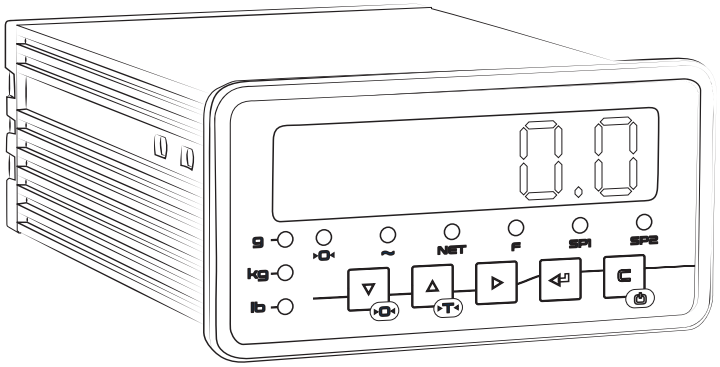
SCT-1PX-MODTCP

Digital Weight Transmitter

Quick Start Guide



RICE LAKE®
WEIGHING SYSTEMS

May 6, 2025

PN 229086 Rev A

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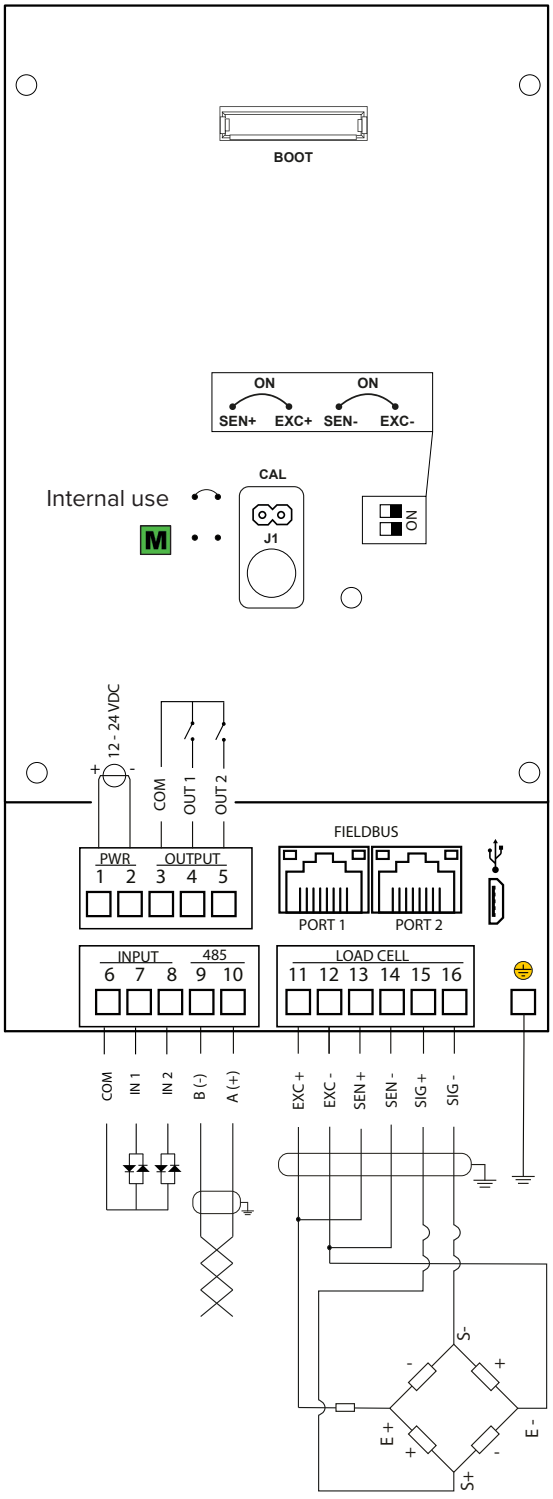
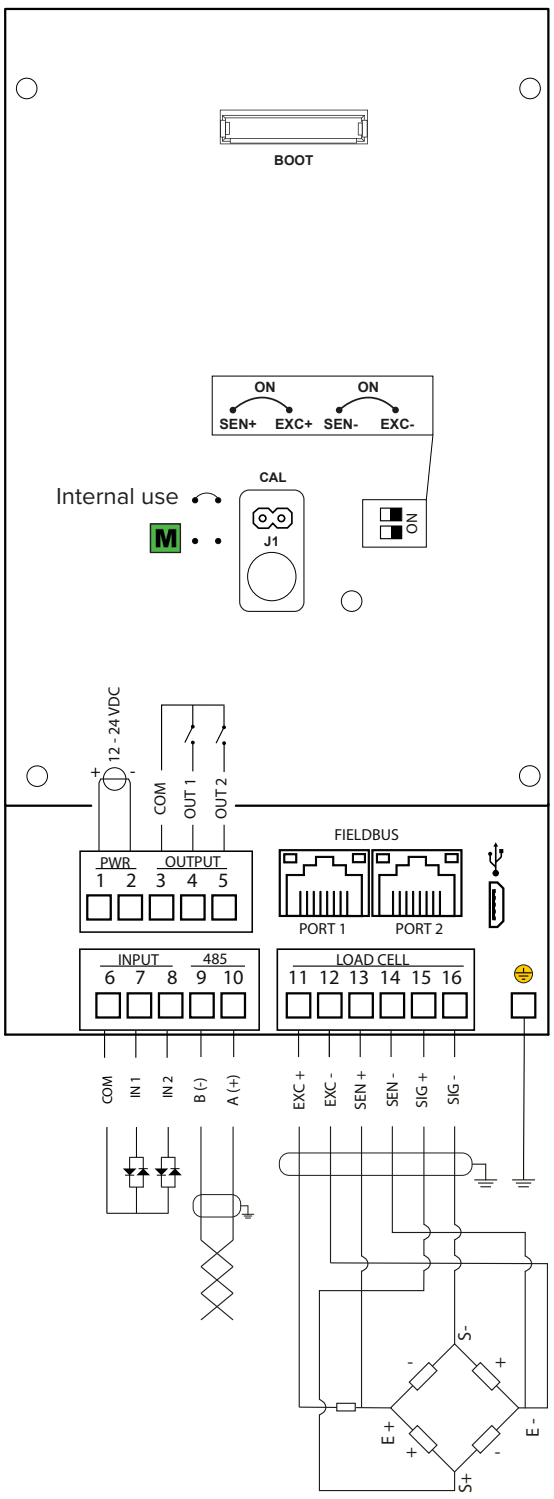
www.ricelake.com

1. Electrical Diagrams

4-WIRE CONNECTION



6-WIRE CONNECTION



⚠ Load cells exitation: 5 V
Load cells output: 6 mV/V max

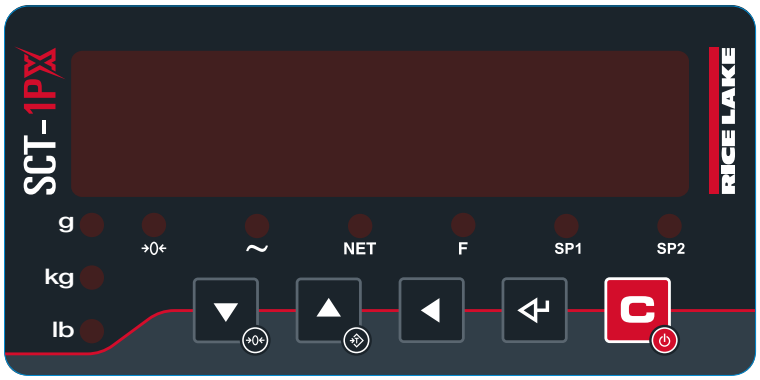
UL For UL approved models: equipment to be powered by 12-24 VDC LPS or Class 2 power source.

⚠ INPUT: 12 - 48 VDC

OUTPUT: 48VAC or 60VDC, 0.5 A max

⚠ CONSUMPTION: 1 W max (without load cells)

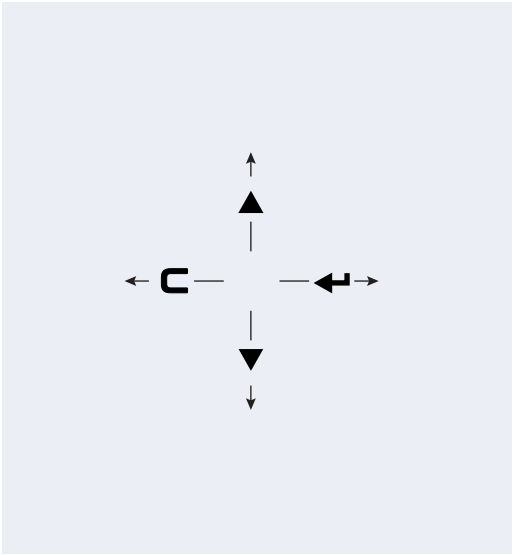
2. Configuration Menu and Weighing Mode Key Functions



Symbol	Description
▼	Semi-automatic zeroing. Decreases the selected digit.
▲	Semi-automatic tare. Increases the selected digit.
▶	Activates the function. Selects the digit to be changed.
↵	Confirms a value. Prints / Transmits data.
C	Reboots the transmitter.

Symbol	Description
→0←	Gross weight on zero.
~	Unstable weight.
NET	A tare is active.
F	A special function is active.
SP1	Output 1 is active.
SP2	Output 2 is active.
g kg lb	Unit of measure.

3. Menu Key Functions



▲ Previous parameter.

▼ Next parameter.

↵ Access the parameter / confirm setting.

C Exit a parameter (without saving).

FUNCTION OF THE KEYS WHEN ENTERING NUMBERS

▲ Increases the selected digit.

▼ Decreases the selected digit.

▶ Selects the next digit.

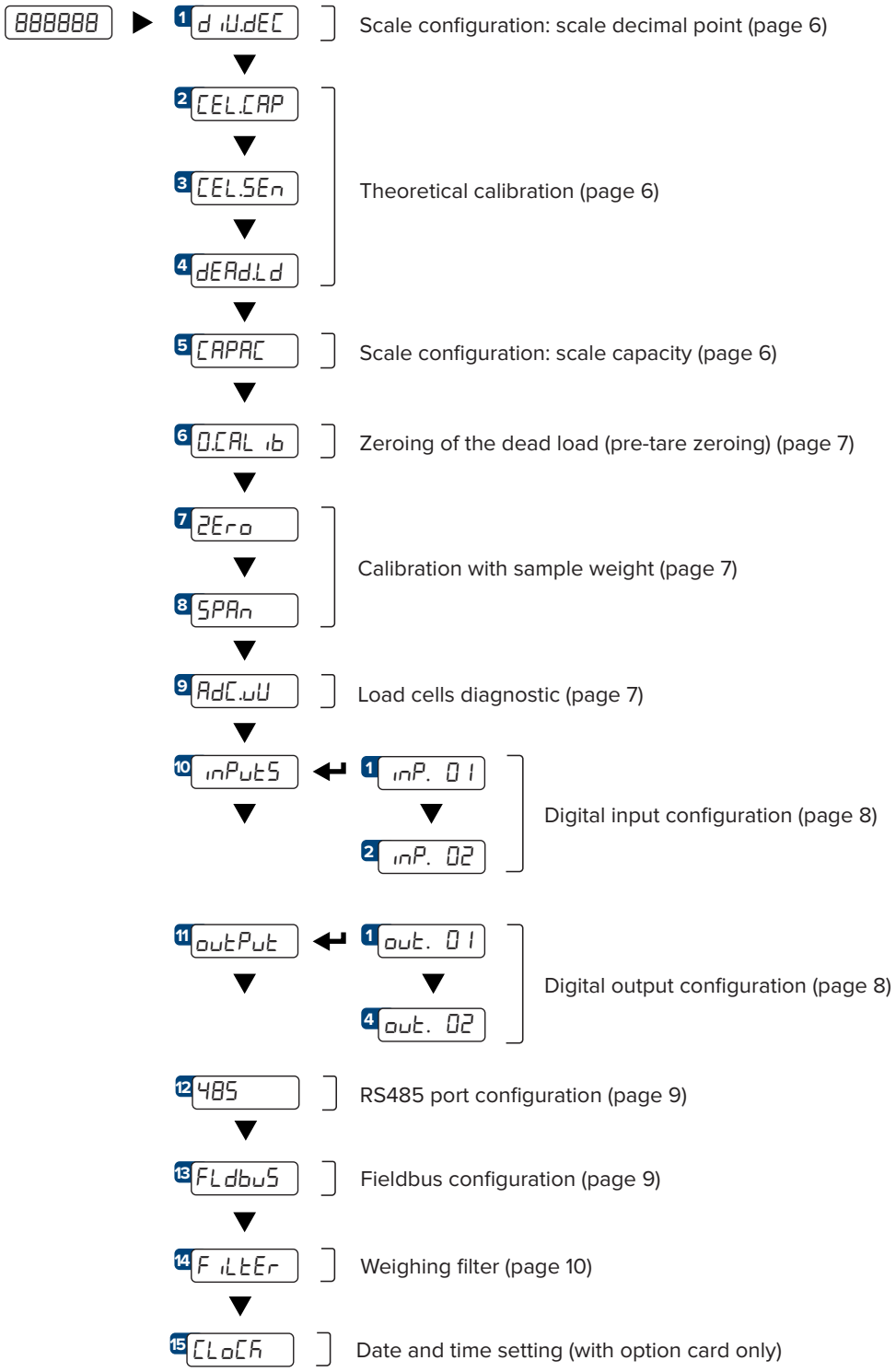
↵ Confirms the value.

C Resets the value.
If pressed again, exits entering.

4. Configuration Menu

1. Reboot the weight transmitter

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



HOW TO EXIT THE MENU AND STORE YOUR CONFIGURATION

Press **C** key many times until *SAUE?* message will appear; press ↵ to store or press **C** to exit without storing.

5. Maximum Scale Capacity, Increment and Decimal Point Setting

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).

▼

...

▼

5 CAPAC

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

Examples:

For a 60000 kg scale, with 2 kg 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 kg scale, with 0,05 kg 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 ▶ ...

▼

2 CEL.CAP

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

▼

3 CEL.SEn

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

▼

4 dEAd.Ld

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

1. Set d iU.dEC and CAPAC.

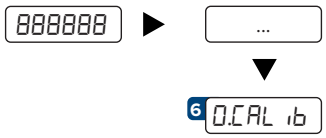
2. Set in CEL.CAP the total load cells capacity *(sum of the nominal load cell capacities).*

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 **V** key many times until SAVEP message will appear, then press ↵ to confirm).

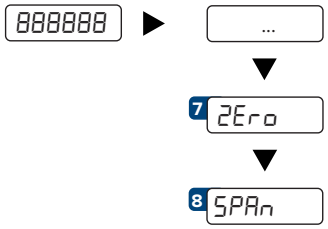
7. Zeroing the Tare (pre-tare zeroing)



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.

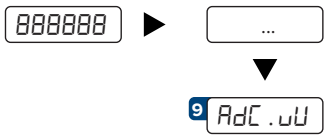
2. Enter the 2Ero step to adjust the zero point.

3. Load the scale with span weight.

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

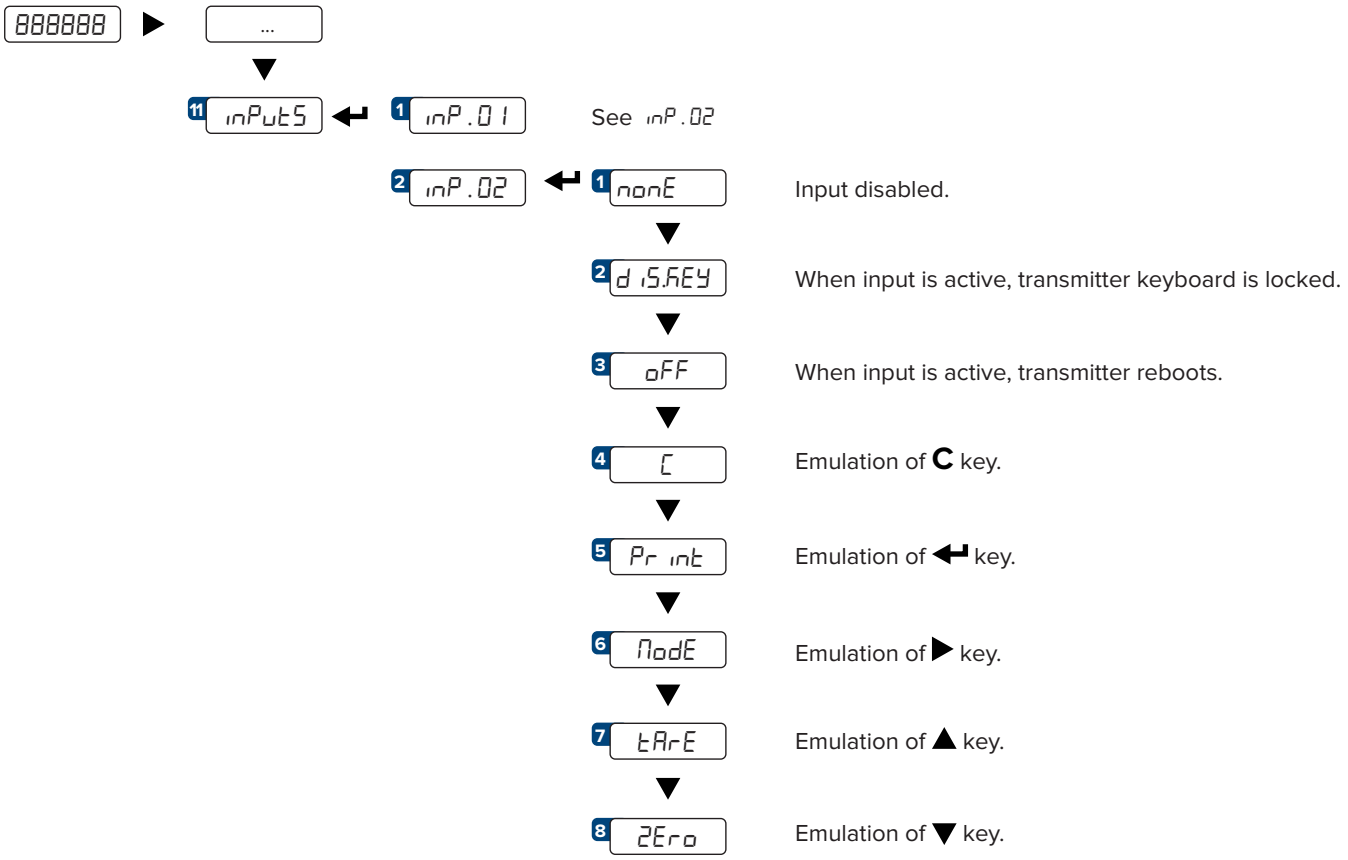
5. Save adjustment (Press **C** key many times until SAVE? message will appear, then press ↵ to confirm).

9. Load Cell µV/V Diagnostics

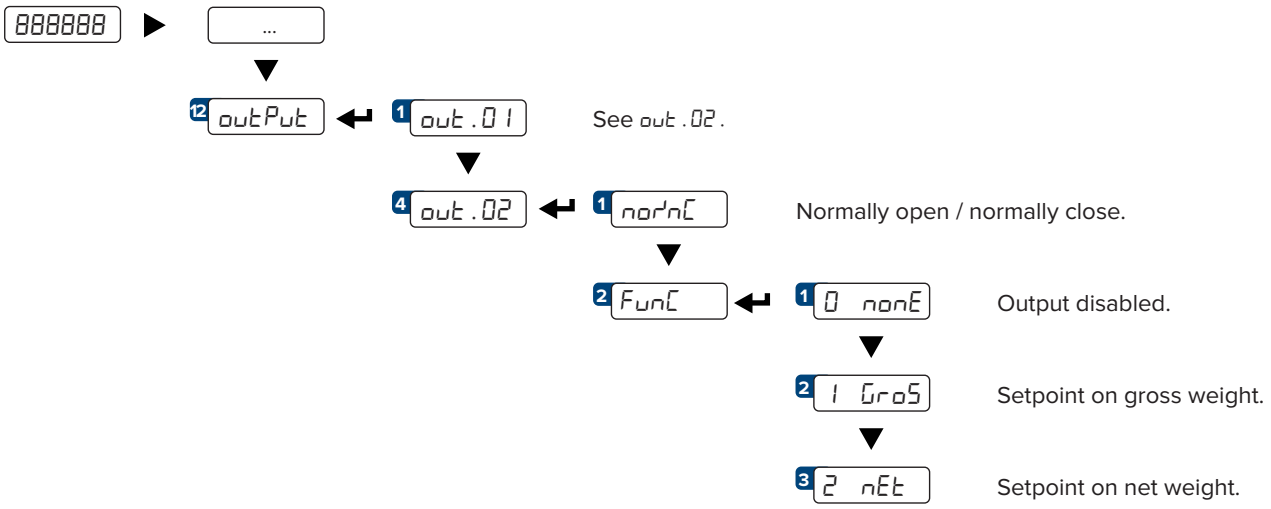


It allows to verify signal of each channel. It must be included into the range 0 to 3 mV/V. Signal have to be stable and it have to increase by increasing the weight on the scale.

10. Input Settings



11. Output Settings



11.1 HOW TO PROGRAM SETPOINTS

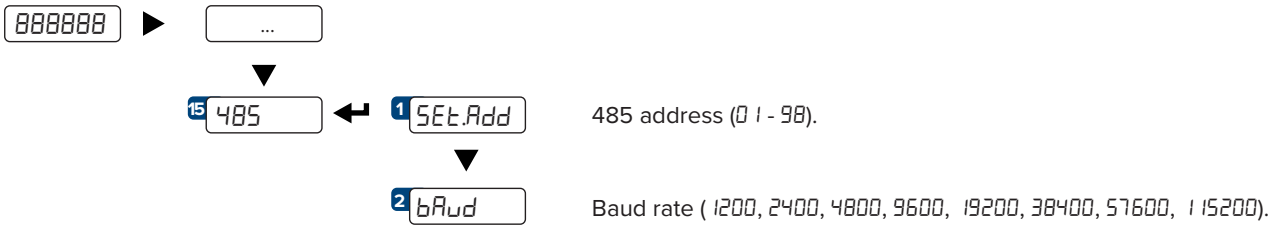
1. In weighing mode, press ↵ for 3 second.

2. Select the setpoint to modify:
   - 5.1 on — Set the output 1 setpoint value.
   - 5.2 on — Set the output 2 setpoint value.

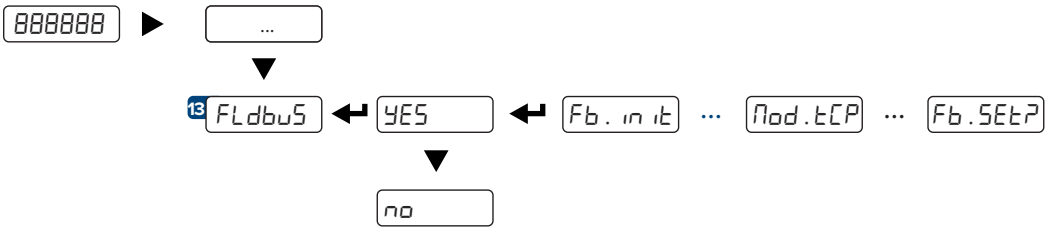
3. Press **C** key to store and exit the menu.

Refer to the Technical manual for more information.

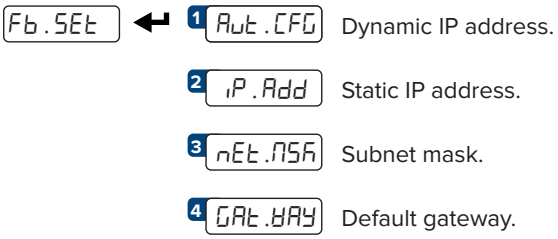
12. RS485 Port



13. Fieldbus Settings

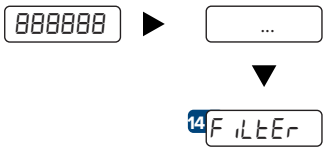


Set the IP address:



Refer to the Fieldbus manual for more information.

14. Weighing Filter



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

15. Programming Errors

MESSAGE	DESCRIPTION	SOLUTION
PrEC.	Calibration error	First calibrate the zero point (ZEro), then proceed with the sample weight acquisition (SPAn) (page 7).
Err.Pnt	Calibration error	Check the connection of the load cell. Check that the cell signal is stable, valid and greater than that of the previously acquired point.
Er 11	Calibration error	Increase the calibration weight.
Er 12	Calibration error	Check that the signal coming from the cell increases upon the increasing of the weight loaded on the scale.
Er 37	Calibration error	Repeat the calibration, checking that the capacity and division have been correctly set.
Er 39	Instrument not configured	Transmitter needs to be configurated.
C.Er.36	Calibration error	Check that the signal coming from the load cell is not negative.
C.Er.37	Calibration error	Check that the signal coming from the load cell is not negative.
Err.Not	Weight unstable	Check in AdC.dU 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.

16. Modbus TCP

16.1 MODBUS TCP REGISTERS

<table>
<tr><th>Data</th><th>Register</th><th colspan="2">DESCRIPTION</th></tr>
<tr><td rowspan="2">Gross weight</td><td>30001 (H)</td><td colspan="2" rowspan="2">Registers 30001 and 30002 contain the Gross Weight value.</td></tr>
<tr><td>30002 (L)</td></tr>
<tr><td rowspan="2">Net weight</td><td>30003 (H)</td><td colspan="2" rowspan="2">Registers 30003 and 30004 contain the Net Weight value.</td></tr>
<tr><td>30004 (L)</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.</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>Selected page</td><td>30008</td><td colspan="2">Shows the value of the selected page (3001).</td></tr>
<tr><td>µV</td><td>30009</td><td colspan="2">µV value.</td></tr>
</table>

Bit 15	Bit 14	Active Channel
0	0	Channel 1
0	1	Channel 2
1	0	Channel 3
1	1	Channel 4

This manual contains the main registers for reading data / sending commands.
Refer to the Fieldbus manual for the complete list of available registers.

16.2 MODBUS TCP REGISTERS FOR COMMAND SENDING

<table>
<tr><th>Data</th><th>Register</th><th>DESCRIPTION</th></tr>
<tr><td>Command</td><td>40001</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>40002 (H)</td><td rowspan="2">First parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td></tr>
<tr><td>40003 (L)</td></tr>
<tr><td rowspan="2">Parameter 2</td><td>40004 (H)</td><td rowspan="2">Second parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td></tr>
<tr><td>40005 (L)</td></tr>
<tr><td rowspan="3"></td><td>40006</td><td rowspan="3">Used in advanced configuration, refer to the Fieldbus manual for more information.</td></tr>
<tr><td>...</td></tr>
<tr><td>40016</td></tr>
</table>

EXAMPLE 1

For zeroing the weight on the scale:

1. Set the command in byte 2

Byte	Value
1	00 Hex
2	01 Hex

EXAMPLE 2

For setting a preset tare of 1000 kg:

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

This manual contains the main registers for reading data / sending commands.
Refer to the Fieldbus protocol manual for the complete list of available registers.

Notes

Notes

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