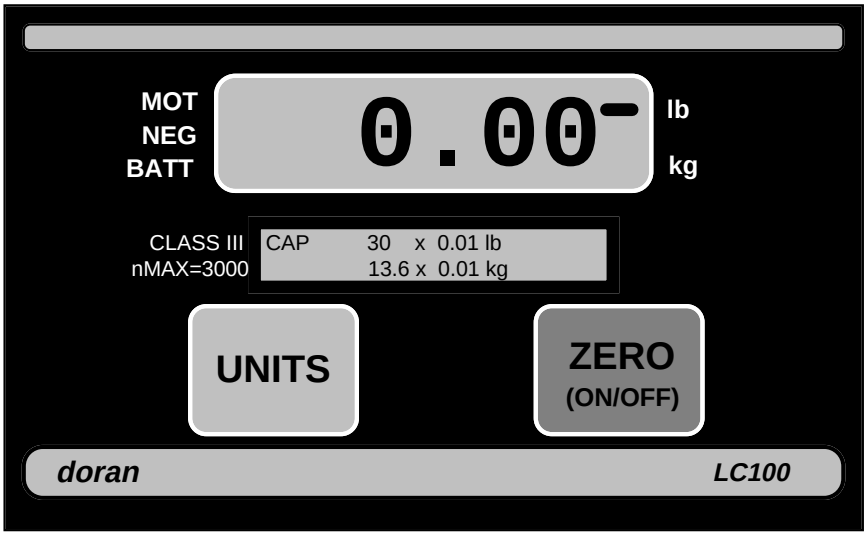
MODEL LC100

SCALE INDICATOR

INSTRUCTION MANUAL



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INTRODUCTION:

Congratulations, you have chosen a technologically advanced and highly reliable scale indicator. The Doran Scales Model LC100 is a compact scale indicator that incorporates state-of-the-art CMOS microprocessor technology and low power liquid crystal display to provide portability, versatility, accuracy, and durability.

The LC100 uses four AA size lithium batteries for many hours of continuous use. Battery life is extended when the automatic turn off function is used.

The LC100 features:

- LCD display.
- High impact ABS plastic enclosure.
- Units conversion between pounds and kilograms.
- Battery operation using 4 AA batteries.
- Battery life is 100 hours typical with lithium batteries (Eveready L91 battery). (Continuous operation with one 350 ohm load cell)
- Low battery voltage indication.
- Programmable time delay for automatic turn off to extend battery life.
- User configuration through menu selected parameters.
- Automatic push-button digital calibration.
- Hardware provided for a weights and measures lead wire seal.
- Optional AC powered battery eliminator.
- Optional mounting brackets for wall or table mounting.
- Can be used with any Doran DSP or 7000P series platforms.

Please read this entire manual to assure that you will receive all the benefits of the Doran Scales Model LC100.

The LC100 is backed by a full 2 year factory warranty. Contact your authorized Doran Scales distributor or the Doran Scales service department should you have any problems.

Unpacking:

Carefully remove the LC100 from the shipping carton. If the LC100 was shipped with a platform attached, be careful not to pull on the cable connecting the LC100 to the platform.

The LC100 is a precision weighing instrument. Improper handling or abuse could damage the LC100 and result in costly repairs that may not be covered by the warranty. The LC100 is not designed for washdown applications.

Please observe the following precautions:

- DO NOT drop the indicator.
- DO NOT drop objects on the indicator.
- DO NOT immerse the indicator in water.

Installing batteries:

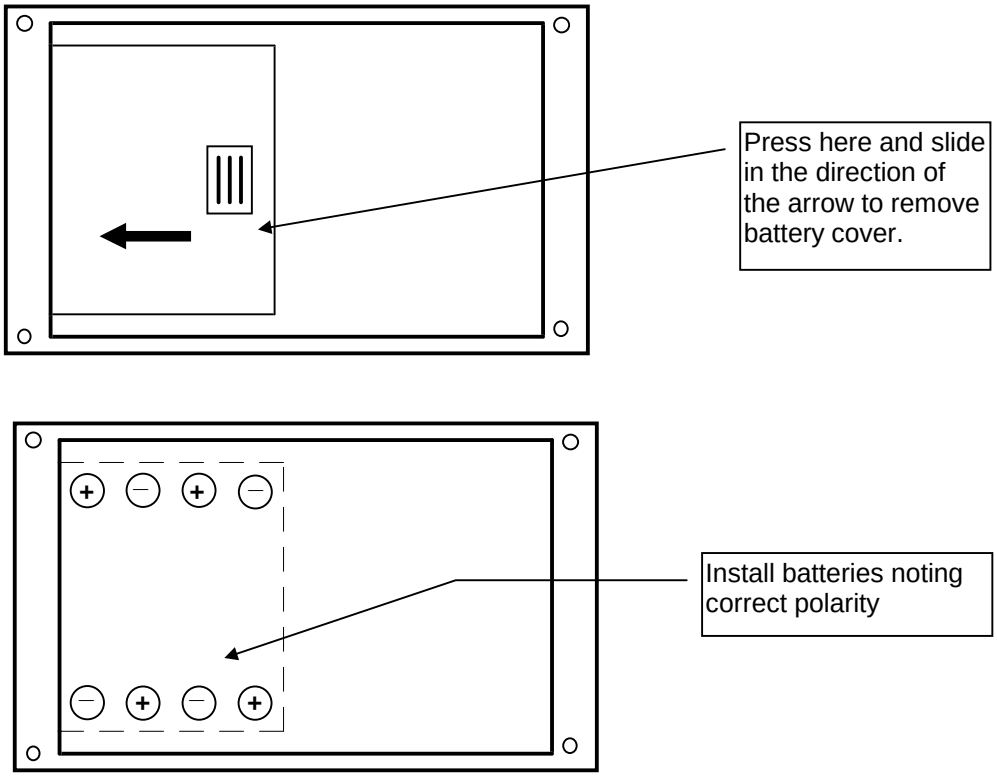
The batteries have been shipped separately from the LC100 indicator. These will need to be installed at the time of use.

There are several precautions that should be observed regarding the batteries:

- Remove the batteries if the indicator is to be stored for an extended period of time. This will prevent corrosion from damaging the LC100.
- Change the batteries when the Low Battery indicator is activated.
- Use the Eveready L91 Lithium battery for maximum operating life.
- Any AA battery can be used, although life is decreased.

Battery installation:

1. Remove the battery cover by sliding towards the outside edge.
2. Insert each battery noting the position of the positive terminal. Press down so that each battery is firmly seated.
3. Replace the cover by sliding it back on the rear of the case.



Battery Installation Illustrations

Basic Operation:

LC100 Front Panel Controls:

ZERO ZERO is used to zero the weight display. The range of the zero function is full capacity of the indicator.

Press and release ZERO to zero the display.

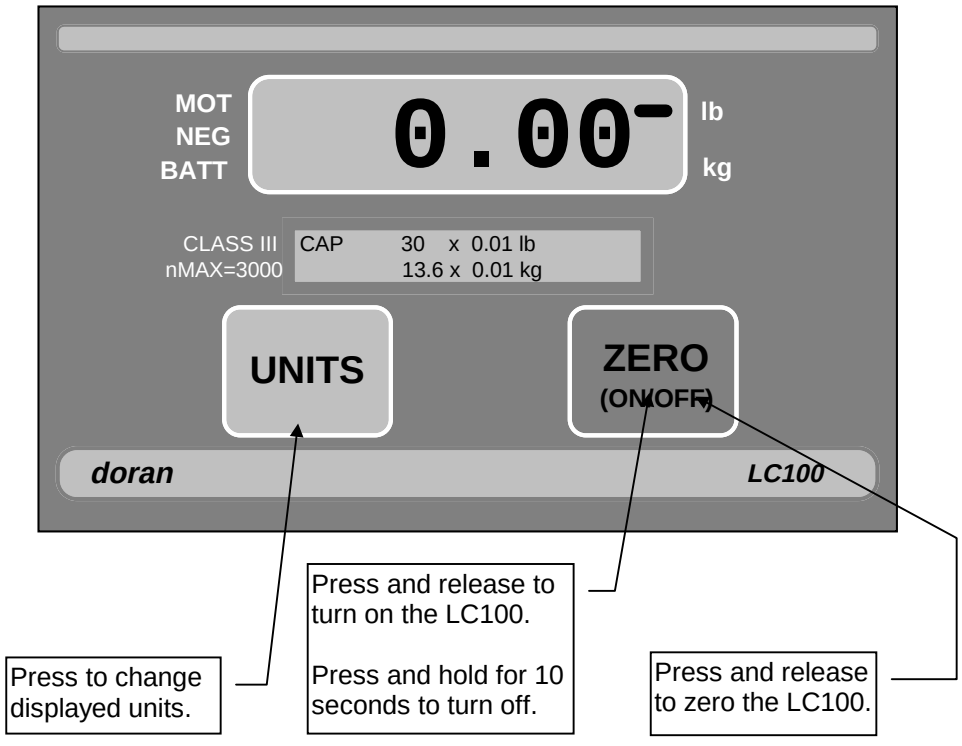
UNITS The UNITS button is used to switch between LBS and KG weight units.

Press and release UNITS to change the weight display units.

(ON/OFF) (ON/OFF) is used to turn the LC100 on or off.

Press and release to turn the indicator on.

To turn off, press and hold for 10 seconds, then release.



LC100 Annunciators:

MOT This annunciator is on when the scale is in motion, off when stable.

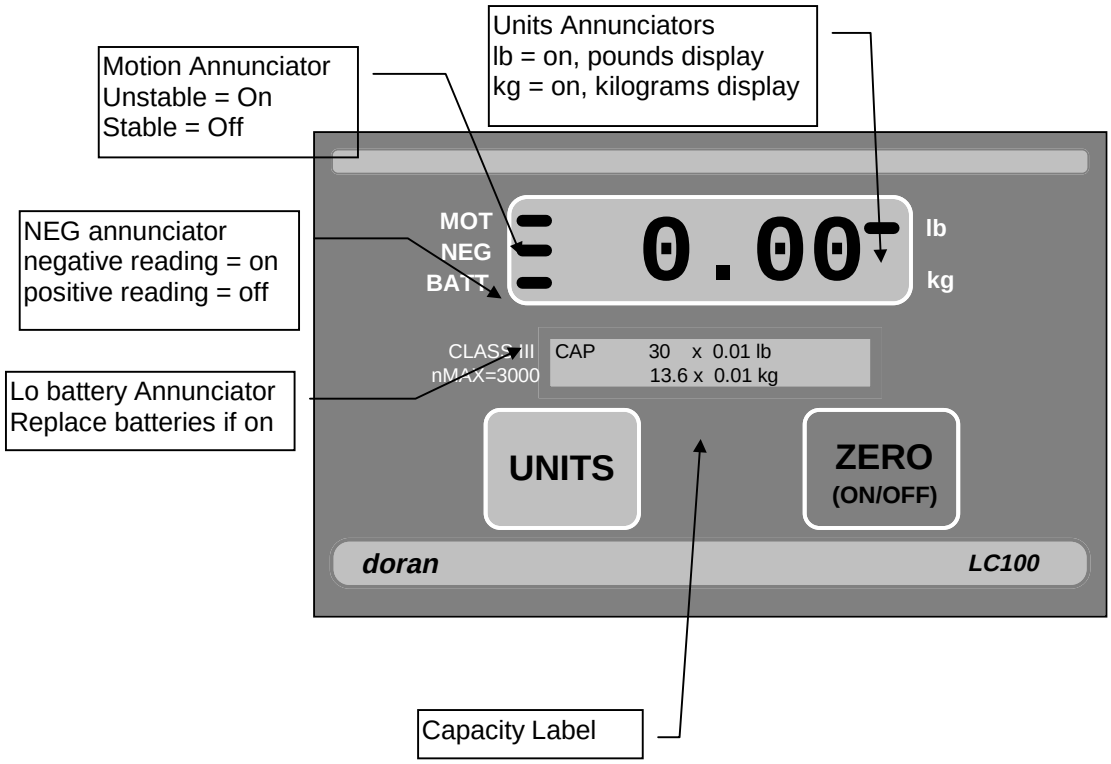
NEG Indicates a negative weight reading when on.

BATT Indicates a low battery condition when on.

The batteries should be replaced when the '**BATT**' annunciator is on.

lb Indicates pounds weight display when on.

kg Indicates kilogram weight display when on.



Labels:

Capacity Label:

The capacity label is designed to be placed inside a pocket of the touch panel. The LC100 must be disassembled to insert the capacity label through a slot in the front cover. It is recommended that the supplied labels be used to ensure compliance with regulatory agencies.

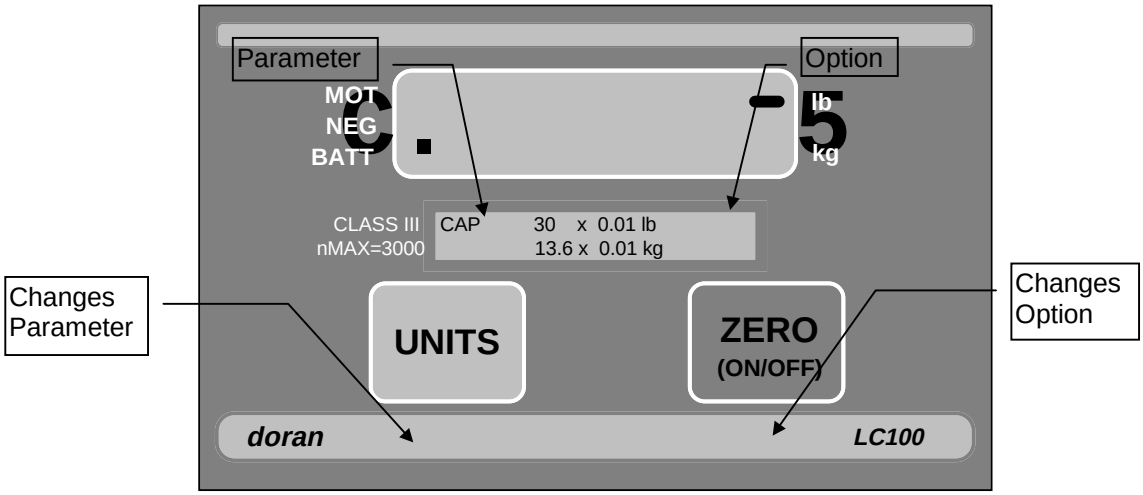
Serial Number Label:

The serial number label is made out of tamper proof material to prevent its removal.

Parameter Setup:

There are several parameters in the LC100 that can be configured to customize the indicator to specific applications. A look up table briefly shows each parameter and its selections. Following the table are detailed explanations of each parameter.

1. Switch OPERATE/CALIBRATE switch to CALIBRATE position.
2. UNITS selects the parameter to be configured.
3. ZERO selects the option for the paramater.



Parameter Table:

Parameter	Description	Selectable Options
C.	Scale Capacity	5 thru 3000 lbs

A.u	Display Update Rate	A,1,2,4,8
Z.t	Auto Zero Tracking (AZT)	n,3,1,.5d
n.	Motion Aperature	1,3,5d
u.nIt	Start up units	lb or kg
t.	Power Off timer	ON,60,30,15,10,5,4,3,2,1
o.P	Operation Mode	Standard or LFT
	Internal count display	None
CL 0	Calibrate 0	Begins Cal routine

Detailed List of Parameters: The default settings are in **bold**.

F1. Capacity " **C.**"

Selects the capacity and resolution of the LC100.

Option	Capacity (lb)	Capacity (kg)	Notes
5	5 x .001	2.3 x .001	
6	6 x .002	2.7 x .001	
10	10 x .002	4.5 x .001	Overload at 9.999 lb
15	15 x .01	6.8 x .002	
20	20 x .01	9.1 x .002	
30	**30 x .01**	**13.6 x .01**	
50	50 x .01	22 x .01	
60	60 x .02	27 x .01	
100	100 x .02	45 x .01	Overload at 99.99 lb
150	150 x .1	68 x .02	
200	200 x .1	91 x .02	
300	300 x .1	136 x .1	
500	500 x .1	227 x .1	
600	600 x .2	272 x .1	
1	1000 x .2	454 x .1	Overload at 999.9 lb
15	1500 x 1	680 x .2	
2	2000 x 1	907 x .2	
3	3000 x 1	1361 x 1	

F2. Digital Averaging or Display Update Rate " **A.u** "

The digital averaging parameter is used to tailor the LC100's display to the application and environment. In some instances wind currents or vibration can affect the platform or load cell causing the LC100's display to fluctuate or appear to be 'bouncy'.

The LC100 can smooth out the fluctuations by taking a series of weight readings and averaging them together. Selecting an option with more readings will give a more stable display. However, as the number of readings increases, the slower the display updates.

The 'A' setting is an auto average utility. When the LC100 is in motion, less readings are taken allowing the display to update rapidly. When the LC100 stabilizes, more readings are taken to give a more stable display.

Option	Description
A	**Auto Average**
1	No readings averaged.
2	2 readings averaged.
4	4 readings averaged.
8	8 readings averaged.

F3. Auto Zero Tracking " **Z.t** "

Auto zero tracking is used to compensate for small deviations from zero caused by slight air currents or residue left on the platform.

Adjust the Zero Track Aperture so that it best fits your application If you are working with minute weights that are near zero, it is advisable to turn Automatic Zero Tracking off, as it may interfere with the weighments.

Option	Description
n	AZT is off.
30	± 3 divisions will be automatically zeroed.
10	**± 1 division will be automatically zeroed.**
5	± .5 division will be automatically zeroed.

F4. Motion Aperature " **M.** "

Determines how many displayed divisions of motion are sensed between updates before the unit goes into a motion state.

Option	Description
10	**1 division of motion**
30	3 divisions of motion
50	5 divisions of motion

F5. Start up Units " **UNIt** "

Determines the units that the weight display will display when the LC100 is turned on.

Option	Description

Lb	**Start up in pounds.**
kg	Start up in kilograms.

F6. Turn Off Timer. " **t.** "

Determines the time delay between turn on and automatic shut off when there is no activity on the platform. Each time there is a weighment on the platform, the timer will reset. If there is no activity on the platform, then the LC100 will turn off at the end of the selected time period.

Option	Description
ON	**Unit on until manually turned off.**
60	60 Minute delay.
30	30 Minute delay.
15	15 Minute delay.
10	10 Minute delay.
5	5 Minute delay.
4	4 Minute delay.
3	3 Minute delay.
2	2 Minute delay.
1	1 Minute delay.

F7. Operation Mode. " **o.P** "

Determines the operation mode, Standard or Legal-for-Trade, of the LC100.

Note when the Legal-for-Trade mode is selected, the Auto Zero Tracking parameter is set to .5 d and the Motion parameter is disabled.

Option	Description
S	**Standard operation.**
L	Legal-for-Trade operation

F8. Internal Count Display

Displays the internal or raw counts of the indicator. Typically reads -1200 at zero or no load and 1300 at full capacity.

F9. Zero Calibration Mode " **CL 0** "

Press ZERO to calibrate dead load zero of the scale.

F10. Span Calibration Mode " **CL F** "

Place full capacity on the scale and press ZERO.

Note: This function only appears after a ZERO calibration is performed first.

Calibration:

Digital Calibration:

The LC100 features two step automatic calibration. First, is calibration of zero or dead load. Second is calibration at full capacity.

1. Switch the Operate/Calibrate switch to Calibrate.
2. Use **UNITS** to scroll to **CL 0**.
3. Remove any weight from the platform and press **ZERO**.
4. The display will count down from 7 to 0.
5. Place full capacity on the platform and press **ZERO**.
6. The display will count down from 7 to 0.
7. Switch the Calibrate switch back to Operate.

Initial Zero and Span Calibration:

The following steps are intended for initial setup of a platform or load cell.

A. Switch OPERATE/CALIBRATE to CALIBRATE.
B. Use UNITS to scroll down to internal count display.
C. Rotate the Zero adjust pot full clockwise until the pot clicks.
D. Rotate the Zero pot counter clockwise 11 turns. This will center the pot.
E. Remove weight from the platform.
F. Adjust the Zero pot to between -1000 and -1900.

    1. Rotate clockwise to increase the reading negative.
    2. Rotate counterclockwise to increase the reading positive.

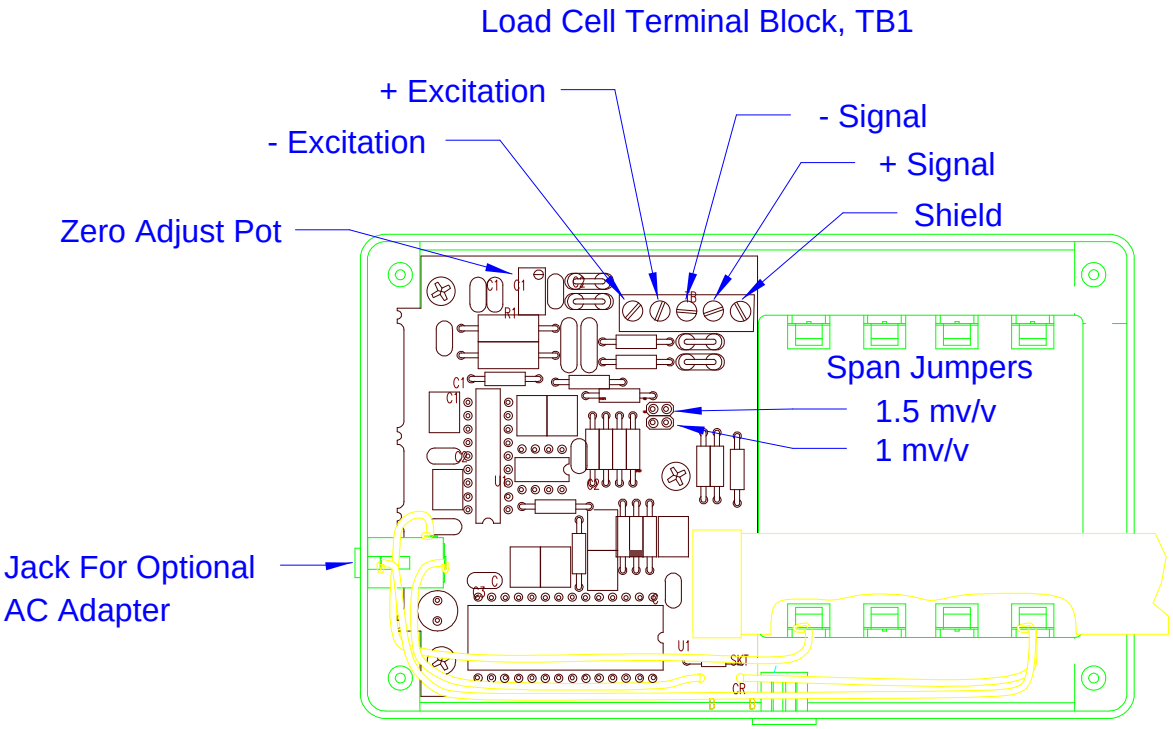
G. Place full capacity on the platform.
H. The reading on the display should be a minimum net change of 2100 counts from initial zero to a maximum of 3500 counts.

    Note: The lowest internal count reading is -1999, and the highest is 1999. All zero and span readings must be between -1999 and 1999.

Span jumper configuration:

The default position for the span jumper is the bottom position. This sets up a load cell sensitivity of 1 mv/v.

The upper position gives a load cell sensitivity of 1.5 mv/v.



Key Component Locations

LC100 Capacity Labels

5 lb x .001 lb 2.3 kg x .001 kg	6 lb x .002 lb 2.7 kg x .001 kg
10 lb x .002 lb 4.5 kg x .001 kg	15 lb x .01 lb 6.8 kg x .002 kg
20 lb x .01 lb 9.1 kg x .002 kg	30 lb x .01 lb 13.6 kg x .01 kg
50 lb x .01 lb 23 kg x .01 kg	60 lb x .02 lb 27 kg x .01 kg
100 lb x .02 lb 45 kg x .01 kg	150 lb x .1 lb 68 kg x .02 kg
200 lb x .1 lb 91 kg x .02 kg	300 lb x .1 lb 136 kg x .1 kg
500 lb x .1 lb 227 kg x .1 kg	600 lb x .2 lb 272 kg x .1 kg
1000 lb x .2 lb 454 kg x .1 kg	1500 lb x 1 lb 680 kg x .2 kg
2000 lb x 1 lb 907 kg x .2 kg	3000 lb x 1 lb 1361 kg x 1 kg