS REGISTERS

<table>
<tr><th>Data</th><th>Register</th><th colspan="2">DESCRIPTION</th></tr>
<tr><td rowspan="2">Gross weight</td><td>30001</td><td colspan="2" rowspan="2">Gross Weight value.</td></tr>
<tr><td>30002</td></tr>
<tr><td rowspan="2">Net weight</td><td>30003</td><td colspan="2" rowspan="2">Net Weight value.</td></tr>
<tr><td>30004</td></tr>
<tr><td rowspan="2">Input status register</td><td rowspan="2">30005</td><td>Bit 15 (msb)
Bit 14
Bit 13
Bit 12
Bit 11
Bit 10
Bit 9
Bit 8 (lsb)</td><td>Active channel.
Active channel.
No function.
No function.
No function.
No function.
Status of input n. 2.
Status of input n. 1.
<table><tr><th>Bit 15</th><th>Bit 14</th><th>Active Channel</th></tr><tr><td>0</td><td>0</td><td>Channel 1</td></tr><tr><td>0</td><td>1</td><td>Channel 2</td></tr><tr><td>1</td><td>0</td><td>Channel 3</td></tr><tr><td>1</td><td>1</td><td>Channel 4</td></tr></table></td></tr>
<tr><td>Bit 7 (msb)
Bit 6
Bit 5
Bit 4
Bit 3
Bit 2
Bit 1
Bit 0 (lsb)</td><td>1 = Scale unloaded (gross weight = 0).
Tare PT (1 = PT tare is active).
Tare (1 = Tare is active).
Overload condition (0 = No; 1 = Overload).
Underload condition (0 = No; 1 = Underload).
Weight Stability (0 = Unstable; 1 = Stable).
Gross Weight Polarity (0 = “+”; 1 = “-”).
Net Weight Polarity (0 = “+”; 1 = “-”).</td></tr>
<tr><td rowspan="2">Command status register</td><td rowspan="2">30006</td><td colspan="2">Last received command.</td></tr>
<tr><td>Bit 7 (msb)
Bit 6
Bit 5
Bit 4
Bit 3
Bit 2
Bit 1
Bit 0 (lsb)</td><td>Last command result.
Last command result.
Last command result.
Last command result.
Counting of processed commands.
Counting of processed commands.
Counting of processed commands.
Counting of processed commands.</td></tr>
<tr><td rowspan="2">Output status register</td><td rowspan="2">30007</td><td colspan="2">No Function.</td></tr>
<tr><td>Bit 7 (msb)
...
Bit 2
Bit 1
Bit 0 (lsb)</td><td>No function.
...
No function.
Digital output 2 status (0 = OFF; 1 = ON).
Digital output 1 status (0 = OFF; 1 = ON).</td></tr>
<tr><td>µV</td><td>30111</td><td colspan="2">µV value.</td></tr>
</table>

16.2 MODBUS REGISTERS FOR COMMAND SENDING

<table>
<tr><th>Data</th><th>Register</th><th>DESCRIPTION</th></tr>
<tr><td>Command</td><td>40232</td><td>Main available commands:
<table>
<tr><th>Value</th><th>Command</th></tr>
<tr><td>00 Hex</td><td>No command</td></tr>
<tr><td>01 Hex</td><td>Scale zeroing</td></tr>
<tr><td>02 Hex</td><td>Tare</td></tr>
<tr><td>03 Hex</td><td>Preset Tare</td></tr>
<tr><td>0A Hex</td><td>Setpoint 1 setting</td></tr>
<tr><td>0B Hex</td><td>Setpoint 2 setting</td></tr>
<tr><td>19 Hex</td><td>Digital output setting</td></tr>
<tr><td>22 Hex</td><td>Reboot the weight transmitter</td></tr>
</table></td></tr>
<tr><td rowspan="2">Parameter 1</td><td>40233</td><td rowspan="2">First parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td></tr>
<tr><td>40234</td></tr>
<tr><td rowspan="2">Parameter 2</td><td>40235</td><td rowspan="2">Second parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td></tr>
<tr><td>40236</td></tr>
</table>

EXAMPLE 1

For zeroing the weight on the scale:

2. Set the command in byte 2

Byte	Value
1	00 Hex
2	01 Hex

EXAMPLE 2

For setting a preset tare of 1000 lb:

1. Set the tare value in parameter 1 (byte 3, 4, 5, 6)
2. Set the command in byte 2

Byte	Value
1	00 Hex
2	03 Hex
$3_{(MSB)}$	00 Hex
4	00 Hex
5	03 Hex
$6_{(LSB)}$	E8 Hex

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Notes

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