DeckHand™

Portable Floor Scale

Installation and Service Manual

RICE LAKE®
WEIGHING SYSTEMS

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www.ricelake.com

Revision History

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

Revision	Date	Description
E	January 22, 2026	Established revision history; Added grounding details

Table i. Revision Letter History

Contents

1.0 Introduction 5
1.1 Safety 6
2.0 Installation 7
2.1 Overview 7
2.2 Unpacking 7
2.3 Installing Optional Pivoting Ramp 7
2.4 Mounting and Wiring the Mast and Indicator 8
2.4.1 Assembling Mast to Base 8
2.4.2 Attaching Indicator Bracket to Mast 8
2.4.3 Mounting the Indicator 8
2.4.4 Wiring Load Cell Cable to Indicator 8
2.5 Configuring the Indicator 8
2.6 Calibrating with Test Weights 9
2.6.1 Calibration Procedure 9
2.7 Electrical Grounding 9
3.0 Service Information 10
3.1 Troubleshooting Guide 10
3.2 Periodic Maintenance 10
3.3 Load Cell Replacement 11
3.3.1 Disassembly 11
3.3.2 Reassembly 11
3.3.3 Wiring Load Cells into J-Box 12
3.3.4 Replacing Deck Platform 13
3.3.5 Corner Trimming 13
3.4 Mounting Indicator Brackets 14
3.5 Attaching Ramps 14
4.0 Specifications 15

1.0 Introduction

DeckHand™ Portable Floor Scales are fully electronic, NTEP-certified scales. Available in painted steel or stainless steel construction, these rugged scales come in 500 lb, 1000 lb, and 2000 lb capacities and allow for one-person portability on large rubber wheels.

The heavy diamond-tread platform is 30-1/2 in x 24-1/4 in (77 cm x 62 cm) with an overall base height of only 4 1/2 in (11 cm). The addition of an optional low-angle ramp allows one person to easily roll on a barrel or wheel on a hand truck. The free-floating ramp pivots back over the deck and rests on the mast for compact storage or balanced portability.

Figure 1-1. Optional Pivoting Ramp and Indicator

An efficient off-center arrangement of two high-capacity, single-point load cells yields Legal for Trade accuracy. Electronic components are double-protected from rough use. A RoughDeck™ stainless steel NEMA 4X junction box is further protected by mounting within the mast. The optional indicator mounts on a swivel bracket high enough on the 59 in (1.50 m) mast to clear the tallest loads.

In addition to ramps, available options include indicator brackets for the 480/480 Plus, 482/482 Plus, 880/880Plus, and 680 Synergy series indicators. Other indicators can be readily mast-mounted with slight modifications.

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:

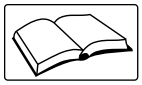
DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.

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. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

WARNING

Failure to heed may result in serious injury or death.

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.

Failure to heed may result in serious injury of 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.

DO NOT use near water.

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

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

2.0 Installation

2.1 Overview

Assembly of the scale consists of the following steps:

1. Unpacking (Section 2.2)
2. Installing optional pivoting ramp (Section 2.3)
3. Mounting and wiring the mast and indicator (Section 2.4 on page 8)
4. Configuring the indicator (Section 2.5 on page 8)
5. Calibrating the unit with test weights. (Section 2.6 on page 9)

2.2 Unpacking

The standard scale, with no added options, is shipped with load cells and indicator cable pre-wired into the junction box on the mast. The indicator can be mounted and wired after the mast is in place.

Remove all packing material and inspect base and mast components for visible damage caused during shipment.

2.3 Installing Optional Pivoting Ramp

If the optional ramp is to be installed, set it flat on the floor in position in front of the scale so the holes in the base align with the holes in the ramp pivot arms.

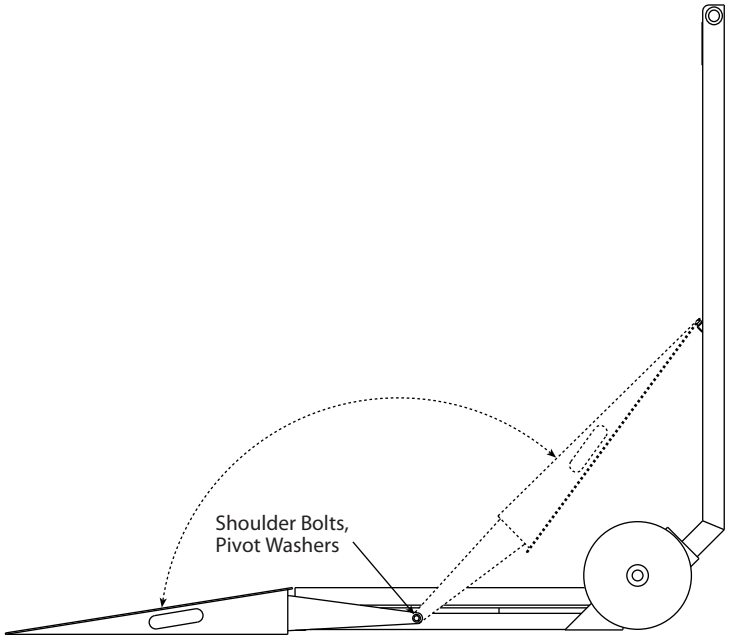


Figure 2-1. Pivoting Ramp

Insert a shoulder bolt with a single washer through an arm pivot hole. Slide three plastic pivot washers onto the bolt for clearance between the arm and the base (See Figure 3-4 on page 14). After the bolt engages the threads in the base, tighten the shoulder bolt snugly. Repeat for the other side.

2.4 Mounting and Wiring the Mast and Indicator

Reference Figure 4-1 on page 15 for graphic of DeckHand parts.

2.4.1 Assembling Mast to Base

Remove back plate from mast. Carefully insert mast into window in base. Align holes and secure with fasteners. Wrap excess cable around hooks in mast. Re-assemble back plate to mast.

2.4.2 Attaching Indicator Bracket to Mast

The DeckHand is supplied with a swivel bracket for a variety of RLWS indicators. If using a different bracket, bolt it onto the mounting plate on the mast with the bolts, washers, and nuts provided.

Set the two large plastic pivot washers provided near the thumbscrew bolts used to hold the indicator in the bracket. Put the bolts and washers within close reach of the bracket—they are needed for the next step.

2.4.3 Mounting the Indicator

Spread the bracket arms enough to slide the indicator between the bracket arms. Line up the bracket holes with the threaded enclosure holes as in Figure 2-2. Slide a plastic pivot washer between each arm and the indicator enclosure at the holes.

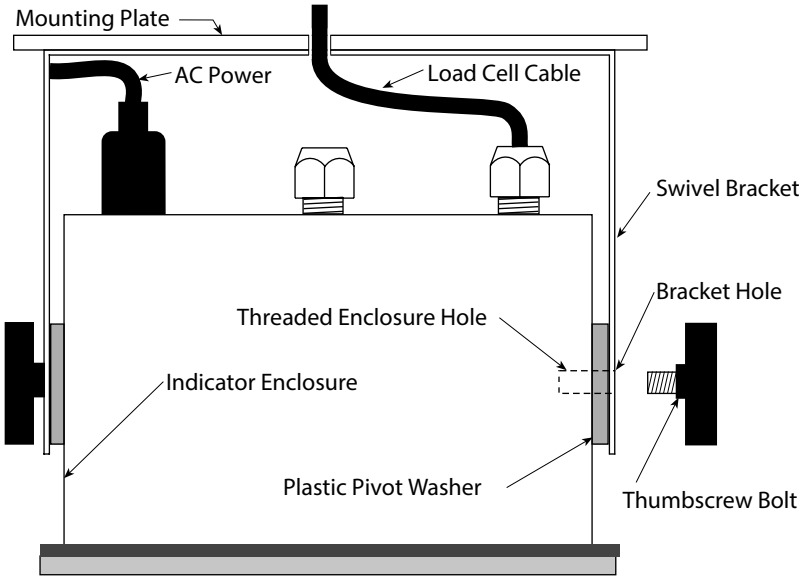


Figure 2-2. Top View of Indicator and Bracket

Insert the thumbscrew bolts through the bracket arms, through the washers, and into the threaded holes of the indicator enclosure. Tighten bolts snugly so the indicator remains at the desired viewing angle.

2.4.4 Wiring Load Cell Cable to Indicator

The load cell cable from the J-box is pre-wired to the indicator terminal inside the j-box. Attach the loose end of this cable to the indicator's load cell input terminal according to the corresponding pin functions on the j-box indicator terminal. When completed, tighten the cord grip around the cable where it passes through the indicator case.

2.5 Configuring the Indicator

Refer to the indicator manual for information on configuring the indicator for your application.

If using the DeckHand for a Legal for Trade application, do not configure the indicator for more divisions than the NTEP Class III maximums below:

Scale Capacity	NTEP Maximum Divisions
500 lb	2500 divisions
1000/2000 lb	2000 divisions

Table 2-1. NTEP Class III Maximum Divisions

2.6 Calibrating with Test Weights

Refer to the indicator operating manual to determine correct calibration procedure. Before beginning calibration, put the scale in the same temperature environment where it will be used. Power up the indicator so it can warm up for at least 20 minutes before starting calibration. The scale should be "exercised" before calibration to be certain that everything is seated. Load the scale to near capacity two or three times.

The following test weights are recommended for the most accurate calibration of the various models:

Scale Capacity	500 lb	1000 lb	2000 lb
Test Weights (75%)	375 lb	750 lb	1500 lb

Table 2-2. Sample Configuration

2.6.1 Calibration Procedure

1. Place scale on level surface and remove all load from scale.
2. Place the indicator in calibration mode and do a zero calibration according to the indicator manual.
3. Place test weights on the platform equal to the value shown in Table 2-2 (75% of the scale's capacity).
4. Do a span calibration according to the indicator manual.
5. Remove the test weights and check the zero reading.
6. Repeat the calibration process if necessary.

The calibrated DeckHand scale is now ready for operation.

2.7 Electrical Grounding

Rolling or wheeling loads onto the scale can build up large static charges that may damage the attached indicator unless it is properly grounded to prevent ESD. This is especially true in dry environments where charges drain off slowly, or if wheeling on materials which already contain a static charge, like rolls of paper or plastic film material that have been recently spooled.

IMPORTANT: To prevent ESD damage, the indicator requires a three-prong 120 VAC outlet plug with continuous earth ground. Do not attempt to use the scale with two-prong 120 VAC power without a ground.

If using the scale with an intrinsically safe indicator, refer to FM control documents for proper grounding procedure.

Load Cell Excitation

Rated Excitation: 10 VDC

Maximum Excitation: 15 VDC

mV/V Signal Output: 2 mV/V

Grade Level Requirements

The bubble level built into the platform should indicate a level condition in use. On uneven floors, place temporary shims under feet not contacting the floor.

Safe Static Overloading Capacity

Maximum: 150% of scale capacity

3.0 Service Information

3.1 Troubleshooting Guide

Symptom	Possible Problem	Solution
System does not operate—no display	Power disconnected	Check and reconnect
	Indicator fuse blown	Check for cause. Replace
	Interface cable cut or disconnected	Repair
	Signal leads incorrectly connected at indicator	Install according to indicator installation manual
Display stays at zero	Indicator faulty	Service indicator
	Load cell connections faulty	Check cable connections in junction box and at indicator
	Load cell overload screws turned fully in	Loosen overload screws to 0.020" gap
Erratic weights	Vibration near scale	Remove source of vibration or increase digital filtering
	Platform not level	Level scale by shimming if necessary
	Load cell or cable water damage	Replace
	Debris under load cells or platform	Clean
	Indicator faulty	Use simulator to test indicator for stability; Service indicator
Consistently high or low weights	Indicator not properly adjusted to zero	Zero the indicator according to operating manual
	Platform binding	Obtain adequate clearance for free platform movement
	Indicator not calibrated	Calibrate according to indicator manual and Section 2.6 on page 9
	Load cells cables pinched between platform and base	Reroute cables to provide clearance
	Load cells faulty	Test and replace load cells if necessary

Table 3-1. Troubleshooting

3.2 Periodic Maintenance

Two important spaces – between the platform side and frame, and beneath the platform – should be periodically cleaned to prevent debris build up.

The platform can be removed for periodic cleaning by unscrewing the lock nuts from the four welded studs on the underside of the platform. The platform can then be lifted off the load cell channels for cleaning.

When cleaning beneath the platform, be careful not to move the load cell cables to a new position where they can be pinched by the platform in operation.

IMPORTANT: Do not attempt to spray wash scales with non-hermetically sealed load cells. Water damage is a common cause of failure in non-hermetically sealed load cells.

Use care with hot water wash downs for hermetically-sealed load cells. The hot water may not damage the load cells, but the elevated temperatures can cause incorrect readings until the unit cools to room temperature.

When replacing the platform, tighten the four locknuts on the welded studs only until the flat washers beneath them contact the channel surface. Do not tighten the nuts further and compress the cushion pads between platform and channels. The platform must be free-floating on resilient pads for continued accuracy.

3.3 Load Cell Replacement

3.3.1 Disassembly

1. Remove the four locknuts and washers that secure the platform to load cell channels. Lift off the platform. Remove the column back plate to gain access to the j-box.
2. Determine which load cell is defective. Use a hardened hex-drive bit and large ratchet wrench to remove the four hex-drive countersunk machine screws holding the channel to the defective load cell underneath. Lift off the channel and the spacer on top of the load cell. Note how the load cell cable is routed on its cable hold downs.
3. Cut the plastic tie at each hold-down to free the cable. Remove the load cell wires from the load cell terminal in the J-box. Loosen the cord grip and pull the cable out of the J-box. Unwind the excess cable from the cable-storage studs and pull it out of the mast cavity.
4. Turn the scale on its side to remove the lower load cell screws. With the hex-drive bit and ratchet wrench, remove the four cap screws and lock washers that hold the cell to the mounting plate. Lift off the cell and spacer plate beneath.

3.3.2 Reassembly

Tilt and block the scale base enough to have comfortable access to the load cell screws from underneath the base. Position the new load cell with the cable to the inside and the label readable from the outside. Be sure the load cell body is not contacting the overload stop screw. Back the screw off if necessary (it was secured with Loctite at the factory and will turn hard).

1. Set the spacer block and load cell into position. Insert the four load cell screws from the bottom finger-tight only; final adjustments in load cell position are necessary before the screws are torqued down.
2. Run the new load cell cable to the J-box using exactly the path dictated by the cable existing ties. The existing cable hold downs keep the cables under the middle of each load cell channel, where they are protected from accidental crimping between the flexing channels and the frame. When new cable ties are attached, feed the cable through the cutout in the frame and into the mast cavity. Do not shorten the load cell cable; it is temperature-compensated for the supplied cable length. Wind the excess cable around the cable-storage studs, leaving enough free to wire into the junction box.
3. With the load cell still loose enough for final adjustment, set the top spacer block and load cell channel on the cell and insert the self-centering countersunk load cell screws. Tighten these screws alternately with a hex-drive bit and ratchet wrench to a final torque of 20 ft-lb for mild steel models and 12 ft-lb for stainless steel models.
4. Adjust the load cell/channel assembly so it is parallel with the other channel. Measure across the holes in the front and rear of the channels. Adjust the new cell so that distance is equal, then tighten the load cell cap screws from underneath to a final torque of 20 ft-lb for mild steel models and 12 ft-lb for stainless steel models. Check again to be certain the cable will not be pinched by the flexing channel in operation.
5. Finally, put a drop of Loctite on the overload stop screw and set it for a 0.020" gap with the load cell.

3.3.3 Wiring Load Cells into J-Box

Feed the load cell cable into the j-box cord grip closest to its terminal. When facing the scale, the left load cell is wired to terminal 4 of the j-box, and the right load cell is wired to terminal 1.

NOTE: The wire traces for cells 2 and 3 (JU-2, JU-3) have been cut, making those unused channels inactive.

Connect wires according to Table 3-2. Pull excess cable out of the J-box and tighten the cable cord grip snugly. The rubber seal will protrude slightly from the cord grip when tightened enough to be waterproof..

Load Cell Cable Color Code	J-Box Terminal	Load Cell Cable Color (load cells to j-box)
Green	+ Excitation	Green/Blue
Black	– Excitation	Black/Brown
Red	+ Signal	Red
White	– Signal	White
Bare	Shield	Yellow

Table 3-2. Load Cell Cable Wiring Code

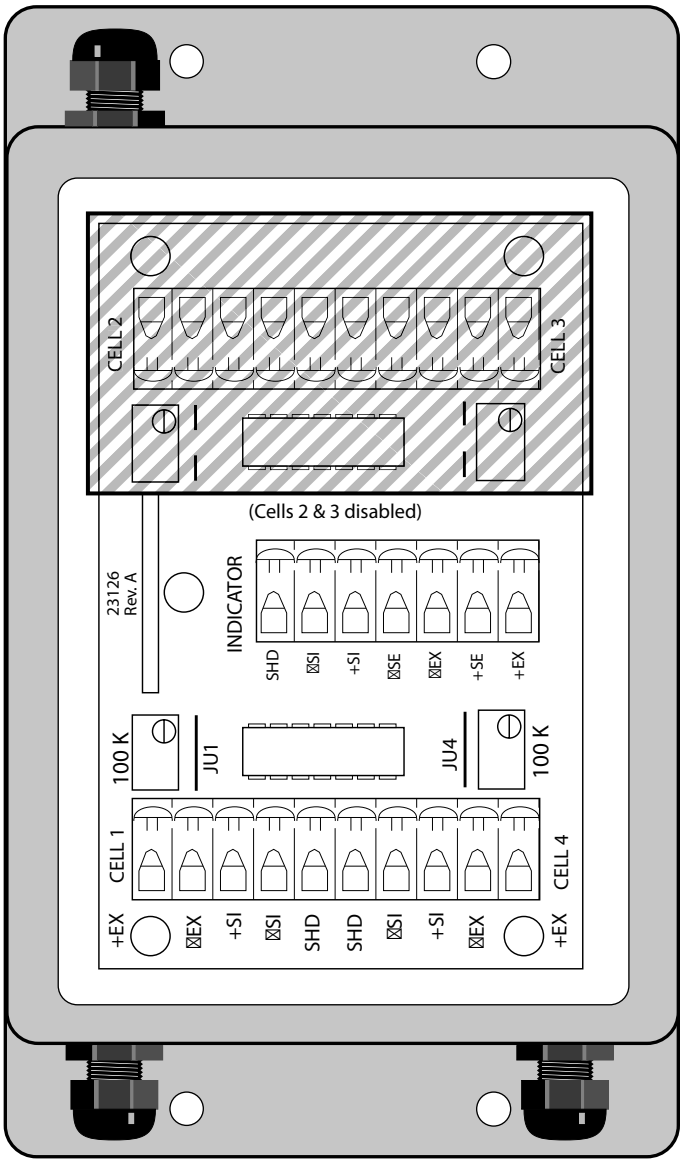


Figure 3-1. DeckHand Junction Box Cutaway

3.3.4 Replacing Deck Platform

Put the scale flat on the floor and set the platform on the channels so the welded studs drop into the channel holes. Tilt and block the scale up again and install a flat washer and locknut on each stud. Turn the lock nut onto each stud until the washer just contacts the channel underside. Do not tighten the lock nuts so the cushioning pads are compressed. The platform must be free floating for accuracy; the lock nuts merely serve as lift off protection.

3.3.5 Corner Trimming

All DeckHand scales are delivered with the junction box trimmed, but re-trimming to equalize loading is necessary after replacing a load cell.

To trim the scale, the output from each load cell must be matched by adjusting the signals with potentiometers at the junction box—a process known as trimming.

The indicator must be connected and approximately calibrated, but it need not indicate the exact weight value. An exact calibration will be done after trimming.

A test weight is required for corner trimming. The recommended minimum test weight for all DeckHand models is 25% of scale capacity.

1. Remove the junction box cover and identify the correct load cell terminal corresponding to each side of the scale (labeled CELL 1, and CELL 4).

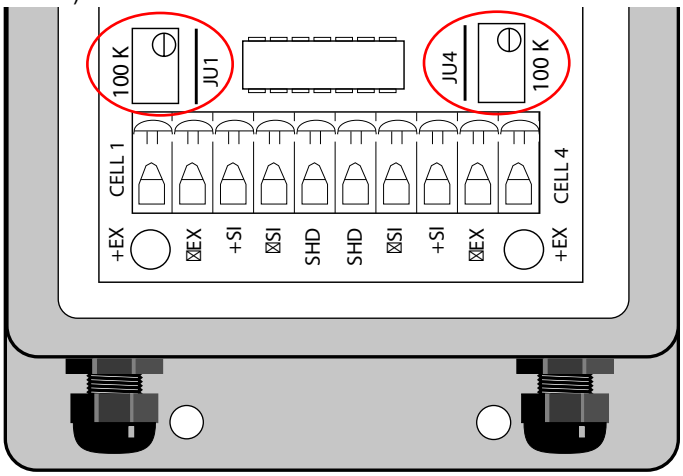


Figure 3-2. Cell 1 and Cell 4 Potentiometers

2. With scale level and no weight on the scale, zero the indicator. Then turn potentiometers for cells 1 and 4 fully clockwise to get the maximum signal from each load cell. A clicking sound can be heard when full signal is reached.
3. With both potentiometers at full signal, place the test weight over left or right side of platform and record the indicated weight reading. Repeat the process for the other side. The load cell with the lowest reading will be used as the reference cell and will not be trimmed.
4. Place the test weight over the side reading high and turn that cell's potentiometer to adjust the cell output down to the reference cell output.
5. Rezero the indicator and repeat the test until both sides are within ±0.1% of the test weight being used. Adjustments are somewhat interactive, so adjusting the higher output may affect the reference cell output.
6. Secure extra cable length by wrapping it around the cable storage pegs inside the mast.
7. When corner trimming is complete, pull any excess cable out of the junction box enclosure and tighten the strain relief hubs snugly with a wrench. To be watertight, the hubs must be tightened to the point where the rubber sleeving begins to protrude out of the hub (SST models).
8. Replace the J-box cover and column back plate.
9. Recalibrate per Section 2.6 on page 9.

3.4 Mounting Indicator Brackets

A universal mount plate is welded to the DeckHand mast. The plate is predrilled to match the bracket of most indicators and are supplied with the appropriate painted or stainless steel mounting hardware.

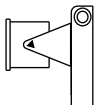


Figure 3-3. Indicator Bracket

3.5 Attaching Ramps

When attaching a ramp to a DeckHand scale, place one plastic pivot washer under the head of the shoulder bolt and three washers on the bolt in the space between the ramp arm and the scale deck.

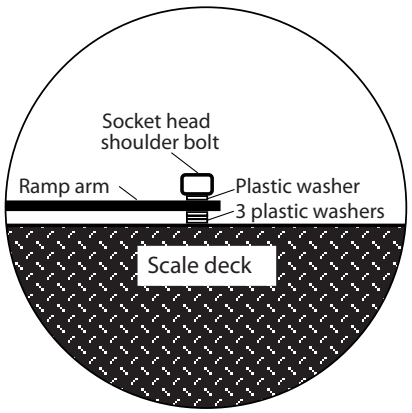


Figure 3-4. Ramp Pivot Bolt

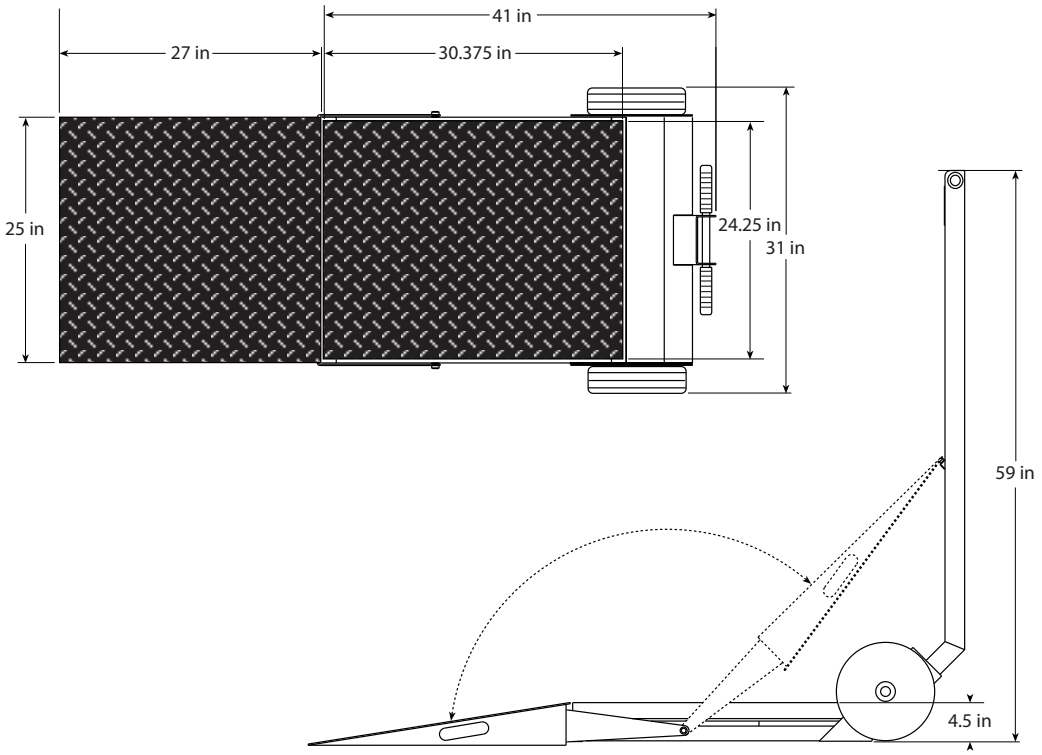


Figure 3-5. Scale and Ramp Dimensions (Top and Side Views)

4.0 Specifications

End Load Capacity
100% end loading

Cable Length
9 ft 10 in (3 m)

mV/V Output
2mV/V

Weighing Platter
4.5 in height when in weigh mode

Column Height
59 in

Warranty
Weldment: Five years
Load cells: Tow years
All other components: One year

Approvals
NTEP
Certificate Number: 98-004
Accuracy: Class III, 2500 d

Measurement Canada Approved

Measurement Canada
Approval Number: AM-5218

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