SCT-1SX-PROFINET

Quick Start Guide

RICE LAKE®

W E I G H I N G   S Y S T E M S
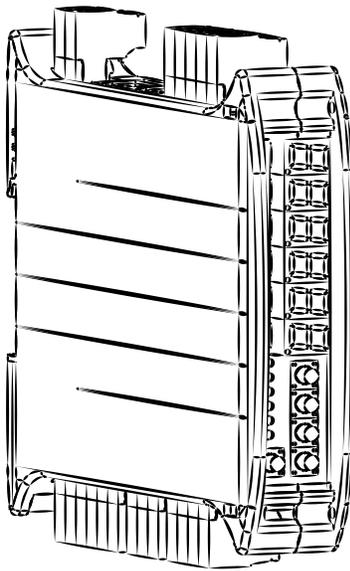
1. Electrical Schematic
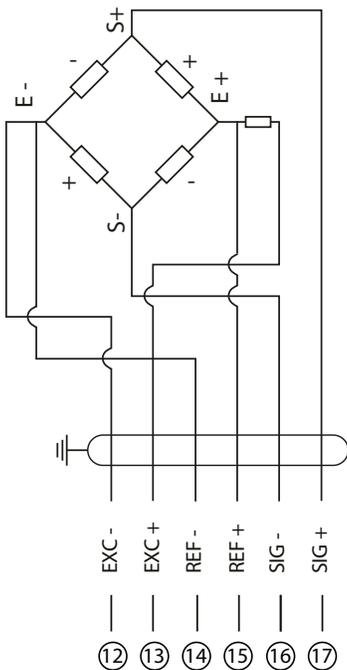
Load cells excitation: 5 V.
Load cells output: 6 mV/V max.

For UL approved models:
equipment to be powered by
12 to 24 Vdc LPS or Class 2
power source.

INPUT: 12 to 48 Vdc,

OUTPUT: 48Vac or 60Vdc, 0.5 A
max

CONSUMPTION: 4 W max.
(without load cells).

LOAD CELL

Internal use

CAL

M

ETHERNET I/O PORT 1

ETHERNET I/O PORT 2

COM   IN 1   IN 2   RL1   RL2   RL3   RL4

12 / 24 Vdc
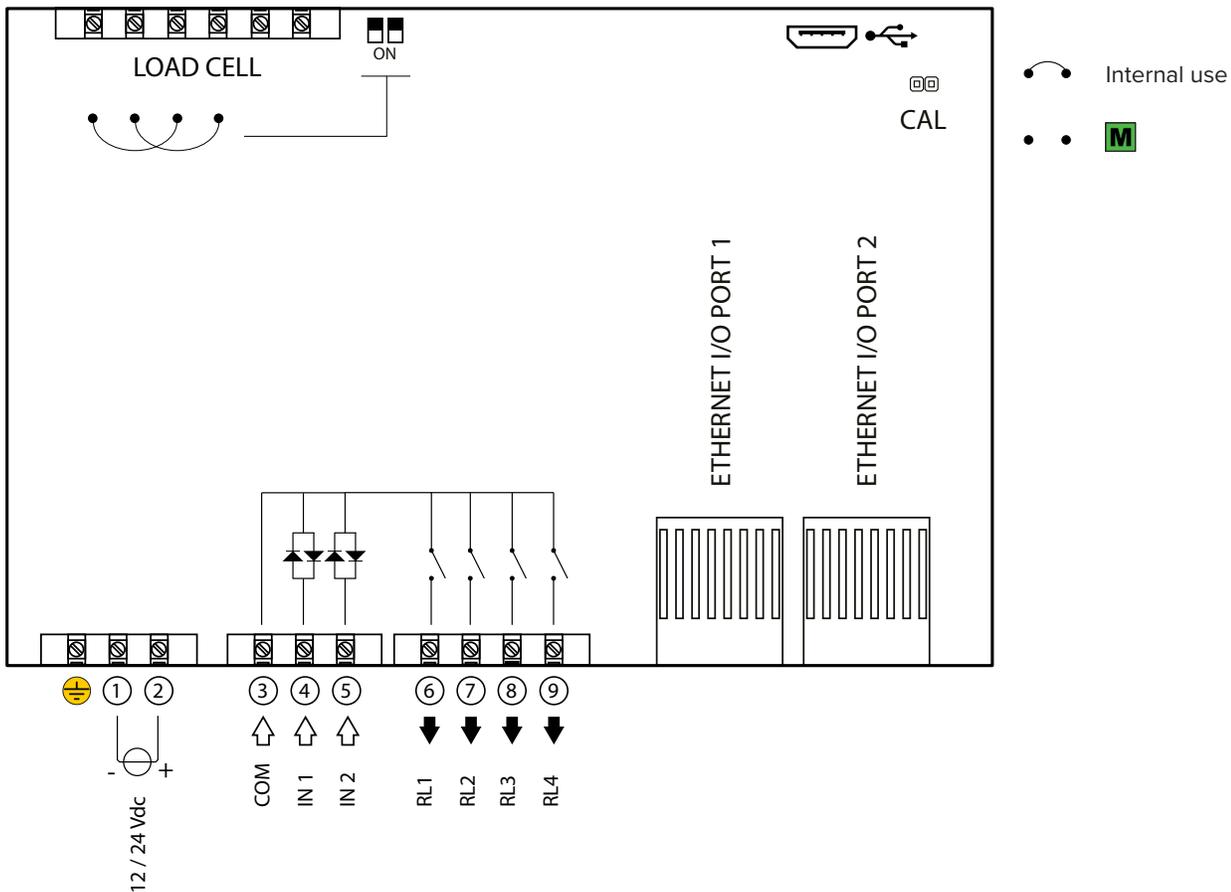
Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals
Warranty information is available at www.ricelake.com/warranties

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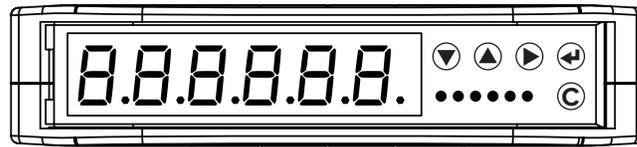
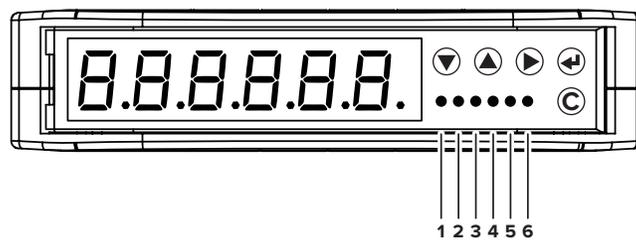| Configuration menu	
▼	Decreases digit / Scrolls down.
▲	Increases digit / Scrolls up.
▶	Enters the setup. Selects digit to modify.
↵	Enters a step / Confirms.
C	Clears / Exits a step (no save).

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.

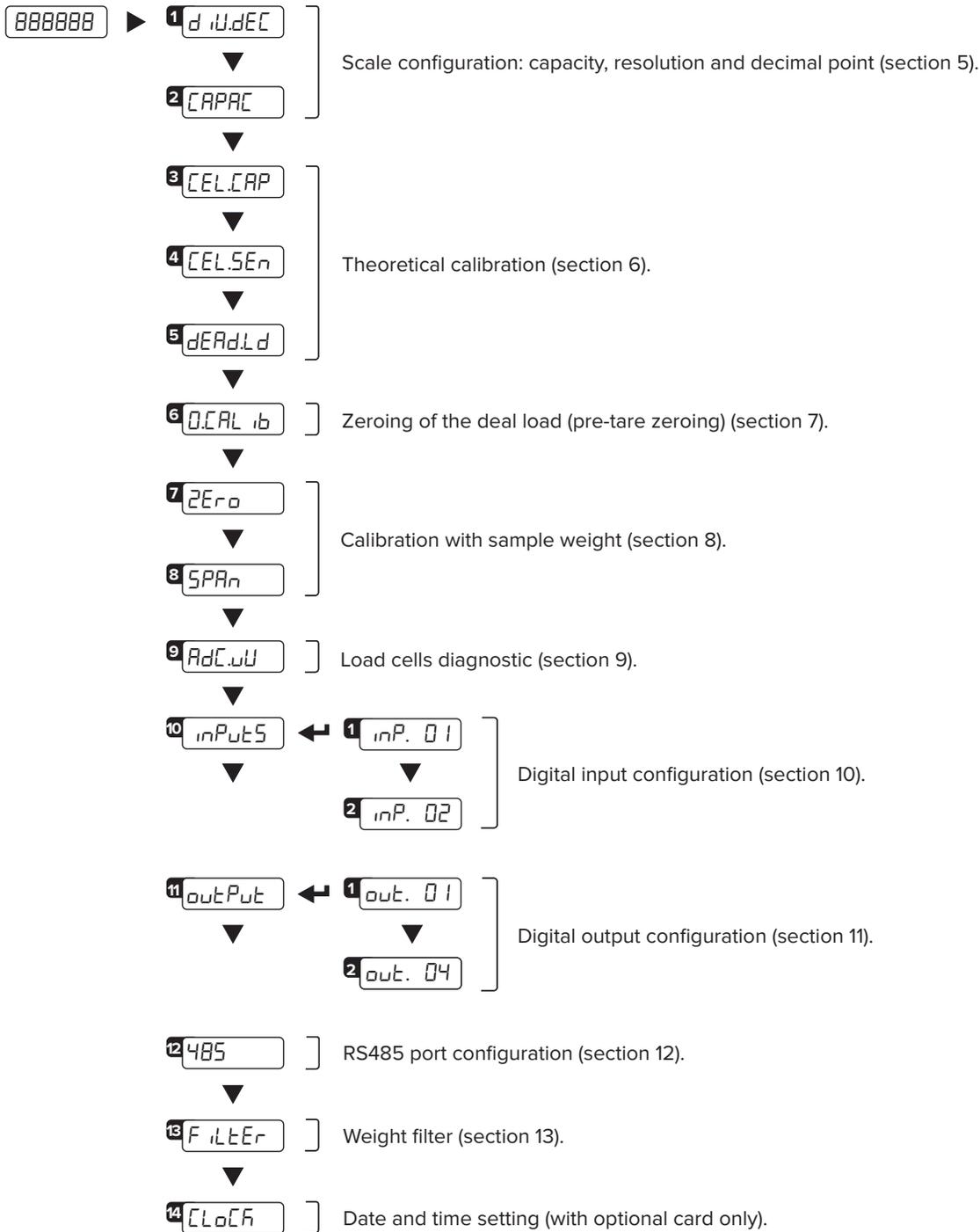## 3. Indicator Light Descriptions

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.

RICE LAKE
WEIGHING SYSTEMS

4. Configuration Menu

1. Reboot the weight transmitter

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

888888 ▶ **1** `d iU.dEC` ▼ **2** `CAPAC`	Scale configuration: capacity, resolution and decimal point (section 5).
3 `CEL.CAP` ▼ **4** `CEL.5En` ▼ **5** `dEAd.Ld`	Theoretical calibration (section 6).
6 `0.CAL ib`	Zeroing of the deal load (pre-tare zeroing) (section 7).
7 `2Ero` ▼ **8** `5PAn`	Calibration with sample weight (section 8).
9 `AdC.uU`	Load cells diagnostic (section 9).
10 `inPut5` ◀┘ **1** `inP. 01` ▼ **2** `inP. 02`	Digital input configuration (section 10).
11 `outPut` ◀┘ **1** `out. 01` ▼ **2** `out. 04`	Digital output configuration (section 11).
12 `485`	RS485 port configuration (section 12).
13 `F iLtEr`	Weight filter (section 13).
14 `CLoCh`	Date and time setting (with optional card only).

HOW TO EXIT THE MENU AND SAVE YOUR CONFIGURATION

1. Press **C** key repeatedly until *5AUE?* appears; press ◀┘ to save or press **C** to exit without saving.

5. Maximum Scale Capacity, Increment and Decimal Point Settings

`888888` ▶ **1** `d iU.dEC`

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).

▼

2 `CAPAC`

Set the maximum scale capacity*[2] *(max 999999)*.
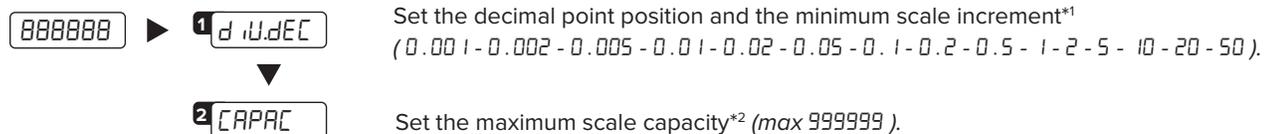
Examples:

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:
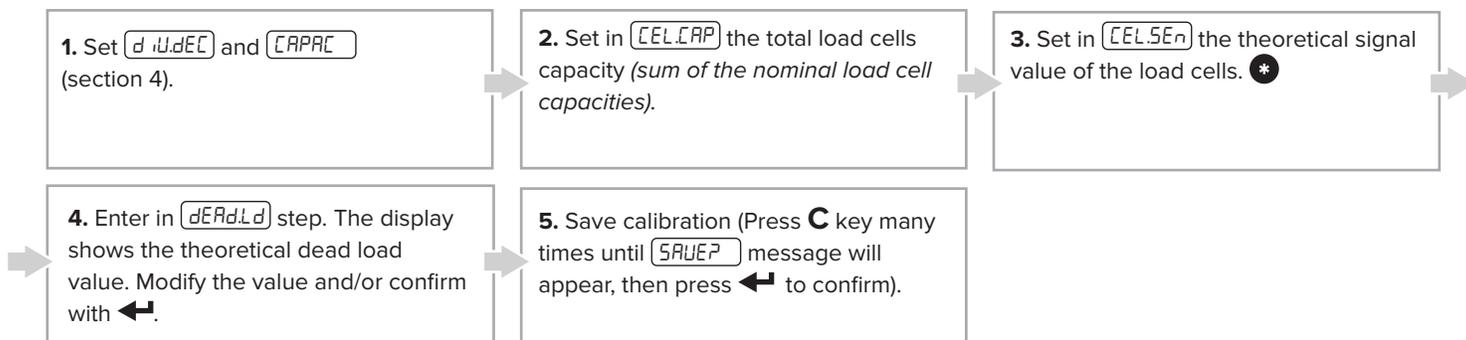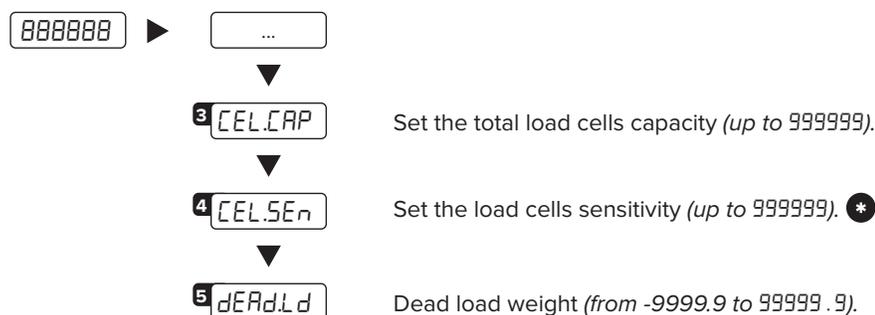d iU.dEC = 0.1
CAPAC = 10000.0

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.
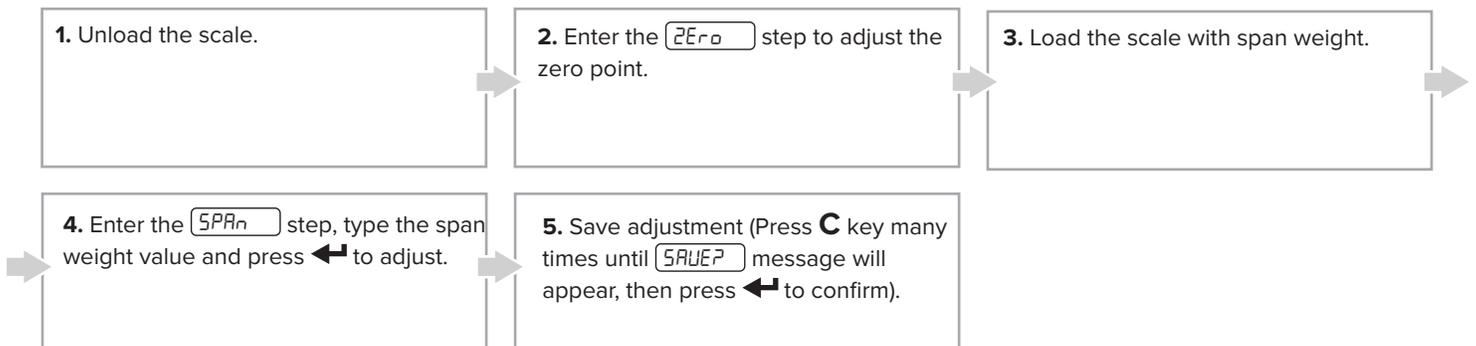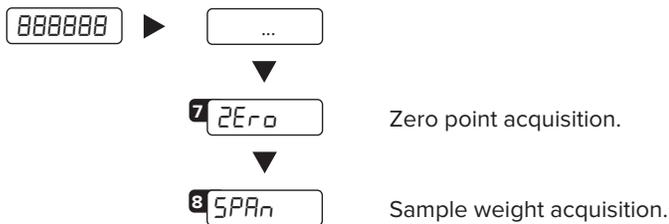
6. Theoretical Calibration

`888888` ▶ `...`

▼

3 `CEL.CAP`

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

▼

4 `CEL.SEn`

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

▼

5 `dEAd.Ld`

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 `SAUE?` message will appear, then press ↵ to confirm).

RICE LAKE
WEIGHING SYSTEMS

7. Zeroi Mechanic Tare (pre-tare zeroing)

`888888` ▶ `...`

▼

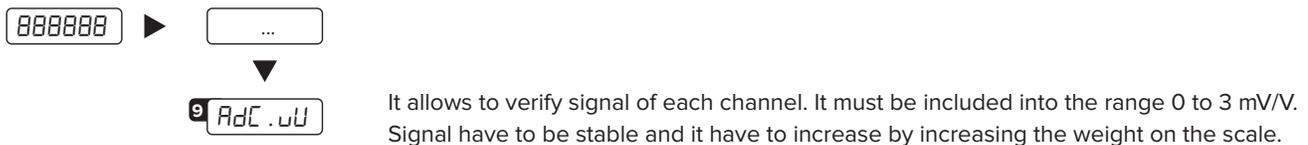**6** `0.CAL ib`   Zeroing of the pre-tare (or mechanical tare).

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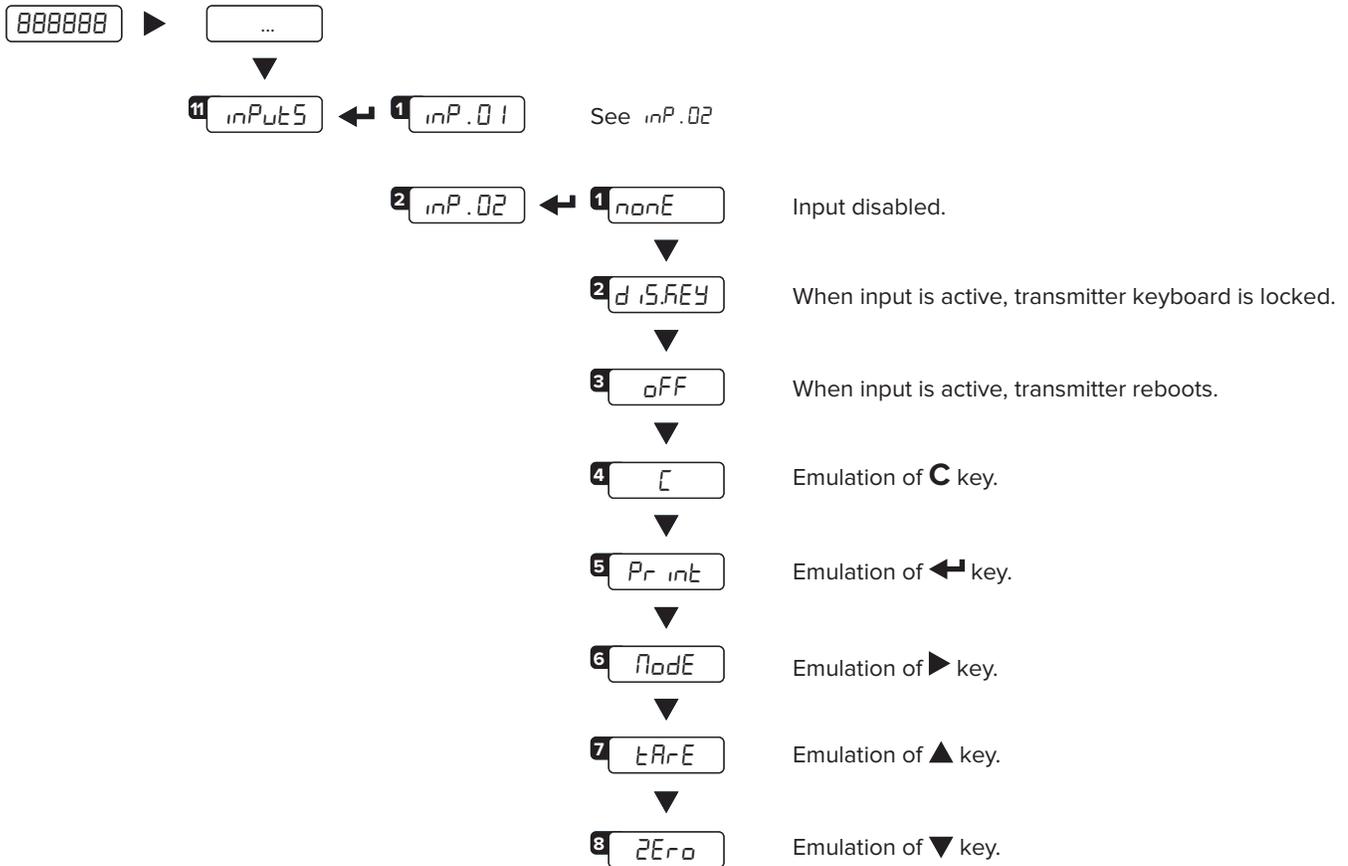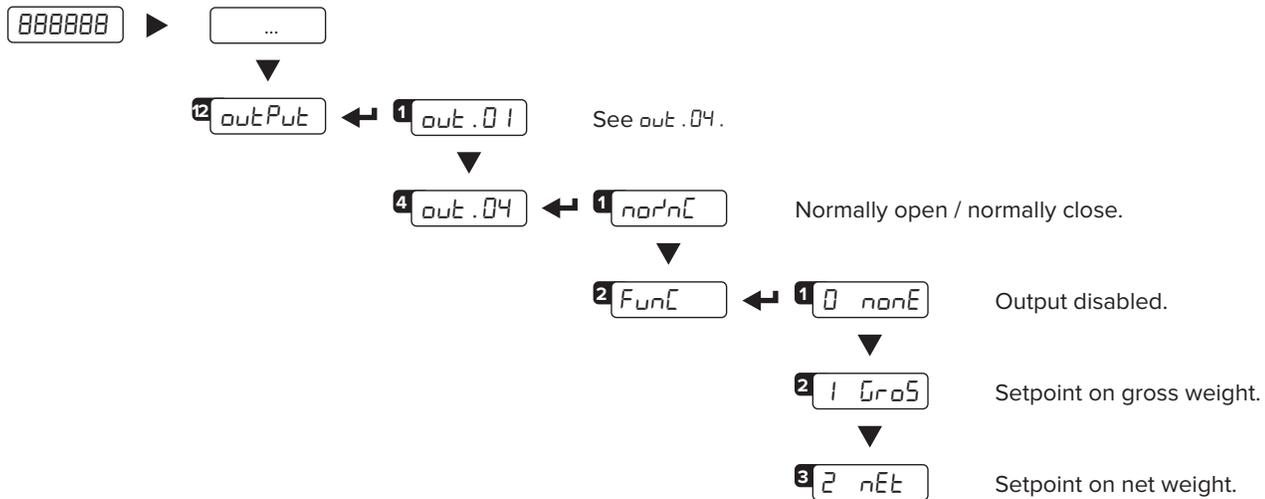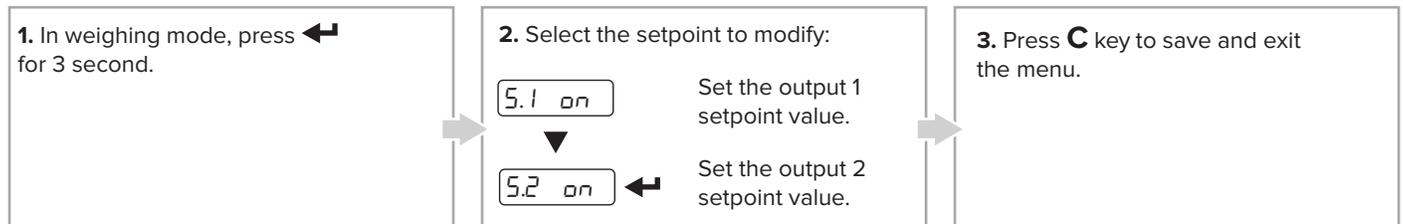
8. Calibration with Sample Weight

`888888` ▶ `...`

▼

7 `ZEro`   Zero point acquisition.

▼

8 `SPAn`   Sample weight acquisition.

1. Unload the scale.	**2.** Enter the `ZEro` 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)

`888888` ▶ `...`

▼

9 `AdC .uV`   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.

10. Input Setting

`888888` ▶ `...`

▼

11 `inPutS` ↵ **1** `inP.01`   See `inP.02`

2 `inP.02` ↵ **1** `nonE`   Input disabled.

▼

2 `d iS.HEY`   When input is active, transmitter keyboard is locked.

▼

3 `oFF`   When input is active, transmitter reboots.

▼

4 `C`   Emulation of **C** key.

▼

5 `Pr int`   Emulation of ↵ key.

▼

6 `ModE`   Emulation of ▶ key.

▼

7 `tArE`   Emulation of ▲ key.

▼

8 `2Ero`   Emulation of ▼ key.

RICE LAKE
W E I G H I N G   S Y S T E M S

11. Output Settings

`888888` ▶ `...`

▼

[12] `outPut` ↩ [1] `out.01`　　　See `out.04`.

▼

[4] `out.04` ↩ [1] `nornC`　　　Normally open / normally close.

▼

[2] `FunC` ↩ [1] `0 nonE`　　　Output disabled.

▼

[2] `1 GroS`　　　Setpoint on gross weight.

▼

[3] `2 nEt`　　　Setpoint on net weight.

11.1 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.

12. Fieldbus Settings

`888888` ▶ `...`

▼

[13] `FLdbuS` ↩ `YES` ↩ `Fb.init` ... `ProFin` ... `Fb.SEtP`

▼

`no`

Set the IP address:

`Fb.SEt` ↩ [1] `Aut.CFG`　Dynamic IP address.

[2] `iP.Add`　Static IP address.

[3] `nEt.MSh`　Subnet mask.

[4] `GAt.WAY`　Default gateway.

13. Weight Filter

| 888888 | ▶ | ... |

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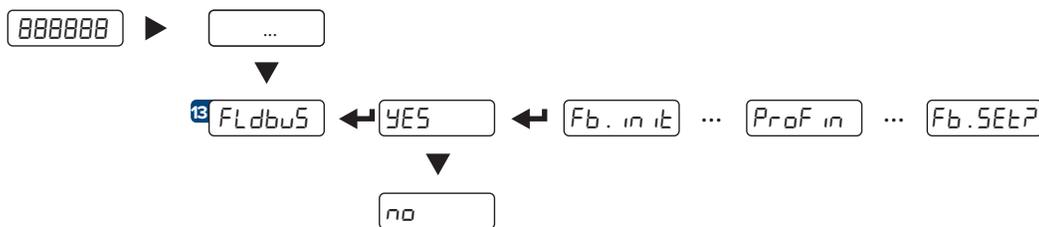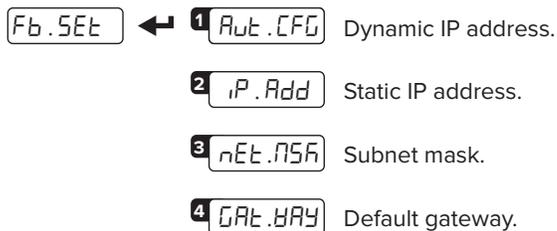
14 F ilEEr
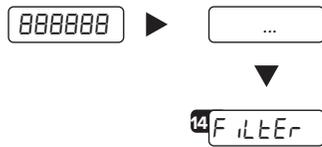
The active weight filter is displayed, alternating with the weight value.
Press ▲ and ▼ keys to scroll through the available filters (from slowest to fastest, F1 to F11).

14. 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.

RICE LAKE
W E I G H I N G   S Y S T E M S

15. Profinet

15.1 PROFINET REGISTERS

Data	Byte	DESCRIPTION			
Gross weight	0 (MSB) 1 2 3 (LSB)	Bytes 1, 2, 3 and 4 contain the Gross Weight value.			
Net weight	4 (MSB) 5 6 7 (LSB)	Bytes 5, 6, 7 and 8 contain the Net Weight value.			
Input status register	8 (MSB)	Bit 15 (msb) — Active channel. Bit 14 — Active channel. Bit 13 — No function. Bit 12 — No function. Bit 11 — No function. Bit 10 — No function. Bit 9 — Status of input n. 2. Bit 8 (lsb) — Status of input n. 1.	**Bit 15**	**Bit 14**	**Active Channel**
			0	0	Channel 1
			0	1	Channel 2
			1	0	Channel 3
			1	1	Channel 4
	9 (LSB)	Bit 7 (msb) — 1 = Scale unloaded (gross weight = 0). Bit 6 — Tare PT (1 = PT tare is active). Bit 5 — Tare (1 = Tare is active). Bit 4 — Overload condition (0 = No; 1 = Overload). Bit 3 — Underload condition (0 = No; 1 = Underload). Bit 2 — Weight Stability (0 = Unstable; 1 = Stable). Bit 1 — Gross Weight Polarity (0 = "+"; 1 = "-"). Bit 0 (lsb) — Net Weight Polarity (0 = "+"; 1 = "-").			
Command status register	10 (MSB)	Last received command.			
	11 (LSB)	Bit 7 (msb) — Last command result. Bit 6 — Last command result. Bit 5 — Last command result. Bit 4 — Last command result. Bit 3 — Counting of processed commands. Bit 2 — Counting of processed commands. Bit 1 — Counting of processed commands. Bit 0 (lsb) — Counting of processed commands.			
Output status register	12 (MSB)	No Function.			
	13 (LSB)	Bit 7 (msb) — No function. ... — ... Bit 2 — No function. Bit 1 — Digital output 2 status (0 = OFF; 1 = ON). Bit 0 (lsb) — Digital output 1 status (0 = OFF; 1 = ON).			
Selected page	14 (MSB) 15 (LSB)	Shows the value of the selected page (3001).			
µV	16 (MSB) 17 (LSB)	µV value.			

15.2 PROFINET REGISTERS FOR COMMAND SENDING

Data	Byte	DESCRIPTION
Not used	0	Always 0.
Command	1	Main available commands:

Value	Command
00 Hex	No command
01 Hex	Scale zeroing
02 Hex	Tare
03 Hex	Preset Tare
0A Hex	Setpoint 1 setting
0B Hex	Setpoint 2 setting
19 Hex	Digital output setting
22 Hex	Reboot the weight transmitter

Data	Byte	DESCRIPTION
Parameter 1	2 (MSB)	First parameter of the command.
	3	Parameter is always expressed in absolute mode (no decimals, no sign).
	4	
	5 (LSB)	
Parameter 2	6 (MSB)	Second parameter of the command.
	7	Parameter is always expressed in absolute mode (no decimals, no sign).
	8	
	9 (LSB)	
	10 (MSB)	Used in advanced configuration, refer to the complete Fieldbus manual for further information.
	...	
	31 (LSB)	

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

RICE LAKE
WEIGHING SYSTEMS

Notes

Notes

RICE LAKE
WEIGHING SYSTEMS