

Digital Wheelchair Scale

350-10-3M
Software Revision 11525

Operation Manual



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Technical training seminars are available through Rice Lake Weighing Systems. Course descriptions and dates can be viewed at www.ricelake.com/training or obtained by calling 715-234-9171 and asking for the training department.



*Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit **www.ricelake.com/webinars***

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:



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.



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.



Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.



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.



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

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 it's side on a level surface so the scale base is accessible.



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.

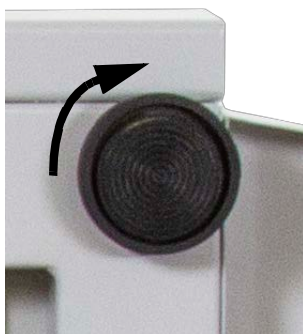


Figure 1-2. Secure Scale Platform Feet

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.



Figure 1-3. Scale Base Clearance

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.



Figure 1-4. Loosen the Durable Hinges to Set Handles 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.

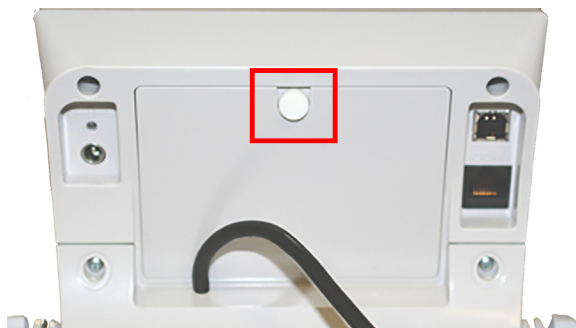


Figure 1-5. Thumbscrew Location

2. Insert batteries into the battery chamber.



Figure 1-6. Battery Chamber

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](#).

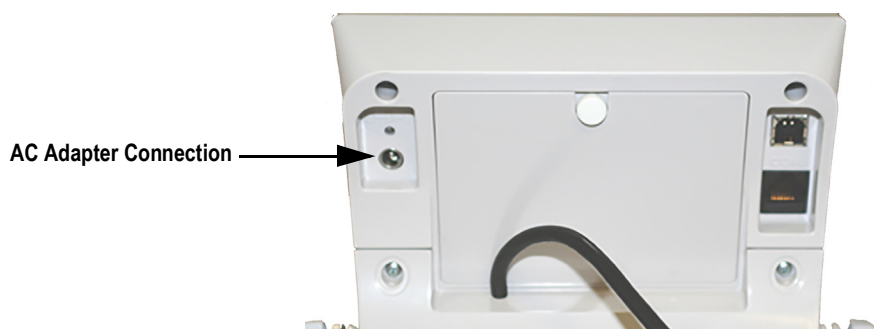


Figure 1-7. Power Connection

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

2.1 Key Descriptions

Key functions are described in [Table 2-1](#).

Key	Name	Function
On/Off	On/Off	Powers the scale on or off
Print LB/KG	Print LB/KG	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
Zero	Zero	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
Hold Release	Hold Release	Displays most current weight value on the display; a second press releases the weight value; not active while in BMI mode
BMI	BMI	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
TARE	TARE	Used to subtract the weight off the scale, example: oxygen tank, other equipment
CLEAR	CLEAR	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
ENTER	ENTER	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)
Up Arrows	Up Arrows	Adjusts height input (0.5 in/0.5 cm) while in BMI mode; adjusts the value of the flashing digit/number
Down Arrows	Down Arrows	Adjusts height input (0.5 in/0.5 cm) while in BMI mode; adjusts the value of the flashing digit/number

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



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

2.3 Hold/Release Function

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

1. Press  to turn on the scale. **0.0** prompts along with **ZERO** on the display.
2. Press  when the patient is on the scale.
3. The weight and **HOLD & LOCK** annunciators remain on the display when the patient steps off the scale.
4. Press  again to return to zero.



Note Pressing  will not work while in Hold/Release function.



Note Pressing  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  to turn on the scale. **0.0** prompts along with **ZERO** on the display.
2. Place wheelchair on the scale.
3. Press  until the display returns to **0.0** and **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 **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  until **NET** disappears from the display and the display turns back to **0.0** and **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  when the weight is set to **0.0**. The default values prompts while **0.0** is flashing (default is programmed to be 33.0 lb/15.0 kg) on the display.
2. Use  and  to adjust the value. Press  to start the tare function. The **NET** annunciator turns on instead of the **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 . 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 .
7. The BMI value and **BMI** annunciator is shown on the display. Press  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 . 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 .
7. The BMI value and **BMI** annunciator is shown on the display. Press  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  for at least three seconds, or until the scale emits two quick beeps.



Note *If the scale does not beep after five seconds, release  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:
xxxxxxxx<SP>uu<SP>mmmmm<SP><CR><LF>

Where:

xxxxxxxx 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>Net<SP><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):

Setting	Value
Gross Weight	215 lb
Tare Weight	0.0 lb
Net Weight	215 lb
Patient height	6–01.0 ft
Patient BMI	28.4

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](#).



Figure 3-1. USB Connection Port and RS-232 Connection Port

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**.
3. Select **Get Downloads**.
4. Select **Download** to download the driver. Selecting a download will prompt a download notification.
5. **Found New Hardware Wizard** prompts.



Figure 3-2. Found New Hardware Wizard

6. Follow the prompts to complete installation.

7. Select **No, not this time** then select **Next**.



Figure 3-3. No, Not This Time

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

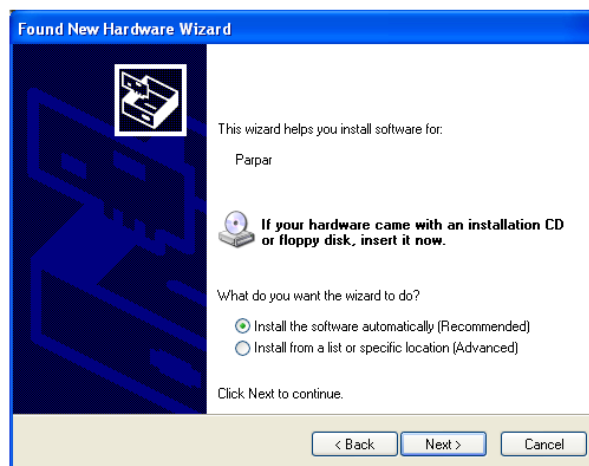


Figure 3-4. Install The Software Automatically

9. Allow the driver to install.

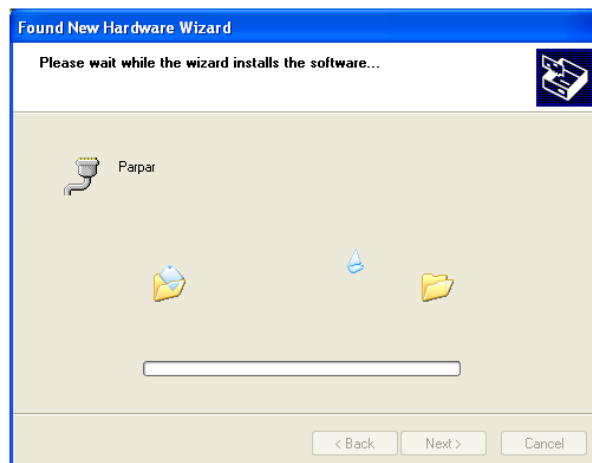


Figure 3-5. Software Installation

10. **Completing the Found New Hardware Wizard** prompts when installation is complete. Select **Finish**.

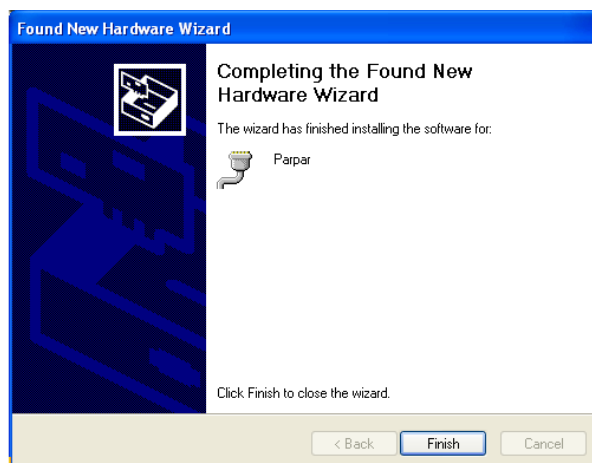


Figure 3-6. Finish Installation

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

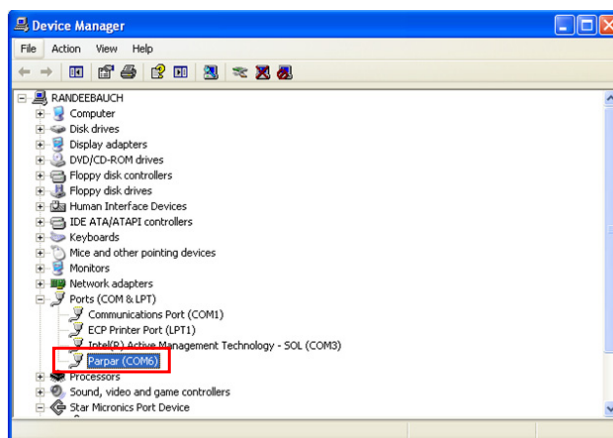


Figure 3-7. Driver Selection

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.

PATIENT WEIGHT		84.4	1b	WEIGHT
----------------	--	------	----	--------

GROSS WEIGHT		84.4	1b	BMI
TARE WEIGHT		0.0	1b	
NET WEIGHT		84.4	1b	
PATIENT HEIGHT		4ft	07.0in	
PATIENT B.M.I		19.6		

Figure 3-8. Example Tickets



Note 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.

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

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 (0.1kg)

Certifications and Approvals

RoHS Compliant





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