SRScales®
by SR® Instruments, Inc.

Model SR 7010*i*

Wall Mount Platform Scale

Operating and Service Manual

Serial Numbers: 1000+

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SR7010*i* Wall Mount Platform Scale

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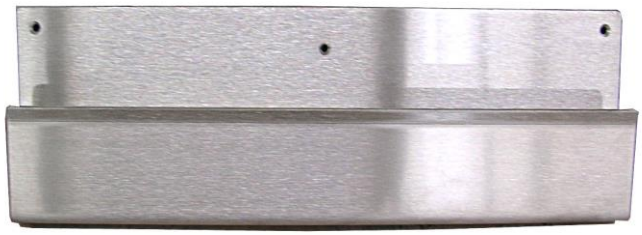

Figure 1: Wall Hanger

ASSEMBLY

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: To mount the SR7010*i* Wall Mount Platform Scale use the Wall Hanger (**Figure 1**) supplied with the scale.

NOTE: The Wall Hanger should be installed by qualified personnel.

STEP 3: Mount the Wall Hanger by placing the SR7010*i* scale in an upright position against the wall at the location for installation. Place the SR7010*i* wall frame (3" x 1") cross member into the channel of the Wall Hanger.

NOTE: The Wall Hanger is not intended to support the load of the scale. The scale frame must be supported by the floor. Ensure the hanger holes are located at the top as shown in **Figure 1**.

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ASSEMBLY cont'd

STEP 4: Position the Wall Hanger so that the wall frame cross member is centered in the Wall Hanger and the Wall Hanger is pressed against the bottom of the cross member.

STEP 5: Using the Wall Hanger as a template, mark the location of the three (3) Wall Hanger holes on the wall.

STEP 6: Remove the Wall Hanger and drill three (3) pilot holes, no larger than ¼" diameter in the locations marked. Install the three (3) Self Drilling, Screw Anchors.

STEP 7: Position the Wall Hanger on the wall frame cross member. Screw the Wall Hanger to the screw anchors using the three (3) Phillips #8 x 1" Flat Head screws supplied.

STEP 8: Remove the battery insulator strip.

REPLACEMENT PARTS and ACCESSORIES

Part #	Description
FRTP211C1	Paper, thermal printer 58mm (15 rolls)
FRMW173K	AC Power Supply

SYSTEM DESCRIPTION and INTENDED USE

SYSTEM DESCRIPTION

The SR7010*i* Wall Mount Platform 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 SR7010*i* low power microprocessor circuitry is powered by an UL recognized AC wall power supply.

The patient's weight is displayed on a 16-character dot matrix LCD w/LED backlight. The weight data may be viewed either in pounds or kilograms with a displayed resolution of 0.1 for each.

The SR7010*i* Wall Mount Platform Scale system has a 38" x 48" (96.5 cm x 121.9 cm) platform weighing surface.

The scale system has a programmable Automatic Power Down (APD) for adjusting scale on-time.

INTENDED USE

The SR7010*i* Wall Mount Platform Scale system is specifically designed for weighing ambulatory and non-ambulatory wheelchair bound patients and is a preferred means of gathering patient weight data of up to 1000 pounds or 454 kilograms.

WARNING

DO NOT EXCEED MAXIMUM WEIGHT LIMIT OF 1000 LB / 454 KG

MAINTENANCE and CLEANING

SR7010*i* Wall Mount Platform Scale system is made of powder-coated aluminum. 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.

WARNING

DO NOT use pressurized water or steam. The scale system contains microprocessor circuitry and strain gauge sensors that may be adversely affected by exposure to such an environment.

STORAGE

STORAGE

If storing this equipment for periods longer than three (3) months, remove the batteries and store in the upright position to prevent damage to the hydraulic cylinders. 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).

SPECIFICATIONS

MAXIMUM WEIGHT CAPACITY	1000 lbs or 454 kg
PLATFORM SIZE	38 in x 48 in (96.5 cm x 121.9 cm)
DISPLAY TYPE	16-Character Dot-Matrix LCD
DISPLAY RESOLUTION	0.1 lb / 0.1 kg
ACCURACY	0.1% +/- 1 digit of displayed resolution for calibrated range
AUTO ZERO	Auto Zero when platform is first put down. One button operation after platform is left down.
AUTO POWER DOWN	Adjustable between 30 to 300 seconds
AVERAGING	Automatic digital filter
POWER SUPPLY	AC Wall Power Supply, UL recognized.
CALIBRATION	Calibration is traceable to NIST standards.
OPERATING CONDITIONS	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.
TRANSPORTATION and STORAGE	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). Store in the upright position and remove batteries if storing longer than three (3) months.

BUTTON FUNCTIONS

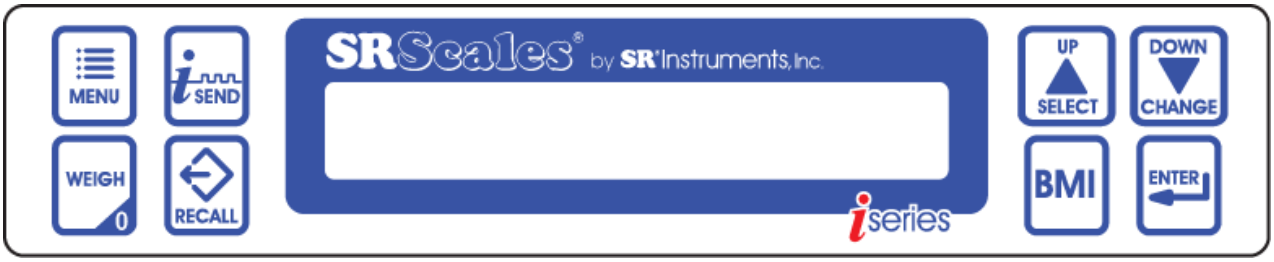

Figure 2: Button Display

WEIGH

Press and hold to zero scale. Button is used to zero the system before placing the patient on the scale. Ensure that nothing is in contact with the weighing surface during this procedure.

SEND (PRINTER)

Press to send stored values to printer. Output values include time, date, and weight. If BMI was calculated, BMI and height will be included in the output values. Also, low paper and low batteries are output values.

RECALL

Press to recall the last stored weight. The stored weight will be erased when the scale is zero or another stable weight is stored.

BMI

Press to calculate BMI. When the "**BMI**" is pressed, the default value "**HT = 65 in**" or "**HT = 165 cm**" is displayed. If there is no stored stable weight, the display will indicate "**NO WEIGHT DATA**" and then go back to the weigh screen "**WT = 0.0 Lb**".

MENU

Press Menu to toggle through the menu options.
Setting the **UNITS**: Use **UP** or **DOWN** arrow buttons to select "**Lb/ in**" or "**Kg/ cm**". Press **ENTER** to save changes.

Setting **ON TIME**: Use **UP** or **DOWN** arrow buttons to adjust the "**ON TIME**". The "**ON TIME**" may be set from 30 to 300 seconds in 30 second increments. Press **ENTER** to save changes.

Setting **TIME** and **DATE**: Use the **UP** arrow button to select digit. To change digit use the **DOWN** arrow button. Press **ENTER** to save changes.
NOTE: When selected, the year position defaults to "00"

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BUTTON FUNCTIONS con't

ENTER

Press to save change in digits for calibration, for unit's set-up, for time and date set-up and saving completed calibration data.

UP / SELECT

Press **UP** to adjust height up from the default for BMI calculation, to increase the scale's "on time", or to select a digit when setting time and date.

DOWN / CHANGE

Press **DOWN** to adjust the height down from the default for BMI calculation, to decrease the scale's "on time", or to change the value of a selected digit when setting time and date.

BASIC SYSTEM OPERATION

SETTING SYSTEM ZERO

Scale will auto-zero when the platform is first lowered. Make sure the scale is free and clear of any obstructions. When platform is left down, press and hold the **ZERO / WEIGH** button. The displayed message will indicate "**HOLD TO ZERO**" and count down to zero. Release the button when display message indicates "**HANDS OFF**". Make sure that nothing is in contact with the scale while zeroing the system. In a few seconds, the display will read "**WT = 0.0 Lb**" (or **Kg**).

WEIGHING

Position the patient on the scale. The weight stable indicator "▯" flashes on the display. When the weight is stable, the weight stable indicator remains solid. The display will indicate the patient's weight in either pounds or kilograms; example: "**WT = 123.5 Lb**". The stable weight is auto stored in memory.

RECALLING LAST STORED WEIGHT

Press to recall last stored weight. The stored weight will be erased when the scale is zero or another stable weight is stored.

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 on-chip analog to digital converter. The digital signal is filtered, converted to appropriate units, and displayed on the 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, which is amplified by the operational amplifier. The amplifier is configured to current sum the output of each cell, with potentiometers serving to normalize the sensitivity (voltage out per unit of weight applied) of each bridge. The offset potentiometer produces a small current, which nulls the output of the amplifier for an unloaded system.

The output of the operational amplifier is digitized by the analog to digital converter. The sigma-delta converter sums a rapid sequence of 0's (0 volts) and 1's (reference voltage) to achieve balance with the input signal from the amplifier.

The micro-controller 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 moving-median filter of data for continuous weigh the micro-controller performs checks for signal stability 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 system slope is calculated from two points (zero and full scale) in the 2-point calibration mode or the slope and change in slope is calculated from three points (zero, half, and full scale) in the 3-point calibration mode.

CALIBRATION

NOTE: Ensure that nothing is in contact with the scale system during this procedure. Remove hands from the system when noting the displayed calibration results.

CHECKING CALIBRATION

STEP 1: Select known calibrated weights, traceable to NIST.

NOTE: DO NOT USE barbells or uncalibrated weights.

STEP 2: Zero the scale by pressing and holding the left **ZERO** button.

STEP 3: Place the calibrated weight on the scale. Wait for scale to stabilize; note scale reading.

STEP 4: Scale readings should be within Calibration Tolerance Table (**Figure 3**)

CALIBRATION TOLERANCE TABLE		
LOW LIMIT	APPLIED LOAD	HIGH LIMIT
99.9	100.0	100.1
199.8	200.0	200.2
299.7	300.0	300.3
399.6	400.0	400.4
499.5	500.0	500.5
599.4	600.0	600.6
699.3	700.0	700.7
799.2	800.0	800.8
899.1	900.0	900.7
999.0	1000.0	1001.0

Figure 3: Calibration Table

IMPORTANT

CALIBRATION Qualified service personnel only should perform this procedure. The SR7010*i* load cells have 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.

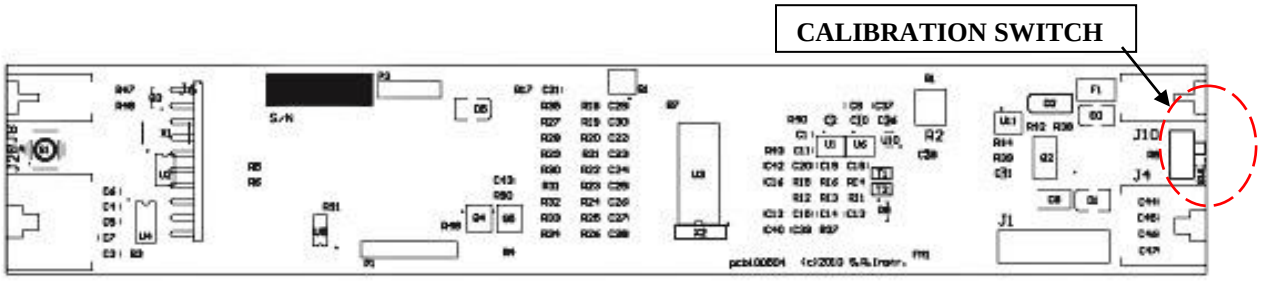

Figure 4: Calibration Switch Diagram

CAUTION

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

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CALIBRATION cont'd

SETTING CALIBRATION

NOTE: Ensure that nothing is in contact with the scale system during this procedure. Remove hands from the system when noting the displayed calibration results.

STEP 1: Remove the two (2) screws on the display assembly cover. Remove the display assembly from the scale. Put the scale system into the Calibration Mode by switching the calibration switch on the display board (**Figure 4**).

STEP 2: Select known calibrated weights, traceable to NIST, up to the Full Scale value (maximum capacity).

STEP 3: Press the "**MENU"** button until "**1000.0Lb FULL**" is displayed. Set the **FULL** value to the actual quantity of calibrated weight being used for Full Scale. Use the "**UP"** arrow button to select the digit and the "**DOWN"** arrow button to change digit. Press "**ENTER**" to save changes. Press "**WEIGH**" button to abort any changes.

STEP 4: Press the **MENU** button until "**500.0Lb HALF**" is displayed.

NOTE: The Half-Scale value is a value between zero and the Full Scale values. It is usually close to half the Full Scale value.

Set the **HALF** value to the actual quantity of calibrated weight being used for Half Scale. Use the "**UP"** arrow button to select the digit and the "**DOWN"** arrow button to change the digit. Press **"ENTER"** to save changes. Press "**WEIGH**" to abort the changes.

STEP 5: Press **MENU** button until "**3 PT CAL**" is displayed. Press the "**UP"** arrow button.

STEP 6: Zero the scale by removing all weight from the platform. Press the "**UP"** arrow button to "**ADD HALF**".

STEP 7: Place the calibrated weight on platform for **HALF** Scale. Allow weight to stabilize. Press "**UP"** arrow button to save change.

STEP 8: Place the calibrated weight on platform for **FULL** Scale. Allow weight to stabilize. Press "**UP"** arrow to save change.

STEP 9: Press **"ENTER"** button to save the calibration, or "**WEIGH**" button to exit without saving**.**

STEP 10: Switch the scale system out of the Calibration Mode on the display board (**Figure 4**).

NOTE: Ensure that no wires have become unplugged during calibration

STEP 11: Place the display assembly into the scale frame. Attach using the two (2) display cover screws.

TROUBLESHOOTING

SYMPTOM	REASON/CORRECTIVE ACTION
The characters only appear on half of the display.	Press the **"WEIGH"** button or disconnect power. Wait five seconds, then re-connect the power and try the **"WEIGH"** button again.
The display lights appear to work, but do not respond to button activation.	Check to ensure the membrane switch label is correctly plugged into display board. Check to ensure the calibration switch is not in the Calibration Mode (Figure 4).
The display shows no reading at all.	Check that wall power supply is plugged in. Check display cable to make sure it is connected securely.
For additional information or assistance, telephone our Service Hotline: 1-800-654-6360 or e-mail: sri@srinstruments.com	

WARRANTY

FOUR YEAR LIMITED WARRANTY

SR Instruments, Inc. systems are 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**.**

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Precision & Technology in Perfect Balance®

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