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# EL504

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**SIGNAL  
TRIM  
JUNCTION  
BOX**

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**RICE LAKE WEIGHING SYSTEMS**  
DIVISION OF RICE LAKE BEARING INC.

# INSTALLATION of the EL504 SIGNAL TRIM J-BOX

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## INSTALLATION

**Mounting** - Mount the enclosure in a location that is convenient for service and away from standing water. The EL504 enclosure is NEMA 4X which is a low pressure (40 psi or less) wash-down rating, and is not tolerant of submersion. Also, try to mount the enclosure in a location that will not require extending the load cell cables.

**Wiring** - First, determine the number of load cells to be used with the EL504. This unit 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 EL504. 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. After determining the wiring pattern, route the cables through the nylon strain relief hubs and leave the hubs loose. Before connecting the cables, check the wire ends and make sure that they have been tinned, and apply rosin or ersin core solder if necessary.

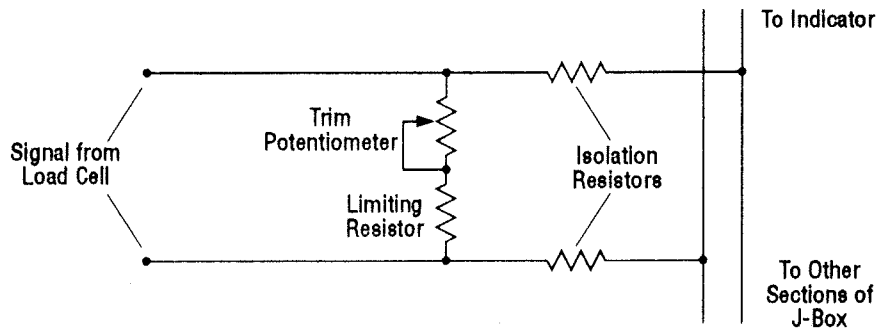
Note 1: Because of the design of the EL504, special two piece connectors have been used. These connectors allow the installer to remove the male side of the connector, install the wiring, and then replace the male side of the connector into the female socket on the circuit board.

Note 2: Make sure that the + Sense from the indicator is tied to + Excitation, and – Sense to – Excitation at the J-Box (The two wires should be inserted into the same spot on the connector and tightened securely).

**Cables** - After tightening all of the connectors, check for loose wires, and then pull excess cable out of the EL504 enclosure and tighten the strain relief hubs with a wrench. To be water-tight, the hubs must be tightened to the point where the rubber sleeving begins to protrude out of the hub. Finally, pull on the cable to make sure that it does not slip.

## LOAD CELL TRIMMING

**Trimming Type** - The EL504 J-Box is a Signal Trimming device. This involves changing the output from a strain gage load cell by adding parallel resistance across the Signal leads. This is shown in the schematic below:



Note: If an input to the EL504 is not used, it is imperative that both isolation resistors be removed from the circuit board for that particular input.

**Trimming Procedure** -Trimming is a process of equalizing the output from multiple load cells. If all of the load cells are perfectly matched, perfectly installed, and the structure perfectly designed, then no trimming should be necessary. Consider this whenever a substantial amount of trim seems to be required: Something is causing the output of the load cells to differ—what is it? When all of the errors except cell output mismatch have been corrected, use the trimming procedure below:

- Step 1: Zero the indicator and place a calibrated test load equal to 25% of the scale capacity over each load cell (or section if the cells are paralleled) in the system and record the displayed values. Note: Confirm that the scale returns to zero each time as a check for friction or other mechanical problems.
- Step 2: Select the load cell (or section) that has the lowest displayed value. This cell (or section) will NOT be trimmed.
- Step 3: Re-place the test load over one of the cells (or sections) that was too high. Adjust the potentiometer for that cell counter-clockwise until the displayed value matches that of the lowest output cell (or section).
- Step 4: Rezero the scale as necessary, and repeat Step 3.
- Step 5: Repeat Steps 3 & 4 for the other two cells (or sections), and then recheck all four.
- Step 6: Install the box cover and tighten securely.

# ENCLOSURE MOUNTING TEMPLATE

