



# SR735i-KG

## Wheelchair Scale

# Operating and Service Manual

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## PACKING CHECKLIST SR735i-KG Platform Scale

√	DESCRIPTION	QUANTITY
	<b>Box 1</b>	
	WHEELCHAIR PLATFORM BASE	1 ea
	DISPLAY UNIT	1 ea
	PACKAGE OF SIX (6) "D" CELL BATTERIES	1 ea
	CALIBRATION CERTIFICATE	1 ea
	WARRANTY CARD	1 ea
	MANUAL	1 ea

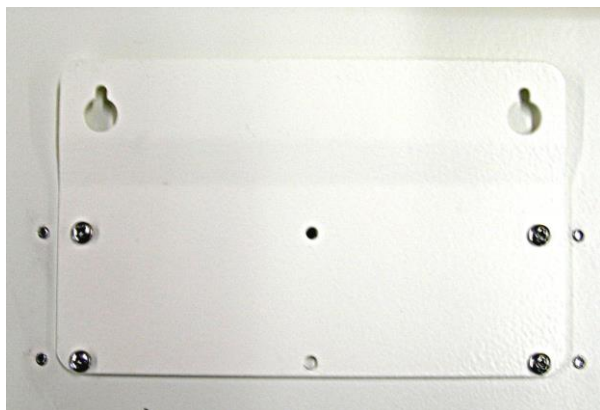
## ASSEMBLY

**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.

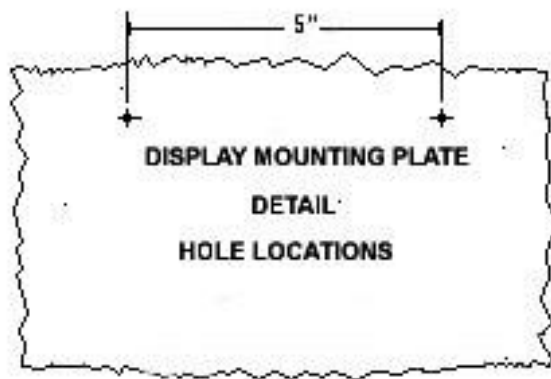
**STEP 2:** Verify that the serial number on the Display Unit matches that on the Wheelchair Scale Assembly.

**STEP 3:** The SR735i-KG Display may be wall mounted (Figure 1) using the Wall Mounting Plate. **Note:** See Figure 2 for locating holes for wall mount application.

**Figure 1: Attach Wall Mounting Plate**



**Figure 2: Wall Mount Hole Locations**



**Figure 3: Install “D” Cell Batteries**



**STEP 4:** (Figure 3) Remove the battery compartment cover by unscrewing the battery cover thumb screw and install the six (6) “D” cell batteries (Figure 3). Replace cover and tighten screw.

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## ASSEMBLY (Cont'd)

### INSTALLING OPTIONAL PRINTER

**STEP 1:** Mount the optional printer within distance of the display to allow connection of the printer cable. Use the three (3) holes in the Printer Mounting Bracket as a template to locate the holes needed to mount the Printer Mounting Bracket (Figure 4). Use the wall mounting hardware provided for installing the bracket.

**Figure 4: Printer Mounting Bracket**



**Figure 5: Printer Display Connector**



**STEP 2:** Carefully attach the printer to the Printer Mounting Bracket. Connect the printer cable from the printer to the connector on the bottom of the display (Figure 5). Tighten the two (2) printer cable screws to secure the cable to the connector.

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## REPLACEMENT PARTS and ACCESSORIES

Part #	Description
SR8327	Printer Kit (includes all printer accessories listed below)
FRAP1300	Printer
FRAP1300BR-01	Printer Mounting Bracket
FRAP1300-D9	Printer Cable
FRAP1300PCC	AAA Battery Holder
FRAP1300BP01	Rechargeable Battery Pack
FRBC1300	Printer Power Cable
FRTP130012C	Paper, thermal printer 58mm (10 rolls)

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## SYSTEM DESCRIPTION and INTENDED USE

### SYSTEM DESCRIPTION

The SR735i-KG Wheelchair 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 SR735i-KG low power microprocessor circuitry is powered six (6) common "D" cell batteries, which will provide up to 400 hours of weight readings before needing replacement.

The patient's weight is displayed on a 16-character dot matrix LCD. The weight data may be viewed kilograms with a displayed resolution of 0.1 kg.



### INTENDED USE

The SR735i-KG Wheelchair Scale System is specifically designed for weighing both motorized-wheelchair and caregiver-assisted wheelchair bound patients and is a preferred means of gathering patient weight data of up to 454 kilograms.



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## ANTIMICROBIAL PROTECTION

Antimicrobial technology has been added to help reduce the growth of bacteria as part of a medical center's approach to creating a cleaner healthcare environment.

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## STORAGE

### 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).

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## CLEANING and DISINFECTING

### CLEANING

To clean the display / user interface and other scale contact areas:

- Use a soft cloth dampened with water and mild detergent to clean scale surfaces.
- Wipe surface with clean soft cloth dampened with water and then dry with clean soft cloth.
- Do not use abrasive materials to clean scale surface to prevent damage to the surface finish.
- Do not spray liquid directly onto scale surfaces. Use only a damp cloth.

### DISINFECTION

To disinfect the display / user interface and other scale contact areas:

- Use a soft cloth dampened with disinfectant or a damp disposable disinfectant cloth. Cloth cannot be dripping wet. Follow manufacturer's instruction on the proper use of commercially available disinfectants.
- Disinfectant solutions with 1% sodium hypochlorite or 70% isopropyl alcohol are suitable for display / user interface and other scale contact surfaces.
- After disinfecting, use a soft cloth dampened with clean water and dry with a soft clean cloth to prevent buildup of material on scale finish.
- Do not use abrasive material to disinfect / clean scale surfaces to prevent damage to the surface finish.
- Do not spray liquid directly onto scale surfaces. Use only a damp cloth.

**WARNING: DO NOT SPRAY CLEANING SOLUTION OR LIQUIDS DIRECTLY ON SURFACES TO BE CLEANED.**

**WARNING: EXPOSURE TO EXCESSIVE LIQUID WILL DAMAGE USER INTERFACE KEYPAD.**

**WARNING: DO NOT USE PRESSURIZED WATER OR STEAM. THE SCALE SYSTEM CONTAINS ELECTRONIC COMPONENTS THAT MAY BE ADVERSELY AFFECTED BY EXPOSURE TO SUCH AN ENVIRONMENT.**

## SPECIFICATIONS

<b>MAXIMUM WEIGHT CAPACITY</b>	454 kg
<b>PLATFORM SIZE</b>	32 in x 40 in (81 cm x 102 cm)
<b>DISPLAY TYPE</b>	16-character Dot Matrix LCD
<b>DISPLAY RESOLUTION</b>	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>	Approximately 30 seconds (adjustable to 300 seconds)
<b>RECALL</b>	Recalls last stored stable weight, height and BMI
<b>AVERAGING</b>	Automatic digital filter
<b>POWER SUPPLY</b>	Six (6) "D" cell batteries
<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% to 85% Avoid exposure to high-pressure water or steam.
<b>TRANSPORT and STORAGE</b>	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). Remove batteries if storing longer than three (3) months.



## BUTTON FUNCTIONS




**Figure 6: Button Display**

### ZERO / WEIGH



Press and hold to zero. The display will read “**WT = 0.0 Kg**”. This is used to zero the system before placing the patient on the scale system. This action also resets previously stored weight, height and BMI values to zero. Ensure that nothing is in contact with the weighing surface during this procedure.

Press to weigh. Weight stable indicator “” flashes then remains solid when stable. Auto stores stable weight in memory.

### SEND (PRINTER / EHR)



Press to send stored values to EHR or to printer. Output values include time, date, weight, height, and BMI. Also, indicated on display when paper is out, “**PAPER OUT**” and when door is open, “**PAPER DOOR OPEN**”.

### RECALL



Press to recall the last stable weight. Display will scroll thru “**WT**”, “**HT**”, and “**BMI**” stored values in approximately two second intervals.

### ENTER



Press to save height data and display BMI calculation. Stable weight, height and BMI values are stored in memory until next stable weight is stored or until system is zeroed.

### BMI



Press to calculate the BMI. When the “**BMI**” is pressed, the default starting value “**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 Kg**”.

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## BUTTON FUNCTIONS (Cont'd)

### MENU



Press Menu to edit setup.

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”

### UP



Press **UP** to adjust height up from the default, to increase the scale’s “on time”, or to select a digit when setting time and date.

### DOWN



Press **DOWN** to adjust the height down from the default, 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



Make sure the scale is free and clear of any obstructions and press and hold the **ZERO / WEIGH** button. The displayed message will indicate “**HOLD TO ZERO**” and count down to zero. 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 Kg**”. This action also resets previously stored weight, height, and BMI values to zero.

**WARNING**

**CARE-GIVER MUST ASSIST WHEELCHAIR-BOUND PATIENTS.  
DO NOT LEAVE PATIENT UNATTENDED ON THE SCALE PLATFORM.**

### WEIGHING



Position the patient on the scale. The care-giver must be standing on the scale when moving the wheelchair on or off the scale. Lock the patient’s wheelchair to prevent movement. Press the **ZERO/WEIGH** button. 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 kilograms; example: “**WT = 55.8 Kg**”. The stable weight is auto stored in memory.

**NOTE:** If patient will be using a cane for support on the scale, place cane on scale while zeroing the system. This will ensure that the patient’s **NET** weight will be displayed. It is recommended that the system be zeroed prior to each new patient.

### CALCULATING BMI



Press to calculate BMI.

When the **BMI** button is pressed, the default starting value is set either to 65 in or to 165 cm; example: “**HT = 165 cm**”. Use the **UP** or **DOWN** arrows to adjust the default height to the value of the patient’s height.

**NOTE:** To calculate the BMI, a patient’s stable weight needs be stored as indicated in “**WEIGHING**” above, if no stable weight has not been stored “**NO WEIGHT DATA**” will be displayed and the display will then go back to the weigh screen “**WT = 0.0 Kg**”.

Press **ENTER** to save height data and display BMI calculation. The BMI will be displayed; example: “**BMI = 20.5**”.

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## BASIC SYSTEM OPERATION (Con't)

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### RECALLING LAST STABLE WEIGHT

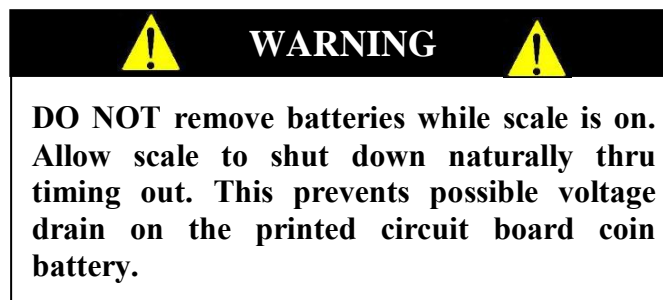


Press to recall last stable weight.

The display will scroll thru “WT”, “HT” and “BMI” stored values in approximately two second intervals; example: “RCL WT = 55.8 Kg”, “RCL HT = 165 cm” and “RCL BMI = 20.5”.

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## BATTERY REPLACEMENT



**STEP 1:** The display will read “REPLACE BATTERY”.

**STEP 2:** (Figure 7) Unscrew the panel screw on the Battery Compartment Cover and remove the battery compartment cover.

**STEP 3:** Remove and replace ALL six (6) “D” cell batteries.

**STEP 4:** Press the “WEIGH” button to confirm display is working.

**STEP 5:** Secure the battery cover using the panel screw.

**STEP 6:** Press and hold “WEIGH” button to zero the system.



**Figure 7: Battery Replacement**

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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 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:** The weights should total at least 227 kilograms (half of the maximum scale capacity). Put aside a subset of weight that is less than half of the combined weight. **DO NOT USE** barbells or uncalibrated weights.

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

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

**STEP 4:** Place all of the calibrated weight on scale. Wait for scale to stabilize; note scale reading. Remove weight.

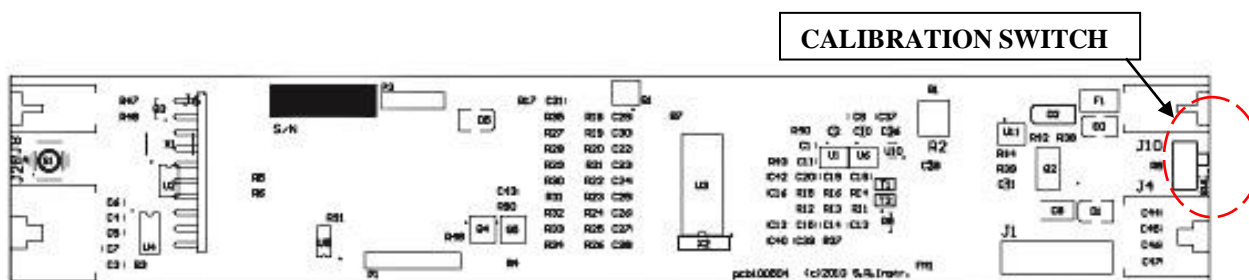
**STEP 5:** The scale readings for both weights should be within the Calibration Tolerance Table (Figure 8)

KILOGRAM CALIBRATION TOLERANCE TABLE		
LOW LIMIT	APPLIED LOAD	HIGH LIMIT
50.0	50.0	50.1
99.9	100.0	100.1
199.8	200.0	200.2
299.7	300.0	300.3
399.6	400.0	400.4
453.5	454.0	454.5

**Figure 8: Calibration Tolerance Table**

! **IMPORTANT** !

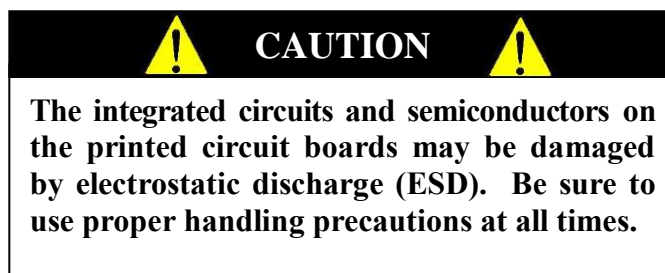
**CALIBRATION** Qualified service personnel only should perform this procedure. The SR735i-KG load cells have no user serviceable components and should not be tampered with for any reason. Re-calibration is generally not required, but should be verified periodically to ensure accuracy. The recommendation for calibration check is at least once every 12 months, or as individual maintenance policy requires.



**Figure 9: Calibration Switch Diagram**

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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 three (3) screws on the left end cover of the display housing. Remove the cover. Put the scale system into the Calibration Mode by switching the calibration switch on the display board (Figure 9).

**STEP 2:** Select known calibrated weights, traceable to NIST.

**NOTE:** The weights should total at least 227 kilograms (half of the maximum scale capacity). Put aside a subset of weight that is less than half of the combined weight. **DO NOT USE** barbells or uncalibrated weights.

**STEP 3:** Press the **MENU** button until “**FULL = 453.59 Kg**” is displayed. Change “**FULL**” to the value of the total weight of the calibrated weights. Use the **UP** arrow button to select the digit and the **DOWN** arrow button to change digit. Press **ENTER** to save changes.

**STEP 4:** Press the **MENU** button until “**HALF = 226.79 Kg**” is displayed. Change “**HALF**” to the value of the subset of the selected calibrated weights. Use the **UP** arrow button to select the digit and the **DOWN** arrow button to change the digit. Press **ENTER** to save 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.

**STEP 7:** Place the **HALF** weight from Step 4 on platform. Allow weight to stabilize. Press **UP** arrow to save change.

**STEP 8:** Place the **FULL** weight from Step 3 on platform. 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 9).

**STEP 11:** Place the left end cover on the display housing. Attach using three (3) cover screws.

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## CONFIGURING SEND BUTTON

**STEP 1:** Remove the three (3) screws on the left end cover of the display housing. Remove the cover. Put the scale system into the Calibration Mode by switching the calibration switch on the display board (Figure 9).

**STEP 2:** Press the “MENU” key until “DATA OUT =PRINT” is displayed

**STEP 3:** Press “UP” or “DOWN” button to select between “DATA OUT =NONE”, “DATA OUT =PRINT” or “DATA OUT =EHR”

**STEP 4:** Press the “ENTER” button to save.

**STEP 5:** Switch the scale system out of the Calibration Mode on the display board (Figure 9).

**STEP 6:** Place the left end cover on the display housing. Attach using three (3) cover screws.

### EHR OUTPUT

Electronic Medical Records (EMR) / Electronic Health Records (EHR) technology is supported by the i-series scales from SR Instruments. The EMR/ EHR software is not included with scale. There are many different EMR/ EHR software available and the connectivity of the scale to the software requires the services of a professional.

A null modem cable is required to communicate with the scale.

Scale output when send button is configured to Electronic Health Records is as follows:

```
<esc>R<esc>Wnnn.n<esc>Hmmm.m<esc>Bkk.k<esc>Uuu<esc>E
```

Where: R is read

W is weight

nnn.n is the weight in kg

H is height

mmm.m is the height in cm.

B is BMI

kk.k is the BMI

U is units (kg)

uu is KG

E is end of packet.



## TROUBLESHOOTING

SYMPTOM	REASON/CORRECTIVE ACTION
The characters only appear on half of the display.	Press the “ <b>WEIGH</b> ” button or remove one battery. Wait five seconds, then re-install the battery and try the “ <b>WEIGH</b> ” 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 9).
The display shows no reading at all.	Check to ensure batteries are installed correctly (see directions for <b>BATTERY REPLACEMENT</b> ). Check display cable to make sure it is connected securely.
<b>For additional information or assistance, telephone our Service Hotline: 1-800-654-6360 or e-mail: <a href="mailto:sri@srinstruments.com">sri@srinstruments.com</a></b>	

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## 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. Purchaser should file any claims for shortage or damage with the delivery carrier and should refuse any shipment that has obvious external damage.

### RETURN POLICY

All products being returned to SR Instruments, Inc. require a Return Goods Authorization number (RGA). To receive an RGA, call our Customer Service at 716-693-5977 ext 103 or toll-free in the USA and Canada at 800-654-6360 ext 103.

When inquiry is made, please supply model and serial numbers, purchase order 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 unless scale is returned because of SR error.

No returns will be accepted after 30 days.

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

### RESTOCKING FEE

- **15% fee** will be assessed on return of current merchandise
- **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 30 days.

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## NOTES

# **SR**Scales®

by **SR** Instruments, Inc.

**Precision & Technology in  
Perfect Balance®**