

Calibration from a known position

This is useful if the workspace has insufficient headroom for the regular calibrate and home positions.

Make a fixture (or NEST) in which the robot can be parked before it is switched off. The nest needs to hold the gripper or other end effector in a reliable way. Guide the robot into this fixture using Cartesian positioning e.g. JOG. When in position press WH? Or type WHERE to see the Cartesian position of the fixture. Note all 5 values.

Make an approach position so that the robot can get in and out of this position easily. Then when you type PARK the robot will go into the fixture without a problem.

Switch off power.

When you power up again with the robot in this position do the following:

1. Type START
2. Enter your 5 values
(x-value) X! (y-value) Y! (z-value) Z! (pitch-value) PITCH! (w-value) W!
3. TRANSFORM ASSUME (calculates what the motor values would be for this Cartesian position and over-writes the counters.
4. ENCSET (calculates what the encoder values would be and over-writes them.)
5. Use JOG to get the robot out of the fixture. A PLACE might also work.
6. Once free of the fixture the robot is calibrated and can go to any other position in the workspace directly without going HOME

You can also use a known position in a route or matrix as follows (example for a route called TRAY with line 1 as the reference)

1. Type START then DE-ENERGIZE and ENCOFF then move the robot by hand to the first position of TRAY. Type ENERGIZE
2. **Alternatively** use 1 GOTO or 1 INTO then Jog or Teach to get the robot in exactly the right position.
3. Enter TRAY then
1 LINE AXES
type WHERE and you will see the robot thinks it's at line 1
4. TRANSFORM ASSUME (calculates what the motor values would be for this Cartesian position and over-writes the counters.
5. ENCSET (calculates what the encoder values would be and over-writes them.)
6. Use JOG to get the robot out of the fixture.
7. Once free of the fixture the robot is calibrated and can go to any other position in the workspace directly without going HOME

After such an absolute calibration you can (if you wish) obtain new CALIBRATE values as follows:

1. Go to HOME
2. CHECK - robot seeks out the sensors
3. SETLIMITS – overwrites the old calibration values.
4. USAVE to save to flash
5. Click file, save binary and save to a file of extension .SIG.RAM. Memory area to save:
V12: Bank 0 start 9C00, length 100, V13: Bank 0, start A200, length 200