BenchMark® SL and SL/HE

Light-Capacity Spring Loaded Bench Scales

Technical Manual

RICE LAKE®
WEIGHING SYSTEMS

June 26, 2026

PN 200150 Rev B

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www.ricelake.com

Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
B	June 26, 2026	Established revision history; discontinued CW-80B

Table i. Revision Letter History

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1.0 Introduction

The manual provides an overview of the technical information for the BenchMark SL and SL/HE Light-Capacity Spring Loaded Bench Scales.

Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties

1.1 Safety

Safety 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 allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not jump on the scale.

Do not use for purposes other then weight taking.

Do not place fingers into slots or possible pinch points.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Before opening the unit, ensure the power cord is disconnected from the outlet.

Keep hands, feet and loose clothing away from moving parts.

1.2 10" x 10" and 12" x 12" BenchMark SL and SL/HE Scales

All of the 10" x 10" and 12" x 12" models have stainless steel covers and frame systems. All models use a single point load cell with 10' of cable.

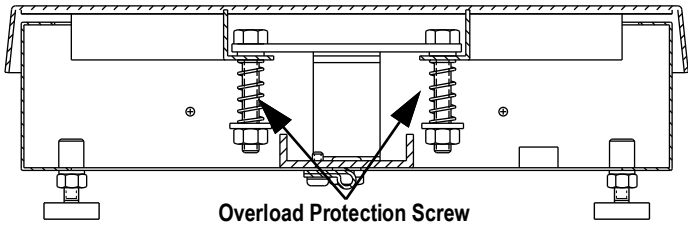

Figure 1-1. Overload Springs

The BenchMark SL and SL/HE scales use a sensitive 4-point, spring-plate suspension to minimize shock and overload damage susceptible of light-capacity scales. The system uses a bolt and an overload protection spring at each of four loading points beneath the top cover (Figure 1-1). Each spring is set for a specific tension so that it will compress to prevent overload damage. If a potentially damaging load is placed on a corner of the scale, the spring at that corner compresses. When the spring compresses, the load is taken off the load cell. This eliminates the possibility of overloading the load cell. If a load more than 150% of total capacity is placed anywhere on the deck, the springs will compress and remove the load from the load cell.

In addition to the overload protection spring, the SL and SL/HE scales incorporate a load cell overload protection screw beneath the load cell to help prevent overload damage.

To protect the load cell from being accidentally forced upward and damaged by improperly lifting the scale by the spider, a lift up protection screw is incorporated into the design (Figure 1-2).

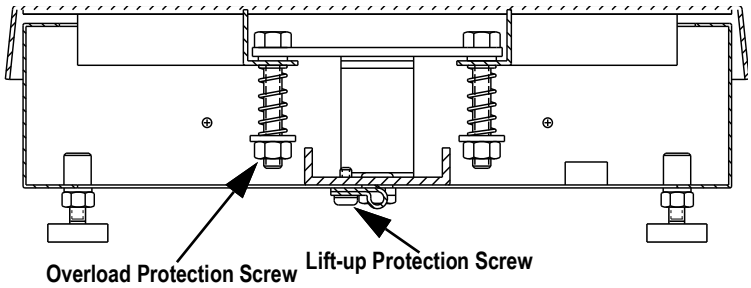

Figure 1-2. Lift up Protection Screw

2.0 Installation

This section provides an overview of how to install the BenchMark SL and SL/HE.

2.1 Unpacking

Immediately after unpacking, visually inspect the scale to ensure that the unit is undamaged. The shipping carton should contain the bench scale and this manual. If the bench scale was damaged in shipment, notify Rice Lake Weighing Systems and the shipper immediately.

2.2 Leveling the Scale

1. Place the scale in the desired location that is reasonably level and free of unnecessary vibrations and air currents.
2. Lift off the scale top cover and locate the level bubble.
3. Adjust the four corner feet on the scale base until the level bubble and all feet contact the support surface so the scale does not rock.
4. Lock the jam nuts on the feet when the final level is correct.

2.3 Connecting the Load Cell Cable

All models come with 10' of color-coded load cell cable.

IMPORTANT: Do not cut this cable. Cutting this cable voids the warranty.

NOTE: See the indicator manual to determine the proper load cell cable input connectors. Use the following color codes to wire the load cell cable to the indicator.

Color Code	Function
Green	+ Excitation
Black	- Excitation
White	- Signal
Red	+Signal
Blue	+ Sense
Yellow	- Sense

Table 2-1. SL Load Cell Wiring

Color Code	Function
Green	+ Sense
Black	- Excitation
White	+ Signal
Red	- Signal
Blue	+ Excitation
Grey	- Sense

Table 2-2. SL/HE Load Cell Wiring

NOTE: Connect Sense and Excitation wires together if using system without sense leads.

2.4 Grounding the Scale Base

Bench scales can build up a static electricity charge during weighing operations. If powerful enough, this charge can travel through the load cell cable to the indicator. To prevent this, all bench scales should be adequately grounded so that static charges and transient electrical surges can drain directly to ground. Recommended practice is to connect the scale base to an AC ground circuit using at least #12 wire. All BenchMark scales have either a grounding screw or a hole for such a grounding screw located on the bottom of the lower frame for this purpose.

2.5 Calibration

It is recommended that the scale be exercised by loading it to near capacity two or three times before calibration to ensure everything is seated. See the specific indicator manual for the proper calibration procedure.

To calibrate, see the following procedure:

1. With no load on scale, place the indicator in its calibration mode and perform a zero calibration.
2. Place certified calibration weights on platform equal to 70%–100% of scale's capacity. If several weights are used, distribute them evenly around the platform.
3. Perform a calibration.
4. Remove certified calibration weights and check the zero reading. If necessary, repeat the calibration process.

NOTE: See the indicator manual for the specific indicator calibration procedure.

3.0 Appendix

This section provides additional information about the BenchMark SL and SL/HE scales.

3.1 Options

Optional ball transfer, roller conveyor tops and custom height columns for attaching indicators to the scale are available. Consult the factory for available options.

3.2 Troubleshooting

For troubleshooting details, see the following information:

Issue	Cause	Solution
No display on indicator	Power disconnected	Connect power
	Cable cut or disconnected	Repair cable
	Signal leads incorrectly wired at indicator	Connect according to the manual
Indicator display remains at zero	Incorrect load cell cable connections	
	Faulty indicator	Service indicator
Erratic weight displays on indicator	Vibration near the scale	Remove the source of the vibration or adjust digital filtering of indicator to minimize erratic display
	Scale not level	Level the scale
	Water damage to the load cell or cable	Replace the load cell
	Faulty indicator	Service the indicator
	Loose load cell screws	Tighten to correct torque
	Faulty load cell	Test and replace if necessary
Consistently low weight	Indicator not properly adjusted to zero	Zero indicator correctly
	Scale cover binding	Obtain adequate clearance
	Overload stops set too high	Reset the stops correctly
	Indicator not calibrated for scale	Calibrate the scale
	Faulty load cell	Test and replace if necessary

Table 3-1. Troubleshooting

3.3 Dimensions

For SL and SL/HE bench scale dimensions see the following information:

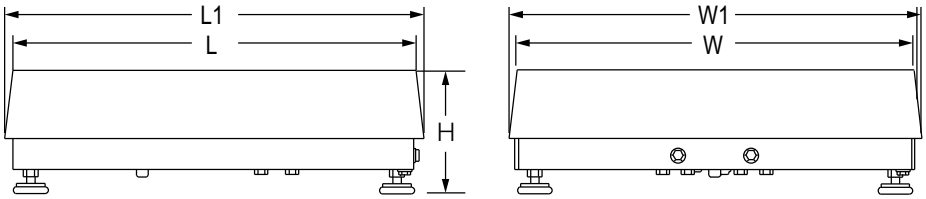

Figure 3-1. BenchMark Dimensions

3.3.1 BenchMark SL and BenchMark SL/HE Bench Scale

See Figure 3-1 for Table 3-2 dimension references.

Capacity	Product Dimensions (L x W x H)	L1 x W1
2 lb (1 kg)	10" x 10" x 3.15" (254 mm x 254 mm x 80 mm)	10.25" x 10.25" (260 mm x 260 mm)
5 lb (2.5 kg)		
10 lb (5 kg)		
15 lb (7 kg)		
20 lb (10 kg)		
30 lb (15 kg)		
30 lb (15 kg)	12" x 12" x 3.25" (305 mm x 305 mm x 83 mm)	12.25" x 12.25" (311 mm x 311 mm)
50 lb (25 kg)		
100 lb (50 kg)		

Table 3-2. SL and SL/HE Model Sizes

3.4 Load Cell Replacement

Use the following steps to replace load cells:

1. Unplug AC power from indicator and disconnect load cell cable from indicator.
2. Remove scale top cover.
3. Locate and uninstall the two upper load cell screws.

IMPORTANT: Do not remove four spring-loaded screws that attach load plate to spider assembly.

4. Remove load plate/spider assembly as a unit.
5. Remove spacer between load plate and load cell and set it aside.

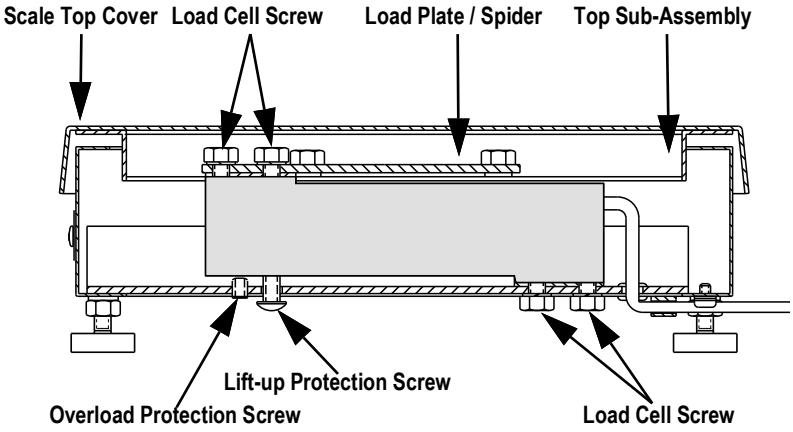

Figure 3-2. Load Cell Mount Diagram

6. Turn scale over and back off overload protection screw one complete turn. Completely unscrew and remove lift up protection screw.
7. Unscrew and remove two lower load cell screws. The load cell and cable can now be removed from scale. Do not lose shim beneath load cell.
8. Thread cable of replacement load cell through rubber grommet. Position load cell on shim and screw in two lower load cell screws. Torque to 80 in-lb.
9. Replace lift up protection screw by screwing it in until it lightly bottoms, then back it off 1/4 turn.
10. Turn scale right side up. Position spacer on load cell, then place load plate/spider assembly into position. Screw in two upper load cell screws. Torque to 80 in-lb.
11. Using an accurate caliper, check compressed spring length on four overload springs (Figure 3-3 on page 12). If necessary, adjust spring length to specifications shown in Table 3-3 on page 12. Replace top cover and re-level scale if necessary.
12. Connect load cell cable to indicator.
13. Recalibrate scale as described in Section 2.5 on page 8.

14. Adjust overload protection screw on bottom of scale by loading scale to 125% capacity. Place this weight on top cover, centered on platform. Use a hex wrench to screw in overload protection screw until it touches load cell, then back off 1/6 turn. Recheck calibration.

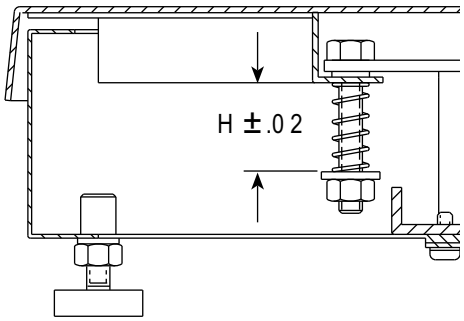

Figure 3-3. Spring Height

Scale Model	Spring Length "H"
10 x 10 - 2 lb	1.25
10 x 10 - 5 lb	1.06
10 x 10 - 6 lb	1.25
10 x 10 - 10 lb	0.94
10 x 10 - 15 lb	1.25
10 x 10 - 20 lb	0.97
10 x 10 - 30 lb	1.43
12 x 12 - 30 lb	1.43
12 x 12 - 50 lb	1.12
12 x 12 - 60 lb	1.25
12 x 12 - 100 lb	1.16

Table 3-3. Overload Spring Length

4.0 Specifications

Load Cell

SL	IP66 aluminum and environmentally sealed
SL/HE	IP69K stainless steel, hermetically sealed

Available Sizes

10" x 10", 12" x 12"

Rated Output

0.91 mV/V

Maximum Overload

SL	200%
SL/HE	200%, except 150% for 30 lb

Overload Protection

Shock-absorbing spider

Cable Length

10' (3 m) – 6 wire shielded

Output Impedance

350 Ω

Compensated Temperature Range

14° F – 122° F (-10° C – 50° C)

Safe Temperature Range

-22° F – 158° F (-30° C – 70° C)

Certifications and Approvals

SL

NTEP
CoC 95-072
Accuracy Class III; 5000 d

Measurement Canada
AM-5082, Class III 5000 d

Load cell is cFMus approved

SL/HE

NTEP
CoC 95-072
Accuracy Class III; 5000 d

Measurement Canada
AM-5082, Class III 5000 d

Load cell is FM approved

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