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DALLAS FT WORTH AUSTIN HOUSTON

NICOLSCALES.COM

800.225.8181

CONTACT US

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RL101

Below-the-Hook Scale

Technical Manual



RICE LAKE®
WEIGHING SYSTEMS

October 13, 2023

PN 220242 Rev A

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www.ricelake.com

Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
A	October 13, 2023	Initial Release

Table i. Revision Letter History

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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or obtained by calling 715-234-9171 and asking for the training department.

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1.0 Introduction

This manual discusses several aspects about the RL101 below-the-hook scale (RL101 scale), including: configuration menu, parameters, wiring diagrams and errors messages.

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

Warranty information is available at www.ricelake.com/warranties

1.1 Safety

Safety 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.

Read this manual carefully before carrying out any handling operations or lifting any loads.

Never exceed the rated load limit of the unit.

Never use the scale in environments where there is the danger of fire or explosion.

Do not make alterations or modifications to the unit.

Never use the RL101 scale when it no longer fulfills the safety criteria.

Never clean the RL101 scale with solvents, aggressive substances or flammable products.

Never wash the suspended RL101 scale with direct water jets.

Never pour liquids on the RL101 scale.

Do not expose the suspended RL101 scale to atmospheric agents (sun, rain, etc.).

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not use for purposes other than weight measurement.

Do not place fingers into slots or possible pinch points.

Do not use any load-bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not remove or obscure warning labels.

Do not remove or replace supplied shackles and hooks.

Keep hands, feet and loose clothing away from moving parts.

To achieve a correct weighing result, the load must be raised by at least 2-5 in from the ground.

Before using the RL101 scale, ensure it is in proper working order.

Apply the load to the hook only when the load is resting on the ground.

Use the RL101 scale in non-condensing environments with moderate temperature and humidity levels.

Use the RL101 scale where there are no vibrations.

Never move the sample (load) with scale inline. The RL101 scale is a lift and weigh device designed to capture static weighments.

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1.2 Technical Specifications

Item		Description
Case		ABS and Steel
Screen		Backlit LCD Digit height = 25 mm
Brightness		Five intensity levels
Keys		Five waterproof keys
IP Rating		IP54
Number of Scales		One
Maximum input current to load cells		120 mA
Working temperature		14° to 104°F (-10°C /+40°C)
Power Supply	**Battery**	Four AA
	Battery Life	Up to 40 hours
Serial Ports	**RS232**	Two
Number of divisions		100 to 800.000

Table 1-1. Technical Specifications

1.3 Single Channel Connection

NOTE: RL101 comes wired with a 6 wire connection in terminal block CELL1. In addition, jumpers J2 and J3 are removed.

WARNING: If wiring must be adjusted, ensure the RL101 is powered off before adjusting wiring.

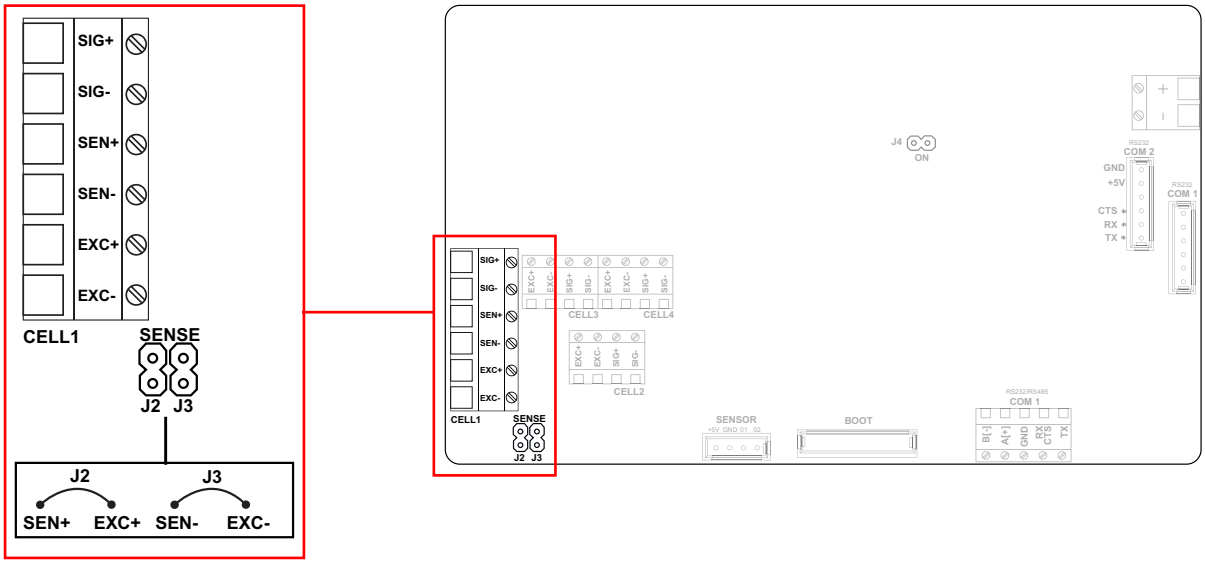
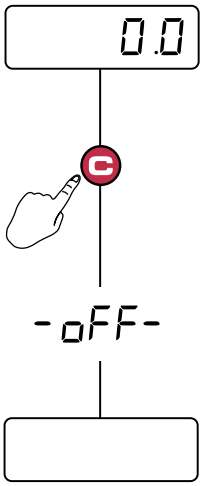


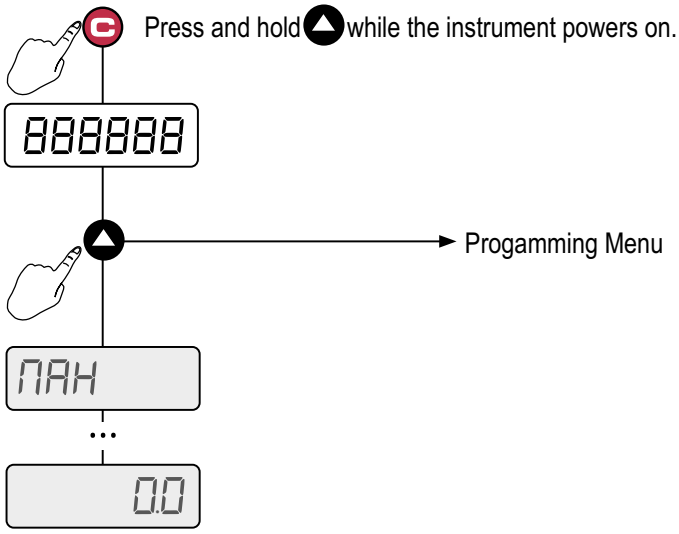
Figure 1-1. Single Channel Connection

1.4 How to Access the Programming Menu

1. Turn off the scale



2. Perform the following:

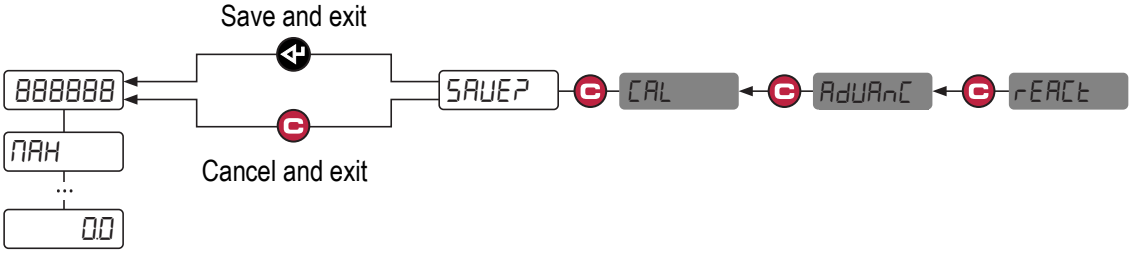


1.5 How to Save Parameters and Exit the Menu

To save the programming changes, repeatedly press the C key until the message SAUE? appears.

Press ↵ to save or C to exit without saving.

For example (read from right to left):



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1.6 How to Browse the Menu

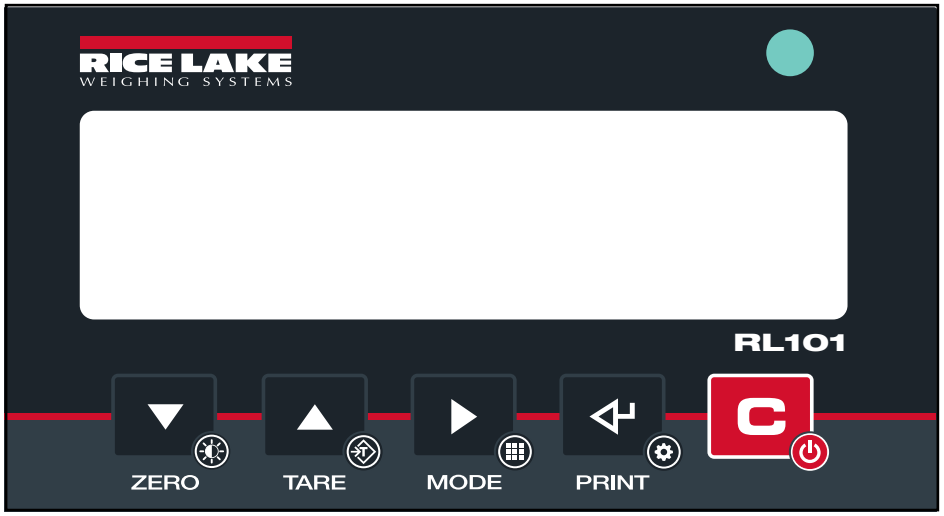


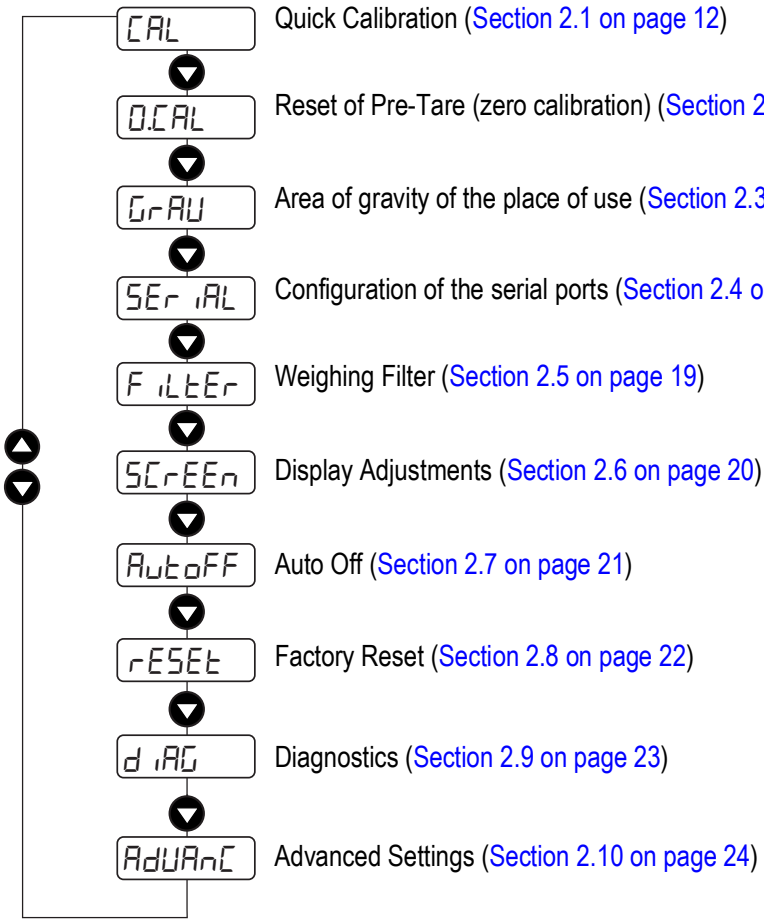
Figure 1-2. RL101 Buttons

Key	Description
	Short Press: Resets the weight on the scale. Long Press: Press for 2 seconds to adjust the screen brightness. Parameter/Menu: Navigates up in menus, parameters or parameter values.
	Short Press: Tares the scale. Long Press: Press for 2 seconds to enter a preset tare. Parameter/Menu: Navigates down in menus, parameters or parameter values.
	Short Press: Retrieves the specific function of the operating mode. Long Press: Press for 5 seconds to change operating mode. Parameter/Menu: Navigates right in menus.
	Short Press: Activates print function (typically not applicable). Long Press: Press for 5 seconds to enter the configuration menu. Parameter/Menu: Confirms the selected menu/parameter.
	Short Press: Clears the tare. Long Press: • If pressed for 2 seconds, the RL101 powers off. Parameter/Menu: • Returns to previous menu without saving. • At save prompt, cancels without saving.

Table 1-2. RL101 Button Descriptions

2.0 Configuration

The indicator contains a seven segment LCD screen that displays weight information while also providing access to menus, sub-menus and parameters. The main menus lead to sub-menus or parameters that are configured using the integrated keypad or remote control. The main menu follows:



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

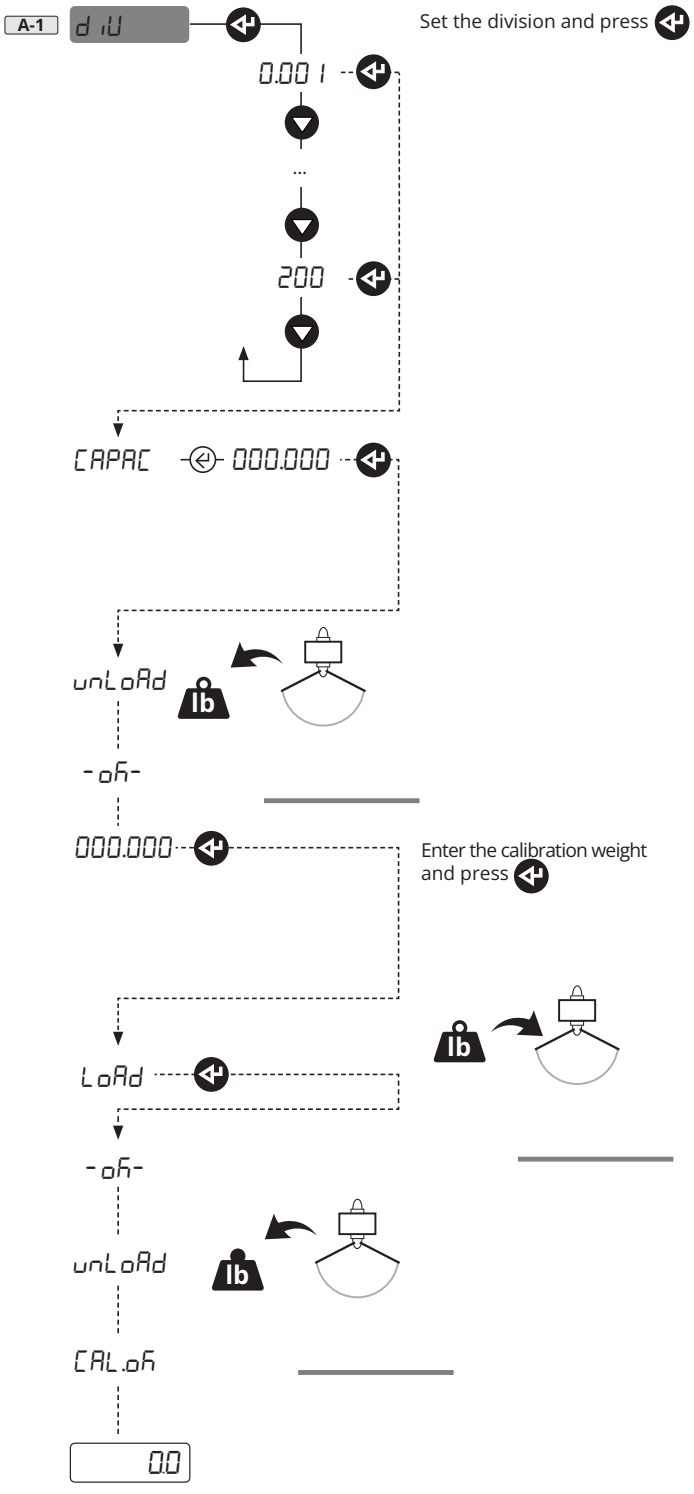
Press C. Save? displays.

Press ↵. store displays.

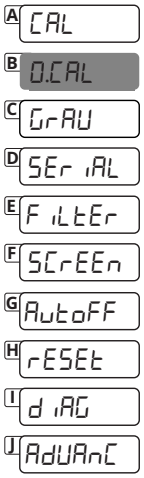
The system saves and returns to weigh mode.

2.1 Quick Calibration (CAL)

***NOTE:** CAL is used when the system's memory and calibration is reset (Section 2.10.8 on page 30) or a new board is installed. If an existing calibration is present, CAL .PAr (Section 2.10.1 on page 24) opens instead of the CAL.*



Main Menu



How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

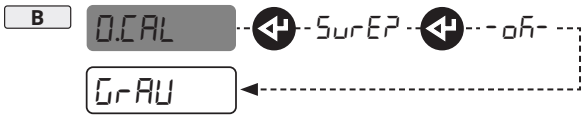
Press C. Save? displays.

Press ↵. store displays.

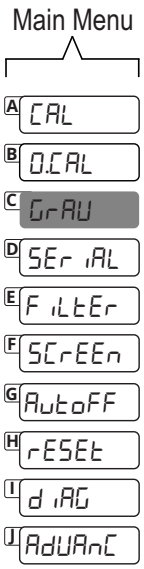
The system saves and returns to weigh mode.

2.2 Reset Pre-Tare (0.CAL)

Acquires the zero point.



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How to browse:

Cycles through menus and parameters

Advances to next menu

Returns to previous menu

How to set a parameter:

Increases/decreases values or cycles through parameters

Confirms the parameter

Returns to previous menu

How to save changes:

Navigate to main menu.

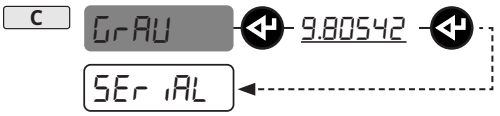
Press C. Save? displays.

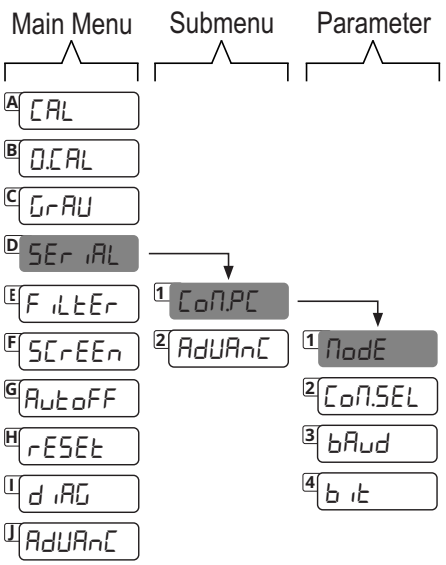
Press ↵. store displays.

The system saves and returns to weigh mode.

2.3 Location Gravity (GrAU)

Once the calibration is completed, set the gravity to the location RL101 installation (if different from calibration).





How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

Press C. Save? displays.

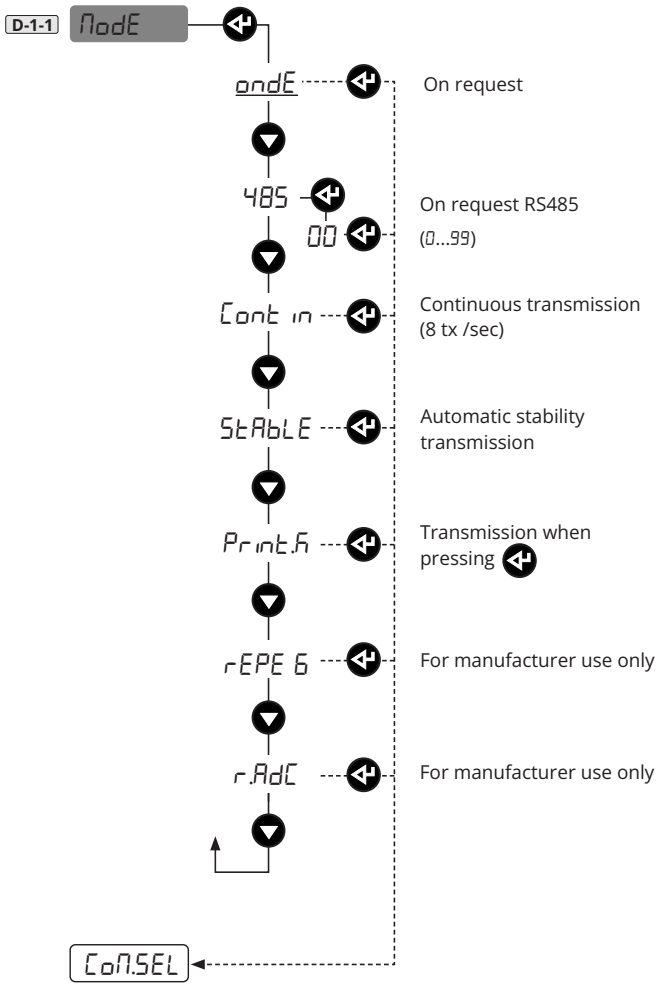
Press ↵. store displays.

The system saves and returns to weigh mode.

2.4 Configure Serial Ports (SEr iAL)

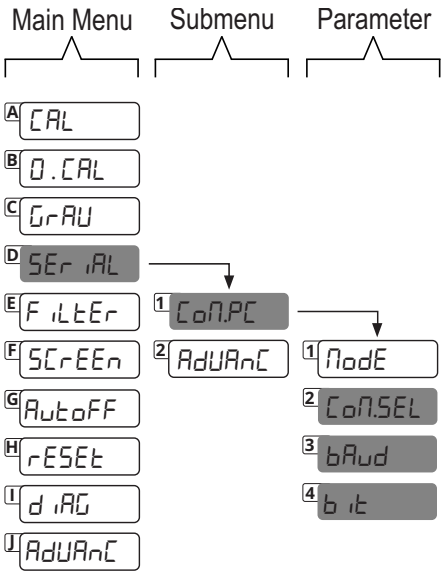
2.4.1 PC Communication (Con.PC)

2.4.1.1 Select Communication Mode (ModE)



NOTE: For communication strings and controls, see RL101 Technical Manual - Serial Protocol. For string type selection, see Section 2.4.2.1 on page 17.

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How to browse:

Cycles through menus and parameters

Advances to next menu

Returns to previous menu

How to set a parameter:

Increases/decreases values or cycles through parameters

Confirms the parameter

Returns to previous menu

How to save changes:

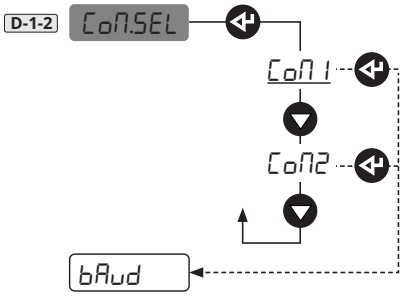
Navigate to main menu.

Press C. Save? displays.

Press ↵. store displays.

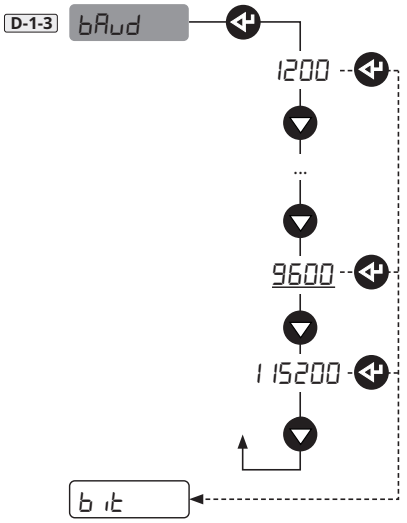
The system saves and returns to weigh mode.

2.4.1.2 Select COM Port for Connection with PC/PLC (CoM.SEL)

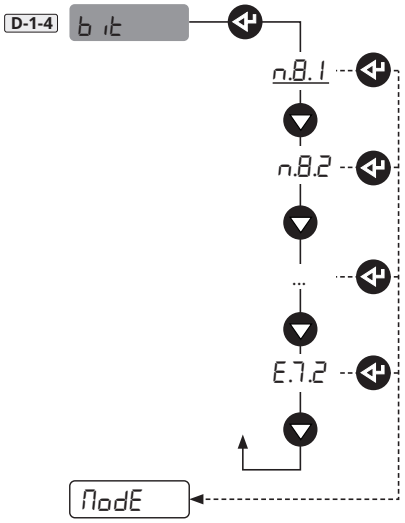


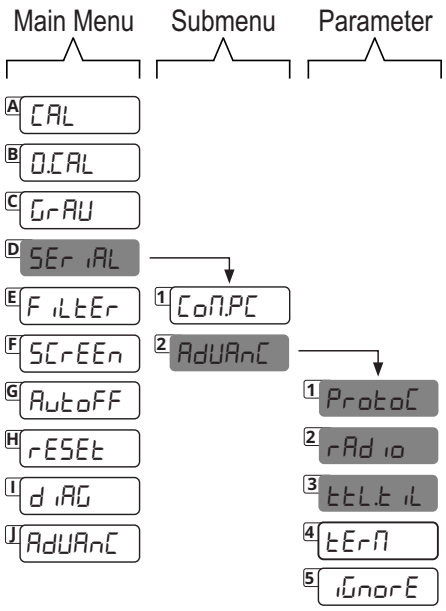
NOTE: A communication type is not selected by default.

2.4.1.3 Select Communication Speed (bAud)



2.4.1.4 Select Serial Protocol (b it)





How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

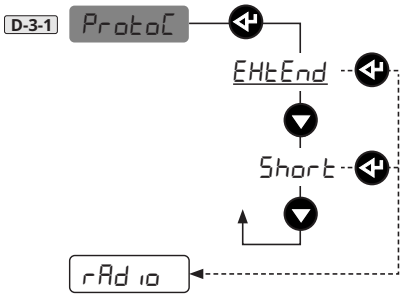
Press C. Save? displays.

Press ↵. store displays.

The system saves and returns to weigh mode.

2.4.2 Advanced Configuration (AdUAnC)

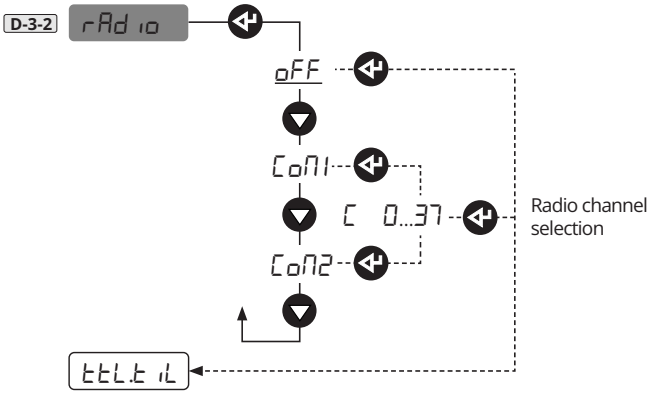
2.4.2.1 Select Communication Protocol (ProtoC)



NOTE: For communication strings and controls, see RL101 Technical Manual - Serial Protocol.

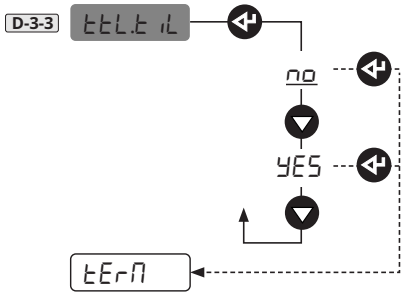
2.4.2.2 Connection Port of Radio-frequency Module (rAd io)

NOTE: For manufacturer use.

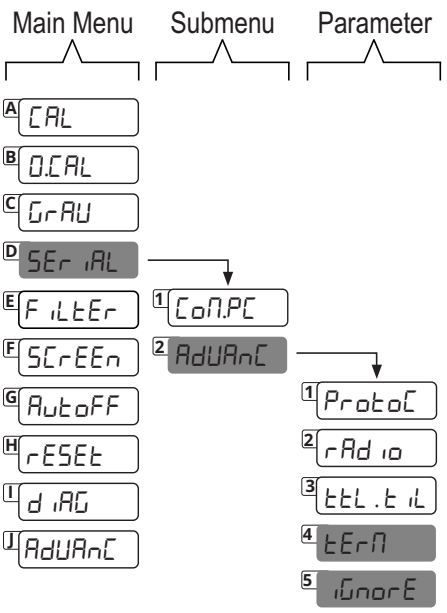


2.4.2.3 TTL Port / Inclinometer Activation (ttL .t iL)

NOTE: For manufacturer use.



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

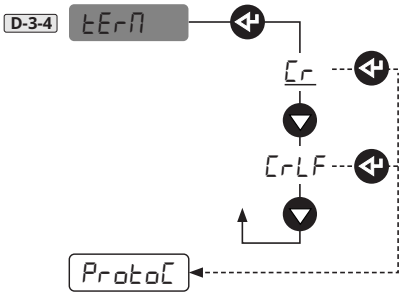
Navigate to main menu.

Press C. Save? displays.

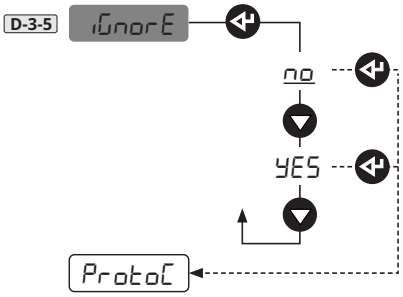
Press ↵. store displays.

The system saves and returns to weigh mode.

2.4.2.4 Closing Character of Each Print Line (tErM)

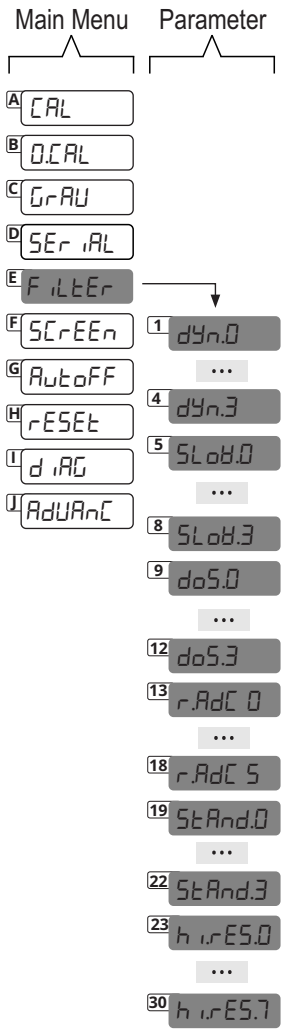


2.4.2.5 Ignore Unknown Commands (iGnorE)



NOTE: When an unknown command is sent:

- ***If no is selected, the "ERR04" is received.***
- ***If YES is selected, the command is ignored (no message).***



How to browse:

Cycles through menus and parameters

Advances to next menu

Returns to previous menu

How to set a parameter:

Increases/decreases values or cycles through parameters

Confirms the parameter

Returns to previous menu

How to save changes:

Navigate to main menu.

Press C. Save? displays.

Press ↵. store displays.

The system saves and returns to weigh mode.

2.5 Weighing filters (FiLtEr)

Edits scale reactivity. “0” represents a minor filtering occurrence. Increasing the occurrence rate provides more weight stability.

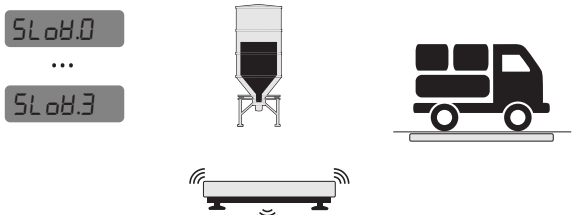
Weigh several times, changing the occurrence rate until the best compromise, between reactivity and stability is obtained.

NOTE: Filters provide functionality for a variety of applications, however RL101 applications utilize the Overhead Weighing filter (Section 2.5.1).

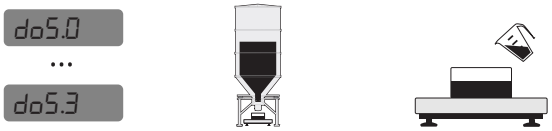
2.5.1 Overhead Weighing (dYn.0)



2.5.2 Tank Weighing with Vibration (Liquids) (SLoW)



2.5.3 Filing (do5.0)



2.5.4 Filter for Manufacturer Use (rAdc)



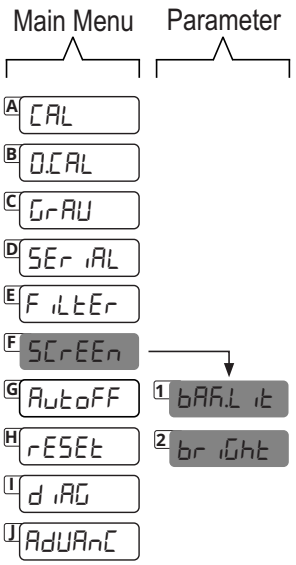
2.5.5 Table and Floor Scales (StAnd)



2.5.6 High Precision Scales (hi.rES.0)



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

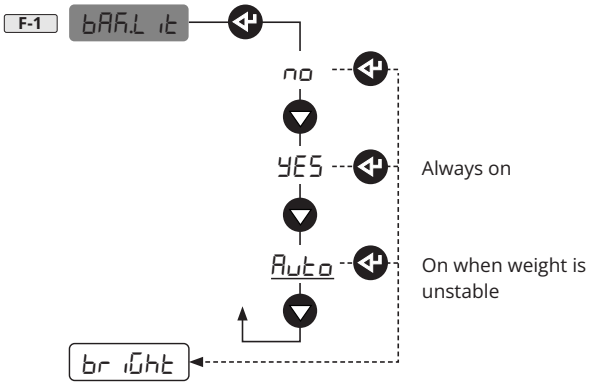
Press C. Save? displays.

Press ↵. store displays.

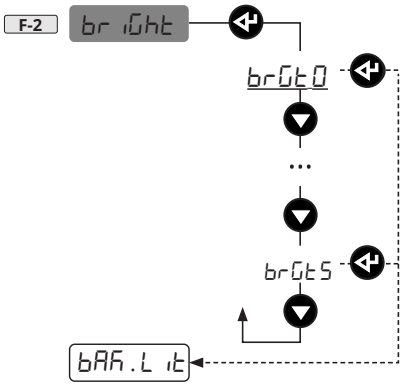
The system saves and returns to weigh mode.

2.6 Adjusting the Display (SCrEEn)

2.6.1 Set Backlight (bAR.L it)



2.6.2 Set Brightness (br iGht)



NOTE: *brGt0* ***disables the back light.***

Main Menu

- A CAL
- B 0.CAL
- C GrAU
- D SEr iAL
- E FiLtEr
- F SCrEEn
- G AutoFF
- H rESEt
- I diAG
- J AdUAnC

How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

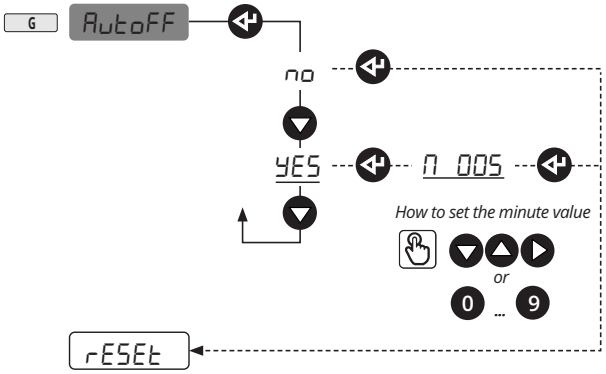
Navigate to main menu.

Press C. Save? displays.

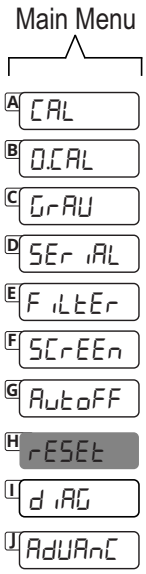
Press ↵. store displays.

The system saves and returns to weigh mode.

2.7 Auto off (AutoFF)



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

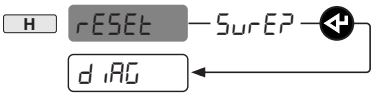
Navigate to main menu.

Press C. Save? displays.

Press ↵. store displays.

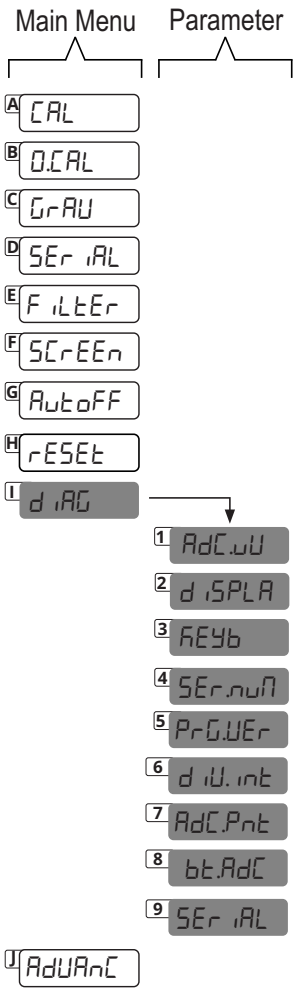
The system saves and returns to weigh mode.

2.8 Factory configuration reset (rESEt)



Resets to factory configuration while retaining calibration in memory.

NOTE: Press C to cancel this function. See Section 2.10.8 on page 30 for factory reset that removes calibration.



How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

Press C. Save? displays.

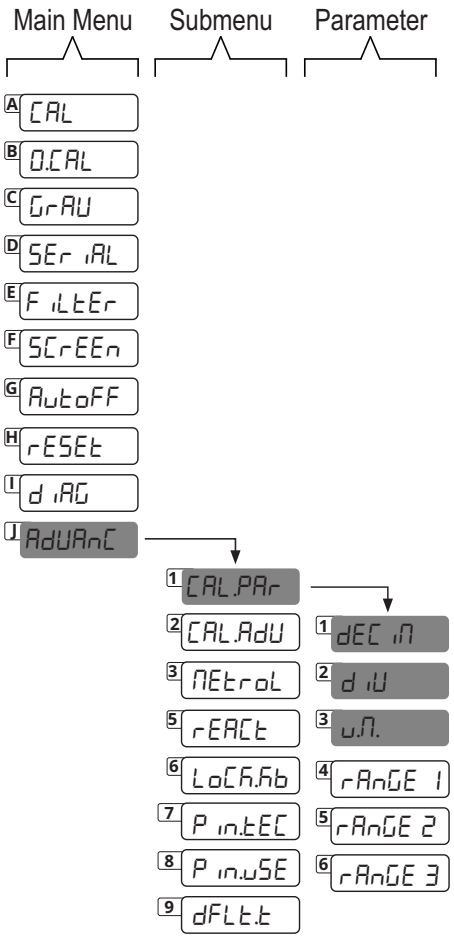
Press ↵. store displays.

The system saves and returns to weigh mode.

2.9 Diagnostics (diAG)

I-1	AdC.uU	ADC Microvolts - Checks microvolt reading of load cell. With full scale applied, this reading should be stable and never exceed 30000.
I-2	diSPLA	Display- Integrity check of all segments and icons.
I-3	KEYb	Keyboard - Press a key to verify its operation and view its code. Press a key three times to return to previous menu.
I-4	SEr.nuM	Serial number - Displays serial number of the scale.
I-5	PrG.UEr	Program version - Displays hardware revision followed by software version.
I-6	di U. int	Division internal - Number of internal division of calibration (quantity of ADC ponts/division).
I-7	AdC.Pnt	ADC points from the A/D converter.
I-8	bt.AdC	Battery ADC - DC value of the battery.
I-9	SEr iAL	Serial - For manufacturer use only.

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How to browse:

Cycles through menus and parameters

Advances to next menu

Returns to previous menu

How to set a parameter:

Increases/decreases values or cycles through parameters

Confirms the parameter

Returns to previous menu

How to save changes:

Navigate to main menu.

Press C. Save? displays.

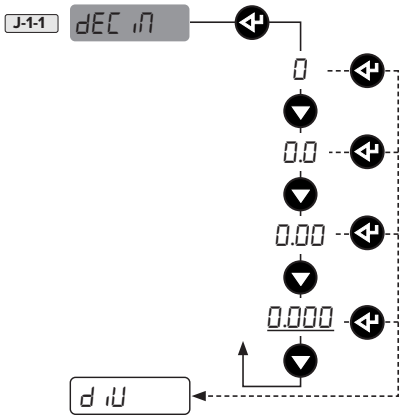
Press ↵. store displays.

The system saves and returns to weigh mode.

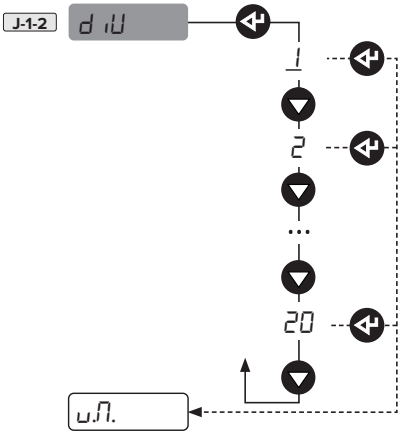
2.10 Advanced (AdUAnC)

2.10.1 Calibration Parameters (CAL.PAr)

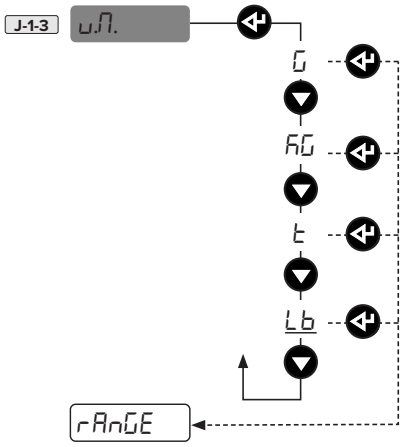
2.10.1.1 Decimal Point (dEC.N)

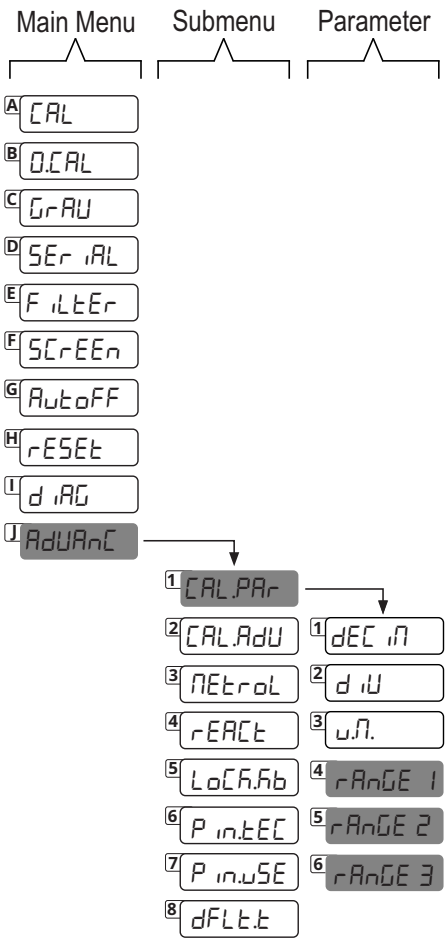


2.10.1.2 Division (d iU)



2.10.1.3 Unit of Measure (u.N.)





How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

Press C. Save? displays.

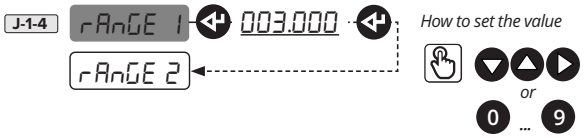
Press ↵. store displays.

The system saves and returns to weigh mode.

2.10.1.4 Range - Scale capacity:

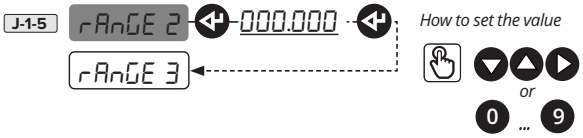
Range 1 (rAnGE . 1) - Set Max or Range 1

NOTE: Max range = 800.000



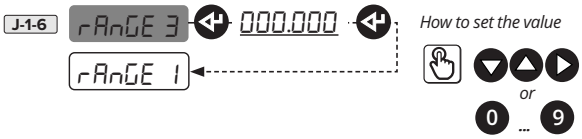
Range 2 (rAnGE .2) - Set Max or Range 2

NOTE: For multi-range scales, set the second weighing range.



Range 3 (rAnGE .3) - Set Max or Range 3

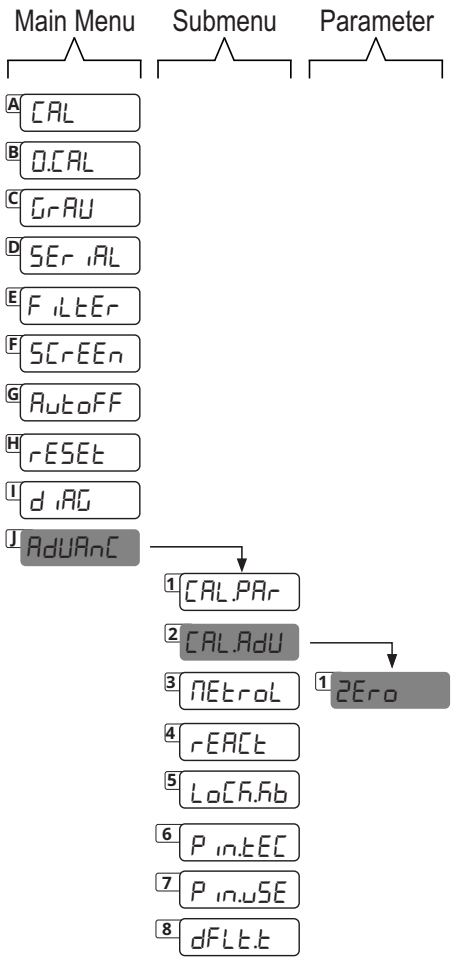
NOTE: For multi-range scales, set the third weighing range.



For example, a multi-range configuration with 1500/3000 lb, division 0.5/1 lb, would be set as:

- dEC 1 = 0.0
- diU = 5
- rAnGE 1 = 1500.0
- rAnGE 2 = 3000.0

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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

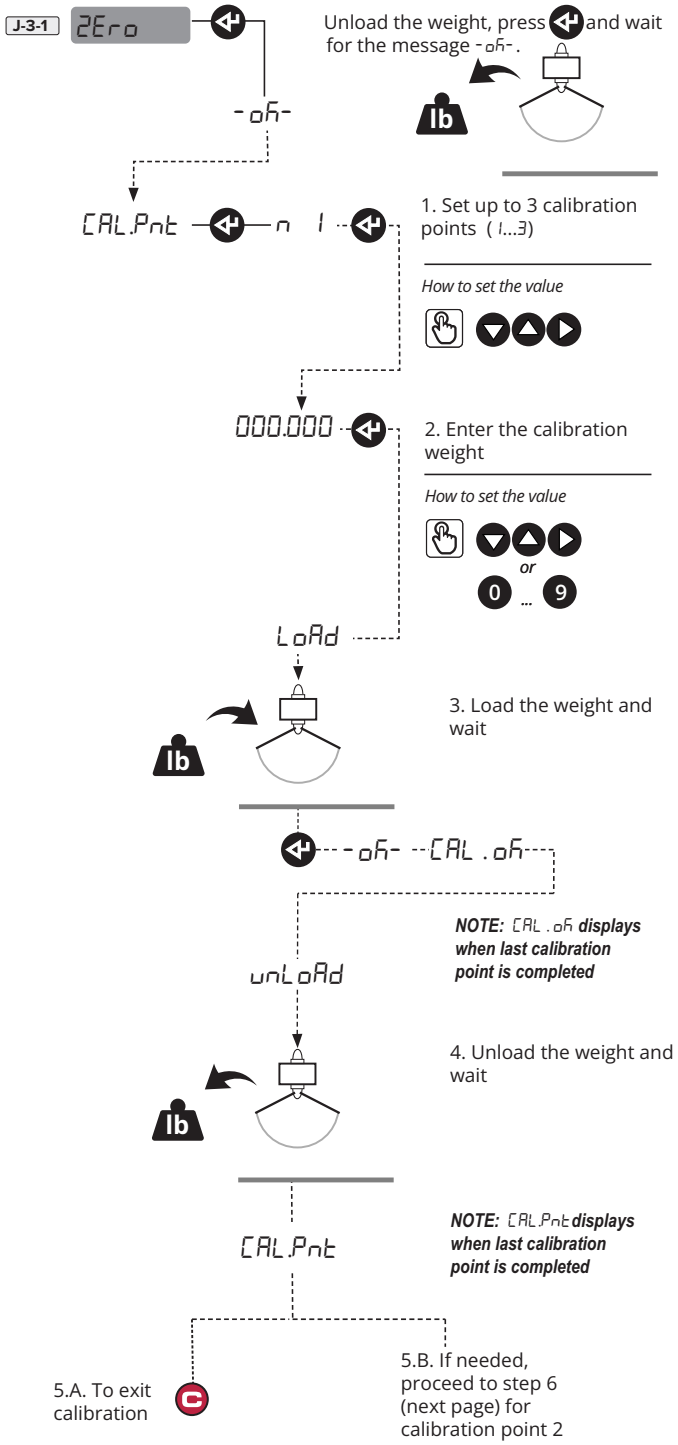
Press C. Save? displays.

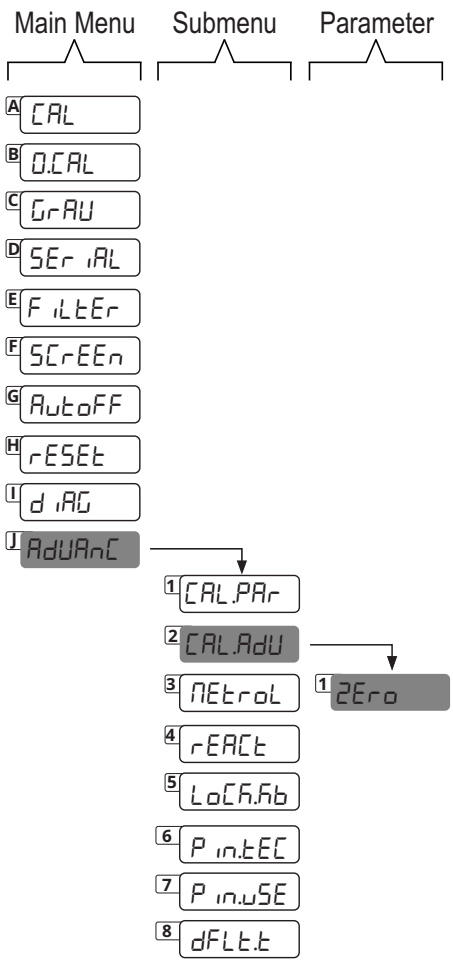
Press ↵. store displays.

The system saves and returns to weigh mode.

2.10.2 Complete Calibration (CAL.AdU)

NOTE: Before calibrating, configure the decimals (dEC i - page 24), division (d iU - page 24) and capacity (rAnGE - page 25).





How to browse:

Cycles through menus and parameters

Advances to next menu

Returns to previous menu

How to set a parameter:

Increases/decreases values or cycles through parameters

Confirms the parameter

Returns to previous menu

How to save changes:

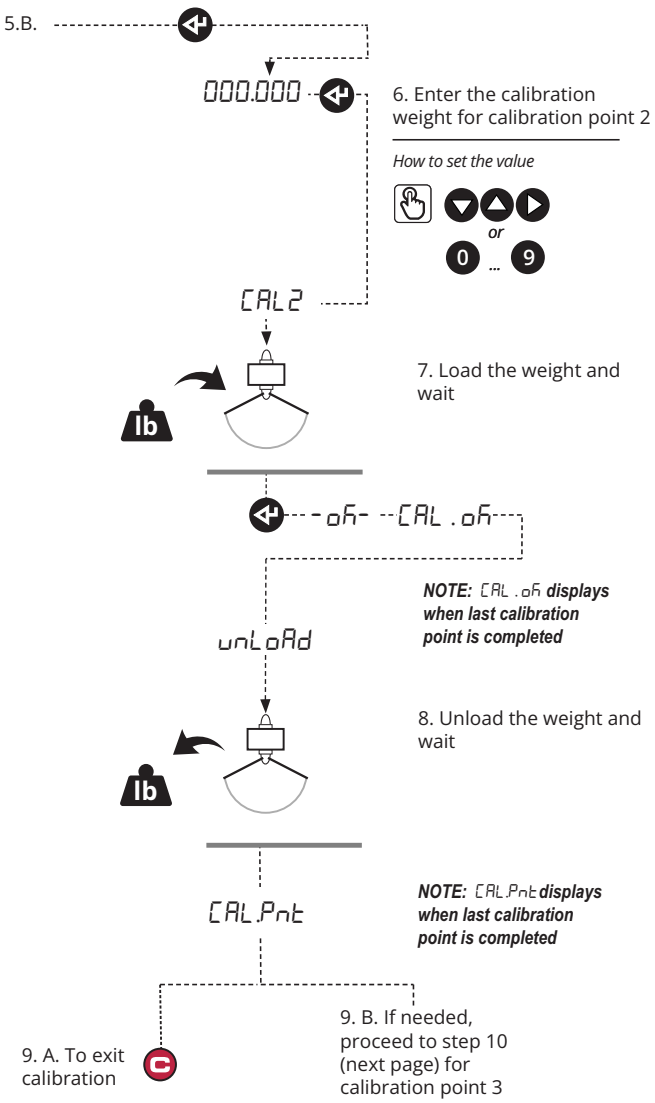
Navigate to main menu.

Press C. Save? displays.

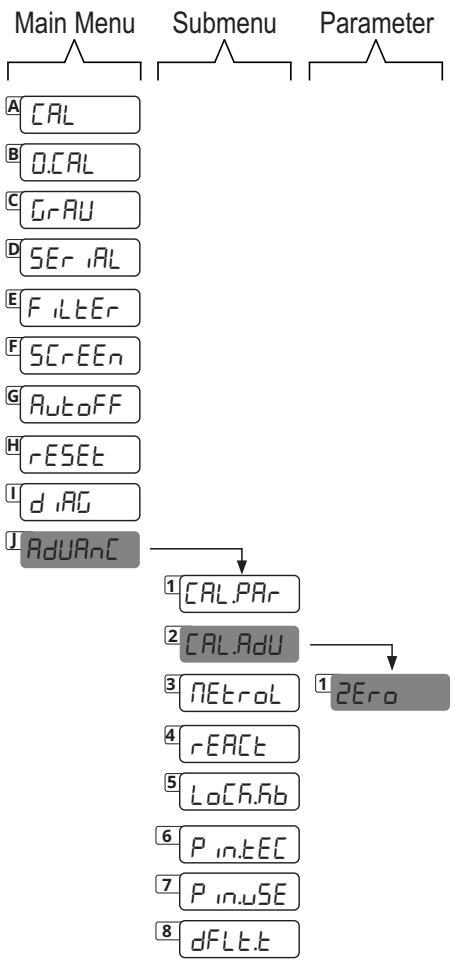
Press ↵. store displays.

The system saves and returns to weigh mode.

Complete Calibration (CAL.AdU) - Continued



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

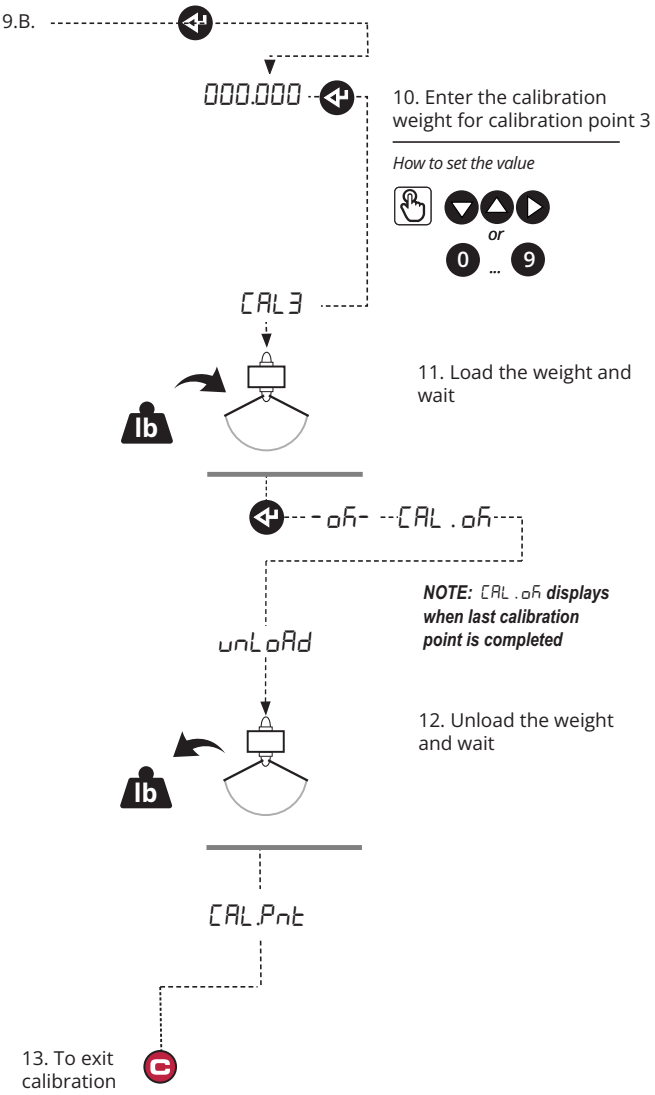
Navigate to main menu.

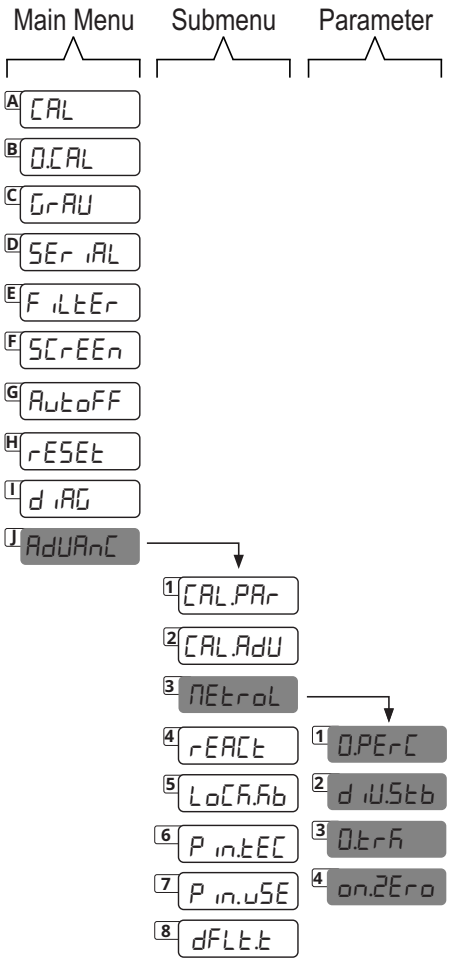
Press C. Save? displays.

Press ↵. store displays.

The system saves and returns to weigh mode.

Complete Calibration (CAL.AdU) - Continued





How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

Navigate to main menu.

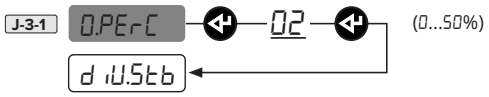
Press C. Save? displays.

Press ↵. store displays.

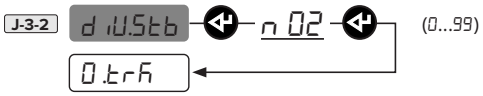
The system saves and returns to weigh mode.

2.10.3 Metrological parameter (NEtroL)

2.10.3.1 Reset Percentage via Key (0.PErC)

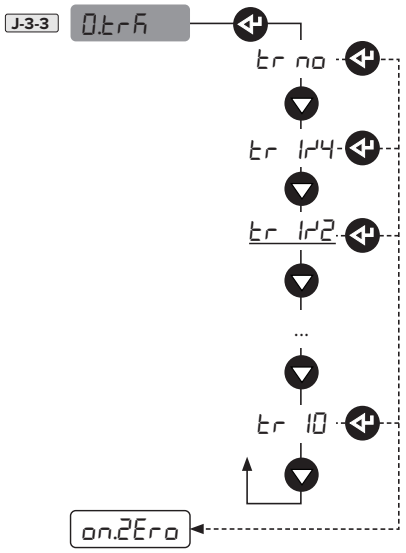


2.10.3.2 Sensitivity of Weight Stability Control (diU.Stb)



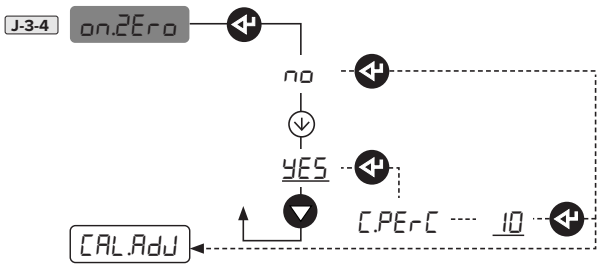
2.10.3.3 Zero Hold Function (Tracking) (0.trK)

Zero tracking zeros a slow accumulation of weight based on division size.

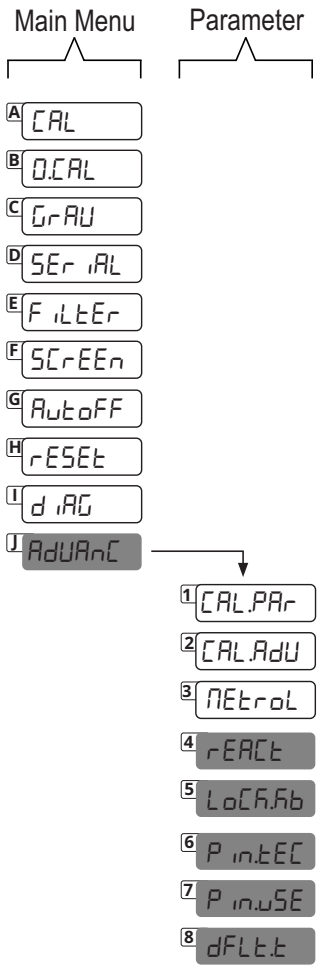


2.10.3.4 Reset Power and Reset Percentage (on.2Ero)

When power is cycled the unit can zero the weight on the scale. If enabled, the amount of weight zeroed is based on a percentage of the capacity.



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How to browse:

- Cycles through menus and parameters
- Advances to next menu
- Returns to previous menu

How to set a parameter:

- Increases/decreases values or cycles through parameters
- Confirms the parameter
- Returns to previous menu

How to save changes:

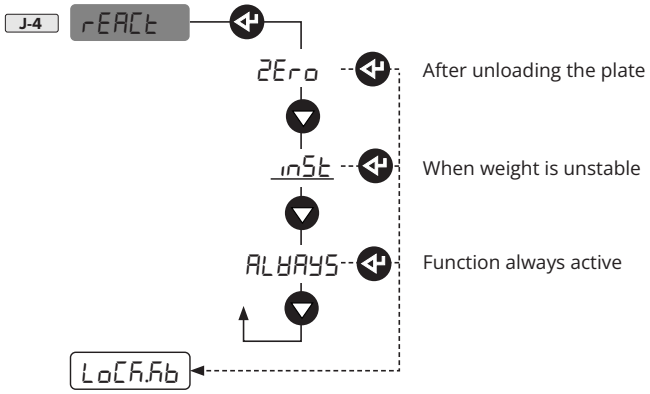
Navigate to main menu.

Press C. Save? displays.

Press ↵. store displays.

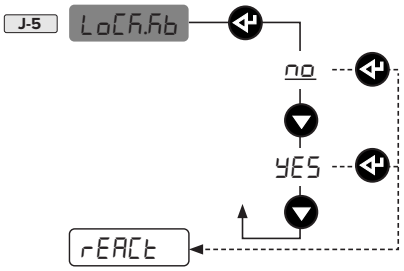
The system saves and returns to weigh mode.

2.10.4 Reactivating the Totalization or Print Function (rEACt)

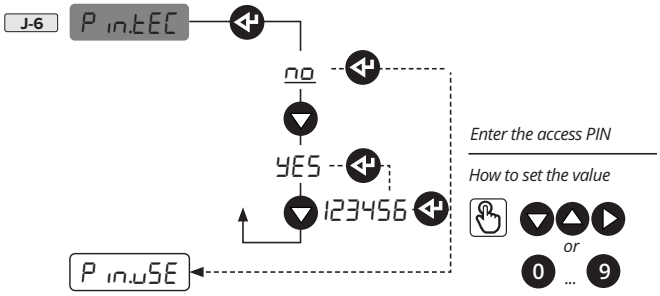


2.10.5 Permanent Keyboard Lock (LoCK.Kb)

NOTE: The keyboard lock excludes the C key.



2.10.6 PIN required to Access Programming Menu (P in.tEc)

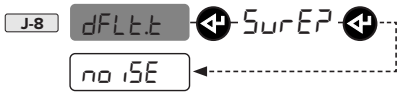


IMPORTANT: The RL101 control PIN is: 54868

2.10.7 PIN required to Access PIN to User Menus (P in.uSE)



2.10.8 Factory Reset (dFLt.t)



Resets to factory configuration while removing calibration from memory.

NOTE: Press C to cancel this function. See Section 2.8 on page 22 for factory reset that retains calibration.

3.0 Technical Drawings

3.1 Dimensional Drawings

3.1.1 RL101-3k

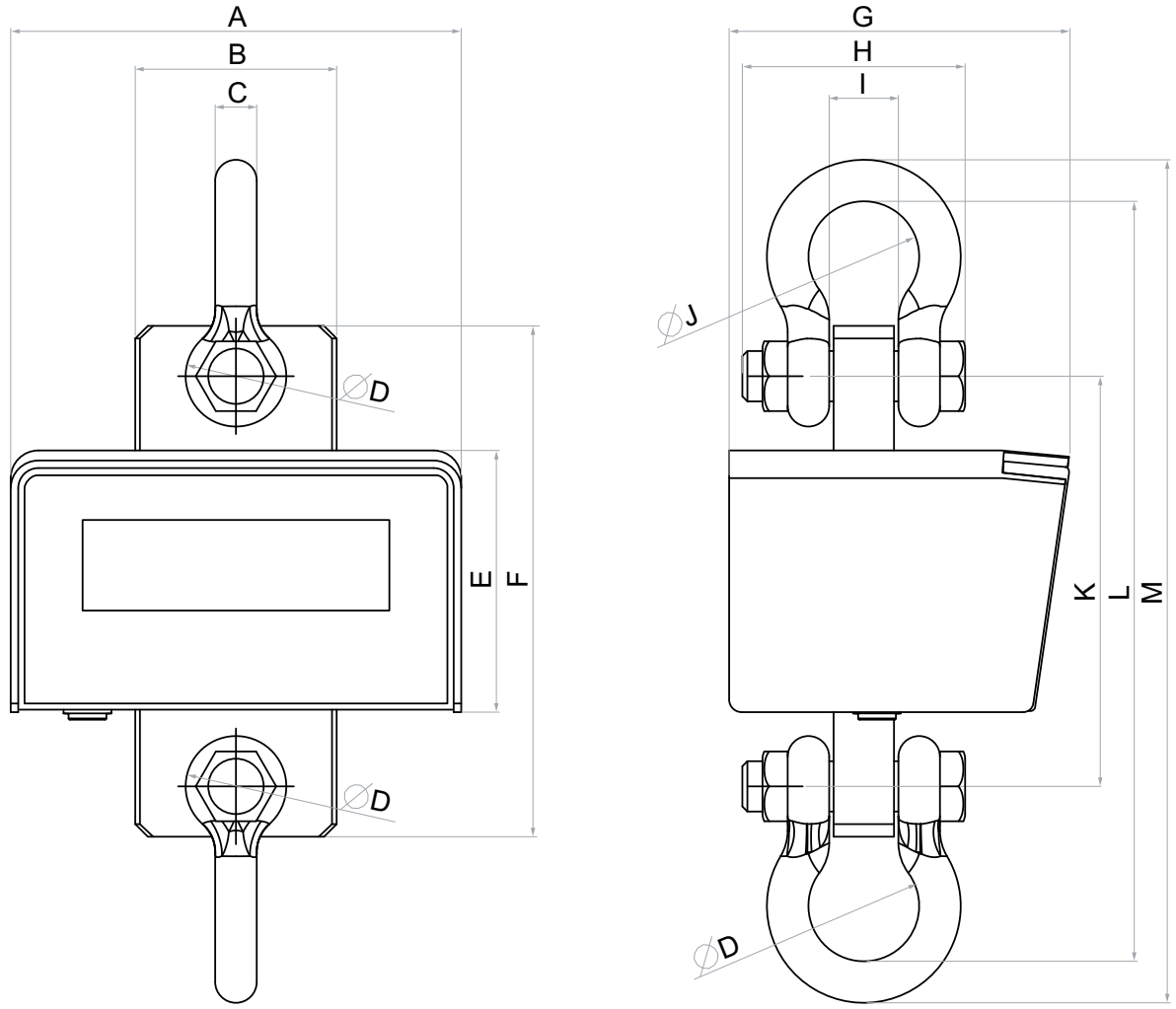


Figure 3-1. RL101-3K Dimensions

Item	Distance
A	7.09 in (180 mm)
B	3.15 in (80 mm)
C	0.63 in (16 mm)
D	1.58 in (40 mm)
E	4.10 in (104 mm)
F	9.67 in (246 mm)

Item	Distance
G	5.35 in (136 mm)
H	3.48 in (88.5 mm)
I	1.07 in (27 mm)
J	1.70 in (43 mm)
K	7.72 in (196 mm)
L	13.19 in (335 mm)
M	14.49 in (368 mm)

Table 3-1. RL101-3K Dimensions

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3.1.2 RL101-6k and RL101-12k

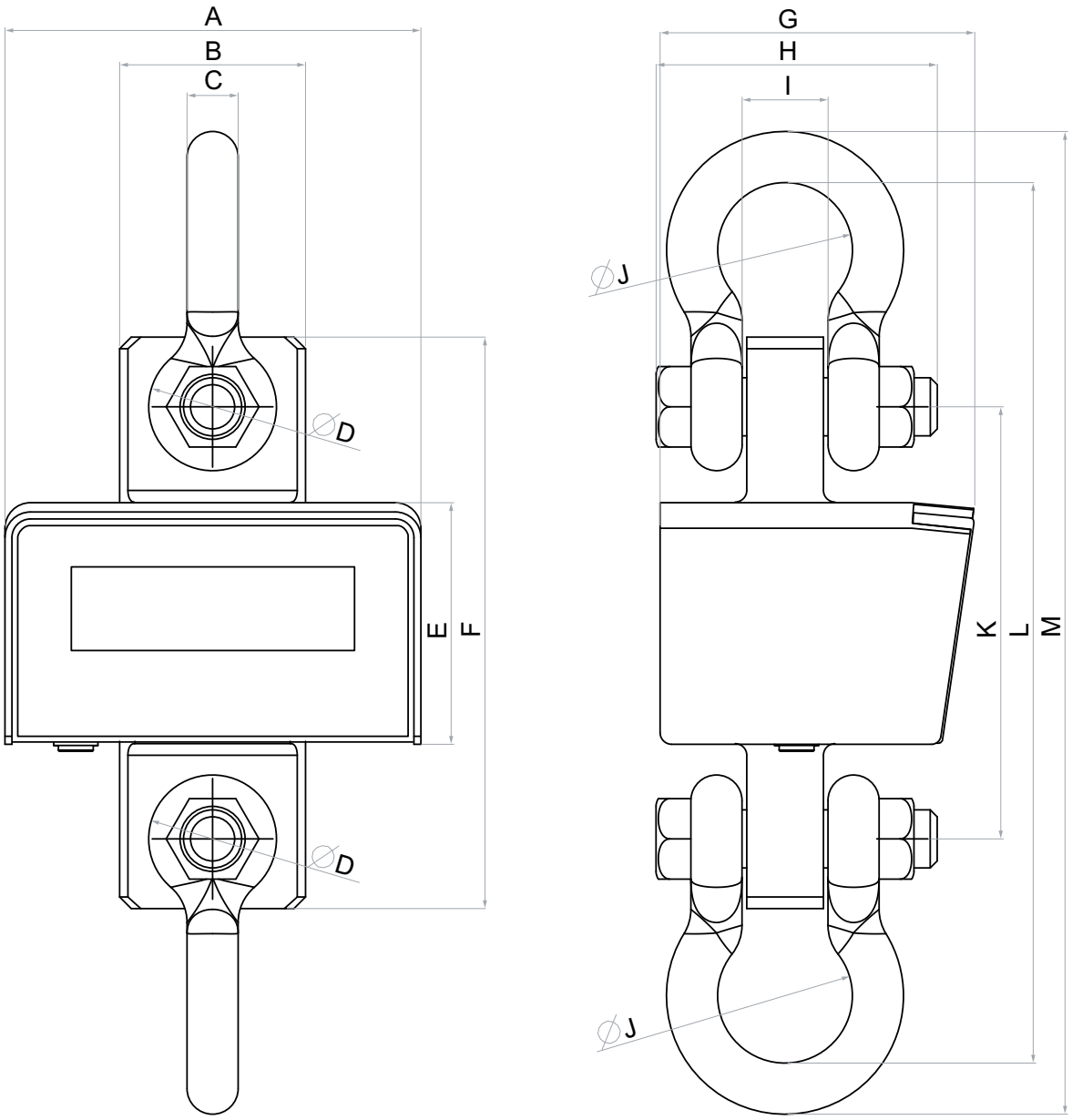


Figure 3-2. RL101-6k/RL101-12k Dimensions

Item	Distance
A	7.09 in (180 mm)
B	3.15 in (80 mm)
C	0.87 in (22 mm)
D	2.17 in (55 mm)
E	4.10 in (104 mm)
F	9.67 in (246 mm)

Item	Distance
G	5.35 in (136 mm)
H	4.76 in (121 mm)
I	1.46 in (37 mm)
J	2.28 in (58 mm)
K	7.32 in (186 mm)
L	14.92 in (379 mm)
M	16.65 in (423 mm)

Table 3-2. RL101-6k/RL101-12k Dimensions

3.2 PCB Drawings

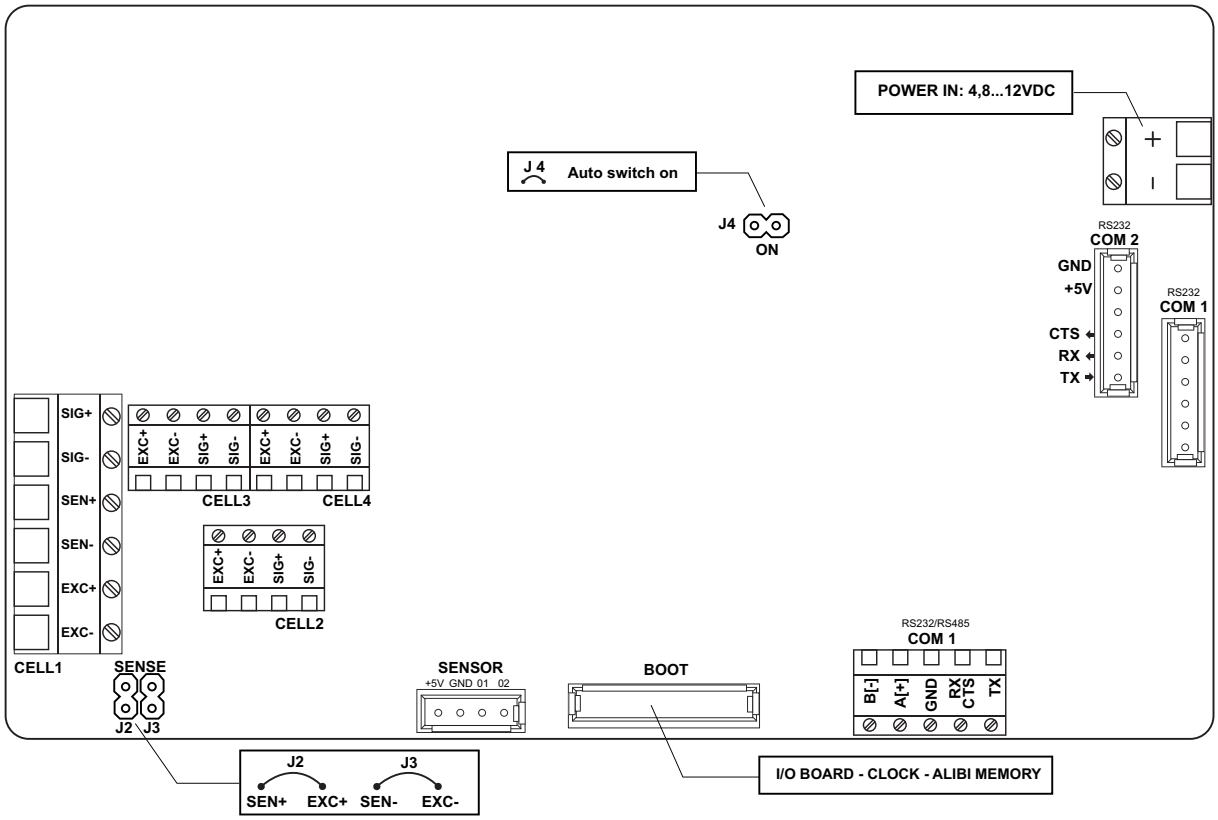


Figure 3-3. RL101 Indicator PCB Diagram

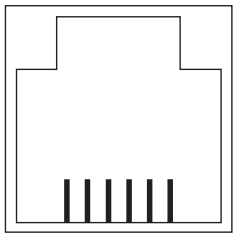


Figure 3-4. Serial Port

Pin	Function
2	Receive
4	Ground
5	Transmit

Table 3-3. Serial Port Pinout

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4.0 Appendix

4.1 Error Messages

MESSAGE	DESCRIPTION	SOLUTION
PrEC.	Calibration error	First calibrate the zero point, then proceed with the next points.
Err.Pnt	Calibration error	Check the load cell connection. 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 from the cell increases upon increasing the weight loaded on the scale. When acquiring calibration points, use increasing calibration weights.
Er 37	Calibration error	Repeat calibration, ensure the capacity and division have been correctly set.
Er 39	RL101 not configured	Reset to factory configuration (see Section 2.10.8 on page 30).
Er 85	RL101 configured but not calibrated	Perform calibration.
C.Er.36	Calibration error	Check the signal from the load cell is not negative.
Err.Not	Weight unstable	Check the *RdC.uU parameter* in the d iAG menu (see Section 2.9 on page 23), verify the signal is stable and retry.

Table 4-1. Error Messages

4.2 FAQ (Frequently Asked Questions)

Question	Answer
Can I change the maximum capacity without recalibrating?	Yes, change the rAnGE 1.2.3 parameter *(*Section 2.10.1.4 on page 25*)*.
Can I change the division without recalibrating?	Yes, change the d iU parameter (see Section 2.10.1.2 on page 24*)*.
Can I change the position of the decimal point without recalibrating?	Yes, change the dEC iN parameter (see Section 2.10.1.1 on page 24) and the value of the calibration points via CAL.Pnt (see Section 2.10.2 on page 26*)*.
What should I do if the scale does not power on?	• Check if the battery compartment is inserted correctly. • Replace the batteries and try again. • Check if the input voltage to the mother board is correct. • Try the forced power mode by inserting the “ON BOOT” jumper present on the mother board. If the RL101 lights up, check the correct operation of the keyboard, using the diagnostic menu (Section 2.9 on page 23).

Table 4-2. FAQ

4.3 Parameter Reference

Parameter	Description	Page
CAL	Quick calibration	Section 2.1 on page 12
0.CAL	Reset pre-tare (zero calibration)	Section 2.2 on page 13
GrAU	Location gravity	Section 2.3 on page 14
SEr iAL	Print customization	Section 2.4 on page 15
CoM.PC	Communication with PC, PLC or repeater	Section 2.4.1 on page 15
ModE	Select communication mode	Section 2.4.1.1 on page 15
CoM.SEL	Select COM port for connection with PC/PLC	Section 2.4.1.2 on page 16
bAud	Select communication speed (baud rate)	Section 2.4.1.3 on page 16
b it	Select serial protocol	Section 2.4.1.4 on page 16
AdUAnC	Advanced configuration	Section 2.4.2 on page 17
ProtoC	Communication protocol	Section 2.4.2.1 on page 17
ttL.t iL	TTL port / Inclinometer activation (for use by the manufacturer)	Section 2.4.2.3 on page 17
tErM	Closing character of each print line	Section 2.4.2.4 on page 18
iGnorE	Ignore unknown commands	Section 2.4.2.5 on page 18
F iLtEr	Weighing filters	Section 2.5 on page 19
SCrEEn	Adjusting the display	Section 2.6 on page 20
bAk.L it	Backlighting	Section 2.6.1 on page 20
br iGht	Brightness	Section 2.6.2 on page 20
AutoFF	Auto off	Section 2.7 on page 21
rESEt	Factory configuration reset	Section 2.8 on page 22
d iAG	Diagnostics	Section 2.9 on page 23
AdC.uU	Converter	Section 2.9 on page 23
d iSPLA	Display	Section 2.9 on page 23
KEYb	Keyboard	Section 2.9 on page 23
AdUAnC	Advanced	Section 2.10 on page 24
CAL.PAr	Calibration parameters	Section 2.10.1 on page 24
dEC iM	Configuration of the decimal point	Section 2.10.1.1 on page 24
d iU	Reading division	Section 2.10.1.2 on page 24
u.M.	Unit of measure	Section 2.10.1.3 on page 24
rAnGE 1	Scale capacity (maximum capacity / first weighing range)	Section 2.10.1.4 on page 25
rAnGE 2	For multi range scales (second weighing range)	Section 2.10.1.4 on page 25
rAnGE 3	For multi range scales (third weighing range)	Section 2.10.1.4 on page 25

Table 4-3. Parameter Summary

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Parameter	Description	Page
CAL.AdU	Complete calibration	Section 2.10.2 on page 26
MEtroL	Metrological parameters	Section 2.10.3 on page 29
0.PErC	Reset percentage via ↓ key	Section 2.10.3.1 on page 29
d iU.Stb	Sensitivity of the weight stability control	Section 2.10.3.2 on page 29
0.trA	Zero hold function (tracking)	Section 2.10.3.3 on page 29
on.2Ero	Reset at power and reset percentage	Section 2.10.3.4 on page 29
rEACt	Reactivation of the totalization or print function	Section 2.10.4 on page 30
LoCA.Ab	Permanent keyboard lock (excluding **C** key)	Section 2.10.5 on page 30
P in.tEC	Access PIN to programming menu	Section 2.10.6 on page 30
P in.uSE	Access PIN to user menus	Section 2.10.7 on page 30
dFLt.t	Reset of the memory and of calibration	Section 2.10.8 on page 30

Table 4-3. Parameter Summary (Continued)

5.0 Replacement parts

5.1 Main Assembly

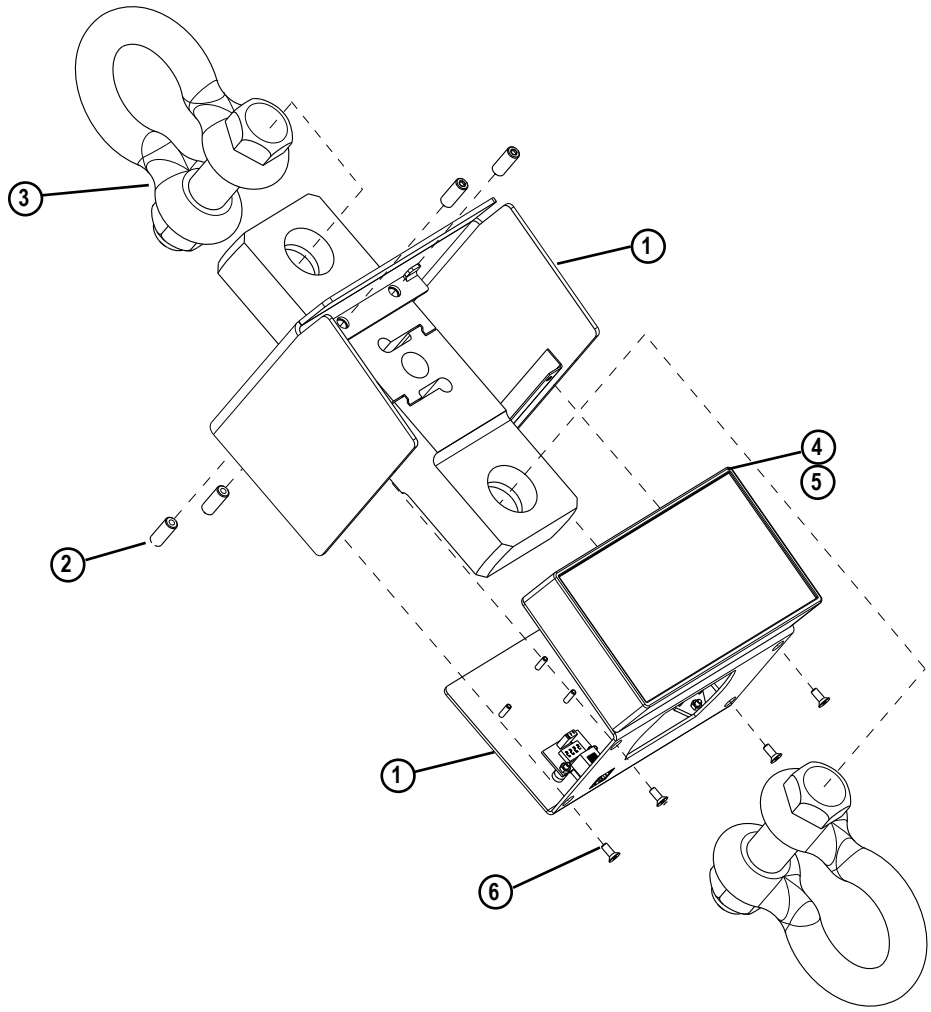


Figure 5-1. RL101 Main Assembly

Item No.	Part No.	Description	QTY
1	220190 (**3000 lb capacity**) 220192 (**6000 and 12000 lb capacities**)	Lower and upper enclosures (comes in a set with one upper and lower enclosure)	1
2	220181	Threaded rod m8 X 20 mm (part of fastener set, see Table 5-3 on page 39)	4
3	220196 (**3000 lb capacity**) 220201 (**6000 and 12000 lb capacities**)	Shackle	2
4	220186	CPU board with display, keyboard, and IR sensor	1
5	220185	Screen cover	1
6	220181	Countersunk hex screw m4 x10 mm (part of fastener set, see Table 5-3 on page 39)	4

Table 5-1. Main Assembly Parts

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5.2 Enclosure Subassembly

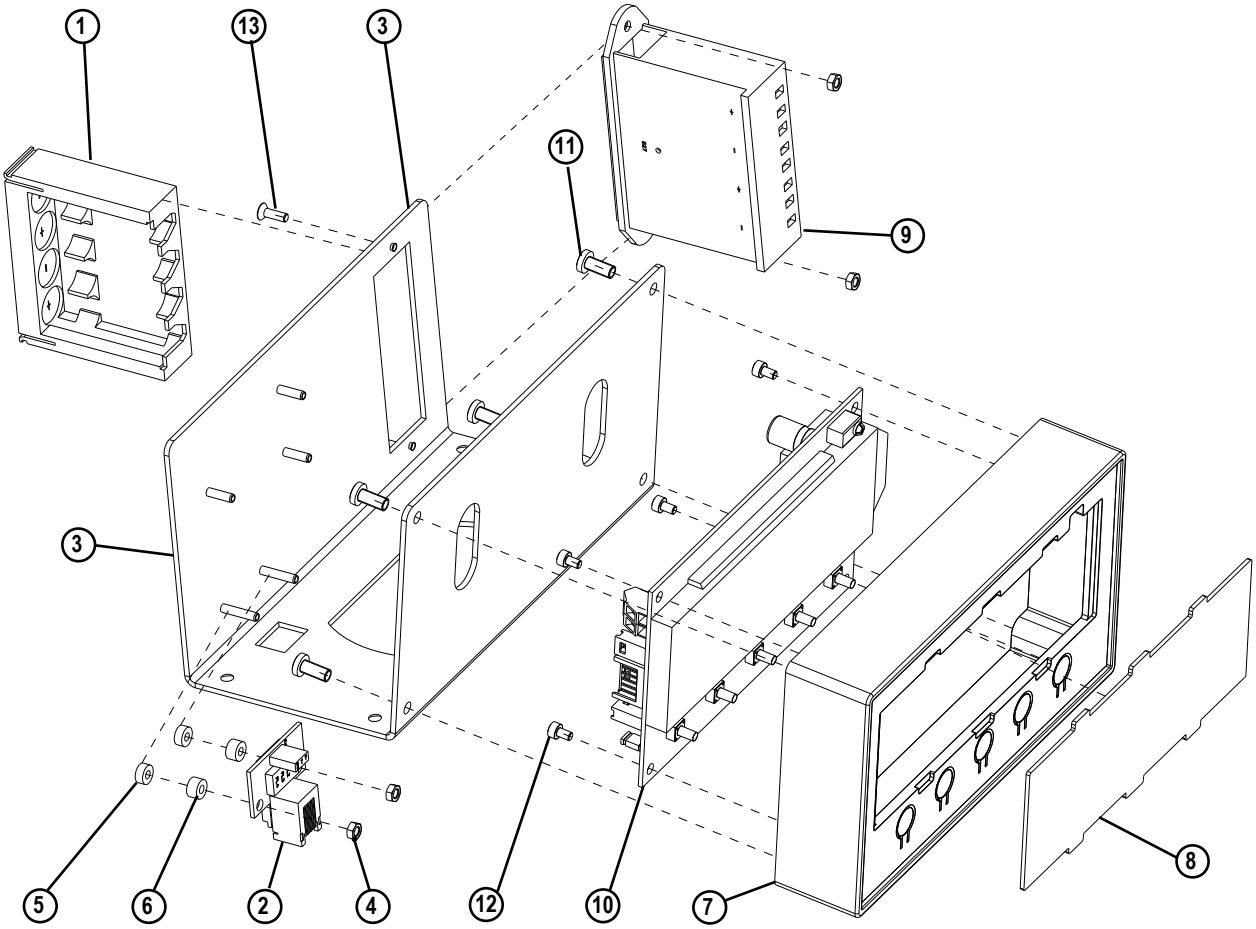


Figure 5-2.

Item No.	Part No.	Description	QTY
1	220188	Battery tray (comes in a set with one battery tray and compartment)	1
2	220199	Serial 232 jack (with cable)	1
3	220190 (**3000 lb capacity**) 220192 (**6000 and 12000 lb capacities**)	Lower and upper enclosures (comes in a set with one upper and lower enclosure)	1
4	220181	Hex nut m3 x 0.5 mm (part of fastener set, see Table 5-3 on page 39)	2
5	220181	Spacer m3 x 3 mm (part of fastener set, see Table 5-3 on page 39)	2
6	220181	Spacer m4 x 4 mm (part of fastener set, see Table 5-3 on page 39)	2
7	220183	Front enclosure	1
8	220185	Screen cover	1
9	220188	Battery compartment (comes in a set with one battery tray and compartment)	1
10	220186	CPU board with display, keyboard, and IR sensor	1
11	220181	Hex bolt m4 x 10 mm (part of fastener set, see Table 5-3 on page 39)	4
12	220181	Hex bolt m3 x 5 mm (part of fastener set, see Table 5-3 on page 39)	4
13	220181	Countersunk hex screw m3 x 10 mm (part of fastener set, see Table 5-3 on page 39)	2

Table 5-2. RL101 Enclosure Subassembly Parts

5.3 Spare Parts

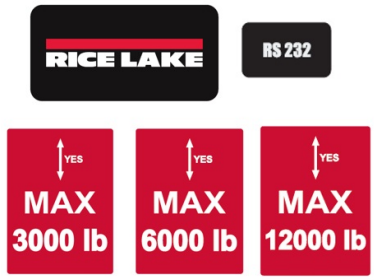
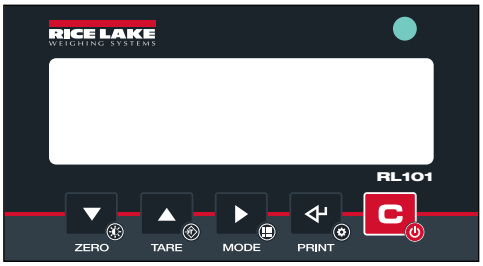
Image	Description	3000 lb capacity (PN 219144)	6000 lb capacity (PN 219145)	12000 lb capacity (PN 219147)
	Label set	220174	220174	220174
	Fastener set Includes: Threaded rod m8 x 20 mm (qty 4) Hex bolt m4 x 10 mm (qty 4) Hex bolt m3 x 5 mm (qty 4) Countersunk hex screw m4 x10 mm (qty 4) Countersunk hex screw m3 x 10 mm (qty 2) Spacer m3 x 3 mm (qty 2) Spacer m4 x 4 mm (qty 2) Hex nut m3 x 0.5 mm (qty 2)	220181	220181	220181
	Overlay	220184	220184	220184
	Battery tray and compartment	220188	220188	220188

Table 5-3. Spare Parts

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Image	Description	3000 lb capacity (PN 219144)	6000 lb capacity (PN 219145)	12000 lb capacity (PN 219147)
	Travel case	220189	220189	220189
	Remote control	220194	220194	220194

Table 5-3. Spare Parts (Continued)

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230 W. Coleman St. • Rice Lake, WI 54868 • USA USA: 800-472-6703 • International: +1-715-234-9171