350-10 Series

Digital Wheelchair Scales
Software Revision 11439

Technical Manual

Model 350-10-2

Model 350-10-3

Model 350-10-7

Model 350-10-8

RICE LAKE®
WEIGHING SYSTEMS

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www.ricelake.com

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1.0 Introduction

The Rice Lake Digital Wheelchair Scale is a user-friendly, quality scale, designed for safe weighing of the handicapped and mobility challenged individuals. Movement compensation technology ensures sound, accurate weighments. The scale has roll on ramp access and comes in four different configurations:

- Single ramp folding wheelchair scale
- Single ramp platform wheelchair scale
- Dual ramp folding wheelchair scale
- Dual ramp platform wheelchair scale

The scale has a non-skid rigid platform and two rear heavy duty wheels for easy maneuverability.

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

Figure 1-1. Digital Wheelchair Scale (single ramp and dual ramp models shown)

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 and you can enter a tare weight. Section 3.0 on page 6 of this manual explains the scale operation and how to obtain a tare weight.

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.

1.1 Safety

There are certain precautions that should be taken to prevent personal injury to the user and damage to your scale.

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.

Do not drop the scale or subject it to violent shocks.

For accurate weighing, the scale must be placed on a flat, stable surface.

Do not transport the scale while someone is standing on it.

Weight exceeding the maximum capacity (1000 lb/453 kg) may damage your scale.

Operating at voltages and frequencies other than specified could damage the equipment.

If the LO Bat indicator activates, for accurate weighing, replace the batteries or connect the scale to an AC power source as soon as possible.

Rice Lake Weighing Systems offers optional AC adapters, utilizing an adaptor not supplied by us voids all warranties.

To avoid cross contamination, the scale should be cleaned regularly.

Avoid contact with excessive moisture.

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

Do not jump up and down on the scale.

Do not use in the presence of flammable materials.

Do not make alterations or modifications to the scale.

People with disabilities, or who are physically frail, should always be assisted by another person when using this scale.

Do not use the scale on slippery surfaces, such as a wet floor.

Do not use this scale when your body/feet are wet, such as after taking a bath.

2.0 Assembly

2.1 Unpacking

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

Recommended tools needed to set up your scale include:

- 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 and components to ensure all parts are included and undamaged.

Parts contained in the shipping box include:

- Scale
- Box containing six AA batteries and four feet

2.2 Repacking

If the Rice Lake Digital Wheelchair Scale must be returned or moved, it must be properly packed with sufficient packing materials. When possible, use the original carton and packing material.

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

2.3 Setup

Move the scale into the area where the weighing process will occur. It's recommended to place the scale on a hard, level surface for the most accurate weighments. Thin carpeting is acceptable, but not recommended.

CAUTION ***Rice Lake recommends using two people for lifting the scale and to use proper lifting techniques to prevent injury.***

IMPORTANT ***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. Using two people, lift the scale out of the box by the base.
2. Stand the scale on edge to remove the packing material.

Figure 2-1. Scale on Edge

3. Screw the four feet clockwise into the scale base as far as possible.
4. Turn each foot counterclockwise two full rotations, to ensure there is adequate clearance between the scale and the floor.
5. Lower the scale base down to the floor carefully.
   There should be minimal clearance between the scale base and the floor. Figure 2-2 shows the width of a finger being slid between the scale base and the floor.

IMPORTANT ***Not having clearance around the scale base creates inaccurate weighments.***

Figure 2-2. Clearance Between Scale Base and Floor

6. Gently press down on all corners of the scale base to ensure there are no high spots or rocking of the scale base. The scale must be completely level.

IMPORTANT ***An unleveled base produces inaccurate weight readings.***

7. Turn the knobs to loosen the hinges and raise the handle.
8. Tighten the knobs to secures the handrail and the indicator mounted on it.

Figure 2-3. Loosen Hinges to Raise Handles

2.4 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 turning the thumbscrew to the left and remove the cover.
2. Insert batteries into the battery chamber as illustrated in the back of the chamber.

Figure 2-4. Battery Chamber

3. Put the cover in place and turn the thumbscrew to the right to secure it.

Note ***Batteries must be removed from the unit prior to long periods of disuse or long term storage.***

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 back light power is deducted to 60%.

2.5 AC Power Connections

Use the optional 120 VAC or 230 VAC adapter when power is available. Rice Lake Weighing Systems offers optional AC adapters that plug into the back of the indicator as shown in Figure 2-5.

IMPORTANT ***Using an adapter not supplied by Rice Lake Weighing Systems voids all warranties.***

Figure 2-5. Power Connection

3.0 Operation

The Rice Lake Digital Wheelchair Scale display has various front panel keys as shown in Figure 3-1.

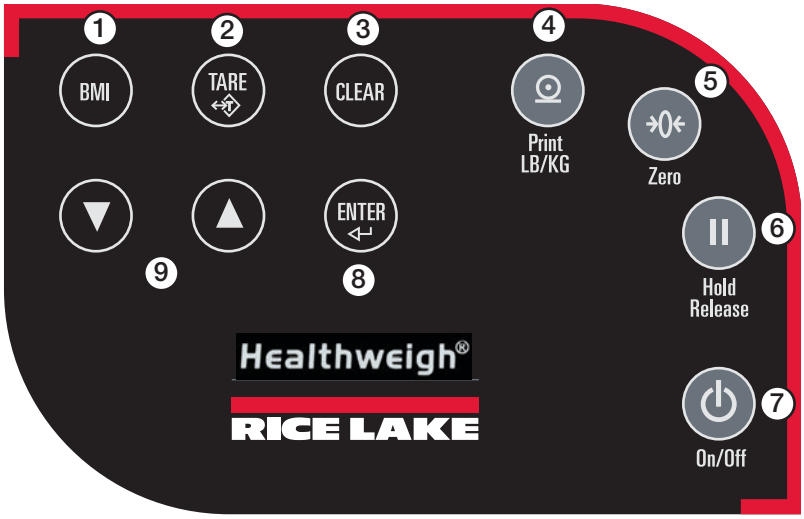

Figure 3-1. Front Panel Display Keys

Key Descriptions

Table 3-1 describes each of the key functions.

Item No	Name	Function
1	BMI	Enables the user to access the BMI (Body Mass Index) function. This key only works if there is a locked weight shown on the display and the BMI function is turned on in the configuration mode.
2	TARE	Used to subtract the weight off the scale, example: oxygen tank, other equipment.
3	CLEAR	Allows the user to return 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 in.
4	Print LB/KG	Print — A long key press will send data out from the RS-232 port. LB/KG — A short key press allows the user to toggle between kilograms and pounds providing that it's enabled in configuration mode. There is no toggling while in the BMI mode.
5	Zero	Clears the weight off the scale and returns it to zero after three seconds. It works only if the current weight is stable and zero up to 2% of full weight.
6	Hold Release	Hold & Release — The first press holds the most current weight value shown on the display. A second press releases the weight value shown. This key is not active while in BMI mode.
7	On/Off	Switches the scale on or off.
8	ENTER	Used to accept height in BMI mode. Accepts the value of the parameter last entered and moves to the next stage. A long press of the **ENTER** key during the scale's start up process will enter the ID display (pre-parameter mode).
9	Up/Down Arrows	Used to adjust height input (0.5"/0.5 cm) while in BMI mode. Adjusts the value of the flashing digit/number.

Table 3-1. Rice Lake Digital Wheelchair Scale Key Functions

IMPORTANT ***The keys on the front panel display are very sensitive so only a gentle pushing motion is required to obtain results.***

The scales have the capability of performing different operations beyond just calculating weight. The various operating instructions are described below.

3.1 Weighing

Use the following steps to weigh a person.

1. Press ⏻ to turn the scale on. ***0.0*** displays with ***ZERO*** on the upper display.
2. Have a person step on the scale, the weight displays. ***LOCK*** is displayed on the upper display and the display beeps to indicate the end of the weighing process.
   - Press ◎ to toggle the display between **kg** and **lb**.
   - Press and hold ⏻ to turn off the scale, ***OFF*** displays.

3.2 Hold/Release Function

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

1. Have a person step on the scale.
2. Press ⏸. Have the person step off the scale, the weight and ***HOLD & LOCK*** remain on the display.
3. Press ⏸ to release the hold lock. The →0← does not work until the hold is released.

Note ***Pressing ⏸ prior to a person stepping on the scale also works.***

3.3 Preset Tare

Use the following steps to use the Preset Tare.

1. With ***0.0*** displayed, place the extra load on the scale.
2. Press TARE until ***0.0*** displays again and ***NET*** displays.
3. Remove the extra load from the scale. The weight displays with a negative symbol to the left of it.
4. Have the person to step on the scale with the extra weight. The persons weight displays and ***NET*** is displayed. The weight of the extra load remains stored in memory.
5. To cancel the tare weight, press and hold TARE until the display returns to ***0.0*** and ***GROSS*** displays. Tare weight is also canceled by turning off the scale.

3.4 Toggle Tare

Use the following steps to use the Toggle Tare function.

1. With ***0.0*** displayed, press TARE.
2. The default tare value is displayed (default is programmed to be 33.0 lb/15.0 kg), while the zero is flashing.
3. Use ▲ and ▼ to adjust the value.
4. Press ENTER to start the tare function, ***NET*** displays.

3.5 Body Mass Index (BMI) Function

Use the following steps in determining the BMI.

LB Mode

1. Ensure that the scale is at zero.
2. Have the person step on the scale to obtain a weight. ***LOCK*** displays.
3. Press BMI. **BMI** and **FT/IN** are lit on the display and a default value of 5 feet and 7.5 inches (5-07.5) flashes.
4. Use ▲ and ▼ to adjust the height value and press ENTER to move to the next step.
5. The BMI value and **BMI** display. Press CLEAR to return to the weighing mode or step off the scale and the BMI function will be turned off.

KG Mode

1. Ensure that the scale is at zero.
2. Have the person step on the scale to obtain a weight. ***LOCK*** displays.
3. Press BMI. **BMI** and **CM** are lit on the display and a default value of 170.0 cm (170.0) flashes.
4. Use ▲ and ▼ to adjust the height value and press ENTER to move to the next step.
5. The BMI value and **BMI** display. Press CLEAR to return to the weighing mode or step off the scale and the BMI function will be turned off.

4.0 Configuration

The scale can be configured using a series of menus accessed through the front panel when the scale is in setup mode.

4.1 Scale Navigation

Use the buttons on the front panel to navigate through the menus and parameters

4.1.1 Change Parameters

- Press BMI to scroll through the menus and/or parameters
- Press ENTER to enter a displayed menu and/or parameter
- Press ▲ or ▼ to scroll through values
- Press ENTER to save the displayed selection and move to the next parameter

4.1.2 Enter Numbers

- Press ENTER to enter parameter value
- Press ▲ or ▼ to increment/decrement numbers
- Press BMI to move to the next digit
- Press ENTER to save value and move to the next parameter

4.1.3 Save and Return to Main Menu

- When a parameters selection/value is correct, press ENTER. The next parameter displays.
- When all parameters selections/values are correct, ***SAVE*** displays
- Press ENTER. ***DONE*** displays.
- Press ENTER to save settings and return to weigh mode.

4.2 Setup Switch

Access to the setup switch is located under the tilt stand cover. Use a Phillips head screwdriver to remove the four screws holding the cover in place.

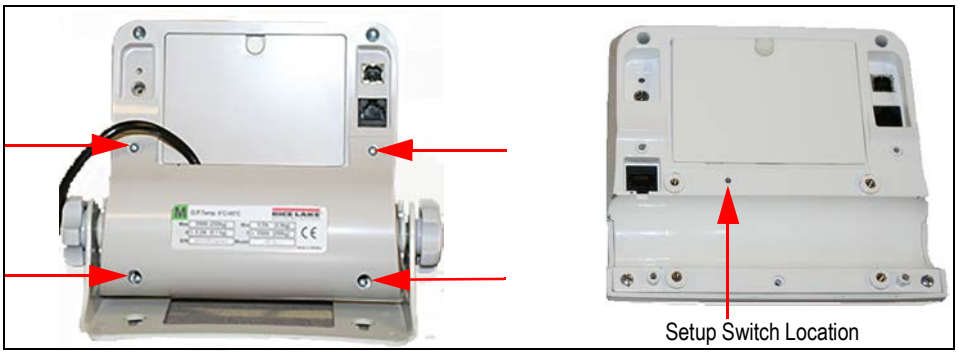

Figure 4-1. Setup Switch Location

Use the following steps to enter into configuration mode.

1. Make sure the scale is turned off.
2. Turn the scale on by simultaneously pressing  and  .
3. Continue to hold both keys until ***Id*** appears. The unit cycles through its startup function and continues to display the software version.
4. Access the recessed setup switch located in the back of the indicator. Use a small non-conductive tool to press the setup switch. ***PROG*** displays.
5. Press  to advance to the desired menu.
6. Press  and advance in the manual to the related menu selection for further instructions.

4.3 Main Menu

Figure 4-2. Main Menu

Parameter	Description
Program	Setup configuration
Calibration	Calibration settings
Default	Reset all settings to factory default
Done	Returns to weigh mode

Table 4-1. Main Menu Parameters

4.4 Programming Mode Menu

The Programming Mode allows setup of the indicator to determine how the scale reads the weight and displays output.

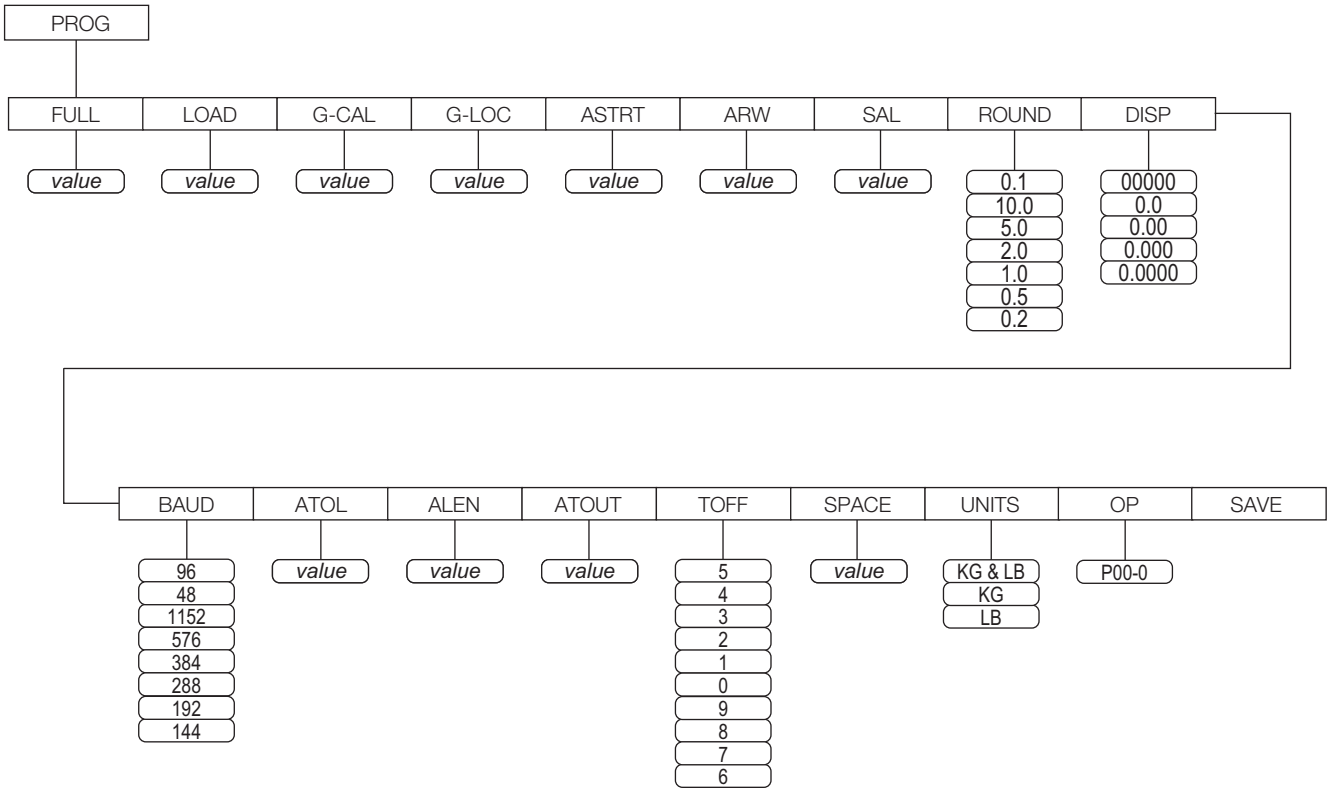

Figure 4-1. Programming Menu Layout

Parameter	Description
FULL	Full Capacity – enter value of the scale capacity; **default: 2500 kg**
LOAD	Load – weight applied during calibration; **default: 160.0 kg** ***NOTE: can also be changed in the calibration menu***
G-CAL	**default: 00000**
G-LOC	**default: 00000**
ASTART	Auto-Start – weight process start limit; maximum (full capacity)/10; determines when the weight algorithm starts (when the **----** is displayed), below this value the scale displays live weight; **default: 2.0 kg**
ARW	Auto Reweigh – restarts the weight algorithm if the weight changed by more than this value; **default: 2.0 kg**
SAL	Semi Auto Live – interval between weight displays during the algorithm process; **default: 0.5**
ROUND	Scale Resolution – display toggles between a numeric value and *ROUND*; decimal point location is set to the DISP parameter; **selections**: **0.1 kg (default)**, 0.5, 1, 2, 5, 10, 20, 0.2
DISP	Decimal Point – display toggles between a numeric value and *DISP*; **default: 00000**
BAUD	Baud Rate – set required baud rate; **selections**: **96 (default)**, 48, 1152, 576, 384, 288, 192, 144; end zeros are not displayed
ATOL	Algorithm Initial Tolerance – display toggles between a numeric value and *ATOL*; **default: 10;** value above 255 (max) does not allow indicator to proceed and returns to the previous value
ALEN	Algorithm Initial Exponent – display toggles between a numeric value and *ALEN*; **default: 8;** Value above 10 (max) does not allow indicator to proceed and returns to the previous value.
ATOUT	Algorithm Maximal Exponent – display toggles between a numeric value and *DISP*; **default: 10;** Values above 15 (max), does not allow indicator to proceed and returns to the previous value.
TOFF	Auto Off Timer – turns unit after the set number of minutes; 0-9 minutes; 0 = always on; **default: 5 min** battery power only, does not work if using an external power supply
SPACE	Space – number of new lines after print; **default: 7**
UNITS	Units – select the unit of measure; selections: LB, KG, **KG/LB (default)** ***NOTE: When indicator is set to LB or KG, toggling between them is not available in the weighing mode.***
OP	Binary options: • OP0 — Live weighing options (0=disable, 1=enable) • OP1 — Communication protocol (0=ESC, 1=maintenance) • OP2 — BMI menu (0=disable, 1=enable) • OP3 — RTC power (0=disable, 1=enable) • OP4 - Semi-Auto-Live — (0=disable, 1=enable) • OP5 - Full calculation — (0=spatial, 1=multiply by (0=disable, 1=enable • OP6 - Tare - (0=disable, 1=enable • OP7 - Bat type — (0=dry batteries, 1=rechargeable batteries) • OP8 — OIML mode - (0=disable, 1=enable
SAVE	Saves settings and returns to upper level

Table 4-2. Program Mode Parameters

To enter the program menu:

1. Enter the setup mode. See Section 4.2 on page 9.
2. With ***PROG*** displayed, press ENTER.
3. Using the navigation instructions in Section 4.1 on page 9, set all ***PROG*** parameters.

4.5 Default Menu

The default menu is used to return the scale to the original factory settings. This will not change the calibration.

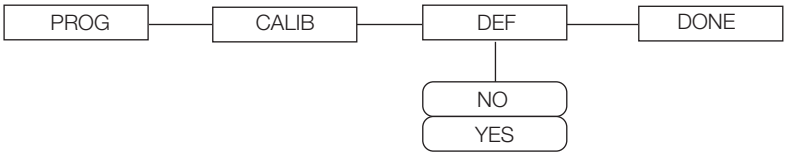

Figure 4-3. Default Menu

4.5.1 Set to Default

1. Press ENTER. *NO* displays.
2. Press ▲. *YES* displays.
3. Press ENTER. *DONE* displays.
4. Press BMI to return to main menu.

4.6 Scale Calibration

To calibrate the scale:

1. Enter the setup mode. See Section 4.2 on page 9.
2. Press BMI to scroll to ***CALIB***.
3. Press ENTER. A numeric value displays (weight to be used for calibration). Only calibrate in LB.
4. Press ENTER. The digit on the right flashes.
   - Press ▲ or ▼ to change the value of digit.
   - Press BMI to move to the next digit.
   - When the desired value is displayed, press ENTER. ***CLEAR*** displays.

Note ***To quit calibration, press ▲ or ▼. ABORT displays. Press BMI to abort and return to upper level.***

5. Remove all weight from scale platform, then press ENTER. ===== displays.
6. When ***PUT*** *and* value flashes on display, put the weight on the platform.
7. Press ENTER. ===== and then ***Save*** displays.
8. Press ENTER. ***DONE*** displays.
9. Press BMI three times to the top level ***DONE*** parameter.
10. Press ENTER to return to weigh mode.

4.7 Test Menu

To access the ***TEST*** menu, use the following steps.

1. Turn the scale on by pressing the **On/Off** key and the **ENTER** key simultaneously until ***ID*** flashes.
2. Press the **ENTER** key again.
3. Continue to press the **BMI** key to scroll through the various menu items.
4. Once complete, press the **BMI** key again and ***Done*** is displayed.
5. Press the **ENTER** key to start the weighing process.

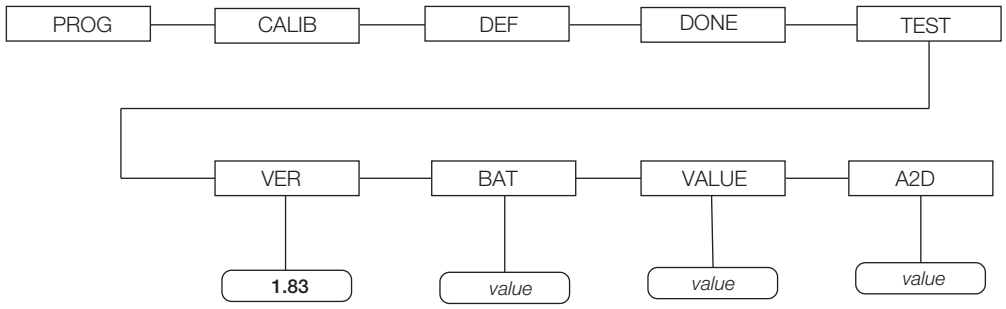

Figure 4-4. Test Menu

Parameter	Choice	Description
VER	Value	Displays the current software version.
BAT	Value	Displays the current battery level.
VALUE	Value	Displays the actual value.
A2D	Value	Displays the actual raw counts of the scale.

Table 4-3. Test Menu

5.0 RS-232 Communication

The scale comes with an RS-232 port that enables weight data to be transmitted to other equipment, such as a computer or printer. The RS-232 cable with DB-9 connector (PN 100719) is available from Rice Lake Weighing Systems. Figure 5-3 on page 17 shows where the RS-232 connection is.

The RS-232 parameters are 9600 baud (selectable in the programming mode), 8 data bits, 1 stop bit, no parity and no handshaking.

There are three methods of communication:

- Pushbutton keypad print
- Escape protocol
- Maintenance protocol

5.1 Push-Button Keypad Print

With a stable, in-range weight, press and hold the **LB/KG/Print** key for at least three seconds, or until the scale displays ***PRINT***. Note that if the scale does not beep after five seconds, then release the button as the weight was either in motion, or out of range.

If displaying weight and not BMI, the scale will send out the following 21 character string:

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)

Example:

60.1 KG= <PATIENT><SP><WEIGHT><SP>-60.1<SP>KG<SP><CR><LF>

In BMI mode (displaying the BMI value), the scale will send out the following data:

PATIENT WEIGHT 60.1 KG
PATIENT HEIGHT 170.0 CM
PATIENT BMI 20.8

Example in KG:

<PATIENT><SP><WEIGHT><SP>-60.1<SP>KG<SP><CR><LF>
<PATIENT><SP><HEIGHT><SP>-170.0<SP>CM<SP><CR><LF>
<PATIENT><SP><B><SP><M><SP><I><SP><SP><SP><20.8<SP><SP><SP><SP><CR><LF>

Example in LB:

<PATIENT><SP><WEIGHT><SP>132.4<SP>LB<SP><CR><LF>
<PATIENT><SP><HEIGHT><SP>-5-07.5<SP>FT<SP><CR><LF>
<PATIENT><SP><B><SP><M><SP><I><SP><SP><SP><20.4<SP><SP><SP><SP><CR><LF>

In case of under weight or over weight, the word ***Under*** or ***Over*** will be sent correspondingly.

5.2 Communication Protocols

The Rice Lake Digital Wheelchair Scale has two communication protocols, escape and maintenance protocol.

5.2.1 Escape Protocol

An escape protocol is where the escape (0X1B or ASCII 27) is used to indicate that there is a command following. On the PC side there must be a listener created by the vendor that will interpret this protocol. This listener must also take care of all the issues regarding data integrity to make sure that the data that was sent and received is valid.

Two examples include:

- Scale initiated communication
- PC initiated communication

Table 5-1 is what can be sent across communications lines.

PC Initiated	ESC Value
Request current values/settings	R
Diagnostics	A
Send scale control messages	C
PC Initiated	ESC Value
Send single reading	R
Send diagnostic response	

Table 5-1. Escape Protocol Commands

Table 5-2 lists the ESC characters that will be used.

Name	ESC Character	ESC Value with Parameters	Description
Reading	R	R	Tells PC the scale is sending a reading; immediately following this is the value that is sent Example: <ESC><R>ESC><W0200.0<ESC>Nm<ESC>E
Weight	W	Wnnn.n	The patient weight (*Example: W02000 means 200.0*). If scale is overloaded or under loaded, 999.99 is returned
Height	H	Hnnn.n	Patient height
BMI	B	Bnn.n	Patient BMI
Units	N	Nc	Indicates the units the values have been taken (*m=metric, c=constitutional*).
End of Packet (EOP)	E	E	Indicates the end of the command has been reached.
Diagnostics (request)	A	Accc	A request for a diagnostic test on certain parts of the scale (like battery life, load cells).
Diagnostics (response)	Z	Zccc	The response of the diagnostics done on the scale; values include error codes to indicate an issue, or all zeros (Z000) to indicate the scale is performing properly
Control (set a value)	C	Cccc=c	Sets the value of the scale's global settings *Example: <ESC><CUOM=m><ESC><E sets the unit of measurement*

Table 5-2. ESC Characters

Name of Control	Identifier	Unit
Unit of Measure (metric or constitutional)	UOM	c (m or c)

Table 5-3. Scale Global Values and Identifiers

Samples of Escape Protocol

Examples of what is sent to the computer from the scale.

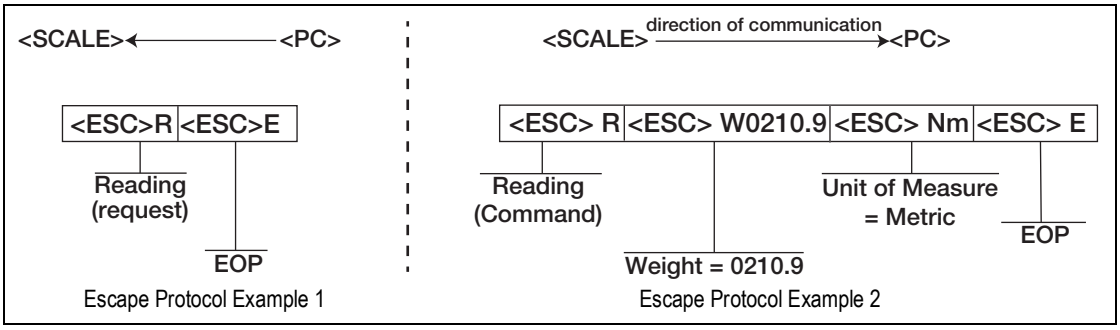

Figure 5-1. Escape Protocol Examples

Examples of diagnosing battery request and responses.

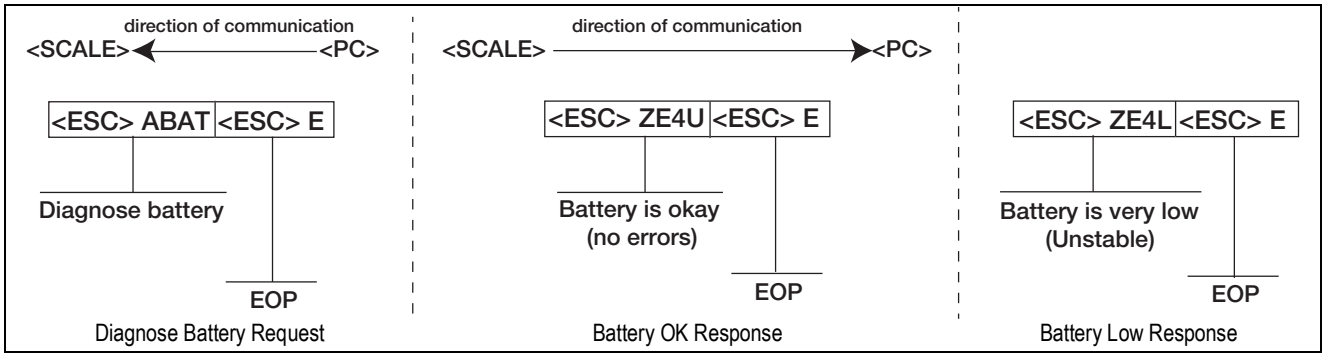

Figure 5-2. Diagnose Battery Examples

5.2.2 Maintenance Protocol

Table 5-4 lists the maintenance protocol commands.

Command	Definition
R	Reboot
V	Firmware ID + development version
W	Current weight
A	Current AD
Z	Zero the scale
F	Show flash values (used for the first flash process)
L	USB On/Off (not available on USB communication

Table 5-4. Maintenance Protocol Commands

5.3 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).

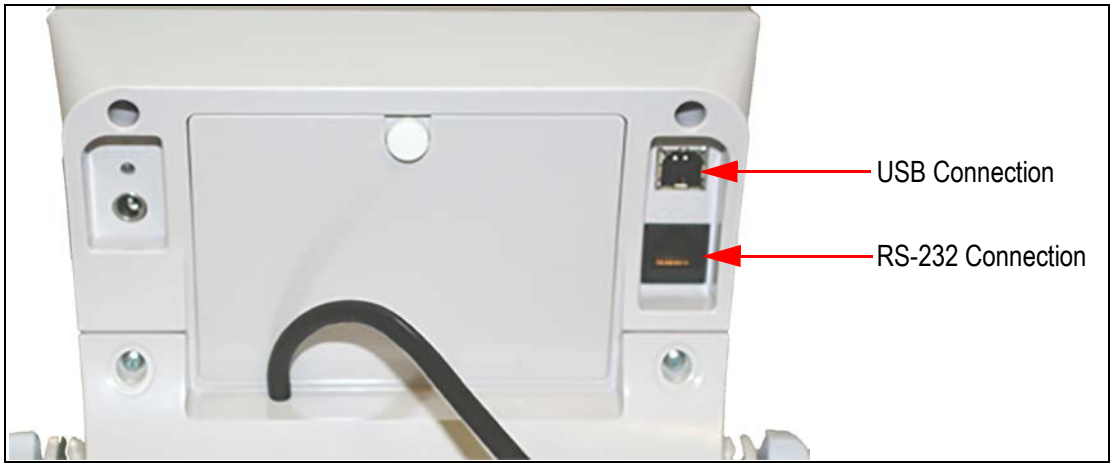

Figure 5-3. USB Connection Port

Connecting software and downloads should be addressed by an IT professional, and can vary depending on the computer platform used. Basic information on USB driver installation using Windows® is described in the following steps and serves only as an example.

A USB driver can be downloaded from the Rice Lake Weighing Systems website at:

https://www.ricelake.com/resources/software-firmware

1. Select *Software*.

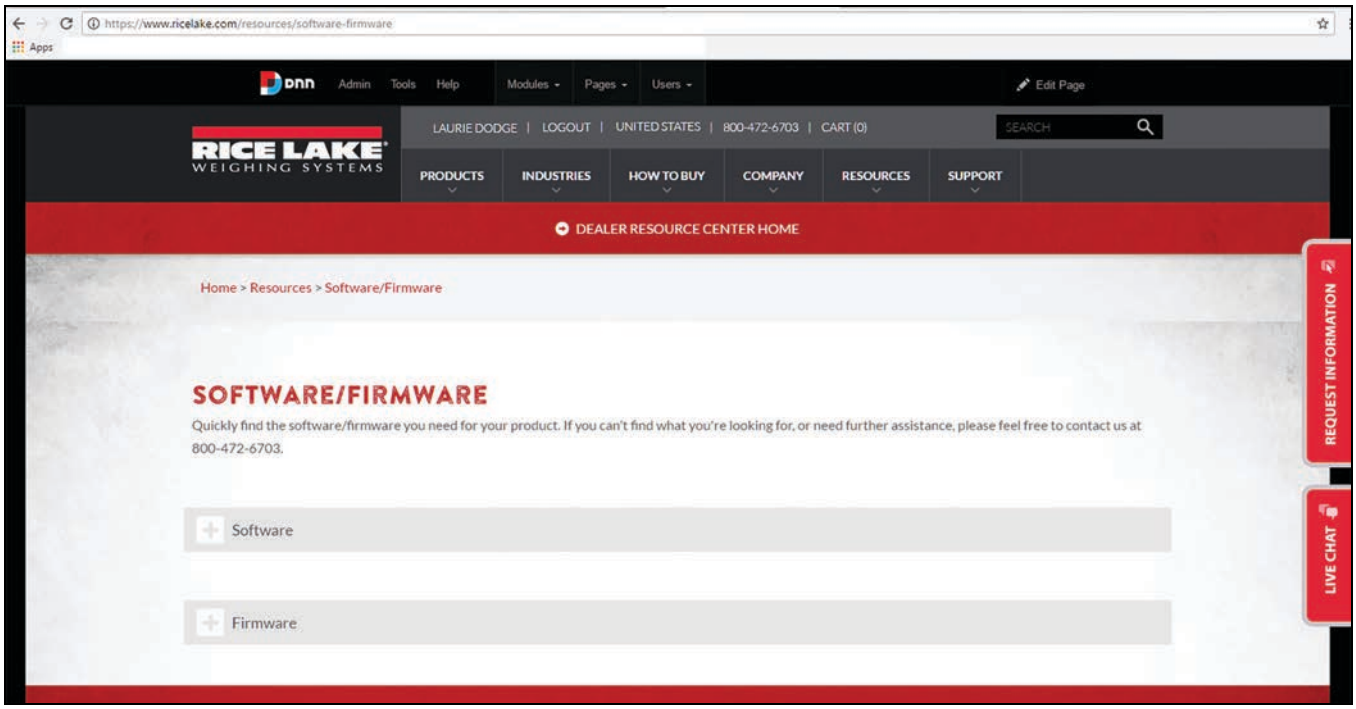

Figure 5-1. Software/Firmware Page

2. From the drop down menus select *Health Scales*.

Figure 5-2. Software Download Page

3. Find ***Titanium USB Driver***. Press ***Download*** to open and download the driver to a local computer.

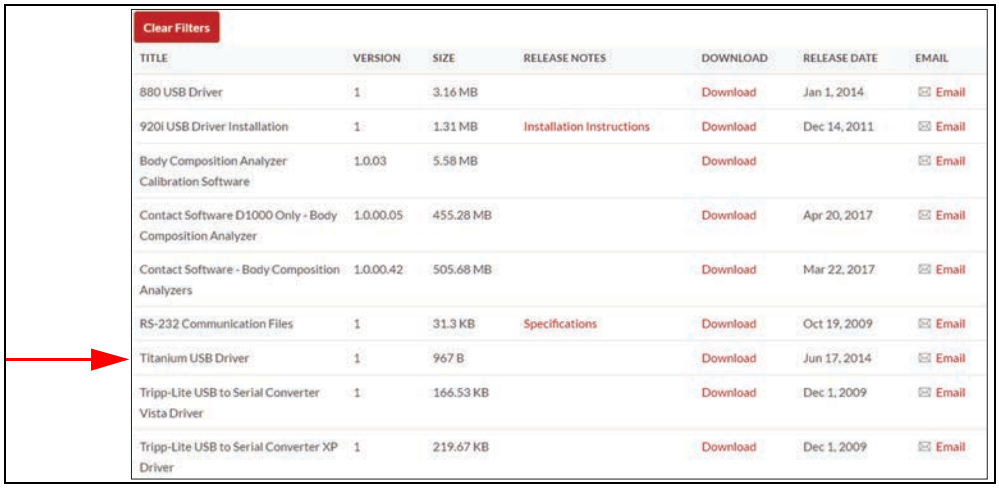

Figure 5-3. Example of Drivers List Page

4. When the USB cable is connected to the indicator and the scale is turned on, a display prompts to navigate through the software install process.

Figure 5-4. Hardware Wizard Menu

5. Select ***No, not this time*** and press **Next**.
6. Select ***Install the software automatically*** press **Next**. A file transfer screen displays as the file downloads and installs to the computer.
7. Press **Finish** when the completion screen displays.

8. To verify the installation, the driver can be viewed in the device manager of the computer.

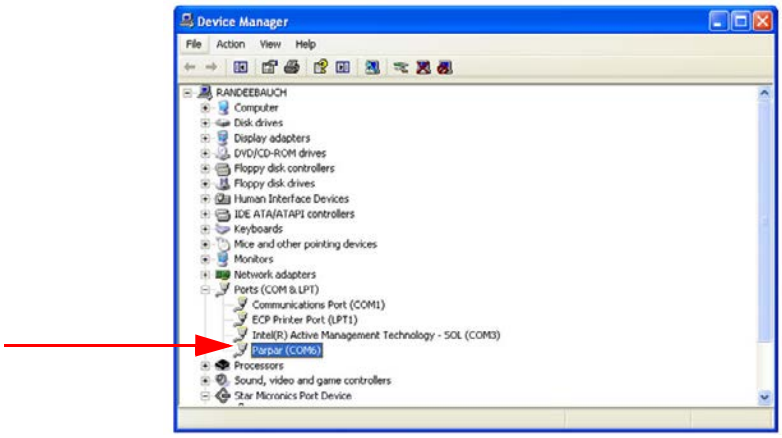

Figure 5-5. Device Manager

9. To configure a printer using the USB driver, open the software driver ***Parpar*** in the device manager (Figure 5-5). The port assigned to that driver is displayed.
10. Ensure the USB cable is properly connected and the unit is on.
11. Open and connect a terminal emulation program, such as Hyperterminal, via the USB driver. Select the port assigned to the software driver ***Parpar*** to establish a port. The terminal emulation program is necessary to view information transmitted from the indicator to the PC.
12. Press . The following example tickets print.

```
PATIENT WEIGHT    199.8 lb
```

```
GROSS WEIGHT          199.8  lb
TARE WEIGHT             0.0  lb
NET WEIGHT            199.8  lb
PATIENT HEIGHT       6ft 00.0in
PATIENT B.M.I.         27.1
```

Figure 5-6. Example Tickets

Note ***A single print ticket has four spaces after PATIENT WEIGHT, one space between the weight value and units (lb), and seven <CR><LF> after.***

```
PATIENT WEIGHT  199.8  lb <CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>
<CR><LF>
```

Figure 5-7. IT Example (IT Information Only)

6.0 Maintenance and Troubleshooting

6.1 Maintenance

The following section provides instructions for maintaining and cleaning the Rice Lake line of scales.

IMPORTANT ***Do not immerse the scale in cleaning or other liquid solutions.***
Do not use Isopropyl alcohol or other solutions to clean the indicator display surface.

6.1.1 Basic Maintenance

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

Basic maintenance includes:

- Check the overall appearance of the entire scale for any obvious signs of damage.
- Inspect the condition of the AC adapter cord for cracking, fraying or broken/bent prongs.
- Using an adapter that has been used elsewhere may cause issues with the scale.
- Change batteries on a regular interval. Leaving in for long periods of time can cause batteries to leak.

6.1.2 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.

- Clean all external surfaces with a clean, damp cloth or tissue.
- Mild soap and water solution may be used.
- Standing platform may be cleaned with Isopropyl alcohol
- Dry with a clean soft cloth.

6.2 Troubleshooting and Testing

Refer to Table 6-1 to diagnose and correct failure prior to contacting service personnel.

Symptom	Possible Cause	Corrective Action
Scale does not turn on	Dead battery	Connect the scale to a power source
	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 scale	Remove interfering object from scale
	0.0 was not displayed prior weighing	Have the patient off scale, zero scale and begin weighing process again
	Scale is not level	Level scale and begin weighing process again
	Scale is out of calibration	Check weight with a known weight value
E messages displayed		
E06	Identifier - ADC	AD too high
E07		AD too low
E10	Overload	Scale is overloaded; remove load from scale
E4L	BAT	Battery low but usable – 1 bar on indicator display.
E4U		Battery low and unstable – no bars on indicator display.
E11	CAL	Calibration Error – recalibrate the scale
Err 2	Low saturation state (low A/D)	Load cell is not connected properly; check cables and mechanical connections; if the problem persists, replace load cells.
Err 3	High saturation state (high A/D)	See Err 2
Err 6	Unstable weight; cannot calibrate.	Check the load cells mechanical surroundings to ensure nothing is touching them and the cables are properly welded
SAT	Damaged load cell cable	Replace load cell cable

Table 6-1. Troubleshooting Table for the Rice Lake Scale Line

6.3 Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for two years.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, **Protecting Your Components From Static Damage in Shipment**, available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

These warranties exclude all other warranties, expressed or implied, including without limitation warranties of merchantability or fitness for a particular purpose. Neither RLWS nor distributor will, in any event, be liable for incidental or consequential damages.

RLWS and buyer agree that RLWS's sole and exclusive liability hereunder is limited to repair or replacement of such goods. In accepting this warranty, the buyer waives any and all other claims to warranty.

Should the seller be other than RLWS, the buyer agrees to look only to the seller for warranty claims.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of RLWS and the Buyer.

RICE LAKE WEIGHING SYSTEMS • 230 WEST COLEMAN STREET • RICE LAKE, WISCONSIN 54868 • USA

7.0 Specifications

Power

120 VAC - 9 VDC - 60Hz / 230 VAC - 9 VDC - 50Hz

Battery Type

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 to +95°F (10 to 35°C)
Storage Temperature	32 to 122°F (0 to 50°C)
Humidity	85% relative humidity

Capacity and Graduation

1000 lb (453 kg)	0.2 lb (0.1kg)

Certifications and Approvals

RoHS Compliant

CE

Dimensions

Platform Dimensions	48.5 in W x 29.5 in L x 3 in H

RICE LAKE®
WEIGHING SYSTEMS

Rice Lake Weighing Systems is an ISO 9001 registered company.

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