

Escalab Xi – Avantage upgrade procedure V5.28 And V4.80 or Later

Newer versions of Avantage (from V5.28 and V4.80 onwards) and PLC code (v2.53 onwards) provide improved backlash adjustments to ensure optimum repeatability but the improvements do change the way the aperture control operates. This means that the Avantage upgrade procedure may require some additional calibration procedures.

Avantage upgrade procedure

If upgrading from versions 5.27 or 4.79 or earlier

Check existing versions of PLC code (Vacuum Diagnostics, Miscellaneous tab).

The screenshot shows the 'Vacuum Diagnostics' software window with the 'Miscellaneous' tab selected. It contains several data tables and control panels:

Stage and Aperture Status	
Description	Readback
X Axis Home (Sample Left)	Off
Y Axis Home (Sample Front)	Off
Z Axis Home (Sample Down)	Off
Tilt Axis Home (Tilt 90° to Front)	Off
AA Iris Home (Open, Anti-Clockwise)	Off
FOV Iris Home (Open, Clockwise)	Off
Valve V1 Transfer Arm Retracted	False
Valve V2 Transfer Arm Retracted	False

Water Status			
Description	Demand	ReadBack	Action
XRay Mono Water Solenoid	Closed		Open
XRay Twin Water Solenoid	Closed		Open
Turbo Pump Water Solenoid	Closed		Open
Magnetic Lens Water Solenoid	Closed		Open
XRay Water Flow		OK	
Magnetic Lens Water Flow		OK	

FEG Ion Pump Status			
Description	Demand	Readback	Action
FEG ION Pump IP1	Off	OK	Run Now
FEG Heater	Off		

Miscellaneous Status	
Description	Readback
Bake Heat On	Off
Bake Time Left (HH:MM:SS)	2 Day(s), 23:59:59
Bake Fan	Off
Bake Fan Interlock (if bake heat on)	OK
Bake Temperature	9°C
Max. Bake Temp Reached	120°C
Electronics Over Temperature	OK
Interlock Power On	Not OK
Vacuum Interlock	Not OK
Reset All Turbos	Off
Pneumatic Air Pressure	OK
Experiment Running	False
Analysis Chamber G1 Pressure	Gauge Inactive

Control panels include:

- Bake Control:** Start Bake button, Bake Time (Hours) set to 2, Bake Temperature (°C) set to 100.
- Stage Control:** Datum Stage button, Set Stage Tilt Axis to Zero and Adjust Home Position button, Disable Stage Motors button.
- PLC Code And Firmware Versions:**

	PLC Code Version	PLC Firmware Version	Buttons
Master	1.00	5403	Upgrade PLC Code, Reset PLCs
Slave	1.00	5411	Upgrade Both PLCs To Latest PLC Code And Firmware
- Bottom Panel:** Current Command, Command Status (PLC Comms OK), Abort button, PLC Comms States (Master, Slave, Ext. I/O, CAN Bus), PLC Code States (Master, Slave).

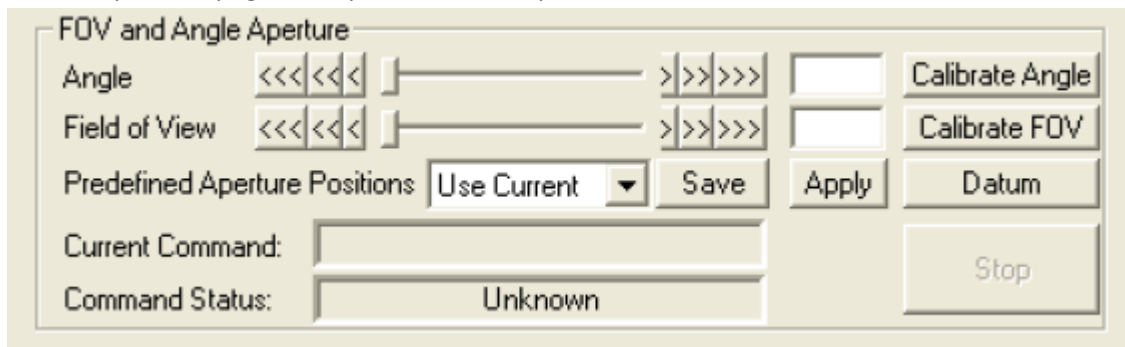
If version is below 1.00 e.g. 0.99, consult factory – these are special versions that require update from MINT workbench

If version is V2.53 or later, instrument should be already setup correctly and there is no need to continue this process, unless problems are experienced with apertures e.g. lower count rate than expected for a given aperture position. If problems are experienced a mechanical and software Final Calibration may be required. Sections 5.4 in QAIPT164

If version is between V1.00 to V2.52

Open 2d / CEM Detector Diagnostics toolkit

- Go to Acquisition control page
- Move to position 333 for both Angle and FOV apertures.
- Leave at this position and Uninstall Avantage software.
- Install newer version of Avantage (v5.28 or later on Windows 7, v4.80 or later on Windows XP).
- Login as a user with Avantage Engineer access
- Open Vacuum Diagnostics and upgrade the PLC code using the “Upgrade Both PLCs to the latest code and firmware” button.
- Open 2d / CEM Detector Diagnostics toolkit
- Go to Acquisition page and Aperture control panel



Do not move apertures

Press **Calibrate Angle** at the current position

Press **Calibrate FOV** at the current position

Press **Datum** Apertures

Now use Avantage as normal. Once this procedure has been done it is not required for any future Avantage version upgrades.