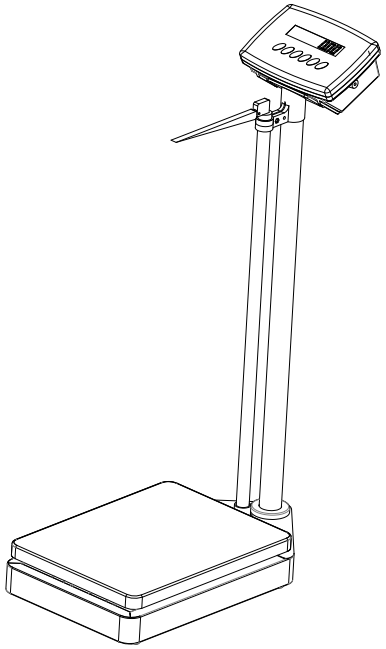
LOCOSC PRECISION TECHNOLOGY

LH101

Digital Scale with Height Rod

USER GUIDE



Height, Weight & BMI Measurement

Thank you for your choice.

Safety Precautions

For safe operation, please read and follow these safety instructions before installing, operating, or servicing the scale.

WARNING

Setup, calibration, inspection, and maintenance of the indicator must be carried out only by qualified, professionally trained personnel. Unauthorized servicing may affect metrological integrity and void the warranty.

CAUTION

The indicator contains electrostatic-sensitive components. Switch off and disconnect power before making any electrical connections. Do not touch internal components by hand, and observe appropriate anti-static precautions.

NOTICE

Do not exceed the rated maximum capacity of the scale. Overloading may damage the load cell and will void the warranty. Keep the platform free of obstructions and ensure the unit stands level on a firm, stable surface before each use.

Table of Contents

1. Product Overview 1
1.1 Features 1
1.2 Technical Parameters 1
2. Parts List & Hardware 2
Parts List 2
Hardware List 2
3. Assembly Instructions 3
4. Using the Height Rod 5
5. Basic Operation 6
5.1 Keypad & Display 6
5.2 Power On / Off 7
5.3 Zero Operation 7
5.4 Tare Operation 7
5.5 Unit / BMI Function 7
5.6 Hold Function 8
5.7 High / Low Limit Alarm 8
5.8 Print Function 8
6. Calibration & Parameter Setting 9
6.1 Entering the Setting Menu 9
6.2 Calibration Procedure (C01–C07) 9
6.3 Application Parameter Setting (C08–C17) 10
6.4 Communication Setting (C18–C19) 11
6.5 Application Setting (C20–C29) 11
6.6 Exiting Settings (Save & Exit) 11
7. Output Data Format 12
7.1 Computer Continuous Sending Format 12
7.2 Continuous Display Sending Format 12
7.3 Serial Interface Reception Command 12
7.4 Print Output Format 12
8. Maintenance & Troubleshooting 13
8.1 Error Messages 13
8.2 Routine Maintenance 13
8.3 Restoring Default Parameters 13
Appendix: Default Parameter Table 14

1. Product Overview

1.1 Features

- Combined height, weight, and BMI measurement in a single unit
- General weighing functions: zero, tare
- kg / lb / cm unit conversion with automatic BMI calculation
- Weight accumulation function
- Optional serial output via RS232
- Low battery indication
- Automatic power-off

1.2 Technical Parameters

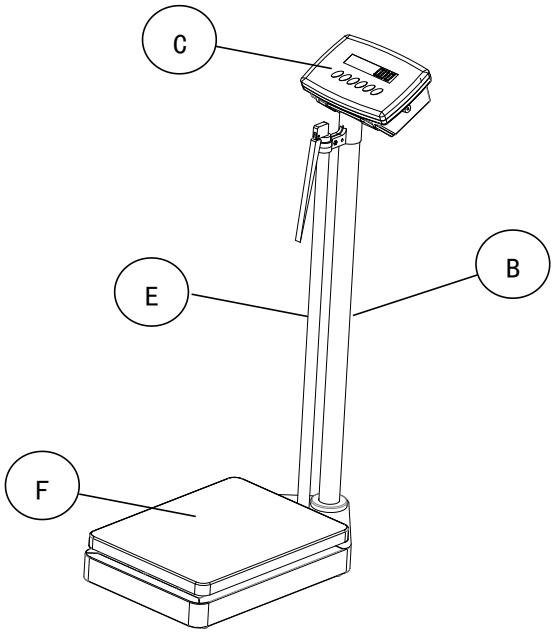
Parameter	Specification
Accuracy Class	Class III
Max. Number of Scale Intervals (nmax)	n = 3000
Excitation Voltage	+3.3 VDC
A/D Converting Speed	10 SPS
Load Signal Range	0 ~ 12.8 mV
Load Capacity	Supports up to 4 × 350 Ω load cells
Weight Unit	kg / lb
Height Unit	cm
Scale Interval (d)	1 / 2 / 5 / 10 / 20 / 50
Height Range	80 – 210 cm (adjustable height rod)
Display	6-digit LED/LCD, digit height 20 mm
Keypad	ON/OFF, HOLD, BMI/UNIT, TARE, ZERO, SET
Interface	RS232C, baud rate optional 1200/2400/4800/9600 bit/s
Operating Temperature & Humidity	-10°C to +40°C; ≤ 85% RH
Power Supply	4V/4Ah rechargeable battery or 120/220 VAC (optional)

2. Parts List & Hardware

Before assembly, verify that the carton contains all of the following components.

Parts List

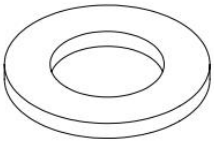
- A. Cable
- B. Pillar
- C. Indicator
- D. Load Cell Cable
- E. Height Rod
- F. Base



LH101 assembled unit — platform, pillar, indicator, and height rod

Hardware List

- Mounting bolts (×3) for securing the indicator to the pillar
- Hex key for tightening the mounting bolts
- Tightening screw for the indicator bracket

 **Hex Socket Screw M8×16 (×4)**	 **Hex Socket Screw M6×12 (×8)**
 **Flat Washer (×8)**	 **Spring Washer (×4)**

3. Assembly Instructions

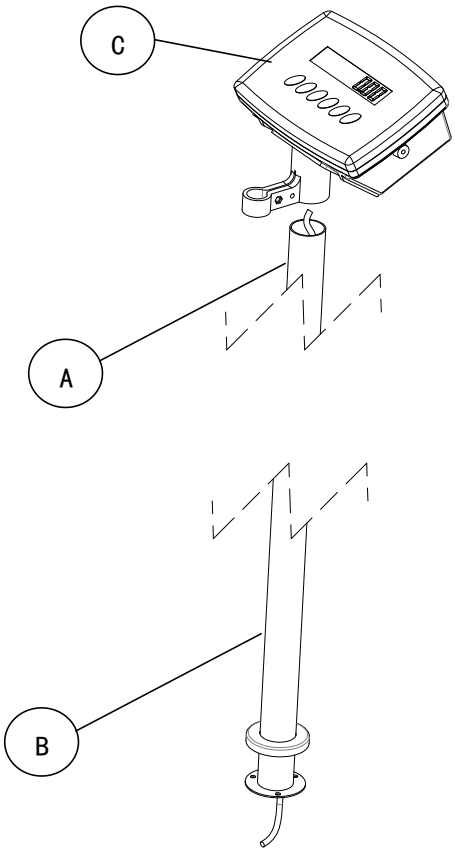
> **NOTICE**
> Ensure the scale platform (base) rests on a firm, level surface before assembly. Do not tighten bolts fully until all components are correctly aligned.

Step 1: Prepare the Pillar and Cable

- Feed the Cable (A) through the Pillar (B).

Step 2: Connect the Indicator

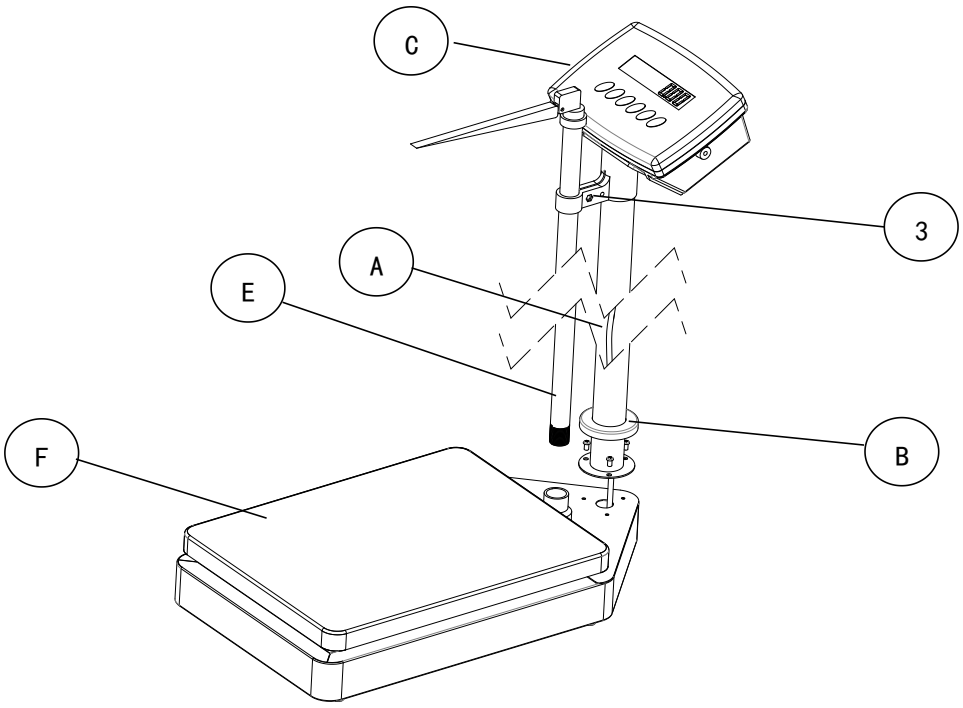
- Connect the Cable (A) to the Indicator (C) and to the Load Cell Cable (D), as shown.
- Route the connected cable into the Pillar (B).



Connecting the indicator cable and load cell cable

Step 3: Mount the Indicator

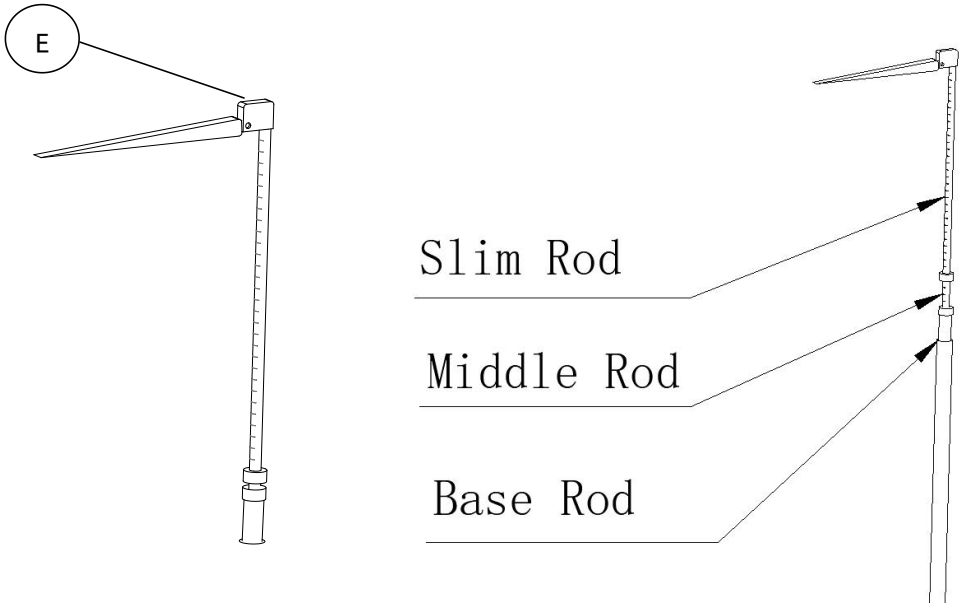
- Affix the Indicator (C) onto the pillar using the three (3) mounting bolts.
- Secure the bolts using the included hex key.



Securing the indicator to the pillar

Step 4: Install the Height Rod

- Insert the Height Rod (E) through the hole beneath the indicator base, and into the hole in the Base (F).
- Turning clockwise, tighten the Height Rod (E) into the Base (F) until secure.
- If needed, adjust the position of the Indicator (C) and secure the tightening screw on the indicator bracket.

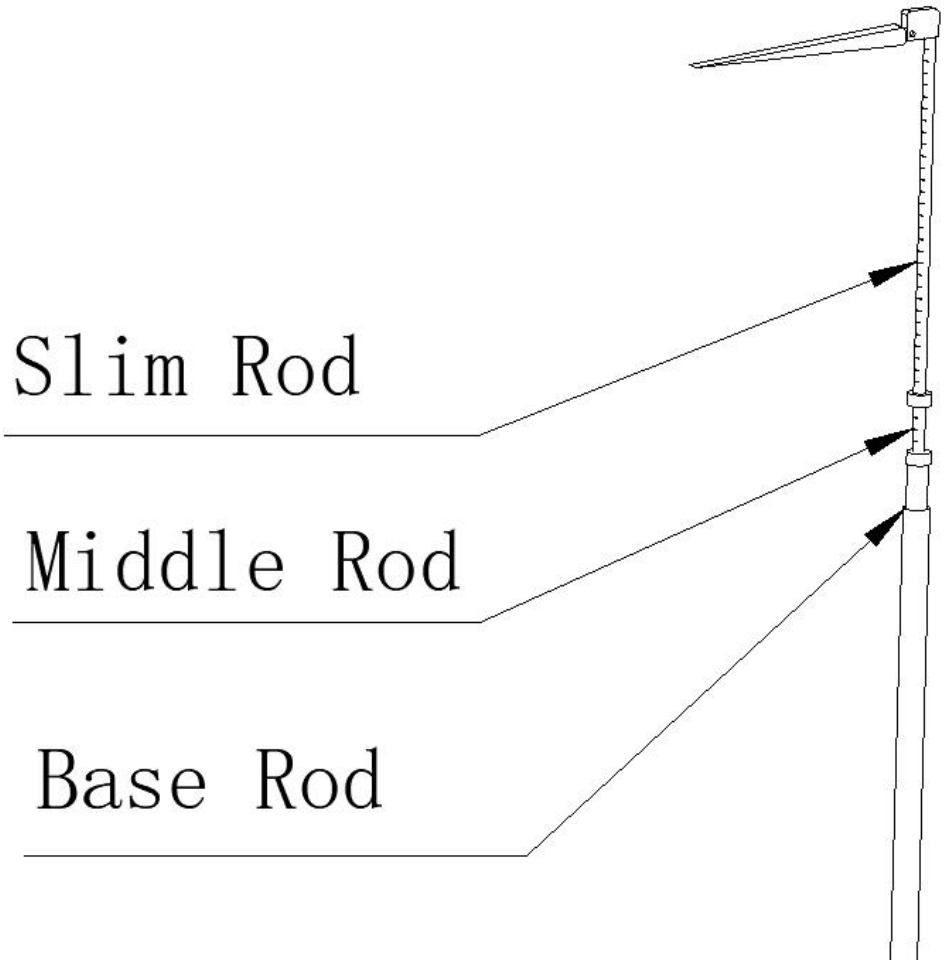


Installing and securing the height rod

4. Using the Height Rod

The Height Rod (E) is a three-section telescoping rod used to manually measure the subject's height. It consists of:

- The base rod
- The middle rod
- The slim top rod



Height Rod (E) — three telescoping sections

Extending the Rod by Height Range

- For a height range of 80–140 cm: pull out the slim top rod only.
- For a height range of 140–210 cm: fully extend the slim top rod first, then extend the thick middle rod.

> **IMPORTANT**
> The slim top rod must always be pulled out before the middle rod. Extending the sections out of order may cause the rod to bind or the height reading to be inaccurate.

5. Basic Operation

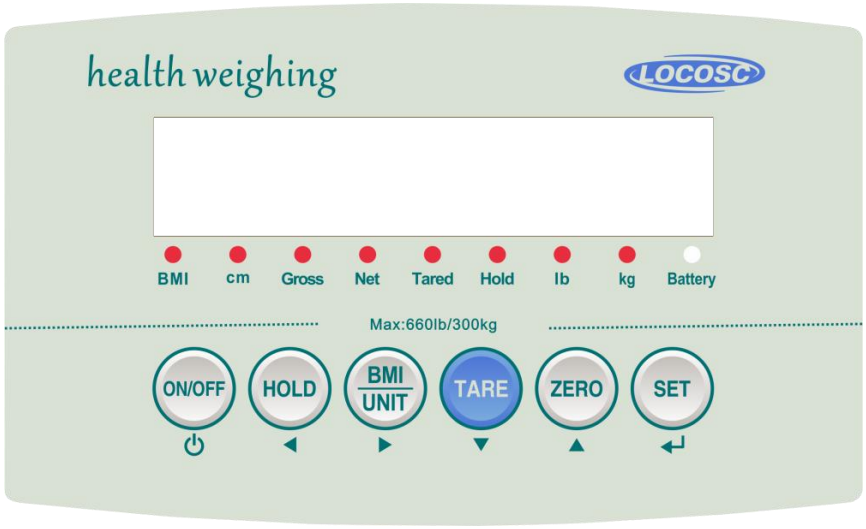
5.1 Keypad & Display

Weighing indicator display instruction:

LED Display	Instruction
Weight	Weighing data display
BMI	BMI display
cm	Height unit cm
Tared	Tare status
Net	Net weight indication
Gross	Gross weight indication
Battery	Battery status
Hi	Over (upper limit for checkweighing)
OK	Accept (within target range)
Lo	Under (lower limit for checkweighing)
Hold	Display hold status
lb	Weight unit lb
kg	Weight unit kg

Key functions:

Key	Function
SET	Used with [ON/OFF] to enter or exit calibration mode.
ZERO	Zeroes the scale within the specified zero range.
TARE	In gross mode, press to set the current weight as tare. In net mode, press to clear the tare and return to gross weight.
BMI/UNIT	Switches units (kg/lb/cm) or activates the BMI function.
HOLD	Holds the displayed data.
ON/OFF	Press and hold for 2 seconds to power the indicator on or off.



Indicator keypad and display layout

5.2 Power On / Off

Power On: press and hold **[ON/OFF]** for 2 seconds. The indicator performs a self-test, then enters weighing mode.

Power Off: press and hold **[ON/OFF]** for 2 seconds to turn off the device.

5.3 Zero Operation

1. Initial Zero: automatically zeros the scale at power-on if the load is within the configured initial zero range.
2. Manual Zero: when the reading is stable, press the **[ZERO]** key to clear minor weight deviations.

5.4 Tare Operation

When the reading is stable, press **[TARE]** to store the current weight as tare. The display switches to Net weight ("Net" and "Tared" LEDs illuminate). Press **[TARE]** again with an empty scale to clear the tare and return to Gross mode.

Note: the tare operation is invalid if the weight reading is unstable or negative.

5.5 Unit / BMI Function

Press **[BMI/UNIT]** to switch units in sequence: kg → lb → cm.

When cm is selected: use **[ZERO]** to increase the height reading, or **[TARE]** to decrease it, in 0.5 cm increments. Press **[SET]** to confirm — the indicator will then calculate and display the BMI.

5.6 Hold Function

C11 = 0 — Hold function disabled.

C11 = 1 Peak Hold: press **[HOLD]**; the Hold light turns on and the indicator displays the maximum weight value. Press [HOLD] again to exit.

C11 = 2 Data Hold: press **[HOLD]**; the Hold light turns on and the indicator displays the current weight data. Press **[HOLD]** again to exit.

C11 = 3 Auto-Hold: when the weight on the scale exceeds 20d and remains stable, the indicator displays the data for 6 seconds with the Hold light on, then returns to normal weighing.

C11 = 4 Animal Weighing Function: press **[HOLD]**; the indicator displays “LOC” for 3 seconds with the Hold light on, capturing and displaying the average weight. Press [HOLD] again to exit.

5.7 High / Low Limit Alarm

Set parameter C13 for the Upper Limit and C14 for the Lower Limit.

- Above Upper Limit: the HI light turns on and an audible alarm sounds.
- Below Lower Limit: the LO light turns on.
- Within Limits: the OK light turns on.

5.8 Print Function

When the weight display is stable and a printer is connected, pressing **[SET]** will output and print the current weight data.

Note: in Tare mode, the system prints the gross weight. Printing is unavailable if the net weight is zero.

6. Calibration & Parameter Setting

6.1 Entering the Setting Menu

There are two ways to enter the setting menu:

Method 1: Standard Settings (C08–C39)

With the indicator powered off, press and hold **[SET]**, then press **[ON/OFF]** to enter the C08–C39 parameter loop.

Method 2: Calibration Settings (C01–C39)

- Remove the sealing screw on the back of the indicator.
- Press and hold down the internal “Span” switch.
- Simultaneously, press and hold **[SET]**, then press **[ON/OFF]** to enter the full C01–C39 loop.

6.2 Calibration Procedure (C01–C07)

Using Method 2, step through parameters C01–C07 in sequence as follows.

C01 Unit

[C1 1] unit is kg [C1 2] unit is lb — press [▲/▼] to change, then press [SET] to go to the next step.

C02 Decimal Digits

Options: 0 / 1 / 2 / 3 / 4

[C2 0] no decimal [C2 1] one decimal [C2 2] two decimals [C2 3] three decimals [C2 4] four decimals

C03 Division Setting (d)

Options: [C3 1] d=1 [C3 2] d=2 [C3 5] d=5 [C3 10] d=10 [C3 20] d=20 [C3 50] d=50

C04 Maximum Capacity

Set the maximum weighing capacity. For example, for a 100 kg maximum: set [0100.00], then press [SET] to continue.

C05 Zero Calibration

Options: 0 = skip, 1 = execute.

Ensure the scale is completely empty, select 1, and press [SET] to begin the countdown [CAL 10] … [CAL 0]. Once complete, the indicator displays [0.00] (example shown for two-decimal configuration).

C06 Span Calibration

Options: 0 = skip, 1 = execute. When C05 is complete, the display moves to C06.

- Press **[SET]** to view the current setting: [C6 0].
- Press [▲] to change the value to [C6 1], then press [SET].
- The display flashes [SPAn]. Place a suitable test weight on the scale.

> **NOTE**
> For accurate calibration, the test weight should be as close to the maximum capacity as possible, and must be at least 10% of the maximum capacity (60–80% recommended).

Use the arrow keys to enter the exact value of the test weight applied — for example, for an 80 kg weight, enter [0080.00] — then press [SET].

The indicator displays a countdown: [0080.00] → [CAL 9] … [CAL 0] → [CALEnd].

Once the countdown finishes, the indicator displays the final loaded weight (e.g. [80.00]), signaling that span calibration is complete.

Press [SET] to continue to application parameter setting, or press [ON/OFF] to exit and save.

C07 Restore Default Parameters (Factory Reset)

Options: 0 = do not restore default parameters (skip); 1 = restore default parameters (factory reset).

> **IMPORTANT**
> Do not initialize or restore default parameters unless absolutely necessary. Restoring factory defaults will completely overwrite and erase all custom configuration and calibration settings.

6.3 Application Parameter Setting (C08–C17)

Parameter	Setting	Options
C08	Buzzer	[C8 0] Off [C8 1] On
C09	Auto power-off	[C9 0] Disabled [C9 10] / [C9 30] / [C9 60] 10/30/60 min idle shutdown
C10	Power saving setting	[C10 0] Off (LED) / Backlight off (LCD) [C10 1] Close backlight after 1–3 min / Auto backlight [C10 2] Close backlight after 5 min / Constant backlight
C11	Hold function	[C11 0] Off [C11 1] Peak hold [C11 2] Data hold [C11 3] Auto-hold [C11 4] Animal weighing
C12	Animal hold sample time (if C11=4)	[C12 3] 3 seconds [C12 5] 5 seconds
C13	Upper limit alarm value	Set the high-limit checkweighing value
C14	Lower limit alarm value	Set the low-limit checkweighing value
C15	Check inner code	Displays internal A/D code for diagnostics
C16	Date setting	Set current date
C17	Time setting	Set current time

6.4 Communication Setting (C18–C19)

Parameter	Setting	Options
C18	Serial output method	[C18 0] Off [C18 1] Continuous (remote display) [C18 2] Print [C18 3] Command [C18 4] PC continuous [C18 5] Key send [C18 6] Stable auto send [C18 7] Key BMI send
C19	Baud rate	[C19 0] 1200 bit/s [C19 1] 2400 bit/s [C19 2] 4800 bit/s [C19 3] 9600 bit/s

6.5 Application Setting (C20–C29)

Parameter	Setting	Options
C20	Manual zero range	[C20 00] Off [C20 01] ±1% [C20 02] ±2% [C20 04] ±4% [C20 10] ±10% [C20 20] ±20% [C20100] ±100% of capacity
C21	Initial zero range	[C21 0] Off [C21 1] ±1% [C21 2] ±2% [C21 5] ±5% [C21 10] ±10% [C21 20] ±20% of capacity
C22	Automatic zero tracking (AZT) range	[C22 0.0] Off [C22 0.5] ±0.5d [C22 1.0] ±1.0d [C22 2.0] ±2.0d [C22 3.0] ±3.0d [C22 4.0] ±4.0d [C22 5.0] ±5.0d
C23	AZT time	[C23 0] Off [C23 1] 1s [C23 2] 2s [C23 3] 3s
C24	Overload range	[C24 09] Over 9d than max. capacity
C25	Negative display	[C25 00] -9d [C25 10] -10% [C25 20] -20% [C25 50] -50% [C25100] -100% of capacity
C26	Stability time	[C26 0] Fast [C26 1] Medium [C26 2] Slow
C27	Stability range	[C27 1] ±1d [C27 2] ±2d [C27 5] ±5d [C27 10] ±10d
C28	Dynamic filter	[C28 0] Off [C28 1] Low [C28 3] Medium [C28 5] High
C29	Noise filter	[C29 0] Off [C29 1] Low [C29 2] Medium [C29 3] High

6.6 Exiting Settings (Save & Exit)

Example: when modifying [C10 1], press [SET] to confirm and save the current parameter, then press [ON/OFF] to exit the configuration menu.

7. Output Data Format

7.1 Computer Continuous Sending Format

Format: S1 S2 S3 Data S4 CR LF

Field	Meaning
S1	Weight status: ST = standstill, US = not standstill, OL = overload
S2	Weight mode: GS = Gross mode, NT = Net mode
S3	Sign of weight: “+” or “–”
S4	Measurement unit: “kg” or “lb”
Data	Weight value, including decimal point
CR	Carriage return
LF	Line feed

7.2 Continuous Display Sending Format

Output frame: STX SWA SWB SWC × 10 data digits CR CKS

State A (bits 0–2): decimal point position — bits 3–4: division (×1 / ×2).

State B: bit0 Gross=0/Net=1; bit1 sign (0=positive, 1=negative); bit2 overload=1; bit3 dynamic=1; bit4 unit (0=lb, 1=kg); bits5–6 constant.

State C: bits 0–2 unit code (kg/lb, g, t); bit3 printing=1; bit4 extended display=1; bits5–6 constant.

7.3 Serial Interface Reception Command

The RS232 serial interface can receive simple ASCII commands:

Command	Name	Function
T	Tare off command	Save and clear tare
Z	Zero command	Zero the gross weight
P	Print command	Print the current weight
R	Read gross/net weight	Read the gross or net weight

7.4 Print Output Format

Example printed ticket:

Net 3936 kg

Tare 1666 kg

Gross 5602 kg

8. Maintenance & Troubleshooting

8.1 Error Messages

Error	Possible Cause	Solution
Display UUUUUU	1. Loaded weight exceeds the overload range of max. capacity 2. Wrong or missing load cell connection 3. Load cell not working	1. Reduce the loaded weight 2. Check the load cell connection 3. Check load cell input/output resistance to verify condition
Display nnnnnn	1. Calibration is invalid 2. Load cell line is connected incorrectly 3. The load cell is faulty	1. Check that the scale moves freely and the feet are level 2. Check the load cell connection 3. Check load cell input/output resistance to verify condition
ERR1	No test weight added during calibration, or the input weight exceeds max. capacity	Enter the correct test-weight value
ERR2	The added test weight is insufficient	Use at least 10% of max. capacity (60–80% recommended)
ERR3	The input signal is negative during calibration	1. Check the wiring 2. Check whether the load cell is damaged 3. Redo calibration; if the issue persists, replace the PCB
ERR4	The input signal is unstable during calibration	Ensure the platform is stable, then restart calibration
ERR5	EEPROM check error	Replace the PCB

8.2 Routine Maintenance

- To ensure clear display and prolong service life, do not place the indicator in direct sunlight.
- Ensure the load cell and indicator are well connected, and that the system is properly grounded and kept away from strong electric or magnetic fields.
- Do not use the indicator outdoors in rain; keep it powered off when not in use in wet conditions.
- Power off the unit before connecting or disconnecting cables.

8.3 Restoring Default Parameters

Enter the setting menu, set C07 = 1, press **[SET]** to confirm, then press [ON/OFF] to exit and save. All parameters will return to their factory default values.

> **NOTE**
> Do not restore default parameters unless you are a qualified professional and the scale can be recalibrated afterward. This action permanently erases all existing calibration data and custom configuration.

Appendix: Default Parameter Table

Parameter	Description	Default Value
C01	Calibration unit	1 (kg)
C02	Decimal digits	0
C03	Division value (d)	1
C04	Max. capacity	10000
C05	Zero calibration	0
C06	Span calibration	0
C07	Restore default parameters	0
C08	Buzzer	1
C09	Auto power-off	0
C10	Power saving mode	0
C11	Hold function	0
C12	Animal weighing sample time	0
C13	Upper limit alarm	000000
C14	Lower limit alarm	000000
C15	Inner code display	—
C16	Date	—
C17	Time	—
C18	Serial output method	0
C19	Baud rate	3 (9600 bit/s)
C20	Manual zero range	2
C21	Initial zero range	10
C22	Automatic zero tracking range	0.5
C23	Automatic zero tracking time	1
C24	Overload range	9
C25	Negative display range	10

Parameter	Description	Default Value
C26	Stability time	1
C27	Stability range	2
C28	Dynamic filter	0
C29	Noise filter	2
C30	Print date format	date
C31–C33	Reserved	—
C34	Continuous tare	0
C35	Print label format	0
C36	Calibration-site gravity	9.7936
C37	Destination gravity	9.7936
C38	Version No. check	—
C39	Negative weighing	0