

# **SR**Scales®

by **SR**® Instruments, Inc.

**Model SR565**



**Stand-On Scale System**  
Shown with Optional Height Rod

## **Operating and Service Manual**

*Serial Numbers: 001+*

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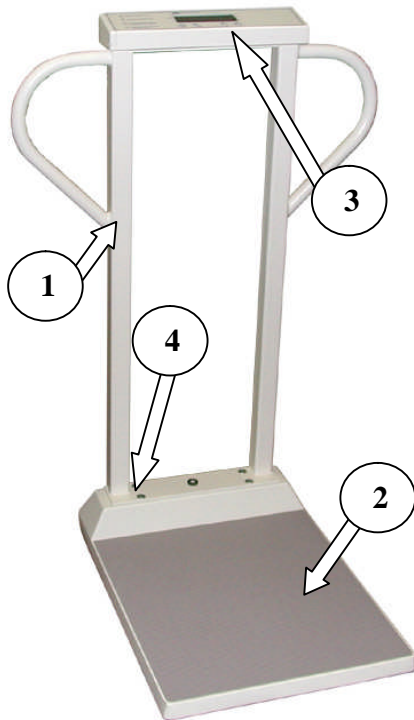
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## PACKING CHECKLIST SR565 Stand-On Scale

√	DESCRIPTION	QUANTITY
	<b>Box 1</b>	
	BASE ASSEMBLY	1 ea
	MAST ASSEMBLY WITH DISPLAY	1 ea
	3/8-16 FLAT HEAD SCREW	4 ea
	7/32" ALLEN WRENCH	1 ea
	PACKAGE OF SIX (6) "D" CELL BATTERIES	1 ea
	QC INSPECTION SHEET	1 ea
	CALIBRATION CERTIFICATE	1 ea
	WARRANTY CARD	1 ea
	MANUAL	1 ea

## ASSEMBLY



#	PART NAME
1	Mast Assembly
2	Base Assembly
3	Display Unit
4	3/8-16 Screws
5	Battery Compartment
6	Display Cable Connector

Figure 1: Assembly Diagram

**STEP 1:** Unpack the scale system and check parts against the **PACKING CHECKLIST**. If there are any missing or damaged parts, please call the Service Hotline at 1-800-654-6360.

**STEP 2:** (Figure 1) Verify that the serial number on the Mast Assembly (1) matches that on the Base Assembly (2).

**STEP 3:** Position the Mast Assembly on the Base Assembly as shown, while feeding the display cable through the cable hole on the right.

**STEP 4:** Secure the Mast Assembly to the Base Assembly with four (4) 3/8-16 screws (4).

**STEP 5:** Gently rest the scale on its side. Open the Battery Compartment Cover (5).

**STEP 6:** Attach the Display Cable Connector (6) to its mate in the Base Assembly. Slide the extra cable back up into the mast pipe.

**STEP 7:** Install the six (6) “D” cell batteries as indicated on the Battery Compartment Cover label. Tightly close the cover.

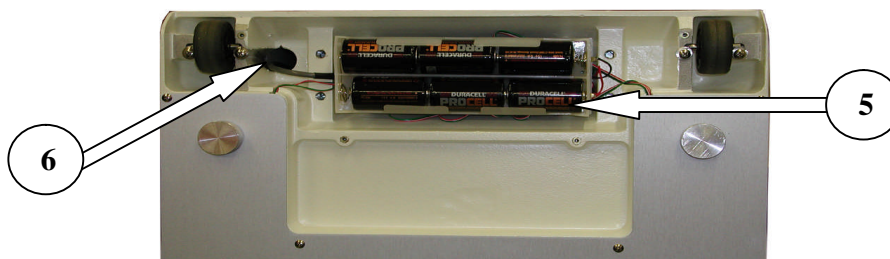


Figure 2: Battery Compartment

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## SYSTEM DESCRIPTION and INTENDED USE

### SYSTEM DESCRIPTION

The SR565 Stand-On Scale System employs the latest in microprocessor and load cell technology to provide accurate and repeatable weight data. Four (4) identically matched transducers are strategically placed to ensure an accurate representation of the patient's weight.

The low power microprocessor circuitry allows the SR565 to derive its power from six (6) common "D" cell batteries that will provide up to 10,000 weight readings before needing replacement. This eliminates the need for an external battery charger or the danger of an AC power supply cord on a portable scale.

With a push of a button, weight data may be viewed, in either pounds or kilograms, with a displayed resolution of 0.1 for each.

### INTENDED USE

The SR565 Stand-On Scale System is specifically designed for use as a stand-on scale for weighing ambulatory patients. SR565 Stand-On Scale System is a preferred means of gathering patient weight data of ambulatory patients weighing up to 1000 pounds or 454 kilograms.

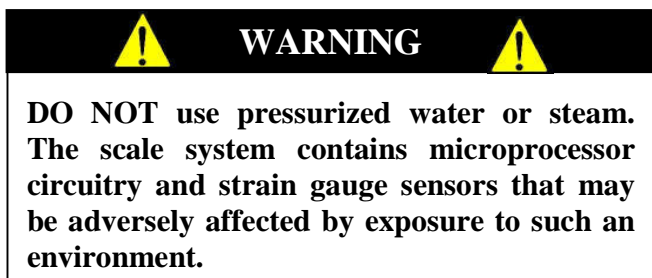


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## MAINTENANCE and CLEANING

SR565 Stand-On Scale System is made of powder-coated aluminum casting. Exercise caution when cleaning the display window as it is made of clear polyester and can be scratched by abrasive cleaners. Mild soap and water is recommended for general cleaning and disinfecting.



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## STORAGE and TRANSPORTATION

### STORAGE

If storing this equipment for periods longer than three (3) months, remove the batteries. To maintain proper operation of this instrumentation, storage and transport conditions should not vary outside the following conditions: Relative Humidity 0% to 85%, Ambient Temperature 14°F to 122°F (-10°C to +50°C).

### TRANSPORTATION

To transport the SR565, tilt the scale back and wheel to the new location. Lower the platform back down to the floor being careful not to shock the scale.

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## SPECIFICATIONS

<b>MAXIMUM WEIGHT CAPACITY</b>	1000 lb or 454 kg
<b>PLATFORM SIZE</b>	18 in x 20 in (46 cm x 51 cm)
<b>DISPLAY TYPE</b>	5 (1 in) Digit LCD
<b>DISPLAY RESOLUTION</b>	0.1 lb/0.1 kg
<b>ACCURACY</b>	0.1% +/- 1 digit of displayed resolution for calibrated range
<b>AUTO ZERO</b>	One button operation
<b>AUTO POWER DOWN</b>	Programmable to (OFF/60/120/180) seconds
<b>HOLD</b>	Stores displayed reading in memory
<b>LAST WEIGHT RECALL</b>	Press hold button to recall last stored displayed reading
<b>AVERAGING</b>	Automatic digital filter
<b>POWER SUPPLY</b>	Six (6) "D" cell batteries Low battery indicator on Display
<b>CALIBRATION</b>	Calibration is traceable to NIST standards.
<b>OPERATING CONDITIONS</b>	Normal operating conditions for this product: Ambient Temperature Range: 68°F to 85°F (20°C to 30°C) Relative Humidity Range: 0%-85% Avoid exposure to high-pressure water or steam.
<b>TRANSPORTATION and STORAGE</b>	Storage and transportation conditions should not vary outside the following conditions: Relative Humidity 0% to 85%, Ambient Temperature 14°F to 122°F (-10°C to +50°C). Remove batteries if storing longer than three (3) months.

## BUTTON FUNCTIONS

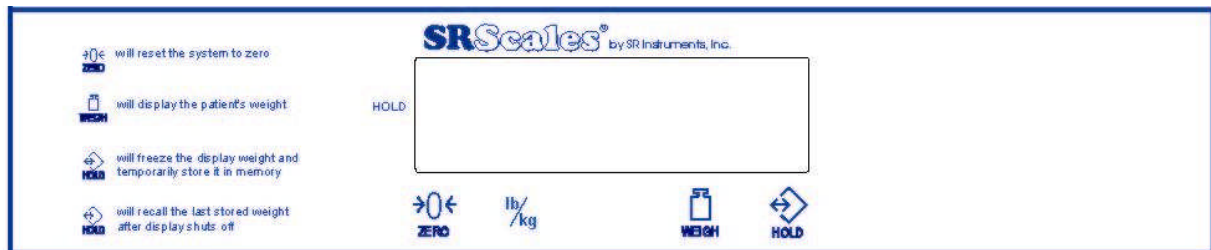



Figure 3: Button Display

### ZERO

 The “**ZERO**” button is used to zero the system before placing a patient onto the scale system. Ensure that nothing is in contact with the weighing surface during this procedure. The display will read “**0.0 LB**” (or KG).

### WEIGH



The “**WEIGH**” button wakes up the display and shows the patient’s weight if Auto Power Down occurs before the weighing process is completed.

### HOLD



The “**HOLD**” button freezes the displayed weight and temporarily stores it away in memory. Press the “**HOLD**” button to store the weight into memory. The “**HOLD**” button may also be pressed when the system reads zero. With patient on the scale, the reading will freeze as soon as it sees a stable weight. If scale auto powers down, press the “**HOLD**” button and display will read last scored weight.

### LB/KG MODE



Weight data may be viewed in either pounds or kilograms. Pressing the “**LB/KG MODE**” button allows the operator to toggle between the two readings. Both pounds and kilograms are displayed in a resolution of 0.1.

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## BASIC SYSTEM OPERATION

### SETTING SYSTEM ZERO

→0← Before placing anything on the scale, ensure it is level and press the “ZERO” button. When the system starts up, the display will quickly test all segments, indicate the software revision level, and the local gravitational constant. Display will zero. When both the ZERO and STABILITY DETECTION display symbols are visible, weighing can proceed. Ambulatory patient can walk on the scale and the weight will appear on the display.

### WEIGH



When the system has been set to zero, the “WEIGH” button can be used after the patient is positioned on the scale. The display will indicate the patient’s weight. After Automatic Shut Off, simply press the “WEIGH” button to re-activate the scale.

**Note:** The scale will not freeze weight until it sees a stable reading. A blinking arrow will be displayed indicating that the weight is stored.

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## DISPLAY ERROR CODES

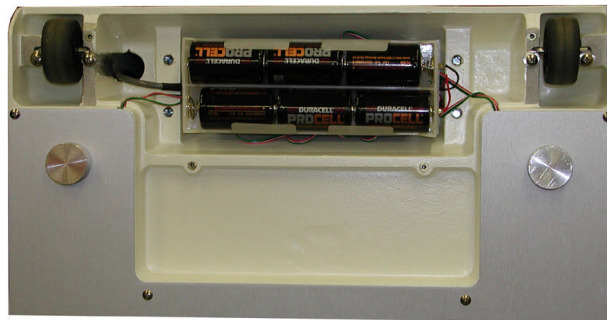
CODE	DEFINITION	RESOLUTION
Err 1	Excessively large or small gravitational constant is stored during calibration	Use a known gravitational constant for the location of the scale.
Err 2	Excessively large or small Full Scale is stored during calibration	Re-calibrate using a known calibrated weight.
LoBat	Battery resource is critically low	Batteries must be replaced.
^^^	Data input to electronics too high	Remove any weight that may be on the scale, ensure that the scale is level, and re-zero.
vvv	Data input to electronics too low	Check the Display Assembly Cable Connection

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## BATTERY REPLACEMENT

- STEP 1:** Replace the batteries when a “LoBat” symbol is displayed. The display will show a battery symbol in the lower left corner of the display as the batteries weaken.
- STEP 2:** (Figure 4) Place the scale on its side and remove the battery compartment cover located in the bottom of the scale base.
- STEP 3:** Remove and replace ALL six (6) “D” cell batteries. Refer to diagram on the battery compartment cover for placement.
- STEP 4:** Press the “WEIGH” button to confirm display is working.
- STEP 5:** Tightly screw cover back down.
- STEP 6:** Zero the system.



**Figure 4: Bottom of Scale Base**

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## THEORY OF OPERATION

SR Instruments patient weighing systems are digital scales. Strain-gauge force cells convert the force of an applied weight into an analog signal. This signal is amplified by an operational amplifier and converted to a digital signal by an analog to digital converter. The digital signal is transferred to a micro-controller where it is filtered, converted to appropriate units, and displayed on a liquid crystal display.

Strain-gauge force cells each contain four strain gauges mounted in a full Wheatstone-bridge configuration. These bridges convert the physical movement of the force cell, due to the applied mass on the system, into minute changes in electrical resistance. These changes in resistance produce a voltage difference across the Wheatstone-bridge. The output of the Wheatstone-bridge is digitized by a sigma-delta analog to digital converter. The data is transferred to the micro-controller.

The micro-controller averages and filters the digital output of the analog to digital converter, subtracts the value saved during the system zero operation, and scales the filtered output and then displays the result on the liquid crystal display. The micro-controller performs a rolling average of data for continuous weigh and then micro-controller averages the data before locking in on the reading. The micro-controller can be placed in a calibration mode, where the system can be re-calibrated. In the calibration mode, the calibration, local gravitational constant, and duration of “on” time can be adjusted. The new factors are stored in non-volatile memory.

When the micro-controller is placed into calibration verification mode, the precision can be verified, as the display resolution will increase to 0.01 kilograms.

## CALIBRATION



### IMPORTANT



**CALIBRATION CHECK** Qualified service personnel only should perform this procedure. The SR565 load cell itself has no user serviceable components and should not be tampered with for any reason. Re-calibration is generally not required, but should be verified periodically to ensure accuracy. The recommendation for calibration check is at least once every 12 months, or as individual maintenance policy requires.

### INITIAL SYSTEM SETUP

When initially set up, calibration is factory set and re-calibration is not needed. The Local Gravitational Acceleration may have to be re-set for the current geographical location (not typical for North America). Automatic Shut Off is shipped with a factory default of 60 seconds. If a longer period of time (120 or 180 seconds) is desired, then it will need to be re-set. Both of these procedures are found below.

### ACCESS SYSTEM SETUP

Ensure scale is level before proceeding. To access all settings below, break the Calibration Seal and open the right hand end cap. Seal must be replaced by a certified technician. Push the calibration switch right to the “CAL” position (Figure 5) using the eraser end of a pencil or similar item. Display arrow on the top right will light up. Carefully remove keypad from inside the display housing. After setup is complete, carefully replace keypad inside display housing.



### CAUTION



**ESD:** The integrated circuits and semiconductors on the printed circuit boards may be damaged by electrostatic discharge. Be sure to use proper handling precautions at all times.

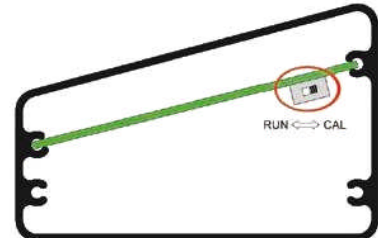


Figure 5: Calibration Switch

### SETTING LOCAL GRAVITATIONAL ACCELERATION

**STEP 1:** Select number “1” on the numeric keypad. The 2<sup>ND</sup> display arrow down on the right will light up.

**STEP 2:** The factory default setting will appear on the display. Using the keypad, enter in the local gravitational acceleration value if desired.

**STEP 3:** Press the “ENTER” button to save the selection or the “CLEAR” button to exit the menu without saving. The display arrow will return to the 2<sup>ND</sup> display arrow down on the right.



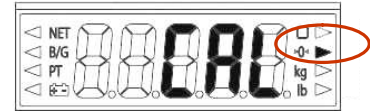
**STEP 4:** (Figure 5) Select another menu item, or push the calibration switch left to the “RUN” position to exit CALIBRATION mode.

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## CALIBRATION cont'd

**Note:** Ensure scale is level and make sure that nothing is in contact with the scale during this procedure. Remove hands from scale when noting displayed calibration results.

**STEP 1:** Press number “2” on the numeric keypad. The 2<sup>ND</sup> display arrow down on the right will light up. System is now in mode to set Calibration Gravitational Acceleration.



If value is already correct, press the “ENTER” button to save and continue with calibration.

**STEP 2:** Using the keypad, enter in the local gravitational acceleration value if desired.

**STEP 3:** Press “ENTER” button to save and continue with calibration. The 4<sup>TH</sup> display arrow down on the right will light up.



**STEP 4:** Press “ZERO” button to set the display to zero. The ZERO and STABILITY DETECTION display symbols will light up. At that time, place calibrated weight(s) onto the scale. It is recommended that 500 pounds or 220 kilograms be used for calibration.



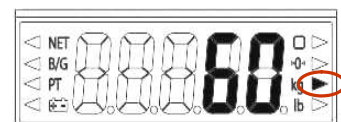
**STEP 5:** Using the numeric keypad, enter the value of the total calibrated weight placed on the scale.

**STEP 6:** Press the “ENTER” button to save the selection or the “CLEAR” button to exit the menu without saving. The top right display arrow will light up.

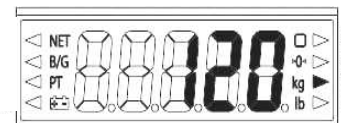
**STEP 7:** Select another menu item, or push the calibration switch left to the “RUN” position to exit CALIBRATION mode.

### AUTOMATIC SHUT OFF TIMER SETTING

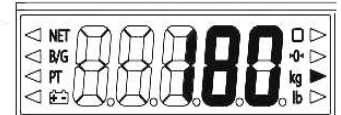
**STEP 1:** With the calibration switch in the “CAL” position, select number “3” on the numeric keypad. The 3<sup>RD</sup> display arrow down on the right will light up.



**STEP 2:** Repeatedly press number “3” on the numeric keypad to toggle selection for “60” seconds (default), “120” seconds, “180” seconds, or “--” (off).



**STEP 3:** Press “ENTER” button to save the new value or “CANCEL” button to return to the menu without saving. Default (60 seconds) will remain in effect.



**STEP 4:** Select another menu item, or push the calibration switch left to the “RUN” position to exit CALIBRATION mode.

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## CALIBRATION cont'd

### DISPLAY UNIT OPTIONS SETTING

**STEP 1:** With the calibration switch is in the “**CAL**” position, select number “**4**” on the numeric keypad. The 4<sup>TH</sup> display arrow down on the left will light up.

**STEP 2:** Repeatedly press number “**4**” on the numeric keypad to toggle unit display selections as follows:



**KG/LB** (factory default setting). When selected, both display symbols will light up. Weight readings will display in either pounds or kilograms. Pressing the “**kg/lb**” button toggles between display units at any time during the weigh process.



**LB** only. When selected, the “**lb**” display symbol will light. Weight readings will display in pounds only. The “**kg/lb**” button is deactivated.



**KG** only. When selected, the “**kg**” display symbol will light. Weight readings will display in kilograms only. The “**kg/lb**” button is deactivated.

**STEP 3:** Press “**ENTER**” button to save the new value or “**CLEAR**” button to return to the menu without saving. Default will remain in effect.

**STEP 4:** Select another menu item, or push the calibration switch left to the “**RUN**” position to exit CALIBRATION mode.

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## WARRANTY

### FOUR YEAR LIMITED WARRANTY

Each **SR Scales**<sup>®</sup> system is manufactured with high quality components. SR Instruments, Inc. warrants that all new equipment will be free from defects in material or workmanship, under normal use and service, for a period of four (4) years from the date of purchase by the original purchaser. Normal wear and tear, injury by natural forces, user neglect, and purposeful destruction are not covered by this warranty. Warranty service must be performed by the factory or an authorized repair station. Service provided on equipment returned to the factory or authorized repair station includes labor to replace defective parts. Goods returned must be shipped with transportation and/or broker charges prepaid. SR Instruments, Inc.'s obligation is limited to replacement of parts that have been so returned and are disclosed to SR Instruments, Inc.'s satisfaction to be defective. The provisions of this warranty clause are in lieu of all other warranties, expressed or implied, and of all other obligations or liabilities on SR Instruments, Inc.'s part, and it neither assumes nor authorizes any other person to assume for SR Instruments, Inc. any other liabilities in connection with the sale of said articles. In no event shall SR Instruments, Inc. be liable for any subsequent or special damages. Any misuse, improper installation, or tampering, shall void this warranty.

### DAMAGED SHIPMENTS

Title passes to purchaser upon delivery to Transportation Company. Any claims for shortage or damage should be filed with the delivery carrier by purchaser.

### RETURN POLICY

All products being returned to SR Instruments, Inc. require a Return Goods Authorization number (RGA). To receive an RGA, call our Technical Service Team at 716-693-5977 or toll-free in the USA and Canada at 800-654-6360.

When inquiry is made, please supply model and serial numbers, purchase order, if the scale was bought on contract, and reason for return.

Generally, deleted, damaged, and outdated merchandise will not be accepted for credit. A minimum restocking charge of 15% will be assessed on return of current merchandise.

All returns are to be shipped **FREIGHT PREPAID** to: SR Instruments, Inc., 600 Young Street, Tonawanda, NY 14150.

### RESTOCKING FEE

- **15% fee** for any scale that has been opened and used
- **10% fee** for any scale returned that has been ordered incorrectly or refused delivery with no model change
- **5% fee** if an error in ordering has been made and a different model exchanged
- **No fees** will be charged if the scale is returned because of an error on the part of SR Instruments, Inc.
- **No returns** accepted after 60 days.

# **SR**Scales®

By **SR**® Instruments, Inc.

**Precision & Technology in  
Perfect Balance™**