

# EL 210

*Four-Channel, Excitation-Trim Junction Box*

## INSTALLATION MANUAL



**RICE LAKE WEIGHING SYSTEMS**  
Industrial Solutions on a Global Scale®



## Introduction

The EL210 Junction Box can accommodate up to four load cells. Additional load cells may be connected to the EL210 Junction Box by wiring additional junction boxes to the EXPANSION terminal on the EL210. Load cell output can be individually trimmed with potentiometers.

When correctly installed, the NEMA 4X fiberglass-reinforced polyester enclosure will withstand 40 psi water pressure. It is not, however, designed for high-pressure washdown applications, exposure to steam, or exposure to high-temperature liquids.

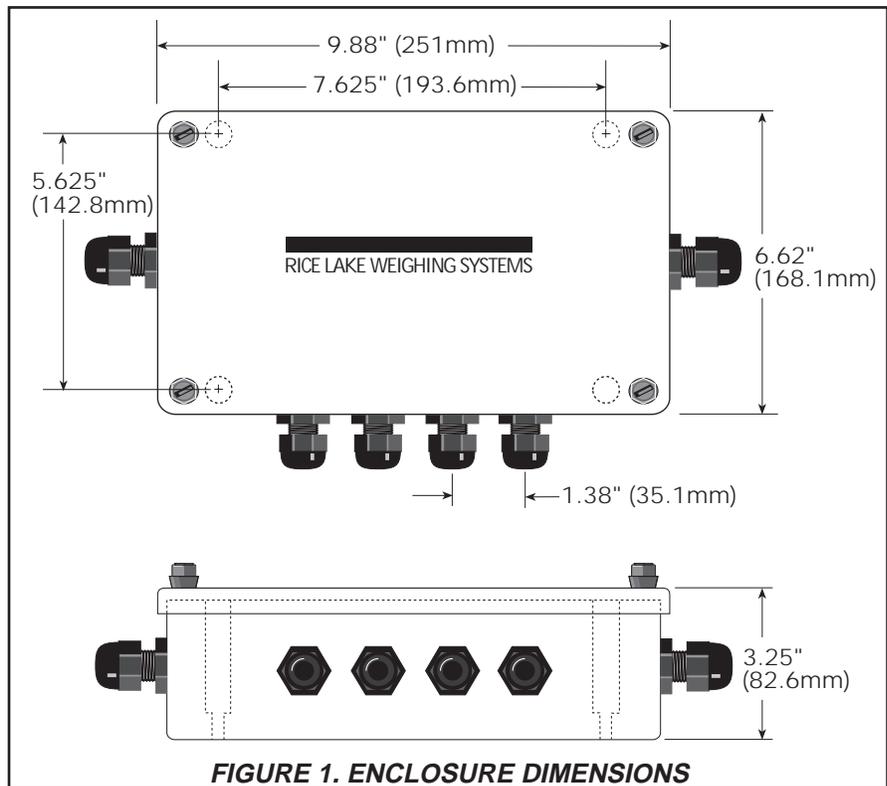
## Mounting the Junction Box Enclosure

### NOTE:

#### **CHANGING CABLE LENGTH**

Locate the junction box so load cell cables need not be cut, nor length added. Load cell output is temperature-compensated for the supplied cable length. Altering that length can change the cell's signal output.

Mount the enclosure in a location convenient for servicing and away from standing water. Try to mount the enclosure in a location that will not require extending the load cell cables. Depending on the mounting surface, the enclosure is attached using the four pan-head screws provided, bolts, or other suitable masonry fasteners. Figure 1 below shows dimensions for mounting the enclosure.



# Wiring

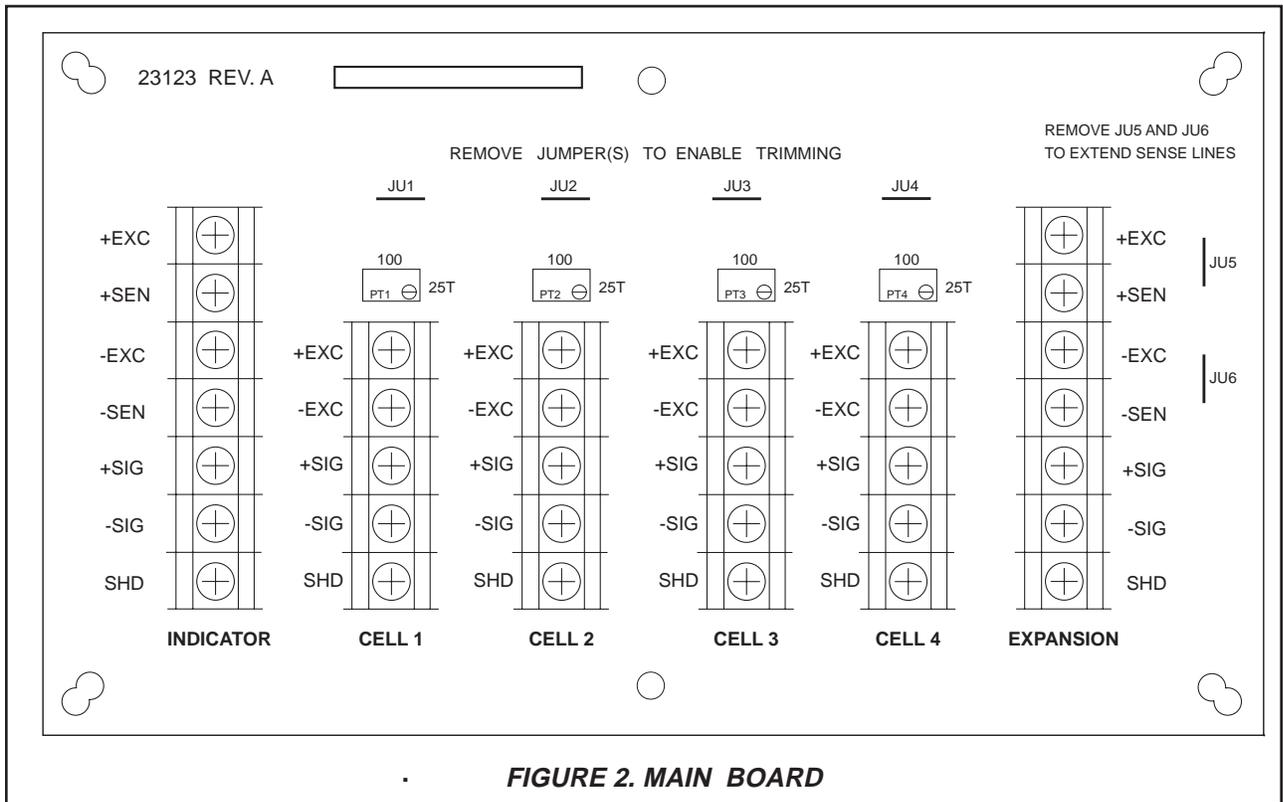
The terminal strips are labeled “Cell 1” through “Cell 4” and are used to connect the individual load cells. Determine the number of load cells to be connected to the junction box. The EL210 has been designed to connect and trim four load cells. However, it is possible to use this box with other combinations. On a track scale or other system where load cells may be connected together in section “pairs”, even numbers of cells up to eight may be used with the EL210. This is done by paralleling the Excitation and Signal leads of a load cell pair, and connecting them to the same input on the J-Box. If more than four load cells are to be used, connect two EL210 J-Boxes using the expansion connector.

**NOTE:**

**WIRING PATTERN**

See back cover of Rice Lake Weighing Systems Load Cell Product Selection Guide for wiring color codes.

After determining the wiring pattern, route the load cell cables through the nylon cord grip assemblies and leave the grips loose until final closure. Before connecting load cell cables to the terminals, check that all wire ends have been properly stripped and tinned; then connect the load cell and indicator cables to the appropriate connectors. **Any cell which has a load cell wired to it must have the corresponding jumper snipped to activate that cell. If less than four load cells are used, DO NOT cut the jumper traces on unused terminals. (See Figure 3 on next page)**



**NOTE:**

**SENSELEADS**

Use sense leads to correct small errors which can cause inaccurate readings and drifting problems, especially if the indicator is located far from the junction box.

The INDICATOR terminal strip is used to connect the main cable to the indicator. Determine the indicator’s load cell input connections from the operating manual. Run a cable from your indicator terminal into the junction box through the larger cord grip and make the connections on the INDICATOR terminal.

## Trimming Procedure

### NOTE:

#### TRIMMING

Whenever a substantial amount of trim seems necessary to equalize output (more than 5% of normal output), check for other possible problems. The best trim is always the least amount of trim.



#### Caution

#### LOADING TEST WEIGHTS

When loading the corners, do not exceed the concentrated load capacity (CLC) specified by the scale manufacturer.



#### Caution

#### PLUG UNUSED HOLES

To prevent water and other contaminants from entering the J-Box, fill any unused cable grips with Post Screw Plugs. (Part Number 19538). One is provided.

### NOTE:

#### CABLE DRIP LOOP

If cables will be exposed to water or other liquids, bend a short downward loop in all cables near the cord grips so any fluids draining down the cables will drip off before reaching the junction box.



The EL210 J-Box is an Excitation Trimming Device. Trimming is a process of equalizing the output from multiple individual load cells. When all errors except cell mismatch and cable extensions or reductions have been corrected, continue with the trimming procedure below.

1. Set all potentiometers fully counterclockwise to give maximum signal output from each cell.
2. Make sure jumpers have been cut to activate the cells corresponding to each load cell. See Figure 3.

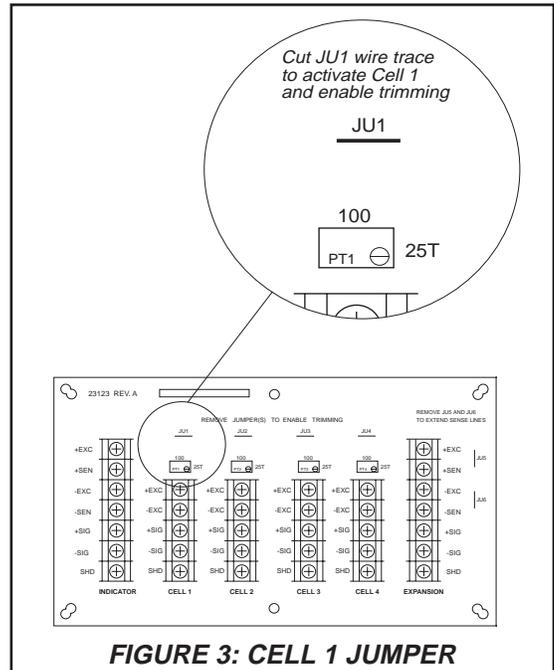


FIGURE 3: CELL 1 JUMPER

3. Zero the indicator and place calibrated test weights over each load cell in turn. The amount of test weights to be used will depend on the scale configuration; for specific recommendations, refer to *Handbook 44 Field Manual*, published by the Institute for Weights and Measures. For a four-cell platform, we recommend using 25% of scale capacity.
4. Record the value displayed on the indicator after the test weight is placed in turn on each corner (directly over the load cell). Allow the scale to return to zero each time to check for friction or other mechanical problems. Select the load cell which has the lowest value as your reference point. This cell will not be trimmed.
5. Replace the same test load over each cell in turn. Using the corresponding potentiometer, trim each cell down to equal the reference load cell. As corner corrections are somewhat interactive, check all cells again for repeatability. If necessary, repeat steps 4 and 5.
6. Tighten all wiring connections. Pull excess cable out of the enclosure and tighten the cord grip assemblies with a wrench. To be watertight, each cord grip must be tightened so the rubber sleeve begins to protrude from the hub.
7. Unused hubs must be plugged to prevent moisture entry. See the *Electronic Replacement Parts and Components* catalog to order extra hole plugs.
8. Insert the enclosed desiccant bag into the junction box before closing. If the enclosure is located in a damp or wet area, change the desiccant every four to six months.
9. Replace the cover and tighten the cover screws in an alternating pattern to be certain the gasket is compressed equally in all locations.