



# Model DS4100 Infant Scale

## Instruction Manual



**Doran Scales, Inc.**  
1315 Paramount Pkwy  
Batavia, IL 60510 USA  
1-800-264-4107  
[www.doranscales.com](http://www.doranscales.com)  
MAN0259 Revision 0.5



<b>Section 1. Unpacking and Installation .....</b>	<b>1</b>
Introduction .....	1
Unpacking .....	1
Cautions and Warnings .....	1
Care & Cleaning.....	1
Installation.....	2
Battery Installation .....	2
<b>Section 2. Scale Operation .....</b>	<b>3</b>
Display Pushbuttons .....	3
Weighing a Patient.....	5
Zero Operation.....	5
Reweigh Operation .....	5
<b>Section 3. Scale Calibration.....</b>	<b>6</b>
Two Point Calibration Procedure .....	6
Multiple Point Calibration .....	7
Calibration Troubleshooting.....	8
<b>Section 4. Parameter Setup .....</b>	<b>9</b>
Entering and Exiting Setup Mode.....	9
Setup Mode Navigation.....	9
Calibration Weight Selection .....	9
Calibration Mode Selections .....	9
Start Up Zero.....	10
Automatic Shutoff Timer.....	10
Raw Counts.....	10
<b>Section 5. Specifications .....</b>	<b>11</b>
<b>Section 6. Troubleshooting .....</b>	<b>12</b>
General Problem Resolution .....	12
Error Messages.....	13

## **Section 1. Unpacking and Installation**

### **Introduction**

Thank you for purchasing a Doran scale. This product has been designed with the highest level of technology. We are dedicated to deliver a superior product that will provide many years of trouble free service.

As an ISO9000 registered company, Doran Scales is dedicated to delivering products built with strict compliance to our high quality standards. If you have any questions regarding your scale, please contact Doran Scales, Inc.

### **Unpacking**

Carefully remove the scale from the shipping carton. If you notice any shipping damage, notify the shipper immediately. Be sure to retain all shipping materials in case the scale must be shipped elsewhere.

### **Cautions and Warnings**

Your new scale is a durable industrial grade product, but it is also a sensitive weighing instrument. Normal care should be taken when handling and using this product. Improper handling or abuse can damage the scale and result in costly repairs that may not be covered by the warranty. Please observe the following precautions to insure years of trouble free service from your new scale.

- Do not use sharp objects to press any of the buttons.
- Do not use the scale if the scale is damaged in any way.
- Do not leave patients unattended on the scale.
- Do not exceed the scale capacity.
- Do not drop the scale.
- Do not drop objects on the scale.
- When transporting, do not hit other objects, walls or doorframes with the scale.

### **Care & Cleaning**

With reasonable care, this product will last for many years. Here are some tips to care for your scale. Failure to comply with these guidelines may void the warranty.

- Hand clean the scale platform and indicator with a moist cloth.
- Only clean with a mild detergent.
- Do not get water inside the scale.
- Do not use strong solvents or abrasive cleaners as this can damage the touch panel or other plastic parts.
- Do not immerse.
- Examine the scale periodically for damage and wear and tear before use.
- Remove batteries during long periods of non-use.

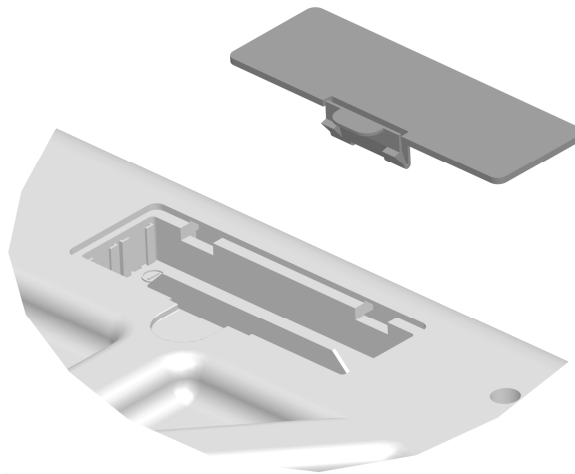
## **Installation**

Place the scale on a stable flat surface. The scale should rest evenly on all four feet.

## **Battery Installation**

The DS4100 comes with a set of four AA alkaline batteries. These batteries supply a year's of typical use with the standard Automatic Shutoff Timer settings.

The batteries can be accessed on the bottom of the scale. To access the battery compartment, turn the scale upside down and open the battery compartment door. When installing the new set of batteries, be sure the batteries are oriented properly.



**Fig. 1 Battery Door**

## **Section 2. Scale Operation**



**Fig. 2 DS4100 Front Panel**

### **Display Pushbuttons**

The Model DS4100 controls consist of ZERO, ON/OFF, REWEIGH, LB and KG buttons. The display is used to provide weight indications and operator messages indicating scale operation.

### **Power On/Off**

Press the On/Off button to turn on the scale. The scale has an adjustable Automatic Shutoff Timer that will power down the indicator when not in use.

### **Zero**

When the zero button is pressed, the scale will be reset to zero weight. This feature can be used to zero out any weight not desired to be part of the patient weight.

### **Units Select**

Press LB to weigh in pounds and ounces.

Press KG to weigh in kilograms.

The current unit will be displayed to the right of the weight digits.

### **Reweight**

To reinitiate the weighing process, press REWEIGH. This will allow a weighing to be reinitiated without the patient having to get off the scale platform.

**Display Annunciators**

The display annunciators will indicate the scale status.

**Center of Zero (▶0◀)**

Indicates that the scale has an accurate zero reading.

**Hold**

Indicates a stable weight has been achieved and held on the display. This indicates an accurate weight has been achieved.

**Low Batt**

Indicates when the batteries require replacement.

### **Weighing a Patient**

1. Press On/Off. The scale will turn on and display a zero weight.
2. Place patient on the scale.
3. When a stable weight is reached the display will lock and the HOLD annunciator will be displayed.
4. The weight will be locked until the scale shuts off.

### **Zero Operation**

1. Place item to be zeroed out on the scale platform.
2. Press On/Off. The scale will turn on and display a zero weight. If the item is removed, a negative weight will be displayed.  
*Note: Each time the scale is powered up, the zero point is reset.*
3. Place the patient on the scale and the patient's weight, less the item's weight will be displayed.

**OR**

1. With the scale on, press ZERO.
2. The display will display dashes.
3. When scale becomes stable, the display will read zero.

### **Reweigh Operation**

With the patient on the scale platform, press REWEIGH to reinitiate the weighing process.



## **Section 3. Scale Calibration**

### **Two Point Calibration Procedure**

This calibration procedure is intended to be used when a full set of calibrated weights are not available. When possible, use the multiple point calibration procedure below. *CAUTION: Calibrating this scale improperly will void the warranty and will require field service or return of the scale to the factory.*

1. Turn the scale on by pressing the ON/OFF button.
2. To calibrate in pounds, press LB. To calibrate in kilograms, press KG.
3. Press and hold ZERO and REWEIGH simultaneously.
4. When the display reads  $\overline{CAL}$  25 lb ( $\overline{CAL}$  10 kg), release ZERO and REWEIGH.
5. If desired, press LB to use a span calibration of  $\overline{CAL}$  45 lb ( $\overline{CAL}$  20 kg).  
*NOTE: Using a heavier calibration weight will increase scale accuracy.*
6. Press KG. The display reads  $\overline{CAL}$  0.
7. Remove all weight from the scale.  
*NOTE: During calibration be sure vibration and air currents are not present.*
8. Press LB. The display will count down to zero. The counter will reset if too much vibration is present.
9. When the zero calibration is successful, the display reads  $\overline{CAL}$  XX lb or kg, where XX is the span calibration weight selected above
10. Place the span calibration weight on the platform.  
*NOTE: to exit calibration without saving, press KG until the scale returns to the weigh mode.*
11. Press LB.
12. The display will count down. When calibration is complete, the scale will return to the weigh mode.

## Multiple Point Calibration

Use this calibration procedure when a full set of calibrated weights is available. This calibration sequence will result in the most accurate calibration possible.

*CAUTION: Calibrating this scale improperly will void the warranty and will require field service or return of the scale to the factory.*

1. Turn the scale on by pressing the ON/OFF button.
2. To calibrate in pounds, press LB. To calibrate in kilograms, press KG.
3. Press and hold ZERO and REWEIGH simultaneously.
4. When the display reads  $\overline{CAL}$  25 lb ( $\overline{CAL}$  10 kg), release ZERO and REWEIGH.
5. Press and hold the LB button until the display reads  $\overline{CAL}$  50.
6. Press KG and the display will read  $\overline{CAL}$  0.
7. Remove all weight from the scale.  
*NOTE: During calibration be sure vibration and air currents are not present.*
8. Press LB. The display will count down to zero. The counter will reset if too much vibration is present.
9. Once the zero calibration is successful, the display will read 10 lb (5 kg).
10. Place 10 lb (5 kg) on the scale and press LB.
11. When successful, the display will read 20 lb or 10 kg.
12. Place 20 lb (10 kg) on the scale and press LB.
13. When successful, the display will read 30 lb or 15 kg.
14. Place 30 lb (15 kg) on the scale and press LB.
15. When successful, the display will read 40 lb or 20 kg.
16. Place 40 lb (20 kg) on the scale and press LB.
17. When successful, the scale will return to the weigh mode.

### Calibration Troubleshooting

If **Err 0** appears on the display during step 8, the calibration zero is out of range. Remove all weight from the platform and press LB to perform the zero calibration again. If this error persists, consult the raw counts table below.

If **Err 5P** appears on the display during step 10,12, 14 or 16, the span calibration is out of range. Place the proper weight on the platform and press LB to perform the span calibration again. If this error persists, consult the raw counts table below.

To Access Raw Counts:

1. Press and hold ZERO and REWEIGH simultaneously.
2. When the display reads **RAW 25 lb (10 kg)**, release ZERO and REWEIGH.
3. Press KG until the RAW A/D count is displayed.
4. Apply test weights and compare results to the table below.
5. Press KG to exit.

The following table shows the acceptable Raw Counts for no load and each calibration point. If the scale's raw counts are not within the ranges specified in the following table, contact Doran's Technical Assistance department at 800-264-4107.

### Two Point Calibration Troubleshooting

Calibration Requirements in Raw Counts	Minimum	Maximum
Zero Calibration Point	0	20,000
25 lb (10 kg)	14,000	24,000
45 lb (25 kg)	28,000	42,500

### Multiple Point Calibration Troubleshooting

Calibration Requirements in Raw Counts	Minimum	Maximum
Zero Calibration Point	0	20,000
10 lb (5 kg)	7,000	10,500
20 lb (10 kg)	14,000	21,000
30 lb (15 kg)	21,000	31,500
40 lb (20 kg)	28,000	42,000

## **Section 4. Parameter Setup**

The DS4100 offers the ability to change the shutoff timer settings. Parameter settings shown in bold are the default settings.

### **Entering and Exiting Setup Mode**

To enter setup mode from the front panel, press and hold REWEIGH and then press and hold ZERO. Release both buttons when the display reads **[RP 25]**.

To exit the setup mode, press KG until the display returns to the weigh mode.

### **Setup Mode Navigation**

1. Press KG to change the current parameter.
2. Press LB to change the parameter setting.

### **Calibration Weight Selection**

<b>[RL]</b>	
<b>25 (10 kg)</b>	25 LB (10 kg)
<b>45 (20 kg)</b>	45 LB (20 kg)

### **Calibration Mode Selections**

<b>[RL]</b>	<b>Zero Calibration Point</b>
<b>0</b>	Press ZERO to calibrate zero point <i>NOTE: This parameter is only visible when in the calibration mode.</i>

<b>[RL]</b>	<b>Span Calibration Point</b>
<b>25</b>	25 LB
<b>45</b>	45 LB
	<i>NOTE: This parameter is only visible after a zero calibration is performed.</i>

### Start Up Zero

500	
0n	Scale automatically zeros when the scale is turned on.
oF	Scale will not zero when the scale is turned on.

### Automatic Shutoff Timer

Ro	<b>Automatic shutoff timer. The timer controls the period of time the scale stays on after non-use.</b>
10	10 seconds
30	30 Seconds
60	1 minute
120	2 minutes
180	5 minutes
300	10 minutes
600	15 minutes
oF	Automatic shutoff timer disabled.

### LB Units Button Enable / Disable

0n	LB button active
oFF	LB button disabled

### KG Units Button Enable / Disable

0n	KG button active
oFF	KG button disabled

### Raw Counts

#####	<b>Raw counts from A/D converter</b>
	View these numbers if calibration is unsuccessful. Refer to Section 3 for interpretation of these numbers. Press KG to exit setup mode.

## **Section 5. Specifications**

Scale Dimensions	25" L x 13.75" W x 3.75" H
Power	4 AA Alkaline Batteries  One year battery life with 10 second Automatic Shutoff Timer setting.
Displayed Units	lb:oz, kg
Capacity	45 lb x 0.2 oz 20 kg x 5 g
Construction	ABS Plastic Housing
Options	Carrying Case AC Adapter XFR0049 110VAC, UL, ULc approved XFR0059 230 VAC CE approved

## **Section 6. Troubleshooting**

### **General Problem Resolution**

<b>Problem</b>	<b>What to Do or Check</b>
Weight reading will not repeat or scale does not return to zero when weight is removed.	Person or object other than that being weighed is touching the scale.  Verify that there is nothing caught in the feet area or interfering with the feet.
Scale overloads before scale capacity is reached.	Verify scale calibration is correct. If problem persists, recalibrate the scale.
Scale will not come to zero when the ZERO button is pressed.	Make sure that the scale is stabilizing. After pressing the ZERO button, the scale should zero as soon as it becomes stable.
Weight readings are not correct.	Verify the scale calibration with an accurate test weight. If the readings are not correct, recalibrate.  Be sure the platform is on a flat surface and all four feet are touching the surface.
Scale drifts off zero.	Check for air currents and/or vibration around the scale.
Scale shuts itself off or will not turn on.	Press the On/Off button to turn on the indicator.  Check that new batteries are installed properly in the battery tray.

## Error Messages

Error Message	What to Do or Check
Err EP	<p>The setup parameters loaded in nonvolatile memory have become corrupted.</p> <p>If this problem persists, contact Doran Technical Support for assistance.</p>
Err Ad	<p>The A/D communication is not detected. Ensure the wire harness was not pinched during assembly.</p> <p>If this problem persists, contact Doran Technical Support for assistance.</p>
Err 0	<p>The calibration zero is out of range. Error is displayed after a zero calibration attempt.</p> <p>Refer to the Calibration Troubleshooting section for additional information. If this problem persists, contact Doran Technical Support for assistance.</p>
Err SP	<p>The span calibration is out of range. Error is displayed after a span calibration attempt.</p> <p>Refer to the Calibration Troubleshooting section for additional information. If this problem persists, contact Doran Technical Support for assistance.</p>
ov ld	<p>The scale is in overload. The load on the scale platform exceeds the scale capacity by more than 105%.</p> <p>Remove excess weight from scale platform. If problem persists, recalibrate. If this problem still persists, contact Doran Technical Support for assistance.</p>
95 ol	<p>The scale is in an extreme overload condition. The load on the scale platform exceeds the scale capacity by more than 150%.</p> <p>Immediately remove excess weight from scale platform as damage not covered under the warranty can occur. If problem persists, recalibrate. If this problem still persists, contact Doran Technical Support for assistance.</p>



## **Limited Three Year Warranty**

Doran Scales, Inc. warrants Model DS4100 to be free from defects in material and workmanship for a period of three (3) years from date of shipment. Any product found to be defective within this time period may be returned to Doran's factory, freight prepaid, with prior return authorization and proof of purchase showing date of original sale, for repair or replacement at no charge.

Doran's liability under this warranty is limited to the repair or replacement of the defective product and in no event shall Doran Scales, Inc. be liable for consequential or indirect damages to equipment or personnel. Nor shall Doran Scales, Inc. be liable for damages to equipment or for personal injury caused by misuse, overload, accidental damage, alteration, improper installation, or unauthorized opening of the equipment. Under no circumstances will Doran Scales, Inc. be responsible for any indirect or consequential damages due to errors in weighing or failure of a Doran Scales, Inc. product to perform properly.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. THIS WARRANTY CONSTITUTES DORAN'S EXCLUSIVE WARRANTY. THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

### **Doran Scales, Inc.**

1315 Paramount Pkwy

Batavia, IL 60510

1-800-264-4107

[www.doranscales.com](http://www.doranscales.com)

