



Electronica EL400 Power Off Memory

Congratulations on the purchase of your Electronica 400 series mill kit. This article addresses how to restore your ABS zero point if power is lost, or the mill is moved with the power off, on an EL400 display. Technically, this function is more appropriately named “homing” but most users know it by the decidedly descriptive term of “Power Off Memory”.

Typically the first step in machining, is to set an ABS zero point on your workpiece. As such, all subsequent points/cuts/edges etc. are then defined as the distance from this arbitrary ABS zero point. This point may be the front edge of a workpiece, midpoint of the workpiece, etc. as the user desires. Normally, the EL400 display will always track your ABS zero point. But there are a couple of instances where the display might “lose” the ABS zero point, such as if the table is moved with the display turned off, or if the machine loses power while machining and “coasts” to a stop after power has been suddenly interrupted. The Power Off Memory feature allows an exact “recapture” of the users ABS zero point if the aforementioned situations were to happen.

Power Off Memory consists of three separate steps. The first step is “Homing Reference”. Magnetic scales are manufactured with permanently coded, pre-existing reference points located along the length of the scale, called “reference marks”. The “Homing Reference” function locates these marks.

The second step is called “Setting Machine Reference”. This step “stores” a user designated ABS zero point in the DRO memory, in reference to the permanent reference mark found in the first step.

The third step is “Recalling Machine Reference”. This allows the user to recapture a lost ABS zero point. It must be emphasized that the third step will ONLY work if the first two steps of the power out memory function were previously performed, **before** power was lost. It is worth noting that the first two must be re-accomplished anytime a new ABS zero has been set, if power off memory is to function correctly.

Performing EL400 Power Off Memory:

The first step of performing power off memory is to discover one of the many permanent scale reference marks. Section 7.7.1 of the manual describes this process. For this example, we’ll store our X axis ABS zero point on a milling machine.

Step 1 - Homing Reference (EL400 Manual Section 7.7.1 Reference Point). Magnetic scales have factory embedded, permanent reference marks along the length of the scale. To store a user designated ABS zero point, it’s necessary to locate and mark one of these permanent reference marks. As these reference marks are not visibly marked on the scale, we must first discover which mark will be most convenient to use.

Move your table to the approximate position where you would like to establish your ABS zero point.

Press the “homing” function button.



You should see “hoME” on the X axis display window.

Press the “enter” button.



You should see “SELEct” on the X axis display window.

Press the X axis button.



The X axis display window should now be flashing “0”.

Move the X axis of the mill until the X axis display begins counting normally. As soon as the X axis begins counting, reverse the travel, and go back so that the X axis window displays “0.0000”. This indicates the exact

position of a permanent reference mark. With a scribe/pen, mark the location relative to the readhead, so that you know specifically where the reference point is located. *This is the point you will need to return to if you ever need to recall your ABS zero point, so mark it clearly on the scale, relative to the readhead.*

Step 2 – Set Machine Reference (EL400 Manual Section 7.7.2.1. Setting of Machine Reference)

Now move the X axis of your mill to your desired ABS zero point, but **do not** zero the display.

Press the “homing”  function button.

You should see “homE” on the X axis display window.

Press the “six”  button (right arrow) twice.

You should see “SEt MC” on the X axis display window.

Press the “enter”  button.

You should see “SELECt” on the X axis display window.

Press the “X”  axis button.

You should see “0.0000” on the X axis display window. At this point, your ABS zero point has been programmed into the display referenced to the permanent reference mark in Step 1.

Step 3 – Recalling Machine Reference (EL400 Manual Section 7.7.2.2. Recall Machine Reference). Note: This step should only be performed if you have lost your ABS zero point, i.e., the machine has accidentally been moved with the power to the DRO off. *Under normal operations, Step 3 does not need to be accomplished. Remember, simply shutting the power off to the DRO will not “lose” the ABS zero reference point. As long as the DRO is powered on before the machine is moved, the DRO display will always remember the ABS zero point.*

Important: Move your mill close to the permanent reference mark you used to set machine reference in Step 1 **before** pressing the “homing” function button in the next step.

Press the “homing”  function button.

You should see “homE” on the X axis display window.

Press the “six”  button (right arrow) once.

You should see “MC rEF” on the X axis display window.

Press the “enter”  button.

You should see “SELECt” on the X axis display window.

Press the “X”  axis button.

The X axis display window should now be flashing “0”. Move the X axis of the mill past the permanent reference mark until the X axis display begins counting normally. It may be necessary to move the table back and forth past the reference mark a few times before the readhead “senses” the reference mark. While you’re doing this, stay close to the reference mark, and **do not move the table further than necessary**. If the table is inadvertently moved past a different reference point than was used in Step 1, the display might “capture” a false ABS zero point. Fortunately, you can repeat step 3 until the “true” ABS zero point is re-initialized.

As soon as the readhead captures the correct reference mark, the X axis display will “jump” and then begin to count ‘normally’ in reference to the stored ABS zero point.

Congratulations, you’re finished!

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