150-10-5

Digital Physician Scale

Software Revision 11525

Technical Manual

Disponible en Español

Visite **ricelake.com/spanish** para ver todos los materiales RLWS disponibles en Español

RICE LAKE®
WEIGHING SYSTEMS

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An ISO 9001 registered company

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www.ricelake.com

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1.0 Introduction

The Rice Lake Digital Physician Scale is efficiently designed to provide accurate, reliable and repeatable weight measurements. It is equipped with a built-in height rod, a handle and two heavy-duty rear wheels for easy portability.

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

Figure 1-1. Rice Lake Digital Physician Scale (150-10-5)

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.

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

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 on the scale.

Do not place fingers into slots or possible pinch points.

Do not use in the presence of flammable materials.

Use the scale only to determine weight of people while standing.

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 the body/feet are wet, such as after taking a bath.

Weight exceeding the maximum capacity (550 lb/250 kg) may damage the 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 adapter not supplied by us voids all warranties.

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

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

2.0 Assembly

2.1 Unpacking The Scale

Place the carton on a hard, level surface for unpacking, preferably in the area where it will be used.

Carefully lift the scale out of the packaging material; lifting it by the scale base.

IMPORTANT ***The scale base and scale column are connected by cable and require great care when removing from the box so that the cabling does not get damaged.***

Parts contained in the shipping box include:

- Scale (the base and attached column)
- Height rod
- CD containing USB driver
- White box labeled ***Parts Inside*** which contains the following:
  - Wheels (2)
  - Wheel hinge (1)
  - Pan head screws (8)
  - AA batteries (6)

All component parts have been wrapped in plastic. Retain the packaging for use in the event that the scale must be returned for modification, calibration or repair. It must be properly packed with sufficient packing materials.

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

2.2 Scale Assembly

Use the following steps to set up the scale.

Note ***A Phillips head screwdriver will be needed for installation.***

1. Place the scale on a hard, level surface for the most accurate weighments.
2. Thread the excess cable through the lower column to eliminate possible pinching during installation.

Figure 2-1. Cabling Connecting the Scale Platform and Scale Column

3. Place the lower column on the base making sure not to pinch the cable.

4. Insert the screws through the bottom of the scale base to secure the column.

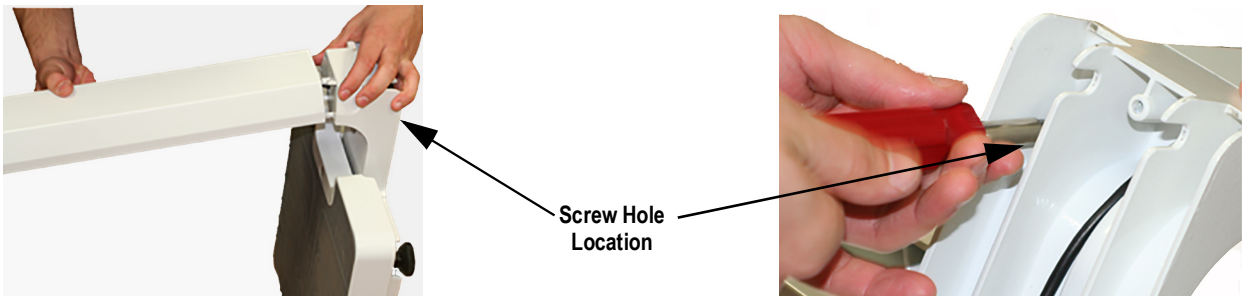


Figure 2-2. Attach Column

5. Attach wheels to the wheel assembly rod. See Figure 2-3.
6. Attach the wheel assembly to the scale with a screw, tighten securely.

Figure 2-3. Attach Wheel Assembly

7. Ensure that the cable is extending through the top of the lower column.
8. Plug the cable from the lower column into the upper column.

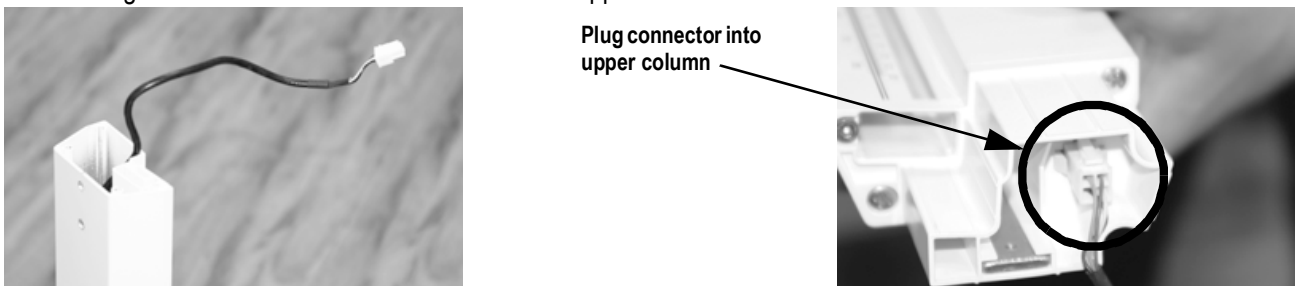


Figure 2-4. Extend Cable Through Scale Column

9. Place the upper column onto the lower column, aligning the screw holes. Ensure the cable does not get pinched.

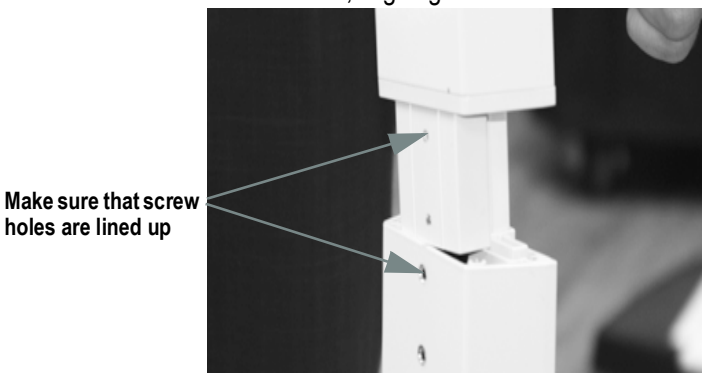


Figure 2-5. Insert Upper Column into Lower Column

10. Secure with two screws.

2.3 Height Rod Installation

Use the following steps to install the height rod assembly.

1. The height rod comes in two pieces. Connect the two pieces together, ensuring the push buttons are popped out and fully engaged to lock the two height rod pieces together.

Figure 2-6. Back of Height Rod

2. Slide the assembled height rod from the top of the column into the slot located on the front of the scale.

Figure 2-7. Height Rod Assembly

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 loosening the thumb screw.
2. Insert batteries.

Figure 2-8. Batteries in Battery Chamber

3. Close the battery chamber cover.

2.5 AC Power Connections

Use the optional 120 VAC adapter or 230 VAC adapter when power is available. The optional AC power adapter plugs into the back of the indicator as shown in Figure 2-9. Rice Lake Weighing Systems offers optional AC adapters, utilizing an adapter not supplied by us voids all warranties.

Figure 2-9. Power Connection

2.6 Leveling the Scale

Use level bubble to check for level and adjust feet as needed.

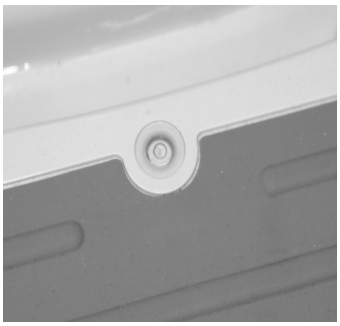


Figure 2-10. Bubble Indicates Scale Is Level

On a flat surface, adjust scale feet until the bubble indicates that the scale is level.

3.0 Operation

Figure 3-1. Front Panel Display

Key Descriptions

Item No.	Function
1	On/Off – turns the scale on and off
2	Print – long key press sends data out from the RS-232 port or USB port LB/KG – short key press toggles kilograms and pounds (must be enabled in configuration mode); disabled in BMI mode
3	Zero – sets the weight to **0.0** and displays **ZERO**; weight must be stable and less than 2% of capacity to be cleared
4	Hold/Release – press to keep the current weight value displayed; press again to clear the weight; disabled in BMI mode
5	Body Mass Index (BMI) – enable in configuration; a stable weight is required
6/7	Arrows – used to adjust height input (0.5 in/0.5 cm) while in BMI mode
8	ENTER – accepts an entered value and moves to the next parameter; long press during start up enters the ID display
9	CLEAR – return to weigh mode after BMI value displays

Table 3-1. Scale Key Functions

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

3.1 Weighing

Use the following steps to weigh a person.

1. Press ⏻ to turn on the scale. ***0.0*** displays along with ***ZERO*** on the upper display.
2. Have the patient step on the scale. The patient's weight is displayed, the ***LOCK*** annunciator is on and the indicator beeps to indicate the end of the weighing process.
3. Press ⊙ to change the display from lb to kg and vice-versa.
4. To turn off the scale, press and hold ⏻ until ***OFF*** displays.

3.2 Hold/Release Function

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

1. Press ⏸.
2. When the person steps off the scale, the weight and the ***HOLD & LOCK*** annunciator remain on the display.
3. To return to zero press ⏸.

Note ***Pressing the Hold/Release key prior to a person getting on the scale will also hold the weight display.***

3.3 Using the Body Mass Index (BMI) Function

Use the following steps in determining the BMI.

LB Mode

1. Ensure the scale is at zero.
2. Have the person step on the scale to obtain a weight.The ***LOCK*** annunciator is illustrated on the display.
3. Press BMI. The BMI and FT/IN annunciators light and a default value of 5 feet and 7.5 inches (5-07.5) flashes.
4. Use ▲ ▼ to adjust the height value, and press ENTER.
5. The BMI value and BMI annunciator is shown on the display. Press CLEAR to return to weighing mode 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. The ***LOCK*** annunciator is illustrated on the display.
3. Press BMI the **BMI** key. The BMI and CM annunciators light and a default value of 170.0 cm (170.0) flashes.
4. Use ▲ ▼ to adjust the height value, and press ENTER.
5. The BMI value and BMI annunciator shows on the display. Press CLEAR to return to weighing mode and the BMI function.

3.4 Using the Height Rod

The height rod can be extended to accommodate people of different heights and measures from 27.5 to 82 x 1/8" (70 to 208 x 1 mm). It is comprised of a stationary outer sleeve and an inner rod that slides up and stays in place once extended. Measurements are shown in inches and centimeters.

1. To extend the length of the height rod, hold the white latch located next to the indicator display and pull it up vertically.

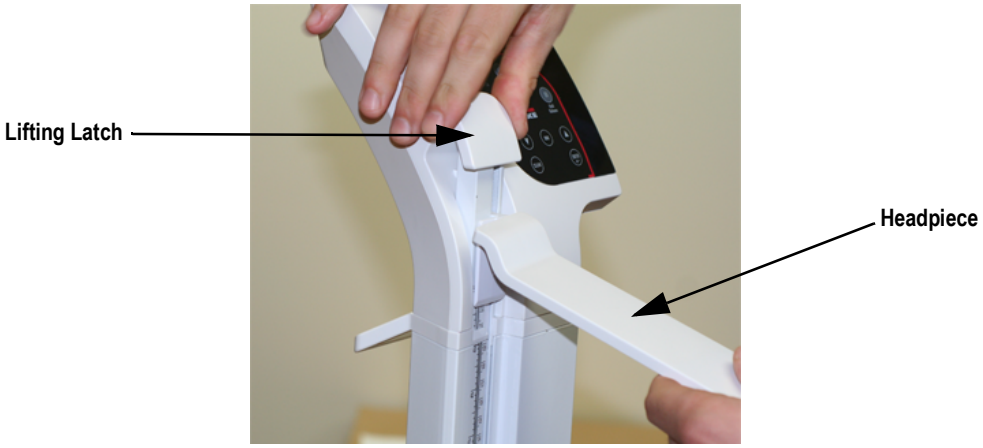


Figure 3-2. Pull up on White Latch to Extend Height Rod

2. Raise the headpiece until it is perpendicular to the height rod and snaps into place (Figure 3-2).
3. Raise the rod until the person can easily stand without touching the headpiece.
4. Have the person step onto the scale with their head level.
5. With a person on the scale, lower the entire height rod (not just the headpiece), until the headpiece just touches the top of the person's head.

Note ***The headpiece should remain level, not slanted up or down.***

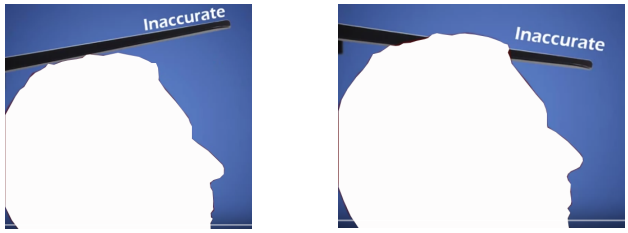


Figure 3-3. Inaccurate Headpiece Reading

6. For people taller than 43" (109 cm) use the measurements at the *read line* (inner rod).

Figure 3-4. Read Measurement Location

For people shorter than 43" (109 cm), use the outer sleeve measurements (below the read line).

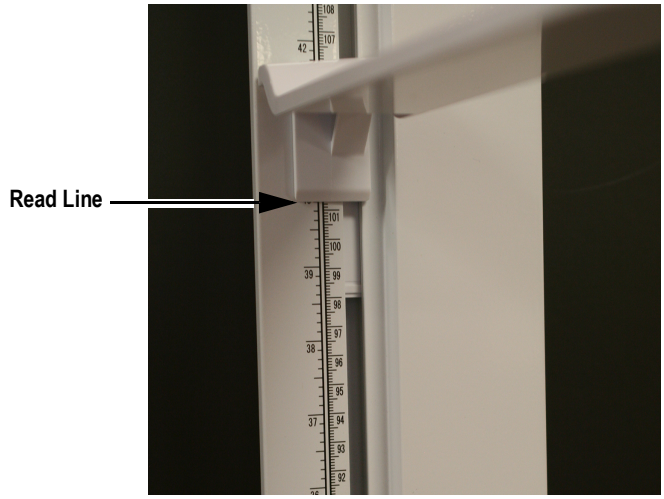


Figure 3-5. Read Measurement for People Under 43" (109 cm)

4.0 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 2-9 on page 6 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

4.1 Pushbutton 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, 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)

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>

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

GROSS WEIGHT	215.0 LB
TARE WEIGHT	0.0 LB
NET WEIGHT	215.0 LB
PATIENT HEIGHT	6-01.0 FT
PATIENT BMI	28.4

4.2 Communication Protocols

The 150-10-5 has two communication protocols, escape and maintenance protocol.

4.2.1 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, etc. to make sure that the data that was sent and received is valid.

Two examples include:

- Scale initiated communication
- PC initiated communication

Table 4-1 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 4-1. Escape Protocol Commands

Table 4-2 lists the ESC characters that will be used.

Name	ESC character	ESC value with parameters	Description
Reading	R	R	Tells the PC that 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	Is the patient weight (example: W02000 means 200.0). If the scale is overloaded or under loaded, the scale will return the value 999.99.
Height	H	Hnnn.n	Patient height
BMI	B	Bnn.n	Patient BMI
Units	N	Nc	Indicates in which unit the values have been taken (m=metric, c=constitutional).
End of Packet (EOP)	E	E	Indicates that the end of the command has been reached.
Diagnostics (request)	A	Accc	A request for a diagnostic test on certain parts of the scale (such as battery life, load cells).
Diagnostics (response)	Z	Zccc	This will be the response of the diagnostics done on the scale. Values will include error codes to indicate what is wrong with the scale, or all zeros (Z000) to indicate that all is well.
Control (set a value)	C	Cccc=c	Sets the value of the scale's global settings. Example: <ESC><CUOM=m><ESC><E will set the unit of measurement.

Table 4-2. ESC Characters

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

Table 4-3. Scale Global Values List and Identifiers

Samples of Escape Protocol

Figure 4-1 and 7-2 show what the diagrams will look like on the PC as the scale measures weight and sends over this communications line:

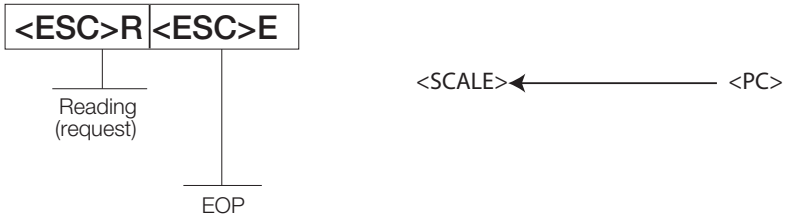


Figure 4-1. Sample of Escape Protocol

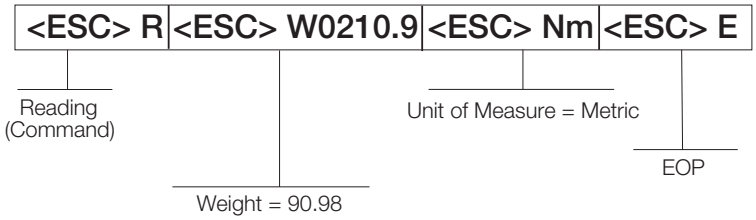


Figure 4-2. Sample of Escape Protocol

When the user wants to diagnose the problems on the scale, it looks like the Figure 4-3 and 7-4.

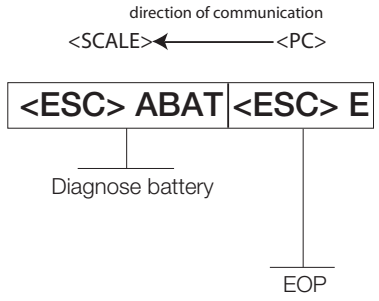


Figure 4-3. Diagnose the Escape Protocol Diagram

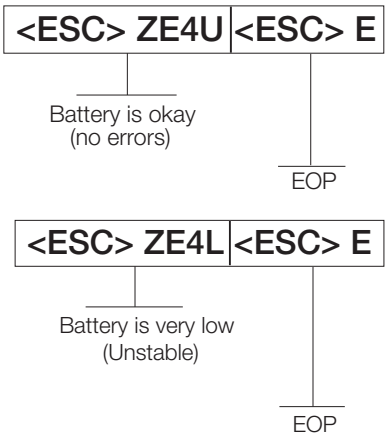


Figure 4-4. Diagnose Battery Protocol Diagram

4.2.2 Maintenance Protocol

Table 4-4 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 4-4. Maintenance Protocol Commands

4.3 USB Connection

The Rice Lake Digital Physician Scale has the capability of connecting to a PC using a USB connection, and a USB cable (not included), as shown in Figure 4-1.

Figure 4-1. USB Connection Port

Connecting software and downloads should be addressed by the IT department and can vary depending on what type of computer platform is being used. 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

Note ***Consult IT department to temporarily disable driver protections on a Windows 10 computer to install the USB driver.***

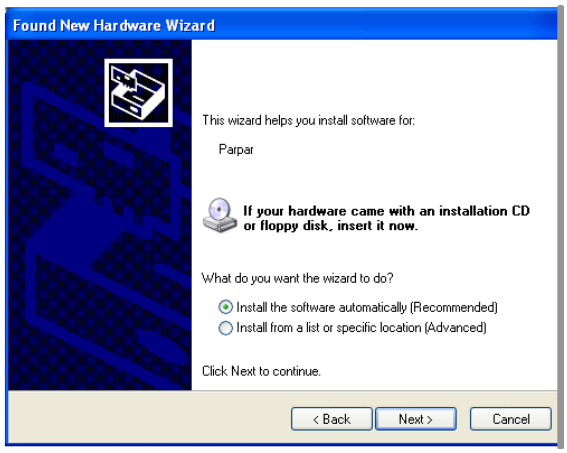
Select Medical/Health Scales, Software and Get Downloads. Opening any product will show a USB Driver download. Click on ***Download*** to open and download the driver to your computer.

The graphic below shows the *Found New Hardware Wizard* window that pops up when the USB cable is connected to the indicator and the scale is turned on.

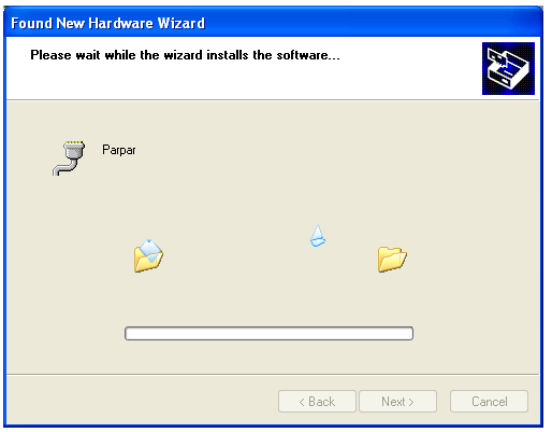
Follow the screen prompts to navigate through the screens below.

1. Select ***No, not this time*** and then select **Next**.

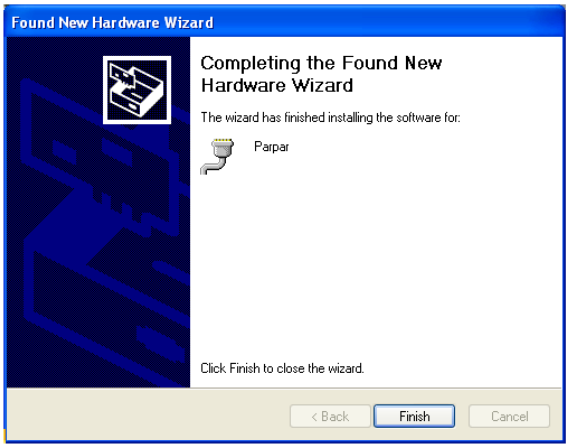
2. Select ***Install the software automatically***, then select **Next**.



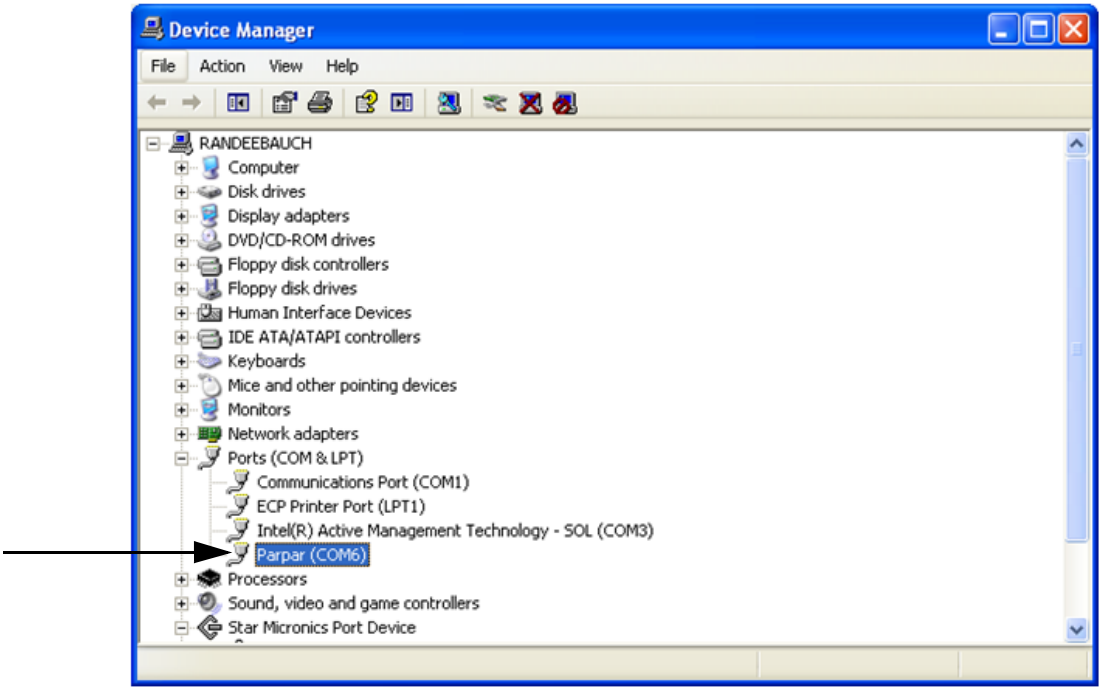
3. The following screen appears while the driver is installing on to your system.



4. The following screen appears when installation is complete. Click on **Finish**.



5. To verify the installation, open the device manager of the system to view the driver.



6. To print a ticket using the USB driver, open the software driver (shown above) and the port assigned to that driver is shown.
7. Ensure that the USB cable is properly connected and unit is on.
8. Another terminal type program (such as Hyperterminal) 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.

```
                                    WEIGHT

PATIENT WEIGHT    2.104 lb
```

```
                                      BMI

GROSS WEIGHT     84.4  lb
TARE WEIGHT       0.0  lb
NET WEIGHT       84.4  lb
PATIENT HEIGHT 4ft 07.0in
PATIENT B.M.I    19.6
```

Note ***A single print ticket has four spaces after the "patient weight" and only one space between weight and lb in the examples shown above. Then seven <CR><LF> after.***

5.0 Scale Configuration

Options and parameter setup are done through the scale configuration section and is used for setting values, parameters, and options that are essential for the functioning of the scale. Access to the setup switch is located inside the battery cover (shown in Figure 5-1).

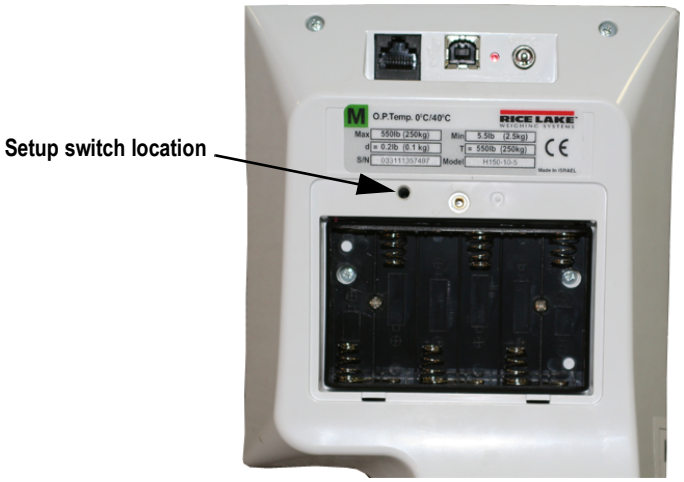


Figure 5-1. Setup Switch Location

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 the **On/Off** key and the **ENTER** key.
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 scale. You can use a small paper clip, small screwdriver or other similar object to press the setup switch.
5. Once the setup switch is pressed, ***PROG*** appears on the display.
6. The scale can be configured using a series of menus accessed through the front panel when the scale is in setup mode.

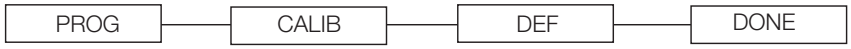


Figure 5-2. Top Level Menu

7. Press the **BMI** key to advance to the desired menu.
8. Press the **ENTER** key and advance in the manual to the related menu selection for further instructions.

5.1 Programming Mode Menu

Various parameters can be set while in programming mode.

Those parameters are shown in Figure 5-3.

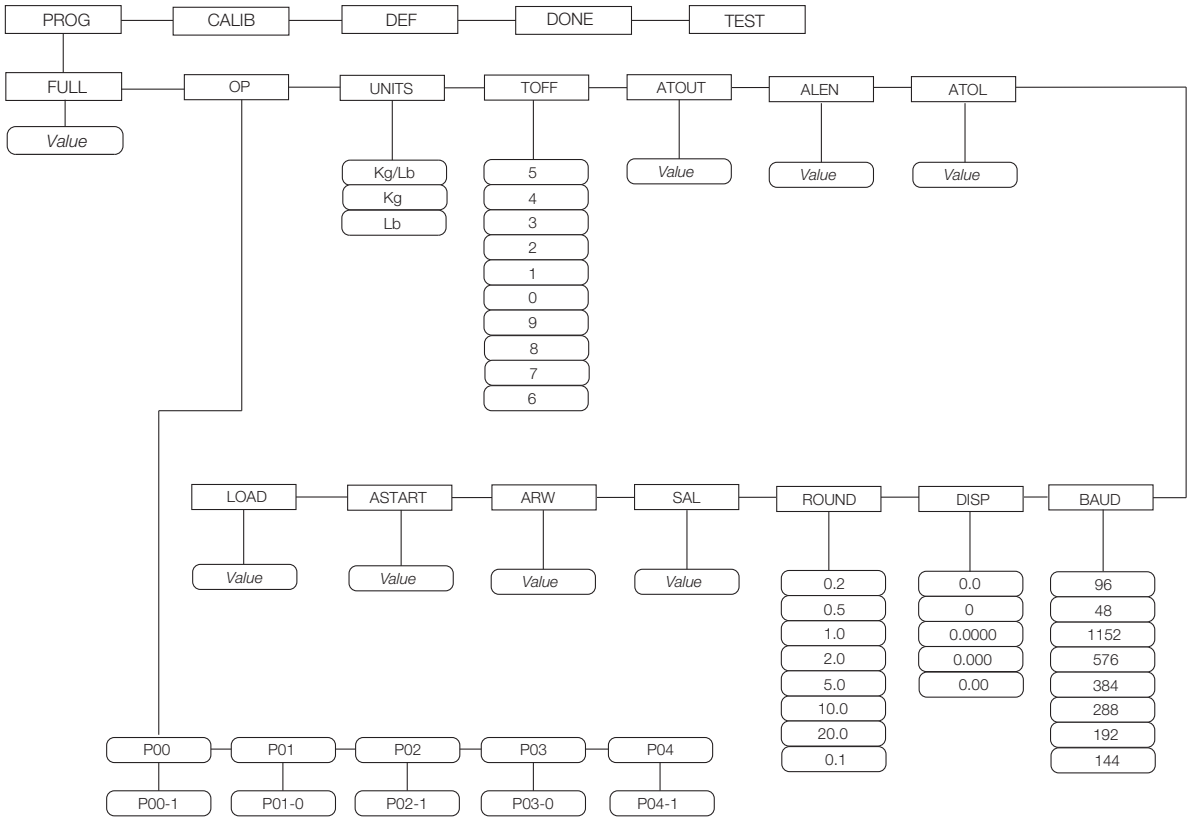


Figure 5-3. Programming Mode Menu Structure

Table 5-1 lists the various display messages and sequence when setting up the scale.

Parameter	Description	Choices	Steps
FULL	Full capacity of the scale	Value (550 lb)	The display toggles between a numeric value and ***FULL***. If you don't want to change the value, press the **BMI** key to move to the next setting. Example: from FULL to LOAD. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. Use the **Up/Down** arrow keys to increment/decrement numbers. 5. Press the **BMI** key again to move to the left 6. Use the **Up/Down** arrow keys to increment/decrement numbers. 7. When done, press **ENTER** key to move to the next parameter (LOAD).

Table 5-1. Configuration Mode Menu

Parameter	Description	Choices	Steps
LOAD	This is the amount of weight applied during calibration. Can also be changed in the calibration menu.	Value (200 Lb)	The display toggles between a numeric value and ***LOAD***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from LOAD to ASTART. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. Use the **Up/Down** arrow keys to increment/decrement numbers. 5. When done, press **ENTER** key to move to the next parameter (ASTART).
ASTART	Weight process start limit — Maximum (full capacity)/10. Determine when the weight algorithm starts (when the "----" is displayed), below this value the scale will show live weight.	Value (2.0)	The display toggles between a numeric value and ***ASTART***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ASTART to ARW. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. Use the **Up/Down** arrow keys to increment/decrement numbers. 5. When done, press **ENTER** key to move to the next parameter (ARW).
ARW	Auto Reweigh — Restarts the weight algorithm if the weight changed by more than this value.	Value (4.0 Lb)	The display toggles between a numeric value and ***ARW***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ARW to SAL. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. Use the **Up/Down** arrow keys to increment/decrement numbers. 5. When done, press **ENTER** key to move to the next parameter (SAL).
SAL	Semi Auto Live —This value is the interval between weight displays during the algorithm process.	Value (0.5)	The display toggles between a numeric value and ***SAL***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from SAL to ROUND. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. When done, press **ENTER** key to move to the next parameter (ROUND).
ROUND	Scale Resolution — Values in kg: 1, 2, 5, 10, 20, 50, 100 Values in lb: 1, 2, 5, 10, 20, 50, 100, 200	0.2 0.5 1.0 2.0 5.0 10.0 20.0 0.1	The display toggles between a numeric value and ***ROUND***. The decimal point location is set to the DISP parameter display decimal point location. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ROUND to DISP. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value. 2. Press the **Up/Down** arrow keys to change the available parameters. 3. When done, press **ENTER** key to move to the next parameter (DISP).
DISP		0.0 0 0.0000 0.000 0.00	The display toggles between a numeric value and ***DISP***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from DISP to BAUD. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value. 2. Use the **Up/Down** arrow keys to change the available parameters. 3. When done, press **ENTER** key to move to the next parameter (BAUD).

Table 5-1. Configuration Mode Menu (Continued)

Parameter	Description	Choices	Steps
BAUD	Baud rate	96 48 1152 576 384 288 192 144	Note: Indicator display illustrates first two digits of baud rate only. The display toggles between a numeric value and baud. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from BAUD to ATOL. If you want to change the value, use the following steps 1. Press the **ENTER** key to change value. 2. Use the **Up/Down** arrow keys to change the available parameters. 3. When done, press **ENTER** key to move to the next parameter (ATOL).
ATOL	Algorithm initial tolerance — Maximum value is 255. Values above 255 will not let you proceed and will return to the previous value.	Value (10)	The display toggles between a numeric value and ***ATOL*** If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ATOL to ALEN. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. When done, press **ENTER** key to move to the next parameter (ALEN).
ALEN	Algorithm initial exponent — Maximum value 10. Values above 10, will not let you proceed and will return to the previous value.	Value (8)	The display toggles between a numeric value and ***ALEN***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ALEN to ATOUT. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. When done, press **ENTER** key to move to the next parameter (ATOUT).
ATOUT	Algorithm maximal exponent — Maximum value is 15. Values above 15, will not let you proceed and will return to the previous value.	Value (10)	The display toggles between a numeric value and ***ATOUT***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from ATOUT to TOFF. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change value starting with the right most digit. 2. Use the **Up/Down** arrow keys to increment/decrement numbers. 3. Press the **BMI** key to move to the left. 4. Use the **Up/Down** arrow keys to increment/decrement numbers. 5. When done, press **ENTER** key to move to the next parameter (TOFF).
TOFF	Auto off timer — Measured in minutes. 0 = always on. Maximum is 9 minutes. When using an external power supply, this parameter is irrelevant.	5 4 3 2 1 0 9 8 7 6	The display toggles between a numeric value and ***TOFF***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from TOFF to UNITS. Press the **ENTER** key to move to the next parameter. (UNITS). If you want to change the value, use the following steps. 1. Press the **ENTER** key to change values. 2. Use the **Up/Down** arrow keys to change the available parameters. 3. When done, press **ENTER** key to move to the next parameter (UNITS).
UNITS	Units — Selects the unit of measure. It can be either Kg/Lb, Kg only or Lb only.	KG/LB KG LB	The display toggles between unit of measurements and ***UNIT***. If you don't want to change this value, press the **BMI** key to move to the next setting. Example: from UNITS to OP. If you want to change the value, use the following steps. 1. Press the **ENTER** key to change values. 1. Press the **Up/Down** arrow keys to change the value. 2. When done, press **ENTER** key to move to the next parameter (OP).

Table 5-1. Configuration Mode Menu (Continued)

Parameter	Description	Choices	Steps
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	OP0 OP1 OP2 OP3	The display toggles between a binary option and ***POO-0.*** If you don't want to change this value, press the **BMI** key to move to the next setting. If you want to change the value, use the following steps. 1. Press **ENTER** to change parameters. 2. Use the **Up/Down** arrow keys to select the display value you want to change. 3. Press the **BMI** key to move the flashing cursor. 3a. Use the **Up/Down** arrows to change the value. 3b. Press the **BMI** key to move the flashing cursor. 4. Press the **ENTER** key to save all of the display parameters. ***SAVE*** appears on the display. 5. Press the **ENTER** key again and ***DONE*** appears indicating that you are now done entering all of the parameters of the scale.
	Press the **BMI** key to cycle back to the top level menu choices, ie: PROG/CALIB/DEF/DONE/TEST		

Table 5-1. Configuration Mode Menu (Continued)

5.2 Default Menu

The default menu is used to return the scale back to its factory settings and is shown in Figure 5-4.

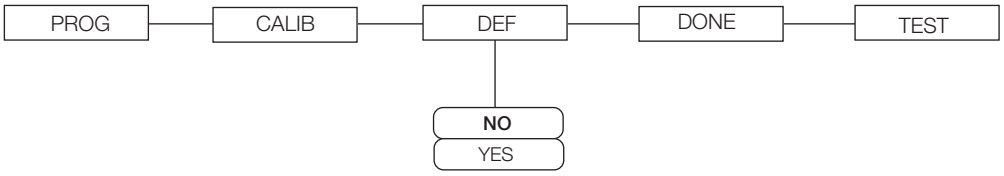


Figure 5-4. Default Menu

Use the following steps to return the settings back to their factory default.

1. Press the **ENTER** key. The display shows a default value of ***NO.***
2. To change to ***YES***, press the **Up/Down** arrow keys.
3. Press the **ENTER** key and the display shows ***DONE***.
4. Press the **BMI** key to return to PROG/CALIB/DEF/DONE/TEST upper level menu.

Note ***Selecting YES and pressing the* ENTER *key will reset to factory defaults settings without changing the calibration and will return you to weigh mode.***

5.3 Scale Calibration

Use the following steps to calibrate the scale.

1. Turn on scale by pressing the **On/Off** key and the **ENTER** key simultaneously.
2. The unit cycles through its startup function and continues to display the software version. Continue to hold both keys until ***Id*** appears.
3. Access the setup key located in the back of the scale to enter the setup parameters for the scale. You can use a small paper clip, small screwdriver or other similar object to press the setup key.

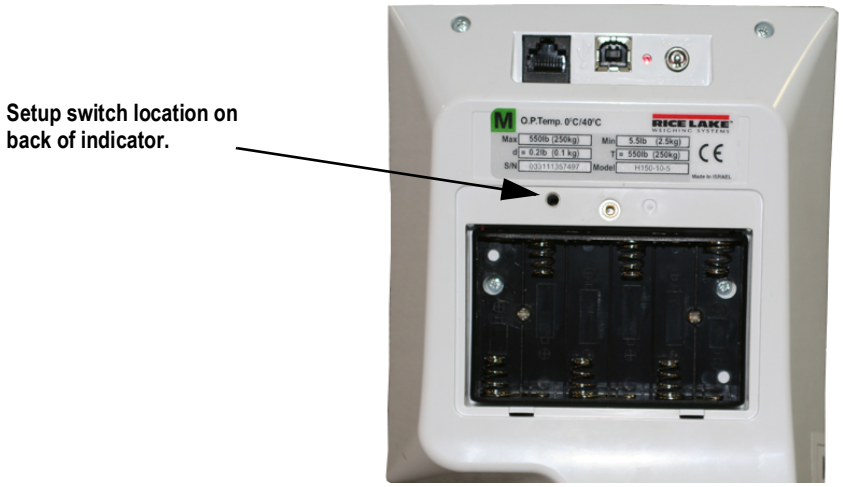


Figure 5-5. Setup Switch Location on Back of Scale

4. ***Prog*** appears on the display. Press the **BMI** key to toggle along the parameter menu.
5. ***Calib*** appears on the display and enter the calibration parameters.
6. Press the **ENTER** key and a numeric value is displayed which represents the amount of weight that is used for calibration. Lb will be flashing. To switch between lb and kg, press the **Up**/**Down** arrow keys on the display. Once a unit is selected, press **ENTER** and the right most digit will be flashing.
7. To change the calibration load value, use the **Up**/**Down** arrow keys to increment/decrement the flashing digit.
8. Use the **BMI** key to move the flashing digit to the left or right.
9. Once all the digits have been entered, press the **ENTER** key and ***Clear*** is displayed.
10. Make sure the scale platform is clear of weight and press the **ENTER** key again and ===== is displayed.
11. A request to put the chosen load on the platform is displayed by ***Put xxx.xx***.
12. Put the chosen weight on the platform and press the **ENTER** key. ===== is displayed and then ***Save***.
13. Press the **ENTER** again and the display indicates ***Done***.
14. Press the **BMI** key three times to exit back out to the top level ***Done*** parameter.
15. Press the **ENTER** key to return to weigh mode.

To exit calibration without changing zero or span existing calibration, press the **CLEAR** key, then the **BMI** key.

5.4 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.

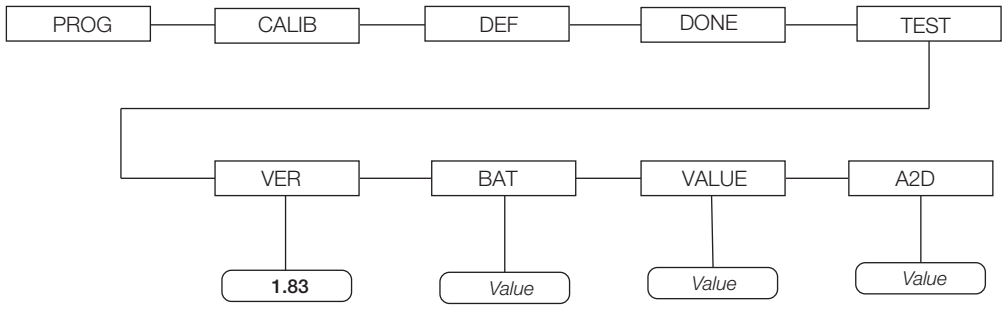


Figure 5-6. Test Menu

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 5-2. Test Menu

6.0 Maintenance

6.1 Troubleshooting and Testing

Refer to the following to check and correct any failure before 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 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 E messages as detailed below		
E06	Identifier — ADC	AD too high
E07		AD too low
E10	Overload	Scale has been overloaded. Remove load from scale
E4L	BAT	Battery low but still usable — One bar left on the indicator display
E4U		Battery low and unstable — no bars left on the indicator display
E11	CAL	Calibration Error — recalibrate the scale again
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 cells' mechanical surroundings and see that nothing touches them and that the cables are properly welded
SAT	Damaged load cell cable	Replace load cell cable

Table 6-1. Troubleshooting Table

6.2 Maintenance

The following section provides instructions for maintaining and cleaning the Rice Lake line of scales. Maintenance operations other than those described in this section should be performed by qualified service personnel.

6.2.1 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.

6.2.2 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 in cleaning or other liquid solutions.
3. Do not use Isopropyl alcohol or other solutions to clean the display surface.

6.3 Rice Lake 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-9VDC-60Hz / 230 VAC-9VDC-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
Selectable baud rate, default - 9600
8 bits
No parity
1 stop bit
No handshaking

Environmental

Operating Temperature	50 to +104°F (14 to 40°C)
Storage Temperature	32 to 158°F (0 to 70°C)
Humidity	85% relative humidity

Capacity and Graduation

Digital Physician Scale	550 lb (250 kg)	0.2 lb (100 g)

Dimensions

Digital Physician Scale	14.5" W x 14.5" L x 3" H

Certifications and Approvals
RoHS Compliant

E113986
Complies with ANSI/AAMI ES60601-1:2005/A2:2010/(R)2012
CAN/CSA-C22.2 No. 60601-1:14

RICE LAKE®
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