

Smart Motion: Origin on the Fly

Description:

Origin on the fly is a firmware option for the Smart Motion Smart Arm system. With this feature enabled, it provides the user to provide a location correction for each cycle sequence. This is beneficial for applications where the product is not fixed at the same location each time.

Modes of Operation:

- 1.) Origin mode: With this mode selected, prior to running the loaded recipe, the user will be required to acknowledge the origin location by moving the tool to the preset origin location. This mode will provide an X/Y correction for all locations in the current recipe based on the new taught origin location.
- 2.) Origin + Rotation mode: With this mode selected, prior to running the loaded recipe, the user will be required to acknowledge two correction points, ORIG and ORIG-b. This is performed by moving the tool to the two predetermined locations. This mode will provide X/Y and theta (rotation) correction for all locations in the current recipe based on the new ORIG and ORIG-b locations.

Enabling Origin on the Fly

- 1.) Before proceeding with this process, the Smart Controller must be programmed internally for the Origin on the Fly option
- 2.) Login to the Maintenance menu using the PIN "7349"
- 3.) Scroll through the Maintenance menu until "ORGFLY" is flashing on the display, press the jog dial.
- 4.) Scrolling through the next menu provides three options, "dISAbL", "O ONLY" and "O+ROT". Select the desired mode and hit the jog dial.
- 5.) When first enabling this feature, after selecting the required mode of operation, the user will be required to teach the required origin location(s) for the currently loaded recipe. It will be required to have the part available to teach the required origin points. These taught points will be the base origin for the programming of the currently loaded recipe.
- 6.) Once the feature is enabled and a new recipe is loaded, the user will once again be requested to teach the required origin location(s).

TEACHING with Origin on the Fly.

There are two different scenarios for teaching with Origin on the Fly enabled.

Scenario 1: First recipe taught after enabling.

- 1.) After enabling Origin on the Fly and teaching the required origin points, the user would go directly to the “Teach” option of the menu to start teaching your required points.
- 2.) This process would be repeated until all points are taught but the origin for this recipe would be the original origins taught when first enabled.
- 3.) Once teaching is completed, the user can select “RUN” and the sequence will immediately start, you will not be asked to re-teach the origin locations since it assumes the part is in the same location. If this is not the case and after teaching a new part is loaded into position, then the user should select “RESTART” first and then they will be prompted to re-teach the origin points.
- 4.) Once the recipe has been completed, the process will start over again and the re-teaching of the origin locations. This process will be repeated every time the recipe is run.

Scenario 2: Selecting a new recipe to teach.

- 1.) Scroll through menu until “SELREC” is present, press the jog dial and scroll to the desired recipe number.
- 2.) Once the recipe number is selected, the user will be required to teach the required origin points based on the mode of operation.
- 3.) Once the origin points have been taught, you can continue on with the normal teach sequence.

Running with Origin on the Fly

- 1.) As mentioned, when running a recipe with this mode enabled, the user will be required to teach the required origin points for the currently loaded recipe. To acknowledge the locations the operator would move the tool to the required location and press the jog dial button.
- 2.) There are two other methods for acknowledging the origin locations if the controller is not within reach of the user. The Smart Controller can be configured to receive and external input to acknowledge the location. This input can be preconfigured at to possible locations:
 - a. External H9 connector, Pin 11
 - b. External H10 connector, Pin 13.
- 3.) The actual location for this external signal is determined by the configuration of the complete Smart Arm system, depending on options selected by the user will determine the required location. One key point is that this input is preconfigured at time of order and cannot be changed in the field. The input signal is 24VDC input, this can be achieved using pushbuttons, footswitch or other method. This signal can be used to replace the jog dial button whenever the user is asked to teach the origin locations for either the first time or when running the recipe. This input will not be acknowledged at for other operations that require the jog dial input.
- 4.) The user can abort the recipe cycle at any point. If the user is at the point of the process of teaching the origins then you must complete this process step before being able to use the jog dial to restart or select another recipe.