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Nicol Scales & Measurement is an ISO Accredited Calibration Company that has provided calibration, repair and sales of all types of weighing and measurement products since 1931.

RL150-10-5 Digital Physician Scale

150-10-5

Software Revision 11439

Operation Manual



Disponible en Español

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

RICE LAKE®
WEIGHING SYSTEMS

PN 126150 Rev C

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www.ricelake.com

Contents

1.0 Introduction 1
1.1 Safety 2
2.0 Assembly 3
2.1 Unpacking The Scale 3
2.2 Scale Assembly 3
2.3 Height Rod Installation 5
2.4 AC Power Connections 6
2.5 Leveling the Scale 6
3.0 Operation 7
3.1 Weighing 8
3.2 Hold/Release Function 8
3.3 Using the Body Mass Index (BMI) Function 8
3.4 Using the Height Rod 9
4.0 RS-232 Communication 11
4.1 Pushbutton Keypad Print 11
4.2 USB Connection 11
5.0 Maintenance 15
5.1 Troubleshooting and Testing 15
5.2 Maintenance 15
5.2.1 Basic Maintenance 15
5.2.2 Cleaning 15
5.3 Rice Lake Digital Scale Specifications 16
Rice Lake Digital Scale Limited Warranty 17

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.*

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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 can be viewed and downloaded from the Rice Lake Weighing Systems website at www.ricelakehealth.com

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



Figure 1-1. Rice Lake Digital Physician Scale (RL150-10-5)

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

WARNING *Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death.*

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

Important *Indicates information about procedures that, if not observed, could result in damage to equipment.*

General Safety



Do not operate or work on this equipment unless you have read and understand instructions in the manual. 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. Proper care is your responsibility.

WARNING

Failure to follow the instructions or heed the warnings could result in 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 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 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. Preferable in the area where it will be used.

Carefully lift the scale out of the packaging material; lift 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.

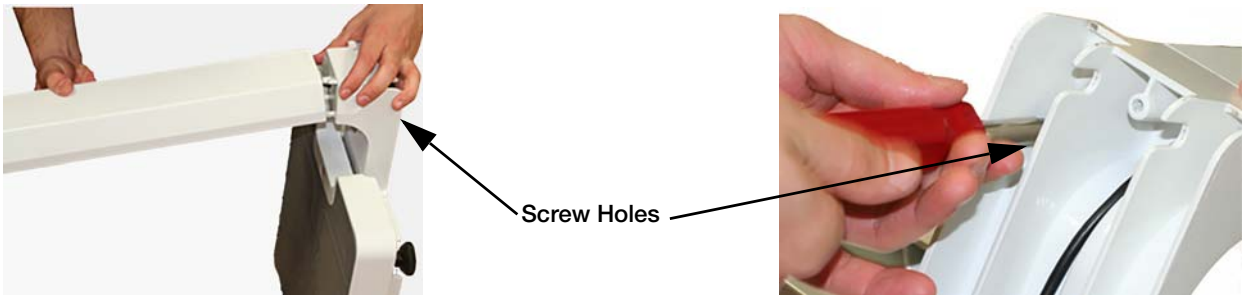


Figure 2-2. Attach Column

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.

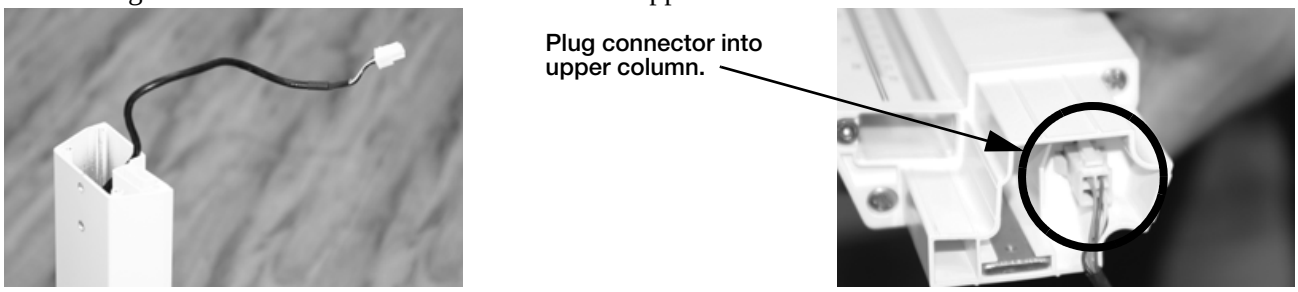


Figure 2-4. Extend Cable Through Scale Column

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

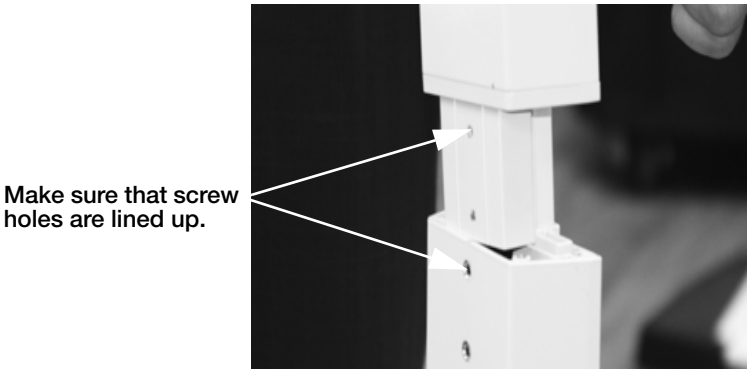


Figure 2-5. Insert Upper Column into Lower Column

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.
2. Slide the assembled height rod from the top of the column in the slot located on the front of the scale as shown in Figure 2-6.



Figure 2-6. Height Rod Assembly

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 as shown in Figure 2-7.



Figure 2-7. Batteries in Battery Chamber

3. Close the battery chamber cover.

2.4 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 2-8.Rice Lake Weighing Systems offers optional AC adapters, utilizing an adapter not supplied by us voids all warranties.

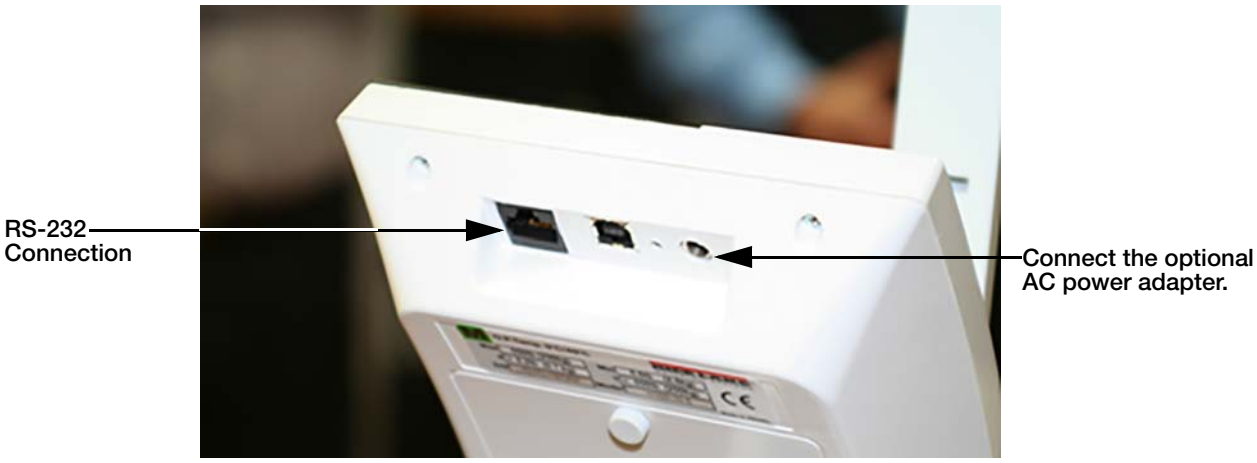


Figure 2-8. Power Connection

2.5 Leveling the Scale

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

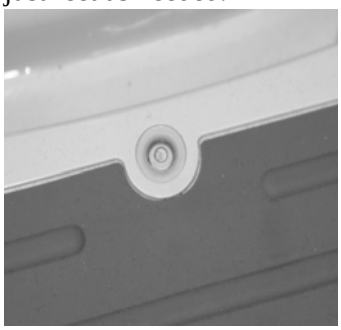


Figure 2-9. Bubble Indicates Scale Is Level

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

Table 3-1 describes each of the key functions.

Key	Name	Function
On/Off	On/Off	Switches the scale on or off.
Print LB/KG	Print LB/KG	A long key press will send data out from the RS-232 and USB ports. A short key press allows the user to toggle between kilograms and pounds providing that it's enabled in configuration mode.
Zero	Zero	Clears the weight off the scale and returns it to zero.
	Hold Release	The first press holds the most current weight value shown on the display. A second press releases the weight value shown.
BMI	BMI	Allows the user access to the Body Mass Index (BMI) function.
CLEAR	CLEAR	Returns the scale to normal weighing when the BMI value is being displayed.
ENTER	ENTER	Used to accept height in BMI mode.
	Up/Down Arrows	Used to adjust height input (0.5 in/0.5 cm) while in BMI mode.

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

Note ***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 On/Off 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 Print LB/KG to change the display from lb to kg and vice-versa.
4. To turn off the scale, press and hold On/Off 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.

At this stage Zero will not work. To return to zero press one more time.

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.

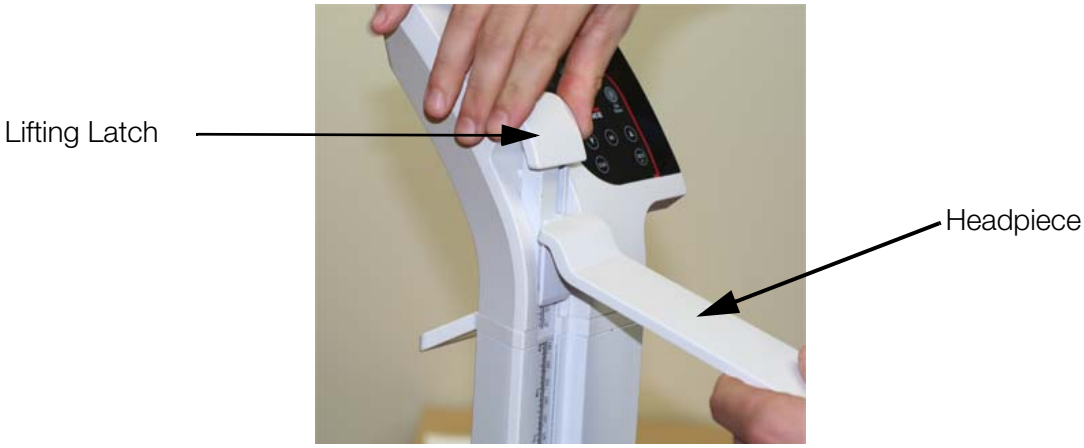


Figure 3-2. Pull up on White Latch to Extend Height Rod

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 Line Location

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

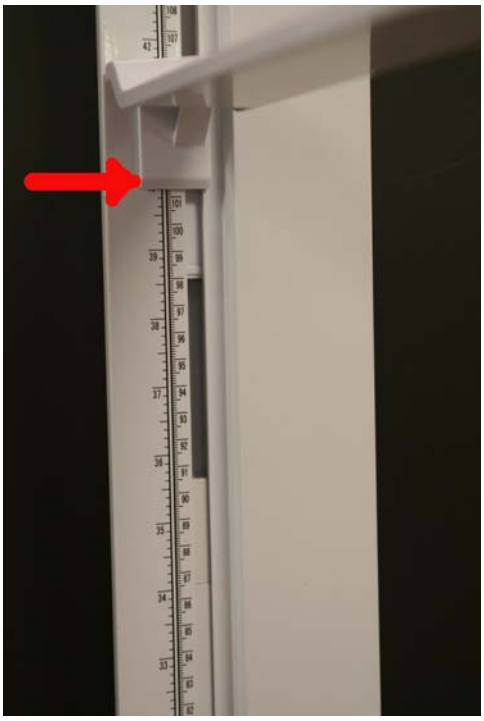


Figure 3-5. Read Measurement for People Under 43 Inches

4.0 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 2-8 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
- Standard remote protocol
- Escape 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 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.

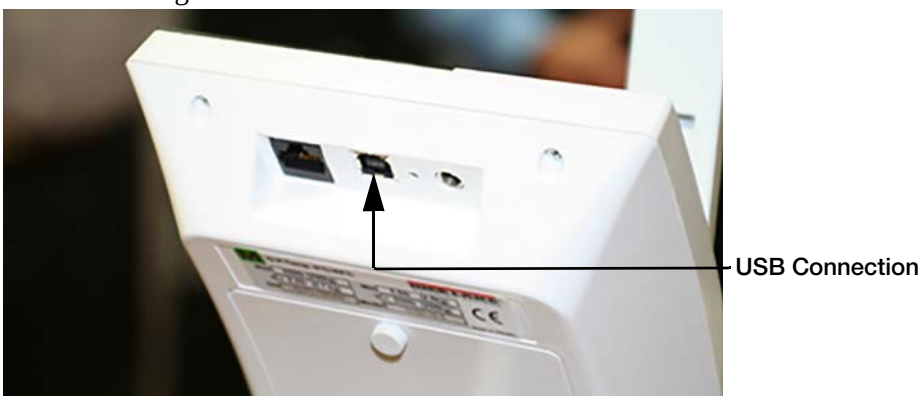


Figure 4-1. USB Connection Port

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

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 window that pops up when the USB cable is connected to the indicator and the scale is turned on.



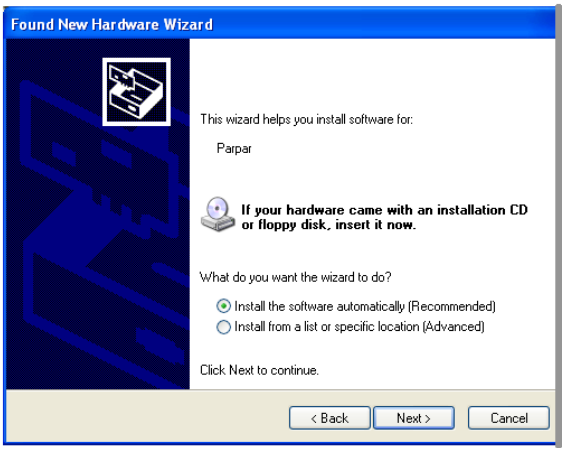
Figure 4-2. Found New Hardware Wizard

Follow the screen prompts to navigate through the screens below.

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



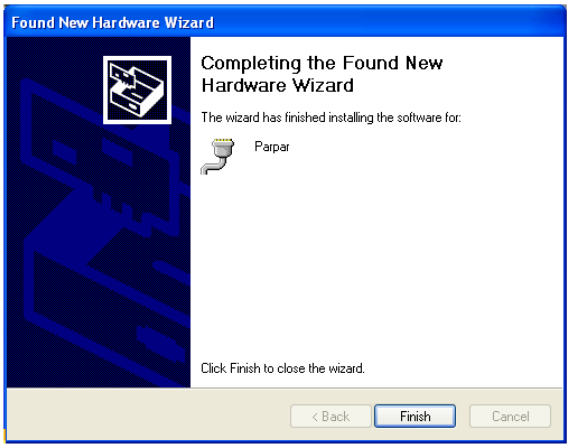
2. Select ***Install the software automatically***, then select **Next.**



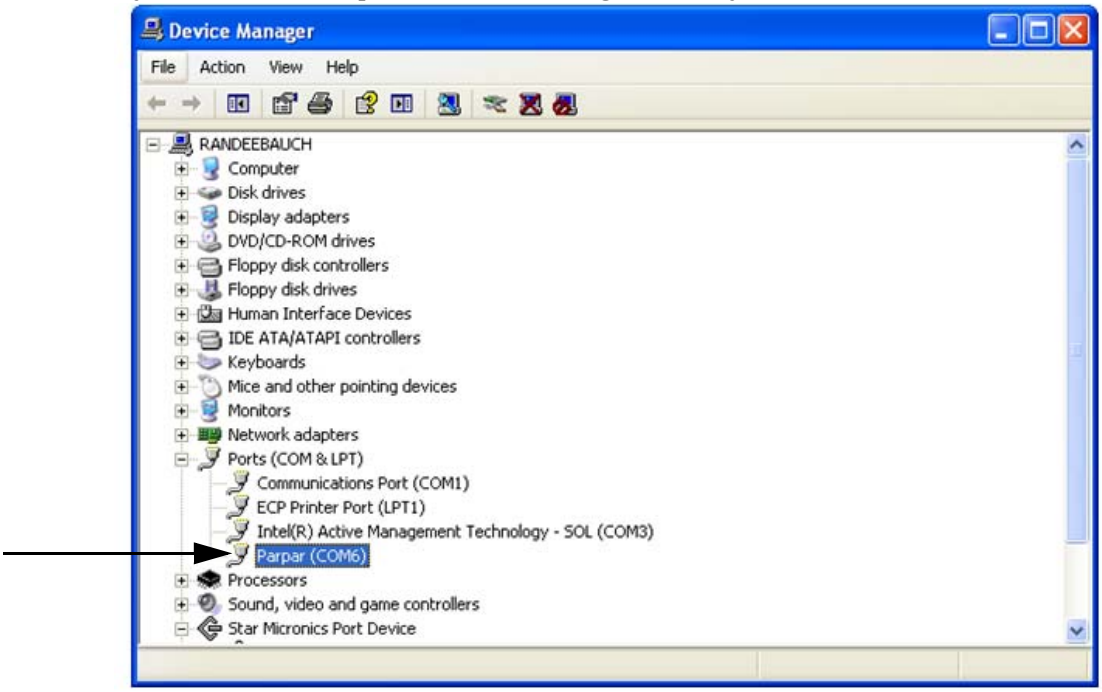
3. The following screen appears while the driver is installing on to your system.



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 Maintenance

5.1 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 adaptor.
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 useable — 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 5-1. Troubleshooting Table for the Rice Lake Scale Line

5.2 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.

5.2.1 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.

5.2.2 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.

5.3 Rice Lake Digital Scale 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 b (100 g)

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

Dimensions
Platform Dimensions
14.5 in W x 14.5 in L x 3 in H

Rice Lake Digital Scale 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.

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