

RL150-10-5 Digital Physician Scale

150-10-5

Software Revision 11439


Operation Instructions



RICE LAKE[®]
WEIGHING SYSTEMS
To be the best by every measure[®]

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



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

1.0 Introduction

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



Internet

This manual can be viewed and downloaded from the Rice Lake Weighing Systems web site at www.ricelake.com/health. Technical information on these products and other medical products are available on the Rice Lake Weighing Systems web site. Rice Lake Weighing Systems is an ISO 9001 registered company.



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

2.0 Safety Section

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

2.1 Safety Signals

Safety Signal Definitions:



Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



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



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



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

2.2 Safety Precautions



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.



Before attempting to operate this unit, make sure every individual who operates or works with this unit has read and understands the following safety information. Please follow these instructions carefully;

- 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 (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.
- To avoid cross contamination, the scale should be cleaned regularly.
- The scale is not waterproof so 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 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 your body/feet are wet, such as after taking a bath.

3.0 Scale Assembly

3.1 Unpacking Your Scale

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

Parts contained in the shipping box include:

- The scale, which includes the scale base and attached column
- This manual
- 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. Remove the plastic and set aside.

3.2 Repacking

If the Rice Lake Digital Physician Scale must be returned for modification, calibration or repair, it must be properly packed with sufficient packing materials. Whenever possible, use the original carton when shipping the scale back.



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

3.3 Setting Up Your Scale

Use the following steps to set up the Rice Lake Digital Physician Scale.

Tools needed:

- Phillips head screwdriver

Use the following steps to set up the scale.

Move the scale into the area where the weighing process will occur. Place the scale on a hard, level surface for the most accurate weighments.

1. Locate the operator's manual from inside the box and set aside as it will provide instructions on the proper scale removal and set up.
2. 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.*



Figure 3-1. Cabling Connecting the Scale Platform and Scale Column

3. Gently thread loose cabling through the top of the scale column to eliminate any excess cable at the bottom of the column. This will eliminate the chance of pinching the cable as the column is being connected to the scale base.
4. Attach the scale column to the base as shown in Figure 3-2 making sure not to pinch the cable.



Figure 3-2. Attaching the Scale Column to the Scale Base

5. Using the enclosed screws, attach the column to the scale base as shown in Figure 3-3..



Figure 3-3. Attach with Screws

Wheel Assembly

Attach the wheel assembly to the scale prior to connecting the second column. To attach the wheels, use the following steps.

1. Attach the two wheels to the wheel assembly rod, as shown in Figure 3-4.



Figure 3-4. Attach Wheel Assembly

2. Attach the wheel assembly to the scale using a Phillips head screw and tighten with a screwdriver.

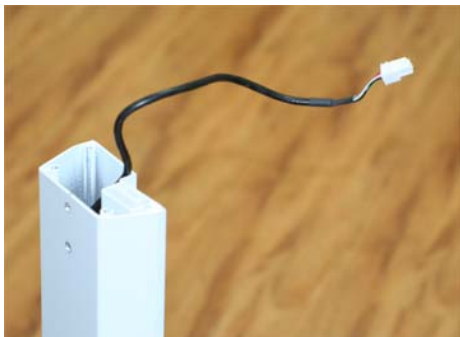
Attach Second Column to First Column

Once the wheel assembly is attached, finish the scale assembly using the following steps.



Note

Ensure that the cable is extending through the top of the lower column so that it can be plugged into the second (upper) column.



Plug connector into upper column.

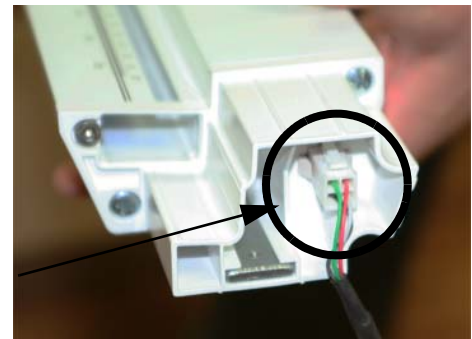


Figure 3-5. Extend Cable Through Scale Column

3. Once the cable is connected, insert and slide the upper column onto the lower column as shown in Figure 3-6, making sure that the screw holes are lined up and that the cable does not get pinched.

Make sure that screw holes are lined up.

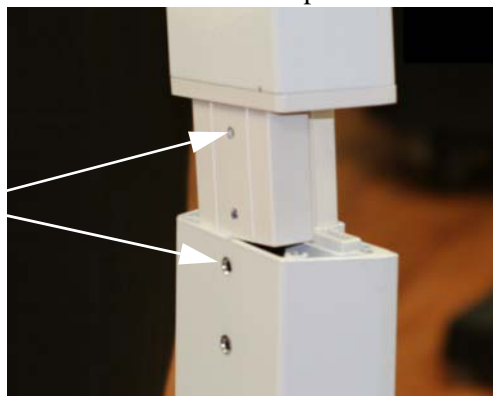


Figure 3-6. Insert Upper Column into Lower Column

4. Insert two screws and tighten using a Phillips head screwdriver.

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 3-7.



Figure 3-7. Height Rod Assembly

3. To use the height rod, pull up on the height rod using the plastic cap located at the top of the height rod as shown in Figure 3-7.
4. Swing the height adjustment lever into a horizontal position according to the person to be measured. The person being measured needs to stand straight with the height adjustment lever just touching the top of the person's head.

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 3-8.



Figure 3-8. Batteries in Battery Chamber

3. Close the battery chamber cover.

AC Power Connections

Use the optional 120 VAC adaptor or 230 VAC adaptor when power is available. The AC power adaptor plugs into the back of the indicator as shown in Figure 3-9.

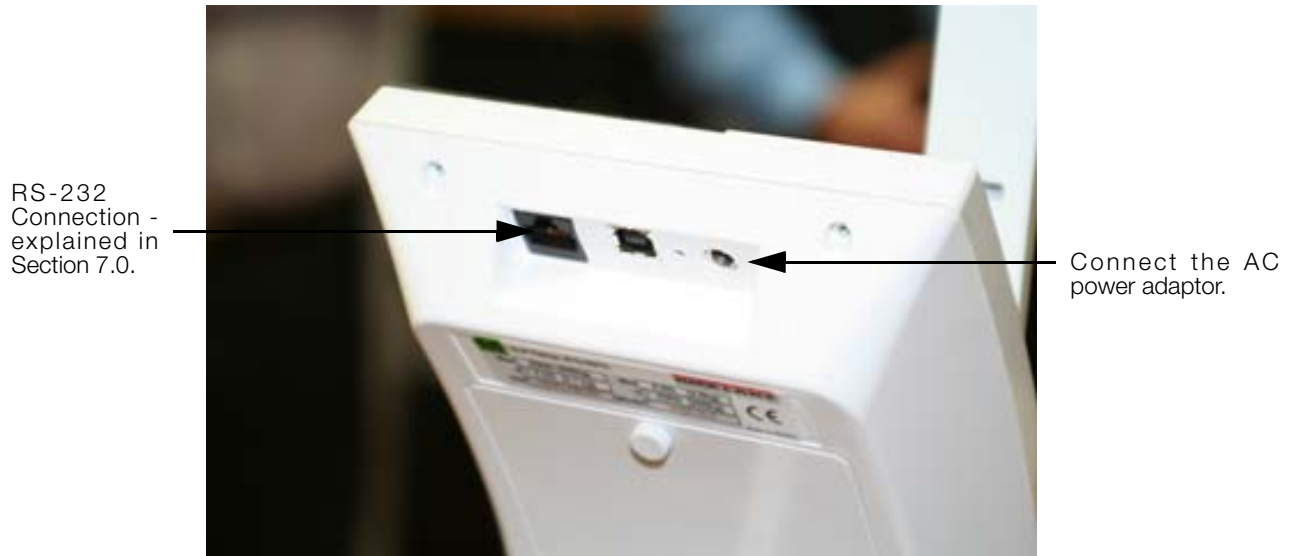


Figure 3-9. Power Connection

Leveling the Scale

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



Figure 3-10. Bubble Indicates Scale Is Level

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

4.0 Scale Operation

The Rice Lake Digital Physician Scale display has various front panel keys as shown in Figure 4-1.



Figure 4-1. Rice Lake Digital Physician Scale Front Panel Display Keys

Key Descriptions

Table 4-1 describes each of the key functions.








Key	Name	Function
	On/Off	Switches the scale on or off.
	Print LB/KG	Print — A long key press will send data out from the RS-232 and USB ports. LB/KG — A short key press allows the user to toggle between kilograms and pounds providing that it's enabled in configuration mode.
	Zero	Clears the weight off the scale and returns it to zero.
	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.
	BMI	Enables the user to access the BMI (Body Mass Index) function.
	CLEAR	Allows the user to return to normal weighing when the BMI value is being displayed.
	ENTER	Used to accept height in BMI mode.

Table 4-1. Rice Lake Digital Physician Scale Key Functions


Key	Name	Function
	UP/DOWN Arrows	Used to adjust height input (0.5 in/0.5 cm) while in BMI mode.

Table 4-1. 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.

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

4.1 Weighing

Use the following steps to weigh a person.

1. Press the **On/Off** key to turn on the scale and *0.0* will appear on the display along with *ZERO* on the upper display.
2. When the person steps on the scale the display shows the person's weight. The *LOCK* annunciator is on in the upper display and beeps to indicate the end of the weighing process.
3. To change the display from Lb to Kg and vice-versa, press the **LB/KG** key.
4. To turn off the scale, press and hold the **On/Off** key until *OFF* appears on the display.

4.2 Hold/Release Function

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

1. When the person is on the scale, press the **Hold/Release** key.
2. When the person steps off the scale, the weight and the *HOLD & LOCK* annunciator will remain on the display.
3. At this stage the **ZERO** key will not work. The only way to return to zero from here is to press the **Hold/Release** key one more time.



Note

Pressing the Hold/Release key prior to a person getting on the scale will also work.

4.3 Using the 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.
3. The *LOCK* annunciator is illustrated on the display.
4. Press the **BMI** key. The **BMI** and **FT/IN** annunciators are lit on the display and a default value of 5 feet and 7.5 inches (5-07.5) is flashing.
5. Use the **UP/DOWN** arrow keys to adjust the height value, and press the **ENTER** key to move to the next step.
6. The **BMI** value and **BMI** annunciator is shown on the display. Press **CLEAR** to return to the weighing mode and the **BMI** function will be turned off.

KG Mode

1. Ensure that the scale is at zero.
2. Have the person step on the scale to obtain a weight.
3. The *LOCK* annunciator is illustrated on the display.
4. Press the **BMI** key. The **BMI** and **CM** annunciators are lit on the display and a default value of 170.0 cm (170.0) is flashing.
5. Use the **UP/DOWN** arrow keys to adjust the height value, and press the **ENTER** key to move to the next step.
6. The **BMI** value and **BMI** annunciator is shown on the display. Press **CLEAR** to return to the weighing mode and the **BMI** function will be turned off.

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 3-9 on page 7 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

5.1 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:

```
xxxxxxxx<SP>uu<SP>mmmmm<SP><CR><LF>
```

Where:

xxxxxxxx is the weight with decimal point and " - " sign, if negative uu is the unit (lb or kg).

mmmmm is the mode (gross or net)

Examples:

```
-10 Lb net = <SP><SP><SP><SP>-10.0<SP>lb<SP><SP>Net<SP><SP><SP><CR><LF>
```

```
10 Lb gross = <SP><SP><SP><SP><SP>-10.0<SP>lb<SP>Gross<SP><CR><LF>
```

- 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
```

5.2 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 5-1.

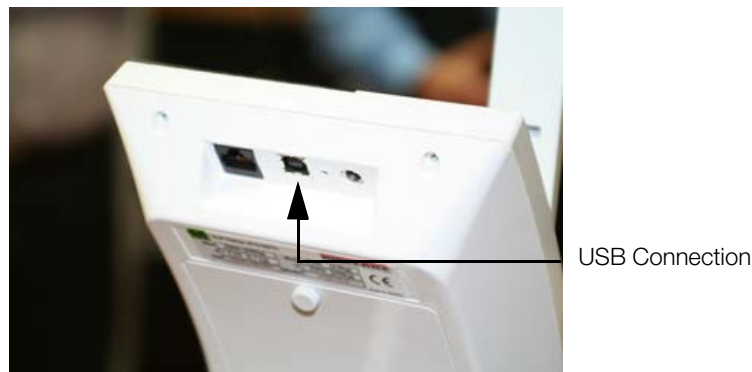


Figure 5-1. USB Connection Port

Connecting software and downloads should be addressed by your IT department. For more information on setting up the USB connection, please refer to the *Rice Lake Digital Physician Scale Technical and Operating Instructions*, PN126178, which is available online at www.ricelake.com/health.

6.0 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 — 1 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 for the Rice Lake Scale Line

7.0 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.

7.1 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 adaptor for cord cracking or fraying or for broken or bent prongs.

7.2 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.

8.0 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

550lb (250kg) 0.2lb (100g)

Certifications and Approvals

RoHS Compliant

Dimensions

Platform Dimensions

14.5 in W x 14.5 in L x 3 in H

For More Information

System Manuals

- *Rice Lake Digital Physician Scale Technical and Operating Instructions*, PN 126178

Literature

- 4-color *150-10 Series Digital Physician Scale 150-10 Series literature*, PN 126117

Web Site

- <http://www.ricelake.com/health>

Contact Information

Hours of Operation

Knowledgeable customer service representatives are available 6:30 a.m. - 6:30 p.m. Monday through Friday and 8 a.m. to 12 noon on Saturday. (CST)

Telephone

- Sales/Technical Support 800-472-6703
- Canadian and Mexican Customers 800-321-6703
- International 715-234-9171

Fax

- Fax Number 715-234-6967

Email

- U.S. sales and product information at proinfo@ricelake.com
- International (non-U.S.) sales and product information at intlsales@ricelake.com

Mailing Address

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Rice Lake, WI 54868 USA

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.

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.

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