DRO PROS
The Digital Readout Experts

Using Linear Error Compensation (LEC) to calibrate magnetic scales with an EL400 display:

Congratulations on the purchase of your Electronica 400 series kit. This article addresses how to calibrate magnetic scales using Linear Error Compensation (LEC). Although the EL400 kit works great "out of the box", like any other DRO kit, the best results are obtained by calibrating the scales. Fortunately, calibrating magnetic scales is a much simpler, and faster process, than glass scale kits.

The following assumes that your kit has been properly installed and the readhead / scale gap has been properly set with the included shim. While the "best" calibration results are obtained with a laser, it is possible to achieve satisfactory results with a high grade gauge block combined with a high quality plunge type dial indicator. Best results are usually obtained by the simplest, most robust setup. Be sure to also check / adjust your machines jib play before attempting to calibrate scales.

1. To enter setup mode, **push the "wrench" button once** – it's on the lower left of the display.

The top axis display window should now read "SELECt".

2. **Push the "X" key once**. The x axis display window should now read "LinEAr".

3. **Push the "2" (down arrow key) five times**. The x axis display window should now read "CALib".

4. **Push the "ent" key once**. The x axis display window should now read "LEC".

5. **Push the "ent" key once**. The x axis display window should now read "diSPvAL".

6. **Push the "ent" key once**. The x axis display window will now read in millimeters. Setup your dial indicator so that it "plunges" against a solid flat vertical surface, such as the side of a vice. Move your machine so that the dial indicator reading "zeroes out" when placed against the vertical surface.

7. **Push the "X" key once**. Move your mill away from your vertical surface, and place your gauge block between the vertical surface and the tip of the dial indicator. Move the mill back, so that the dial indicator plunges against the gauge block. Move the mill until the dial indicator reading "zeroes out".

8. **Push the "ent" key once**. Input the width of the gauge block ***in millimeters*** via the numeric keypad.

9. **Push the "ent" key once**. The x axis display window should now read "CAL FAC".

10. **Push the "ent" key once**. The x axis display window should now display the calibration factor value.

11. **Push the "2" (down arrow key) seven times**. The x axis display window should now read "SAv ChG".

12. **Push the "ent" key once**. The x axis display window should now read "rSt oEm".

13. **Push the "2" (down arrow key) twice**. The x axis display window should now read "End".

14. **Push the "ent" key once**. The display should be back in ABS mode and the X axis scale calibration is complete. To calibrate the other axis, simply follow the above steps except substitute "Y" or "Z" in place of "X" in steps 2 and 7.

Congratulations, you're finished!
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