

Columbia Concrete Products

TROUBLESHOOTING SCALE

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WHEN DO YOU NEED TO TROUBLESHOOT A SCALE?

- Following a lightning strike; either your scale doesn't register, or registers incorrectly after that.
- When an overly large weight hits the scale, and it doesn't read correctly thereafter.
- When you get erratic results from known weights.
- When your scale won't properly return to "zero" after weight is removed.

TROUBLESHOOTING THE SCALE

If the system powers up and gives some type of stable digital readout that varies with the load on the system, the system problems are probably caused by factors other than the load cells. Often, load cells are blamed for a malfunctioning system; 90% of the time the problem lies elsewhere. Look for mechanical problems first:

- a) Are there any mechanical "hang-ups" preventing the mechanism or load cells from operating freely?
- b) Does the system have good cable connections? (load cell to summing box and summing box to digital indicator panel)
- c) Are load cells installed properly, on a clean surface, and with recommended torque on the mounting bolts?
- d) Is the indicator working?
- e) Is your power supply okay?



TROUBLESHOOTING PROCEDURE: SCALE

To properly troubleshoot the scale you will need the following tools;

1. A small screw driver
2. A digital DC voltmeter with ranges capable of reading from:
(0-50 millivolts & 4-20 mA).

Then first check all cables for possible damage, then make sure that all wire terminations are tight in load cell summing box and in digital indicator panel. If damaged cables are found, replace load cell, if wire terminations are loose, then tighten and proceed to Step 1.

Step 1 (at the digital indicator panel)

Check and confirm 115VAC to indicator panel, if **YES** proceed to Step 2, if **NO** locate source of 115VAC and re-establish power.

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TROUBLESHOOTING SCALE (continued)

Step 2 (at the digital indicator panel)

Check excitation voltage (+-EXC), should be (+12VDC);
if **YES**, proceed to Step 3, if **NO** voltage, replace digital indicator panel

Step 3 (at digital indicator panel)

Check signal voltage (+-SIG), should be (0 to 30mV using 3mV/Volt load cells – Columbia Standard) zero being no weight or structure weight on load cell. As weight is added to scale you should see an increase in millivolts; if **YES**, load cell is okay, proceed to Step 4, if **NO** increase in millivolts, refer to [troubleshooting load cells](#)

Step 4 (at digital indicator panel)

Check output signal to PLC (4 to 20mA), should be (4mA for empty scale), as weight is added to scale you should see an increase in (mA), with weight stabilized, reading should be steady, if **YES**, scale is okay, proceed to Step 5, if **NO** signal change or signal is fluctuating, replace digital indicator panel.

Step 5 (at the MBS Control Panel)

Check PLC input signal (4 to 20mA), should be (4mA for empty scale), as weight is added to scale you should see an increase in (mA), with weight stabilized, reading should be steady, if **YES**, scale is okay, if **NO** signal change or signal is fluctuating, check wiring from digital indicator panel to MBS panel.