

Rice Lake Digital Chair Scale

Model 550-10

Software Revision 11454

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/training or obtained by calling 715-234-9171 and asking for the training department.



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

1.0 Introduction

The Rice Lake 550 Digital Chair Scale is efficiently designed to provide accurate, reliable and repeatable weight measurements and has features that enable a fast and convenient weighing process. The Rice Lake 550 Digital Chair Scale features an ergonomic design, has two armrests that can be lifted separately and a foot rest that can be folded. Its four swivel casters can be locked in place.



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 550 Digital Chair Scale

2.0 Cautions and Warnings

With the Rice Lake 550 Digital Chair Scale there are certain precautions that should be taken to prevent personal injury to the user and damage to your scale.



Please follow these instructions carefully;

- Do not transport the scale while the platform is loaded.
- Always lock the caster brakes of the chair before seating the patient.
- Make sure the footrest is in the up position when seating the patient.
- Do not drop the scale or subject it to violent shocks.
- For accurate weighing, the scale must be placed on a flat, stable surface.
- For accurate weighing, verify proper operation according to the procedure described in this manual before each use.
- Weight exceeding the maximum capacity (660 Lb/300 Kg) may damage your scale.
- Do not use in the presence of flammable materials.
- Operating at other voltages and frequencies than specified could damage the equipment. Use only medically approved AC adapters.
- 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.
- These scales are used to determine weight of people while sitting.
- To avoid cross contamination, the scale plate must be cleaned regularly. It is recommended after each weighing which could result in potential contamination such as when there is direct skin contact during the weighing process.
- The scale is not waterproof so avoid contact with excessive moisture.

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 chair scale
- This manual
- Box labeled *Parts Inside*
- The *Parts Inside* box contains the following:
 - Serial communication cable
 - AC adaptor
 - 6 AA batteries
 - 5 mm Allen key
 - 4 M6 x 16 Allen screws (to attach seat to base)

3.2 Save Packaging

If the Rice Lake 550 Digital Chair Scale must be returned for any reason, it must be properly packed with sufficient packing materials in the original carton.



Note *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 550 Digital Chair Scale.

Move the box into an area where the scale can be assembled. It's recommended that the scale be placed on a hard, level surface for the most accurate weighments.

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

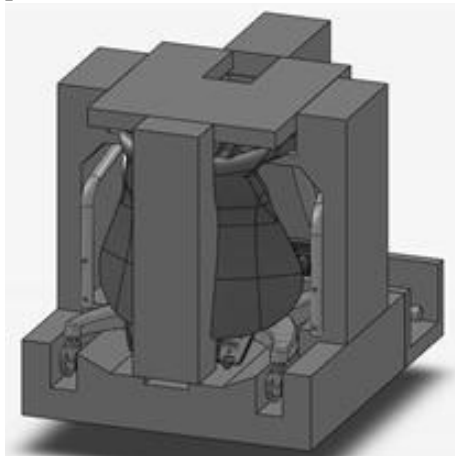


Figure 3-1. Chair Scale Packaging Once Out of the Box

2. Locate and remove the "Parts Inside" box and locate the 5 mm Allen key.

3. Remove top styrofoam and remove the seat from the attached styrofoam.

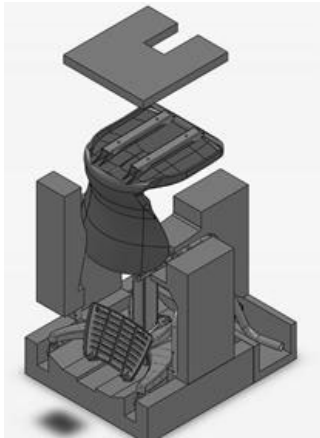


Figure 3-2. Remove Seat From Packaging

4. Set the seat aside for later assembly.
5. Remove the side styrofoam and the back handle styrofoam.

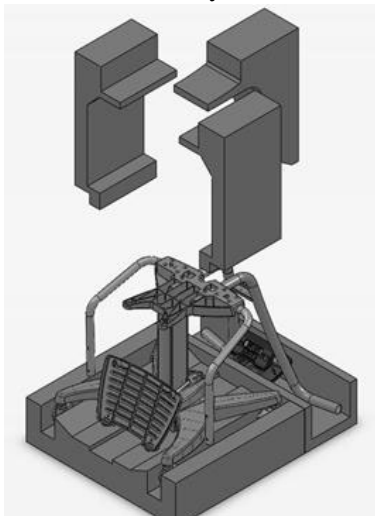


Figure 3-3. Remove Side Styrofoam From Packaging

6. Take out the scale from remainder of packaging material.

Note: The chair is heavy so use assistance in taking it out of the box and placing it on the floor, making sure it does not get dropped.

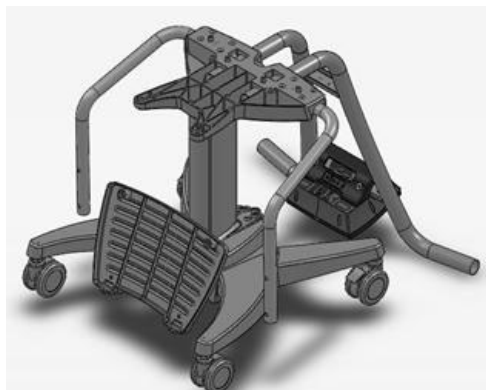


Figure 3-4. Chair Scale Without Packaging Materials

7. Collect the styrofoam pieces and place them back in the carton box.

Chair Assembly

Use the following steps to assemble the chair.

1. Use the Allen key provided in the “Parts Inside” box.
2. Release both of the screws holding the back handle frame (which is marked with circles in Figure 3-5).

Remove screws to
release the back handle
frame

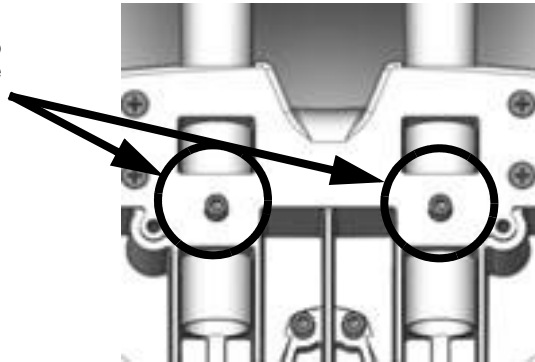


Figure 3-5. Remove Screws to Release the Back Handle Frame

3. Pull out the back handle frame and rotate it so that the indicator will be facing up.

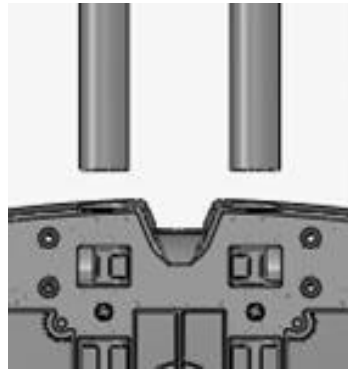


Figure 3-6. Pull out Frame and Rotate

4. Insert the back frame and secure it with the screws.

Tighten screws once
frame has been rotated

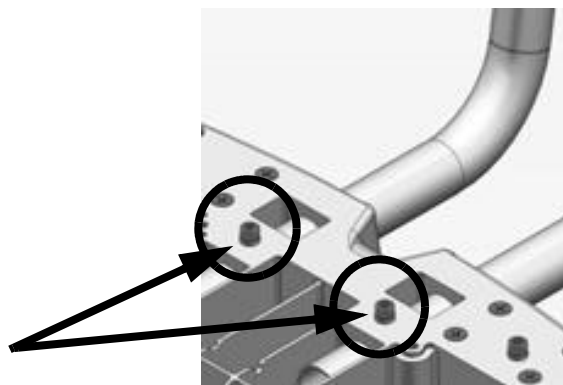


Figure 3-7. Tighten Screws Once Frame Has Been Rotated and Reinserted

5. Connect the load cell cable and indicator cable making sure to position the load cell cable on the grooves

so that it doesn't get damaged or pinched.

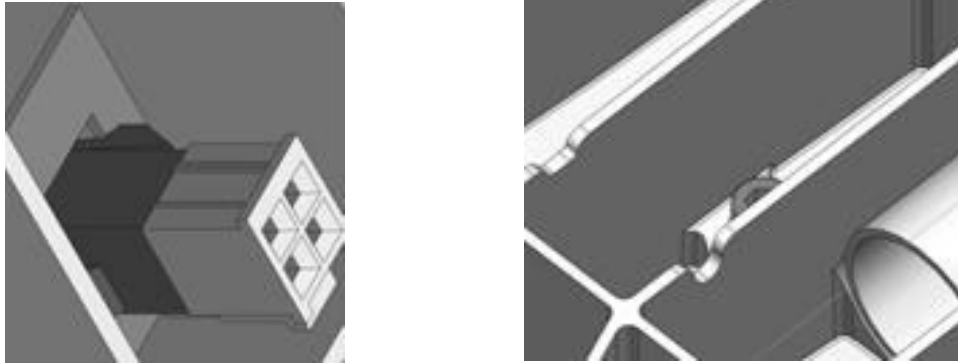


Figure 3-8. Connect Load Cell Cable and Indicator Cable

6. Use the Allen key (provided) to release both screws holding the arm rest frame (marked with circles below).

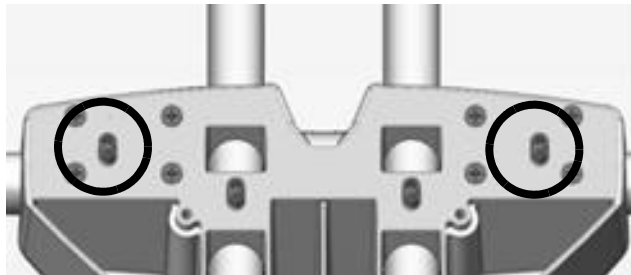


Figure 3-9. Loosen Screws Holding Arm Rest Frame

7. Rotate the arm rest until the arm rests are parallel to the seat base.
8. Tighten the screws to secure the arm rests in place.

Note: The arm rests can move up and down to allow easy patient access.



Figure 3-10. Arm Rest Assembly

9. Place the seat of the seat base and secure it into place using the four (4) M6 x 16 Allen screws.

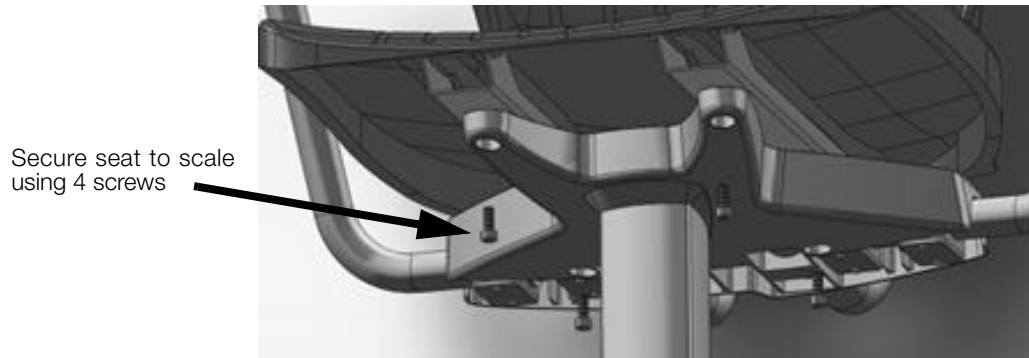


Figure 3-11. Secure Seat to the Scale Using Screws

10. Use level bubble to check for level and adjust feet as needed by adjusting bolts located on top of each caster wheel.



Figure 3-12. Bubble Indicates that the Scale is Level

Note: Ensure casters are in a locked position prior to having a patient sit down on the chair scale.



Figure 3-13. Brake Location on Each Caster Wheel

11. Foot rest must be in the UP position prior to patient sitting down on the chair scale. Once the patient is seated, you can lower the foot rest.



Figure 3-14. Flip Footrest Down

Inserting Batteries

The Rice Lake 550 Digital Chair Scale uses six (6) AA batteries which offers an average of 25 hours of continuous use from the batteries. The batteries come with the product.


To install the batteries,

1. Open the battery chamber cover.
2. Insert batteries.



Figure 3-15. Batteries in Battery Chamber

3. Close battery chamber cover.

If an external power supply or USB power is connected, the battery flag on the display is turned off. 

When on battery or USB power supply, the backlight power is deducted to 60 percent.

AC Power Connections

The Rice Lake 550 Digital Chair Scale has a 120 VAC adaptor or 230 VAC adaptor to use when power is readily available. The AC power adaptor plugs into the back of the indicator as shown in Figure 3-16.

Connect the AC
power adaptor.



Figure 3-16. Power Connection

4.0 Scale Operation

The Rice Lake 550 Digital Chair Scale display has various front panel keys. They are shown below.



Figure 4-1. Rice Lake 550 Digital Chair Scale Front Panel Display Keys

Key Descriptions

Table 4-1 describes each of the Rice Lake 550 Digital Chair Scale's key functions.








Key	Name	Function
 On/Off	On/Off	Switches the scale on or off
 Print LB/KG	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	Zero	Clears the weight off the scale and returns it back to zero.
 Hold Release	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	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 settings.
 TARE	Tare	Is used to subtract the weight off the scale, ie: oxygen tank, other equipment.
 CLEAR	Clear	Allows you to return to normal weighing when the BMI value is being displayed.

Table 4-1. Digital Chair Scale Key Functions



Key	Name	Function
	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 4-1. Digital Chair Scale Key Functions



Note

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.

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. Have the person sit down on the scale. The display shows the person's weight, and 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 gets 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* key prior to a person getting on the scale will also work.

4.3 Preset Tare

Use the following steps to use the Preset Tare:

1. When the weight is set to *0.0*, place the extra load on the scale and press the **TARE** key until the display returns to *0.0* and *NET* appears on the display.
2. Remove the extra load from the scale. The weight will appear with a negative symbol to the left of it.
3. Ask the patient to sit down on the scale with the extra weight. The display then shows the patient's weight. The *NET* annunciator is still on. The weight of the extra load remains stored in memory.
4. To cancel the tare weight, press and hold the **TARE** key until *NET* disappears from the display and the display turns back to *0.0* and *GROSS* appears. Tare weight is also cancelled when the scale is turned off.

4.4 Toggle Tare

Use the following steps to use the Toggle Tare function:

1. When the weight is set to *0.0*, press the **TARE** key.
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 the **UP/DOWN** arrow keys to adjust the value.
4. Press **ENTER** to start the tare function and the *NET* annunciator will be turned on instead of the *GROSS* annunciator.

4.5 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 sit down 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 (ie: 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 sit down 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 (ie: 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 which 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 System. Figure 3-16 on page 8 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, 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:

```
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>l<SP><SP>Net<SP><SP><SP><CR><LF>
```

```
10 Lb gross = <SP><SP><SP><SP><SP>-10.0<SP>l<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 550 Digital Chair Scale has the capability of connecting to a PC using a USB connection and a USB cable (not included). That connection location is shown in Figure 5-1.

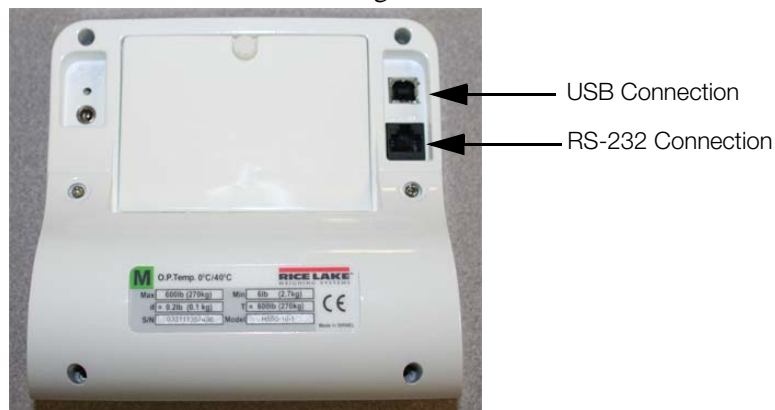


Figure 5-1. USB Connection Port and RS-232 Connection Port

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 550 Digital Chair Scale Technical and Operating manual*, PN130982, which is available online at www.ricelake.com/health.

6.0 Troubleshooting and Testing

Refer to the following instructions 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 a <i>STOP</i> message	The load on the scale exceeds the capacity of the scale	Remove the excess weight and use the scale according to manufacture's specs.
The display shows <i>LO Bat</i> message	The battery is low	Recharge the battery.
The display shows Err message as detailed in the table below		
Err 2	Low saturation state (low A/D)	The load cell is not connected properly. Check the cables and mechanical connections. If the problem persists, replace the set of load cells.
Err 3	High saturation state (high A/D)	See Err 2
Err 6	Unstable weight. Cannot calibrate	Check the load cells' mechanical surroundings and see that nothing touches them and that the cables are properly welded.

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, abuse, etc.
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 into cleaning or other liquid solutions.
3. Do not use Isopropyl alcohol or other solutions to clean the display surface.

8.0 Rice Lake 550 Digital Chair 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

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

Digital Chair Scale

660 Lb (300 Kg) 0.2lb (0.1Kg)

Certifications and Approvals

RoHS Compliant

For More Information

System Manuals

- *Rice Lake 550 Digital Chair Scale Technical and Operating Instructions*, PN 130982

Literature

- *4-color 550-10 Series Digital Chair Scale 550-10 Series literature*, PN 130955

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
- Canada and Mexico Customers 800-321-6703
- International 715-234-9171

Immediate/Emergency Service

For immediate assistance call toll-free 1-800-472-6703 (Customers in Canada and Mexico, please call 1-800-321-6703). If you are calling after standard business hours and have an urgent scale outage or emergency, press 1 to reach on-call personnel.

Fax

Fax Number 715-234-6967

Email

- US sales and product information at prodinfo@ricelake.com
- International (non-US) sales and product information at intlsales@ricelake.com

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