Appendix A – instructions on how to configure the ePix10k small for a specific gain mode.

To change the gain mode one operates in for the ePix10k small, we have to change one register setting (called trim_bit) and load one pixel configuration file. To change these settings you have to go into the experts mode in the detector configurations, as can be seen in figure A1. This is done by, in the DAQ control GUI, clicking the edit button, which opens the reconfigure window. In this window click options, and select expert mode. Once you have selected expert mode, select your detector in the reconfigure window and then press apply. This opens up the configurations window as can be seen in Figure A2.

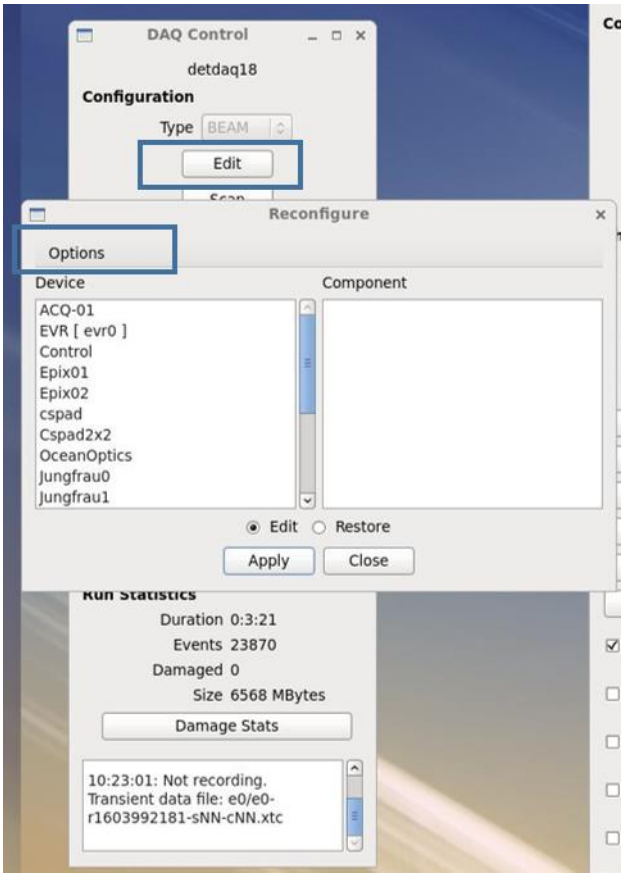

Figure A1. Screenshot of the DAQ control gui showing how to get to the configurations window in expert mode.

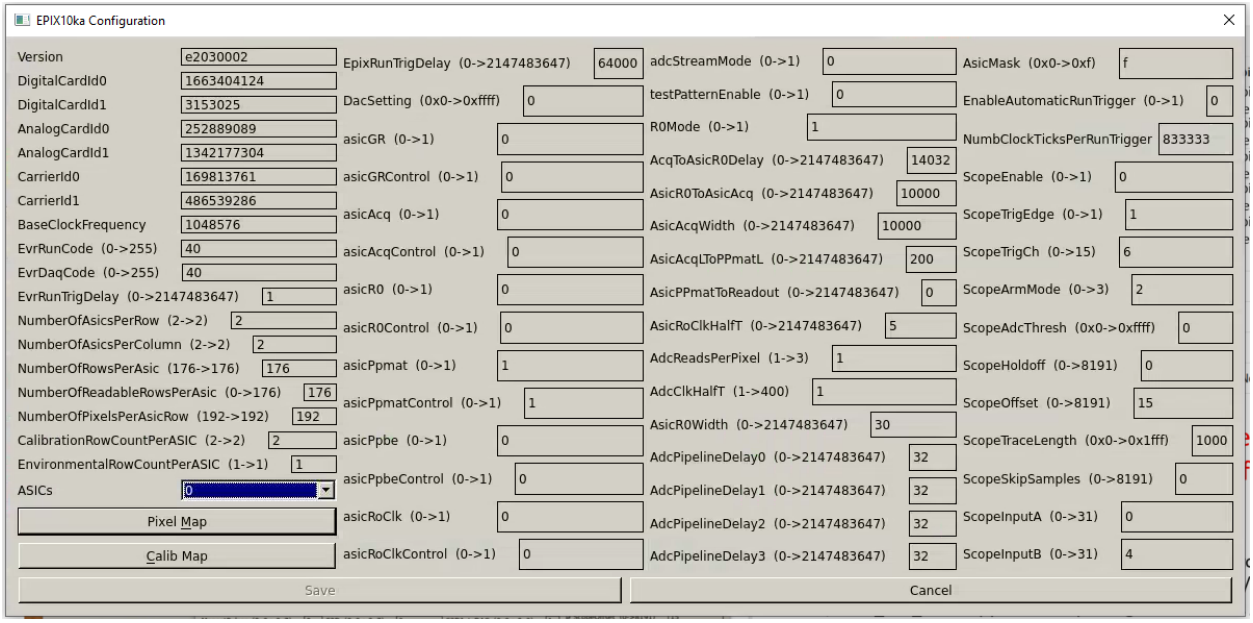

Figure A2. The configuration window opened up in expert mode for the ePix10k small.

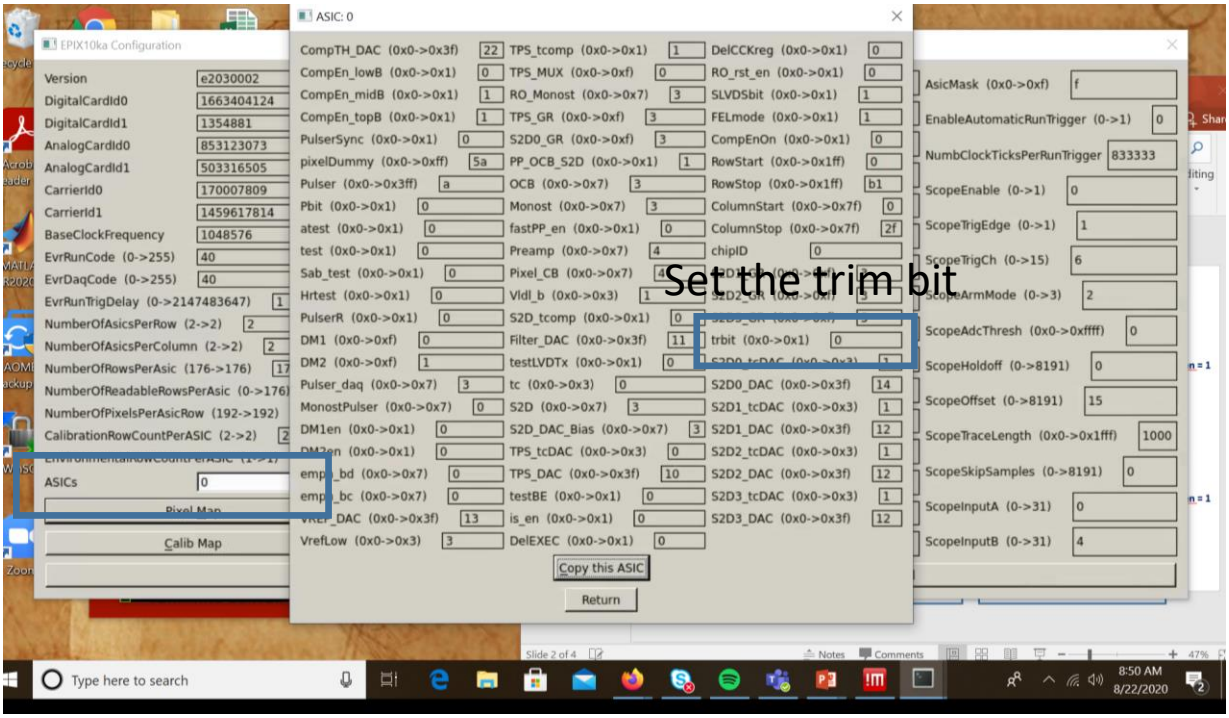

Figure A3. Screenshot showing how to set the trim_bit option for when configuration the small epix10k for a specific gain mode.

In order to set the trim bit to the value required for the gain you want to go into you have to go into the ASICs section as can be seen in Figure A3. The location of the ASICs is indicated by the blue box in the back of the screenshot, which opens up the front window. The location of the tr_bit in the front window can be seen in blue box in the front window.

Once this value has been set to the desired value to get you into the right gain mode, you have to click the copy this ASIC and apply to all the other ASICs as well.

The second part is then to load the pixel configuration files which is done by going into the Pixel map option in the configurations window, as can be seen in figure A4.

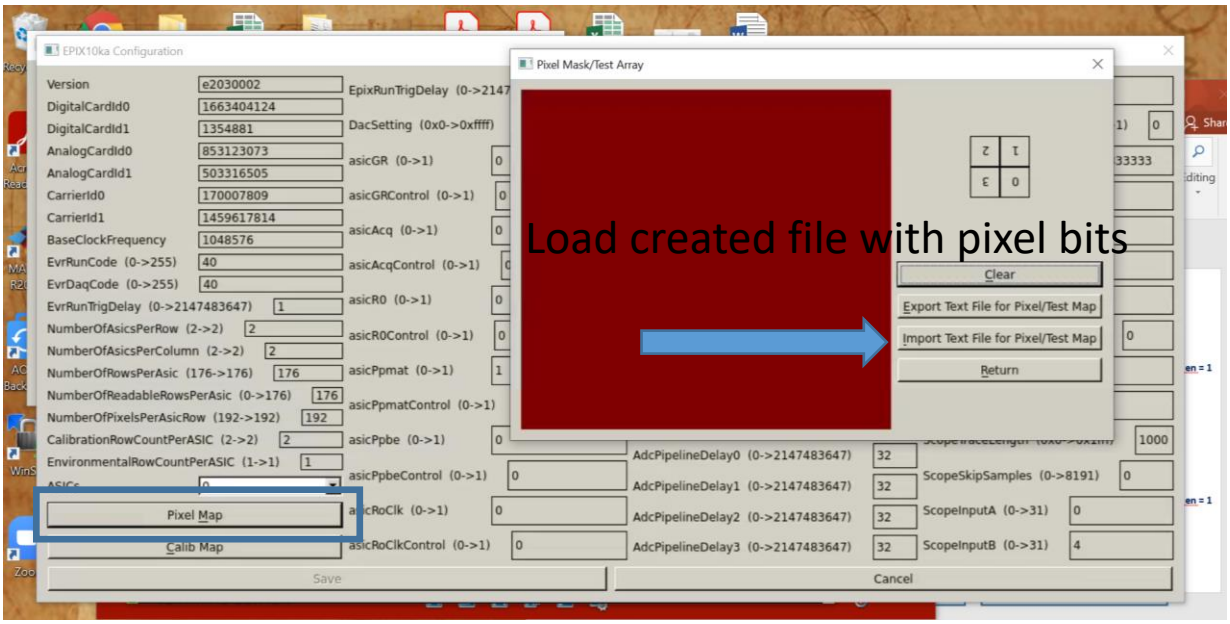

Figure A4. Screenshoot showing how to load the pixel configuration file for the desired gain mode.

When clicking the import text file for pixel/test map you are prompted to select the corresponding file to what gain mode you want to run in. The file will either have the number 0, 8 or 12, and these files can be found as mode_0.txt, mode_8.txt, or mode_12.txt under:

/cds/home/c/conny-h

Alternatively they can be generated using Philips script (script located at: /cds/home/c/conny-h conny-h/small_10k_modes.py. For example to generate the FL gain we want 8, so run:

python small_10k_mode.py 8

This generates a file called mode_8.txt that you load in as described above. What trim bit and what pixel map configuration file to use for the different gain modes are stated in table A1.

Table A1. Tr_bit and pixel config file combinations required to get soecific gain mode for the ePix10 small.

Gain mode	Tr_bit value	Pixel config file
FH	1	12 (mode_12.txt - yellow)
FM	0	12 (mode_12.txt - yellow)
FL	Does not matter	8 (mode_8.txt - brown)
AHL	1	0 (mode_0.txt - red)
AML	0	0 (mode_0.txt - red)

When the pixel config file has loaded the colormap changes in accordance to what was loaded in. For mode_0.txt the colormap becomes red – indicating the detector is in switching mode (Tr_bit sets switching point), for mode_8.txt the colormap is brown- indicating we are in fixed low, and mustard to identify that we are in fixed Medium or foxed High depending on the setting of the tr_bit. The colormaps can be seen in Figure A5-A7.

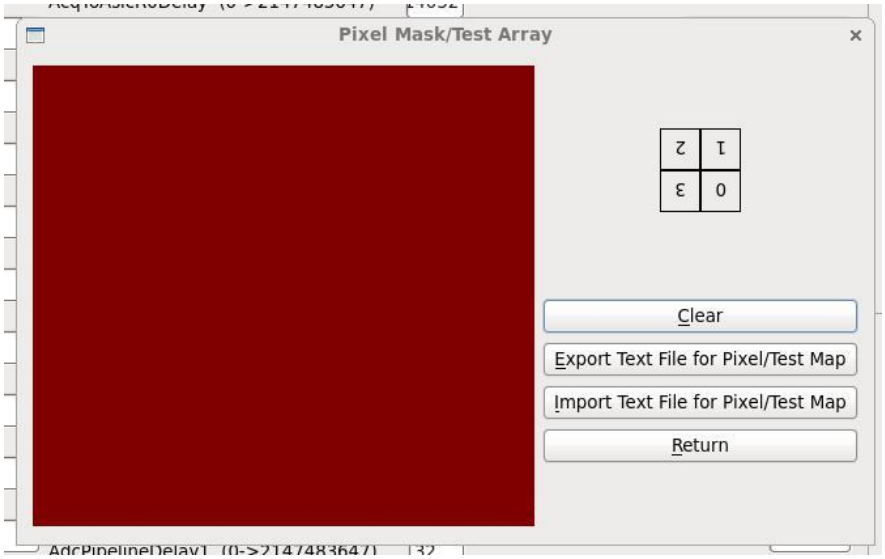

Figure A5. Screenshoot showing colormap indication Auto switching mode (mode_0.txt).

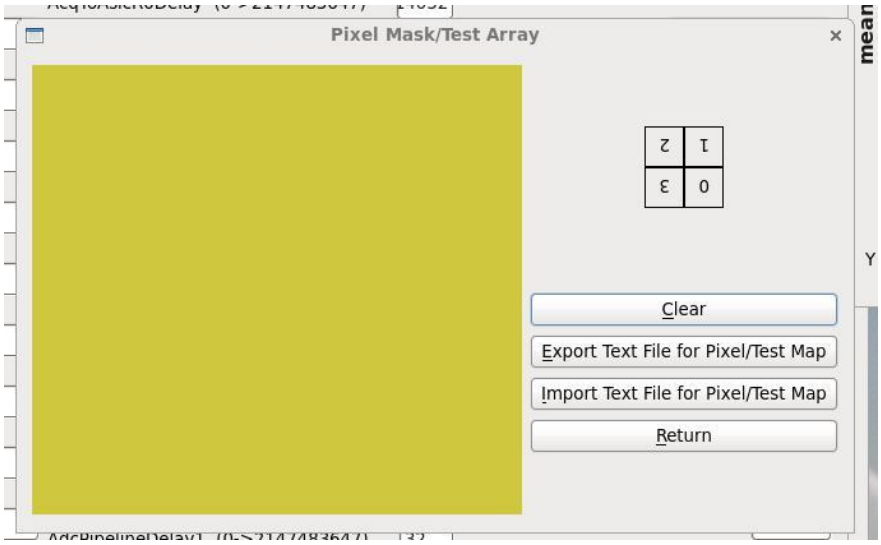

Figure A6. Screenshoot showing colormap indication Fixed High or Fixed low mode (mode_12.txt).

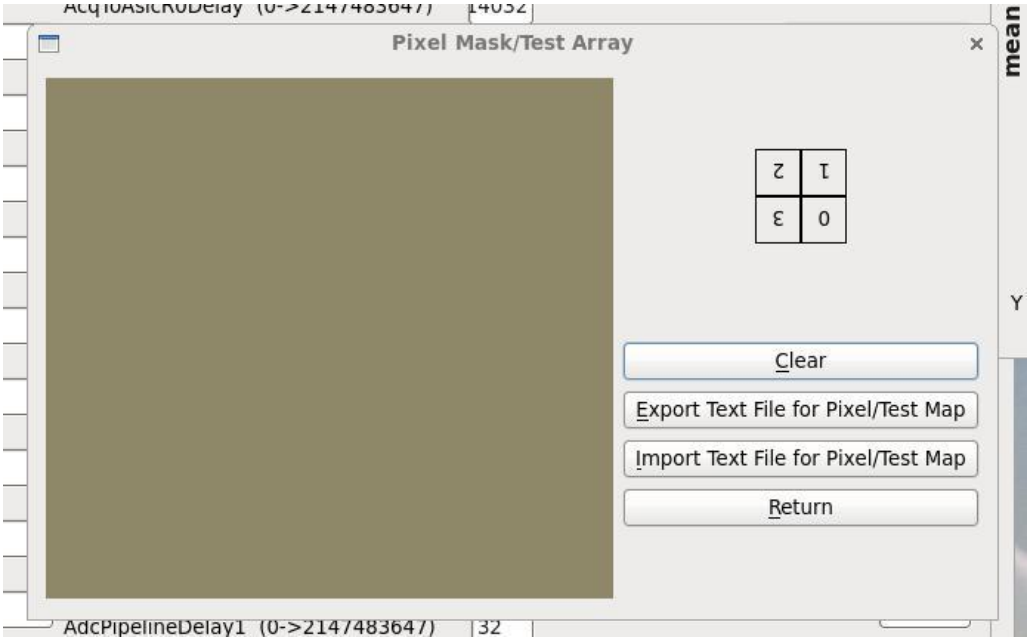

Figure A7. Screenshoot showing colormap indication Fixed low (mode_8.txt).