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1.0 Introduction

The 350-10-3M Digital Wheelchair Scale is a user-friendly, quality scale, designed for safe weighing of mobility challenged individuals. Movement compensation technology ensures sound, accurate weighments.

The scale is set up to use motion sensing technology, to determine actual weight of a moving patient. The weight can be displayed in pounds or kilograms. To obtain a tare weight, see Section 2.4 on page 6.

The wheelchair scale has a unique folding feature that enables easy transportation and simplifies assembly, avoiding the need for field wiring and recalibration. All that is required is to open the packaging and unfold the scale.

Manuals and additional resources are available from the Rice Lake Weighing Systems website at www.ricelake.com

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

Safety Signal Definitions:

- **DANGER**: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.
- **WARNING**: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.
- **CAUTION**: Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.
- **IMPORTANT**: Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

**General Safety**

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

**WARNING**

Failure to heed could result in serious injury or death.

Electric shock hazard!

There are no user serviceable parts. Refer to qualified service personnel for service.

The unit has no power switch, to completely remove power from the unit, disconnect the power source.

For pluggable equipment the socket outlet must be installed near the equipment and must be easily accessible.

Always disconnect from main power before performing any work on the device.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not use for purposes other than weighing applications.

Do not place fingers into slots or possible pinch points.

Do not use this product if any of the components are cracked.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Do not use near water, avoid contact with excessive moisture.
1.2 Scale Assembly

Use the following information to unpack and set up the 350-10-3M Digital Wheelchair Scale.

1.2.1 Scale Unpacking

Place the unopened box in an open area that has ample room for unpacking the scale.

*Note:* The 350-10-3M Digital Wheelchair Scale box is bulky, so two people are recommended for unpacking.

Recommended tools needed to set up the scale:
- Scissors or a box cutter

Using scissors or a box cutter, cut the strapping bands that secure the box together. Immediately after opening the box, visually inspect the scale to ensure all parts are included and undamaged.

Parts contained in the shipping box include:
- Scale
- Manual
- AA batteries (6)
- Scale feet (4)

![Figure 1-1. Box Contents Packed in Styrofoam](image)

1.2.2 Repacking

If the 350-10-3M Digital Wheelchair Scale must be returned for modification, calibration or repair, the scale must be properly packed with sufficient packing materials. Whenever possible, use the original carton when shipping the scale back.

*IMPORTANT:* Damage caused by improper packaging is not covered by the warranty.

1.2.3 Scale Setup

Move the scale into the area where the weighing process will occur. Place the scale on a hard, level surface for the most accurate weighments. Placing the scale on thin carpeting is not recommended.

1. Locate the operation manual from inside the box and set aside as it will provide instructions on the proper 350-10-3M Digital Wheelchair Scale removal and set up.
2. Using two people, remove the scale out of the box by the scale base.

*Note:* Do not lift the scale out of the box by its handle as this can cause the hinges to break or affect the scale operation.
1.2.4 Attaching the Feet to the Scale

The 350-10-3M Digital Wheelchair Scale comes with four feet that must be attached to the scale base for proper operation. The four feet are located in the parts box in the original shipping box. Use the following steps to attach the feet to the scale.

1. Tip the scale onto its side on a level surface so the scale base is accessible.

   **CAUTION** *When tipping the scale, be cautious of surroundings to prevent potential injuries.*

2. Rotate the four round feet clockwise into the scale base until secure as shown in Figure 1-2. Feet are secure when no mechanical binding is present.

3. To prevent interference with the scale base, screw each foot counterclockwise four entire turns. The scale will not weigh properly if the feet restrict the scale platform.

4. Gently set the scale base down on to the floor. Ensure there is minimal clearance between the scale base and the floor without having the scale base contacting the floor.

5. It is important to ensure that the scale is completely level. Gently press down on all corners of the scale base to ensure that there are no high spots or rocking of the scale base.

   **Note** *An uneven base will produce inaccurate weight readings.*

6. Loosen the knobs by rotating counterclockwise and set the scale arms upright.

7. Tighten the two hinges on the 350-10-3M Digital Wheelchair Scale by tightening the two knobs by rotating clockwise to secure the handrail mounted indicator.
1.2.5 Inserting Batteries
The six AA batteries that come with the scale offer an average of 25 hours of continuous use.
To install the batteries:
1. Open the battery chamber cover by loosening the thumbscrew.

![Figure 1-5. Thumbscrew Location](image1)

2. Insert batteries into the battery chamber.

![Figure 1-6. Battery Chamber](image2)

3. Close the battery chamber.
If an external power supply or USB power supply is connected, the battery flag on the display is turned off.
When using battery or USB power supply, the backlight power is deducted to 60%.

1.2.6 AC Power Connections
Use the optional 120 VAC or 230 VAC adapter (PN 133077) when power is available. The optional AC power adapter plugs into the back of the indicator. Rice Lake Weighing Systems offers optional AC adapters. Using an unauthorized adapter supplied by Rice Lake Weighing Systems voids all warranties.
Connect the optional AC power source shown in Figure 1-7.

![Figure 1-7. Power Connection](image3)
2.0 Scale Operation

The Rice Lake Digital Wheelchair Scale display has 10 front panel keys, See Figure 2-1.

![Figure 2-1. Front Panel Display Keys](image)

2.1 Key Descriptions

Key functions are described in Table 2-1.

<table>
<thead>
<tr>
<th>Key</th>
<th>Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>On/Off</td>
<td>On/Off</td>
<td>Powers the scale on or off</td>
</tr>
<tr>
<td>Print</td>
<td>LB/KG</td>
<td>Sends data out from the RS-232 port; allows to toggle between kilograms and pounds providing that it is enabled in configuration mode; cannot toggle while in the BMI mode</td>
</tr>
<tr>
<td>Zero</td>
<td></td>
<td>Clears the weight off the scale and returns it to zero after three seconds; only functions if the current weight is stable and zero, up to 2% of max weight</td>
</tr>
<tr>
<td>Hold Release</td>
<td>Hold Release</td>
<td>Displays most current weight value on the display; a second press releases the weight value; not active while in BMI mode</td>
</tr>
<tr>
<td>BMI</td>
<td></td>
<td>Enables access to the BMI (Body Mass Index) function; only works if there is a locked weight on the display and the BMI function is turned on in the configuration mode</td>
</tr>
<tr>
<td>TARE</td>
<td>TARE</td>
<td>Used to subtract the weight off the scale, example: oxygen tank, other equipment</td>
</tr>
<tr>
<td>CLEAR</td>
<td>CLEAR</td>
<td>Returns to normal weighing when the BMI value is being displayed; while in BMI mode, the height display causes the value to return to the default of 190.0 cm, 5 ft, 7.5 inches</td>
</tr>
<tr>
<td>ENTER</td>
<td>ENTER</td>
<td>Used to accept height in BMI mode; accepts the value of the parameter last entered and moves to the next stage; press during scale start up to enter ID display (pre-parameter mode)</td>
</tr>
<tr>
<td>Up Arrows</td>
<td></td>
<td>Adjusts height input (0.5 in/0.5 cm) while in BMI mode; adjusts the value of the flashing digit/number</td>
</tr>
<tr>
<td>Down Arrows</td>
<td></td>
<td>Adjusts height input (0.5 in/0.5 cm) while in BMI mode; adjusts the value of the flashing digit/number</td>
</tr>
</tbody>
</table>

Table 2-1. 350-10-3M Digital Wheelchair Scale Key Functions

⚠️ CAUTION

The front panel key display are very sensitive so only a gentle pushing motion is required to obtain results.
2.2 Weighing
Use the following steps to weigh.

1. Press \[\text{\textbullet}\] to turn on the scale. \textbf{0.0} prompts along with \textbf{ZERO} on the display.
2. When the patient steps on the scale the display shows the weight of the patient. The \textbf{LOCK} annunciator is on in the upper display and beeps to indicate the end of the weighing process.
3. Press \[\text{\textbullet}\] to change the display from kg to lb.
4. To turn off the scale, press and hold \[\text{\textbullet}\] until \textbf{OFF} prompts.

2.3 Hold/Release Function
Use the following steps to use the Hold/Release function.

1. Press \[\text{\textbullet}\] to turn on the scale. \textbf{0.0} prompts along with \textbf{ZERO} on the display.
2. Press \[\text{\textbullet}\] when the patient is on the scale.
3. The weight and \textbf{HOLD & LOCK} annunciators remain on the display when the patient steps off the scale.
4. Press \[\text{\textbullet}\] again to return to zero.

**Note** Pressing \[\text{\textbullet}\] will not work while in Hold/Release function.

**Note** Pressing \[\text{\textbullet}\] prior to the patient getting on the scale will also work.

2.4 Preset Tare
Use the following steps to use the Preset Tare.

1. Press \[\text{\textbullet}\] to turn on the scale. \textbf{0.0} prompts along with \textbf{ZERO} on the display.
2. Place wheelchair on the scale.
3. Press \[\text{\textbullet}\] until the display returns to \textbf{0.0} and \textbf{NET} prompts on the display.
4. Remove the wheelchair from the scale. The weight will prompt with a negative symbol to the left of it.
5. Seat the patient in a wheelchair. The display identifies the patient weight. The \textbf{NET} annunciator is still active. The weight of the wheelchair remains stored in memory.
6. Repeat Step 5 to cancel the tare weight, press and hold \[\text{\textbullet}\] until \textbf{NET} disappears from the display and the display turns back to \textbf{0.0} and \textbf{GROSS} prompts.

**Note** Tare weight is also canceled when the scale is turned off.

2.5 Toggle Tare
Use the following steps to use the Toggle Tare function.

1. Press \[\text{TARE}\] when the weight is set to \textbf{0.0}. The default values prompts while \textbf{0.0} is flashing (default is programmed to be 33.0 lb/15.0 kg) on the display.
2. Use \[\text{\textbullet}\] and \[\text{\textbullet}\] to adjust the value. Press \[\text{\textbullet}\] to start the tare function. The \textbf{NET} annunciator turns on instead of the \textbf{GROSS} annunciator.
2.6 Using the Body Mass Index (BMI) Function

Use the following steps in determining the BMI.

2.6.1 LB Mode
1. Ensure that the scale is at zero.
2. Have the patient step on the scale to obtain a weight.
3. The LOCK annunciator is illustrated on the display.
4. Press [BMI]. The BMI and FT/IN annunciators are lit on the display and a default value of 5 ft and 7.5 in (5-07.5) is flashing.
5. Use ▲ and ▼ to adjust the height value.
6. Press [ENTER].
7. The BMI value and BMI annunciator is shown on the display. Press [CLEAR] to return to the weighing mode and the BMI function will be turned off.

2.6.2 KG Mode
1. Ensure that the scale is at zero.
2. Have the patient step on the scale to obtain a weight.
3. The LOCK annunciator is illustrated on the display.
4. Press [BMI]. The BMI and CM annunciators are lit on the display and a default value of 170.0 cm (170.0) is flashing.
5. Use ▲ and ▼ to adjust the height value.
6. Press [ENTER].
7. The BMI value and BMI annunciator is shown on the display. Press [CLEAR] to return to the weighing mode or step off the scale and the BMI function will be turned off.
3.0 RS-232 Communication

The 350-10-3M Digital Wheelchair Scale comes with an RS-232 port which enables weight data to be transmitted to other devices. The RS-232 cable with DB-9 connector (PN 100719) is available from Rice Lake Weighing Systems, See Figure 3-1 on page 9 for RS-232 connections.

The parameters of RS-232 are:
• 9600 baud (selectable baud rate)
• 8 data bits
• 1 stop bit
• No parity
• No handshaking

There are three methods of communication:
• Pushbutton keypad print
• Standard remote protocol
• Escape protocol

3.1 Pushbutton Keypad Print

With a stable, in-range weight, press and hold \( \text{a} \) for at least three seconds, or until the scale emits two quick beeps.

**Note** If the scale does not beep after five seconds, release \( \text{a} \) as the weight was either in motion or out of range.

• The scale will send out the following 21 character string if displaying just weight and not BMI:
  xxxxxxxxx<SP>uu<SP>mmmmm<SP><CR><LF>

Where:
  xxxxxxxxx is the weight with decimal point and “-” sign, if negative uu is the unit (lb or kg)
  mmmmm is the mode (gross or net)

Examples:
-10 lb net = <SP><SP><SP><SP>-10.0<SP>lb<SP><SP><CR><LF>
10 lb gross = <SP><SP><SP><SP><SP>-10.0<SP>lb<SP>Gross<SP><CR><LF>

• The scale will send out the following data while in BMI mode (displaying the BMI value):

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Weight</td>
<td>215 lb</td>
</tr>
<tr>
<td>Tare Weight</td>
<td>0.0 lb</td>
</tr>
<tr>
<td>Net Weight</td>
<td>215 lb</td>
</tr>
<tr>
<td>Patient height</td>
<td>6–01.0 ft</td>
</tr>
<tr>
<td>Patient BMI</td>
<td>28.4</td>
</tr>
</tbody>
</table>

*Table 3-1. BMI Data*
3.2 USB Connection

The Rice Lake Digital Wheelchair Scale has the capability of connecting to a PC using a USB connection and a USB cable (not included). That connection location is shown in Figure 3-1.

Connecting software and downloads will be addressed by the IT department and may vary. Basic information on USB driver installation using Windows® is described in the following steps and serves only as an example. The USB driver can be downloaded from the Rice Lake Weighing Systems website at the following location; http://www.ricelake.com/software.aspx.

1. Select Medical/Health Scales.
2. Select Software.
4. Select Download to download the driver. Selecting a download will prompt a download notification.
5. Found New Hardware Wizard prompts.

6. Follow the prompts to complete installation.
7. Select **No, not this time** then select **Next**.

![Figure 3-3. No, Not This Time](image)

8. Select **Install the software automatically** then select **Next**.

![Figure 3-4. Install The Software Automatically](image)

9. Allow the driver to install.

![Figure 3-5. Software Installation](image)
10. **Completing the Found New Hardware Wizard** prompts when installation is complete. Select **Finish**.

![Image](RS-232 Communication)

**Figure 3-6. Finish Installation**

11. To verify the installation, view the driver information in **Device Manager**.

![Image](RS-232 Communication)

**Figure 3-7. Driver Selection**

12. To print a ticket using the USB driver, open the software driver and the port assigned to that driver is shown.

13. Ensure that the USB cable is properly connected and unit is on.

14. Another terminal type program (such as Hyperterminal or Putty) needs to be opened and connected through the USB driver to the indicator to be able to see the information being sent to the PC. A port needs to be established, so select the port that is assigned to Parpar and print the ticket. The following example tickets will print.

![Image](RS-232 Communication)

**Figure 3-8. Example Tickets**

*A single print ticket has four spaces after “patient weight” and only one space between weight and lb in the examples shown above.*
4.0 Troubleshooting and Testing

Refer to the following table to check and correct any failure before contacting service personnel.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale does not turn on</td>
<td>Dead battery</td>
<td>Replace battery or connect to AC power</td>
</tr>
<tr>
<td></td>
<td>Faulty electrical outlet</td>
<td>Use a different electrical outlet</td>
</tr>
<tr>
<td></td>
<td>Bad power supply</td>
<td>Replace adapter</td>
</tr>
<tr>
<td>Questionable weight or the scale does not zero</td>
<td>External object is interfering with the scale</td>
<td>Remove the interfering object from the scale</td>
</tr>
<tr>
<td></td>
<td>Display did not show 0.0 before weighing</td>
<td>Help the patient off the scale, zero the scale and begin the weighing process again</td>
</tr>
<tr>
<td></td>
<td>Scale is not placed on a level floor</td>
<td>Ensure the scale is level and begin the weighing process again</td>
</tr>
<tr>
<td></td>
<td>Scale is out of calibration</td>
<td>Check the weight with a known weight value</td>
</tr>
<tr>
<td>The display shows a STOP message</td>
<td>The load on the scale exceeds the capacity of the scale</td>
<td>Remove the excess weight and use the scale according to manufacture specifications</td>
</tr>
<tr>
<td>The display shows LO Bat message</td>
<td>The battery is low</td>
<td>Replace batteries</td>
</tr>
<tr>
<td><strong>The display shows Err message as detailed below</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Err 2</td>
<td>Low saturation state (low A/D)</td>
<td>The load cell is not connected properly; check the cables and mechanical connections; if the problem persists, replace the set of load cells</td>
</tr>
<tr>
<td>Err 3</td>
<td>High saturation state (high A/D)</td>
<td>See Err 2</td>
</tr>
<tr>
<td>Err 6</td>
<td>Unstable weight; cannot calibrate</td>
<td>Check the load cell mechanical surroundings and ensure nothing is contacting the load cell and that the cables are properly welded</td>
</tr>
<tr>
<td>SAT</td>
<td>Damaged load cell cable</td>
<td>Replace load cell cable</td>
</tr>
</tbody>
</table>

Table 4-1. Troubleshooting Table for the 350-10-3M Digital Wheelchair Scale
5.0 Maintenance

The following section provides instructions for maintaining and cleaning the 350-10-3M Digital Wheelchair Scale.

5.1 Basic Maintenance

Before the first use of the scale and after periods of non-use, check the scale for proper operation and function. If the scale does not operate correctly, contact qualified service personnel.

Go through the following steps for basic maintenance.

1. Check the overall appearance of the entire scale for any obvious signs of damage.
2. Inspect the condition of the AC adapter for cord cracking or fraying or for broken or bent prongs.

5.2 Cleaning

Proper care and cleaning is essential to ensure a long life of accurate and effective operation. Before beginning the cleaning process, disconnect the scale from the AC power source.

1. Clean all external surfaces with a clean, damp cloth or tissue. Mild soap and water solution may be used. Dry with a clean soft cloth.
2. Do not immerse the scale into cleaning or other liquid solutions.
3. Do not use isopropyl alcohol or other solutions to clean the display surface.
## 6.0 Specifications

### Power
- **Input**: 120 VAC-9VDC-50Hz / 230 VAC-9VDC-50Hz

### Dimensions
- **Platform Dimensions**: 48.5 in W x 29.5 in L x 3 in H

### Battery Type
- **Power Consumption**: 6 AA size alkaline batteries
- **Battery Use**: 25 hours continuous use; automatic power-off can be configured
- **Data Communications**: RS-232 with RJ-45 jack
- **USB connection**: Selectable baud rate, default - 9600, 8 bits; no parity, 1 stop bit; No handshaking

### Environmental
- **Operating Temperature**: 50°F-104°F (14°C-40°C)
- **Storage Temperature**: 32°F-158°F (0°C-70°C)
- **Humidity**: 85% relative humidity

### Capacity and Graduation
- **Capacity**: 1000 lb (453 kg)
- **Graduation**: 0.2 lb (0.1 kg)

### Certifications and Approvals
- RoHS Compliant