

## Use of the “Assembly Control – naomi Pick-Off” DM screen

### 1. General behaviour

1. Don't touch JOG mode yet.
2. Upon starting up the system, click INIT, then START. Wait for “record state” to go back from BUSY to IDLE
3. To datum the mechs, click INDEX, then START. This will take a couple of minutes. The “Demand Positions” will be updated to the current (default) status of the wavefront sensor.
4. To move the mechs in a co-ordinated fashion, type your demanded configuration in the “Demand Position” fields, click MOVE and then START. I recommend that the “Time of Motion” field should remain at 20.0 seconds, in order that the demand velocities for each mech stay low. Keep an eye on the “record state” as the move hasn't finished until this returns to IDLE. Allowed values for these input fields are given below.
5. In order to move each mech individually, use the “Device displays” menu on the right hand side to get to the familiar “device control” screens. If executing another co-ordinated motion after doing this, however, the assemblyControl record will not remember your corrections.
6. To update the behaviour of the assemblyControl record with new parameters, edit the file `/sw4/naomi/rel/data/pick:assembly.lut`. Each “parameter” line is commented. Lenslet angles/focal lengths are here also. Please remember to make a backup of the file before changing. After changing the file, simply execute the INIT function (Step 2 above), there is no need to reload the EPICS database.

### 2. Allowed Demand Positions

1. **Pickoff x-stage.** Only one named position: “center”, which is equivalent to typing “0.0” and centres the pickoff in x. To get off-centre, type the offset (in mm) in this field. Positive offset is towards the camera.
2. **Pickoff y-stage.** As above, positive offset is upward.
3. **Fore-optics stage.** Only one named position: “focussed”, which is equivalent to typing “0.0”. This should result in the fore-optics stage focussing the collimating lens onto the pickoff. Additional offsets can be typed (in mm) into the field. Positive direction is towards the camera.
4. **Lenslet wheel.** An angular position (in degrees) from datum can be input. For automated focussing of the camera stage, however, use any of the following named positions: “reticule”, “f195\_1.1”, “doublet”, “f95\_1.1”, “f195\_1.1\_offset”, or “f95\_2.2”. Positive direction in angle is, um...
5. **Camera stage.** Named position “pupil” is equivalent to typing “0.0” and should place the camera at the pupil focus. Offsets can be input (in mm) for movement from this position. An additional named position, “focussed”, should place the camera stage at the focus of whichever lenslet is currently in place, provided that one of the named lenslet wheel positions has been used for that stage (above). Positive offset is away from the pickoff.
6. **Time of Motion.** Recommend that this remains at the default “20.0” seconds. Decreasing this may result in a “device failed command” message, as every deviceControl record has an upper velocity limit for its mechanism.

### 3. Current Position and Velocity

These displays give the current raw position (in mm or degrees), of each mech from the last datum. Current velocities in mm/s (deg/s) are given also. You cannot change these fields as they are derived from your demand values and the actual motion that that occurred.

Note that these positions should not be used to derive offset positions for the Assembly Control “demand position” fields, as they simply reflect the “current position” fields displayed on the device control screens. For example, if the user demands a position of “0.0” of the pickoff x-stage on this screen, and the centre-of-field for that stage is -33 mm from datum, the mech will run until “current position” displays -33.0 (not 0.0). Changing the demand to -1.0 will send the mech to raw position -34.0 (or -1.0 mm from COF), whereas changing the demand to -34.0 would have sent the motor off to its lower limit!