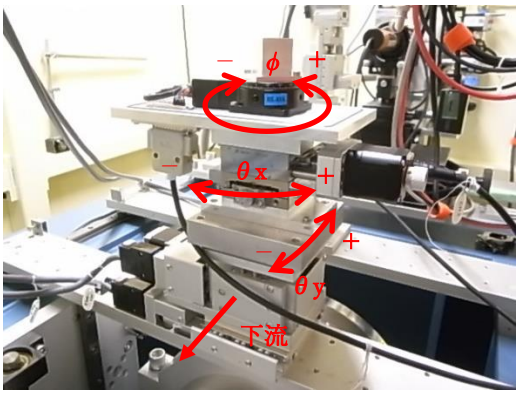
GI Stage Procedure Manual

2023.01.10

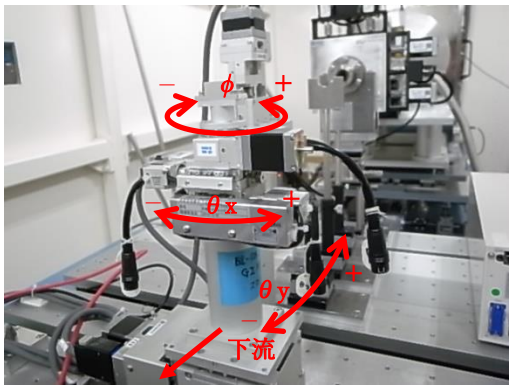
For Users

1. adjusting sample position and angle

・The rotation direction of the stages is shown in the following pictures. The new GI stages are BL-6A, BL-10C and BL-15A2, with the Pih-axis motor on the BL-7, BL-11 and BL-16 side. The new GI stages should be used in the range of 0° to ±175° (-175° to 175°).

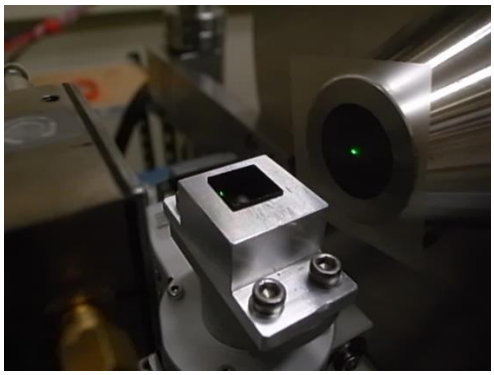


Old GI Stage@BL-6A

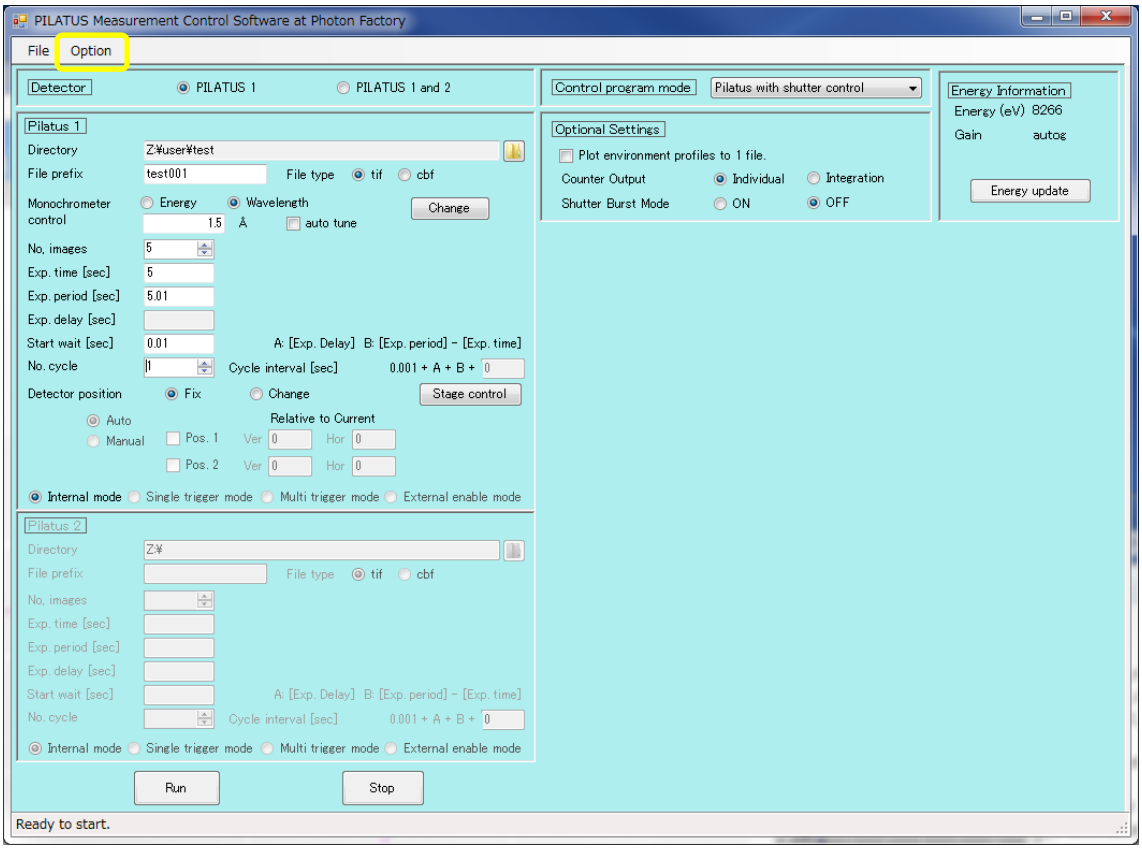


New GI Stage

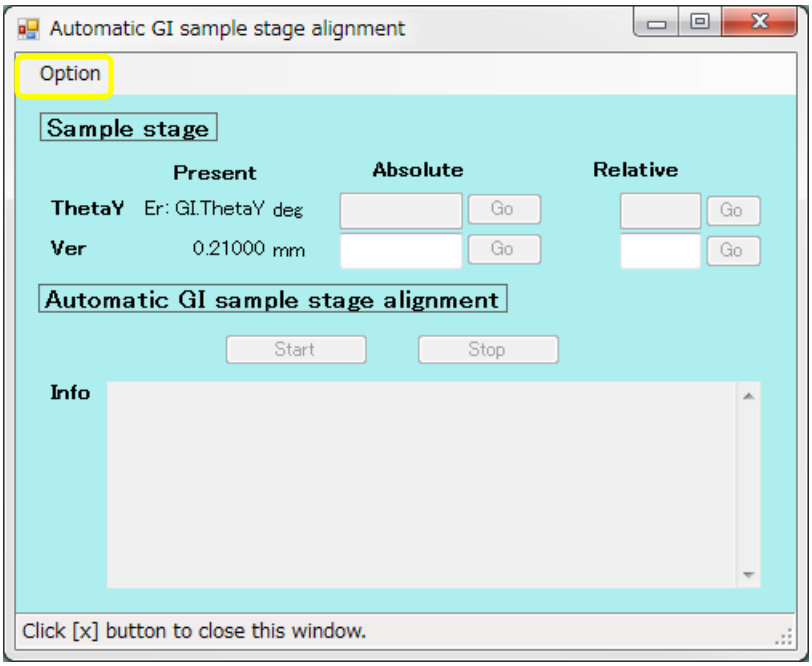
・At the start of the experiment, use the laser to align the approximate position of the GI stage with the first sample.



・Select Automatic GI sample alignment from Option in PILARUS Measurement Control Software.

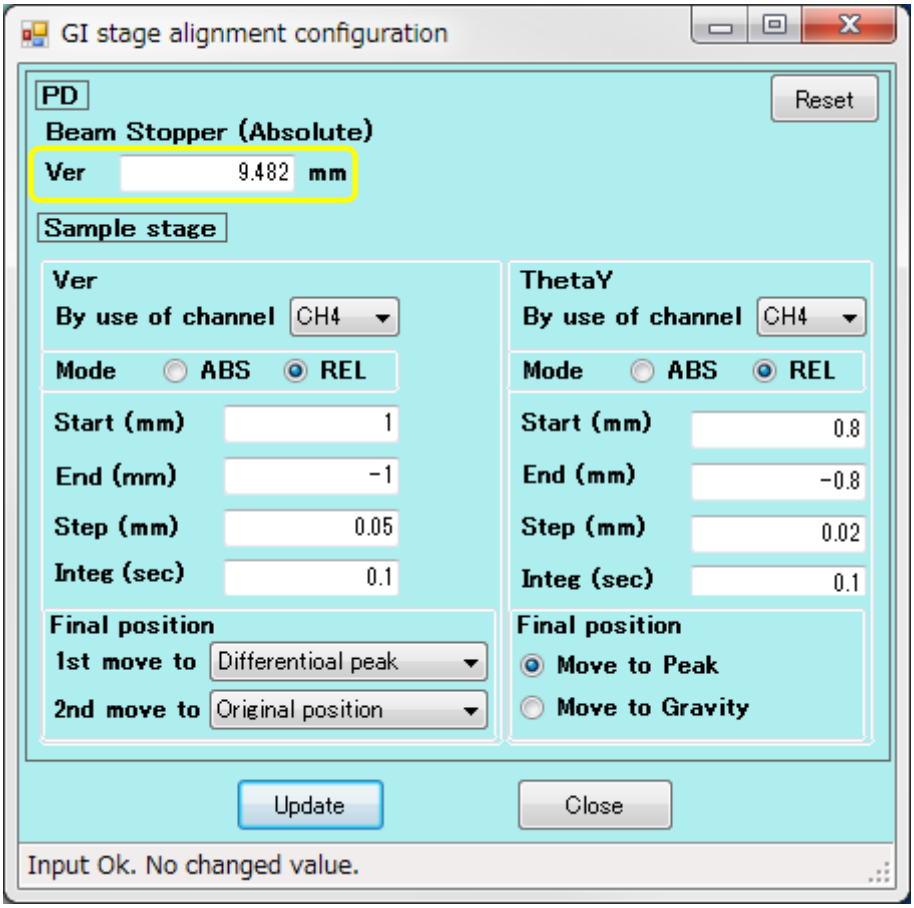


・Automatic GI sample alignment is activated; select Option→GI stage alignment configuration.



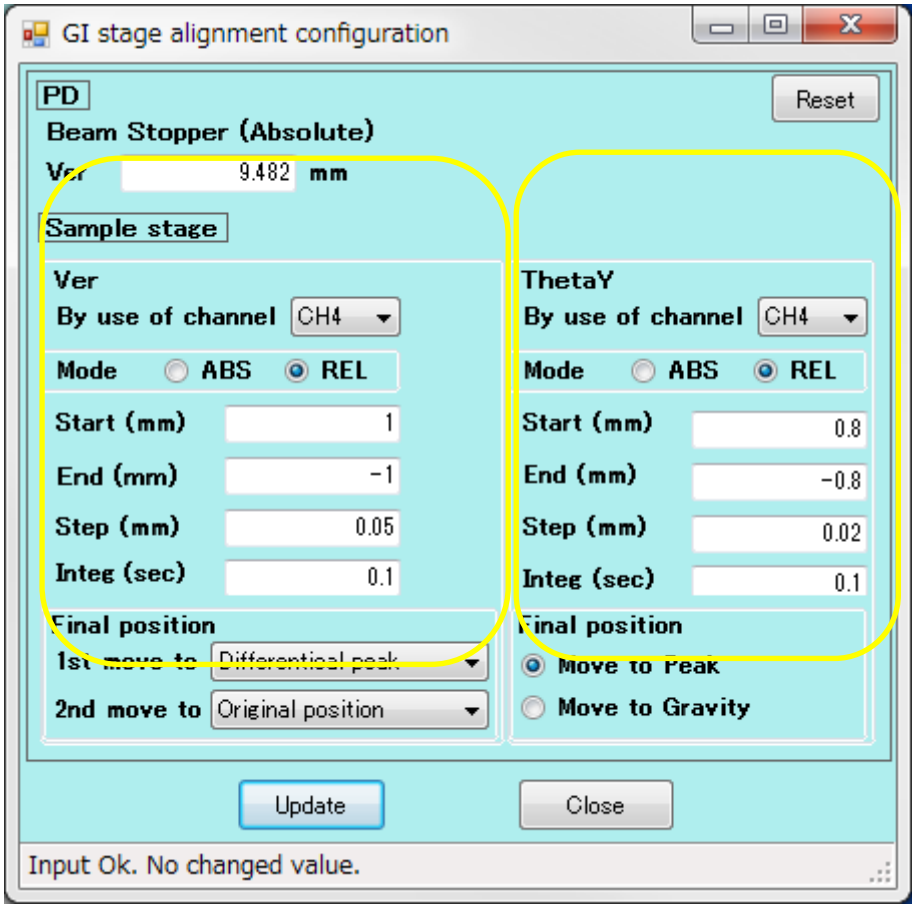
GI stage alignment configuration is started.

・If the PD Ver. for adjusting the beam of B.S. is blank, please enter it. Usually, the person in charge of setting up the system puts it in.

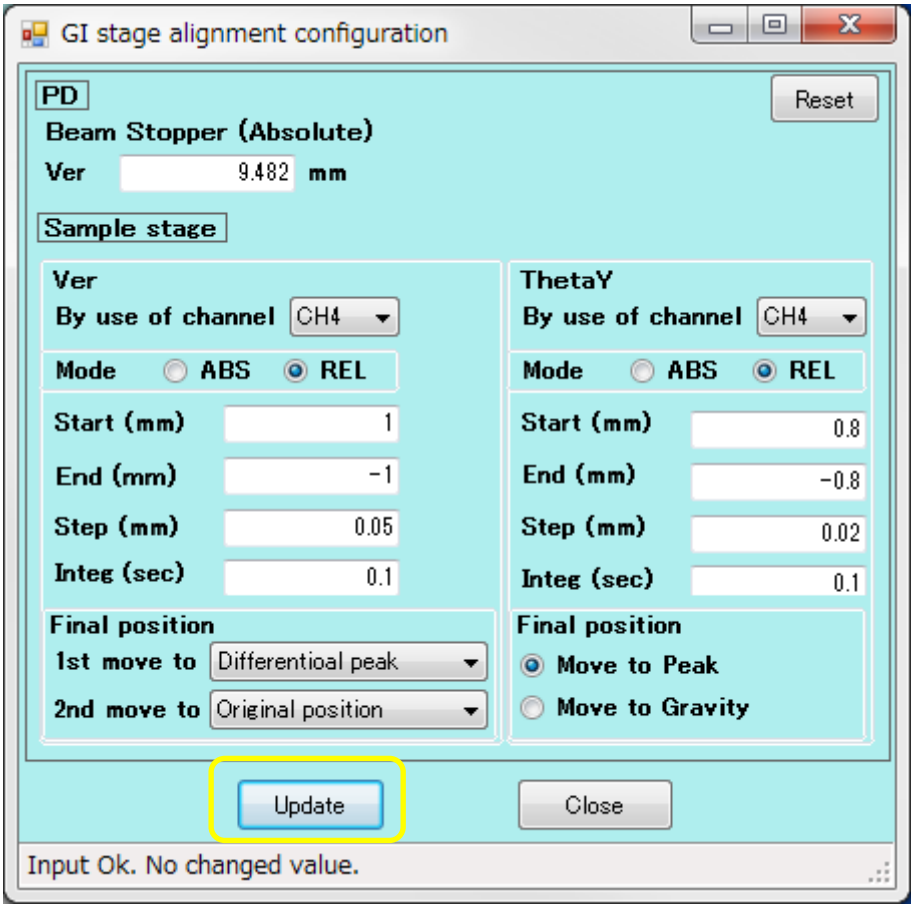


・By use of channel is CH4, Mode is REL, Start is 1, End is -1, Step is 0.05, Integ is 0.1, and Final position is 1st as Differential peak and 2nd as Original position.

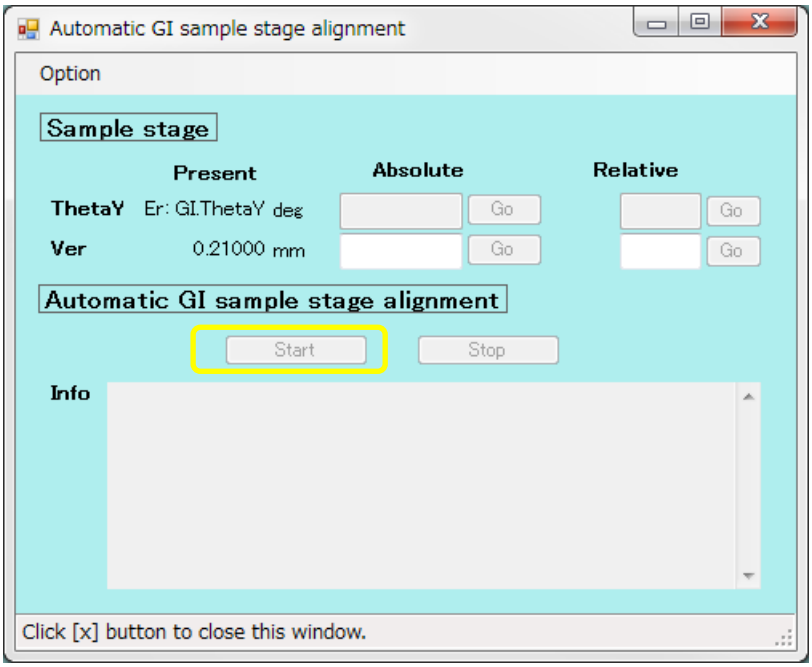
・By use of channel is CH4, Mode is REL, Start is 0.8, End is -0.8, Step is 0.02, Integ is 0.1, and Move to Peak is selected.



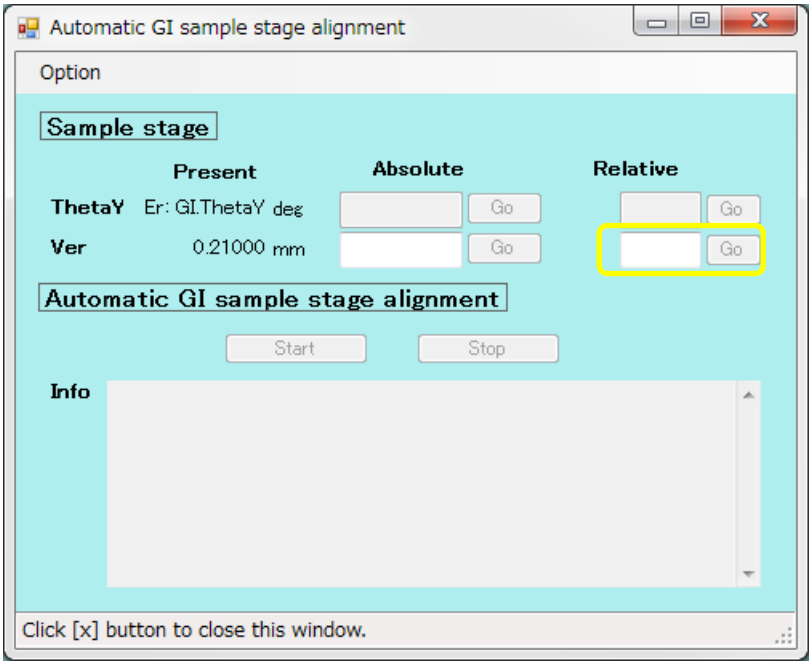
・Press Update.



・Press Start in Automatic GI sample alignment; the PD will move to the X-ray position. Then Ver adjustment, ThetaY adjustment, and Ver adjustment will be performed automatically.



・After the auto-adjustment is finished, enter the value of the inflection point of Ver into Relative of Ver and press Go. This is what the user wants.

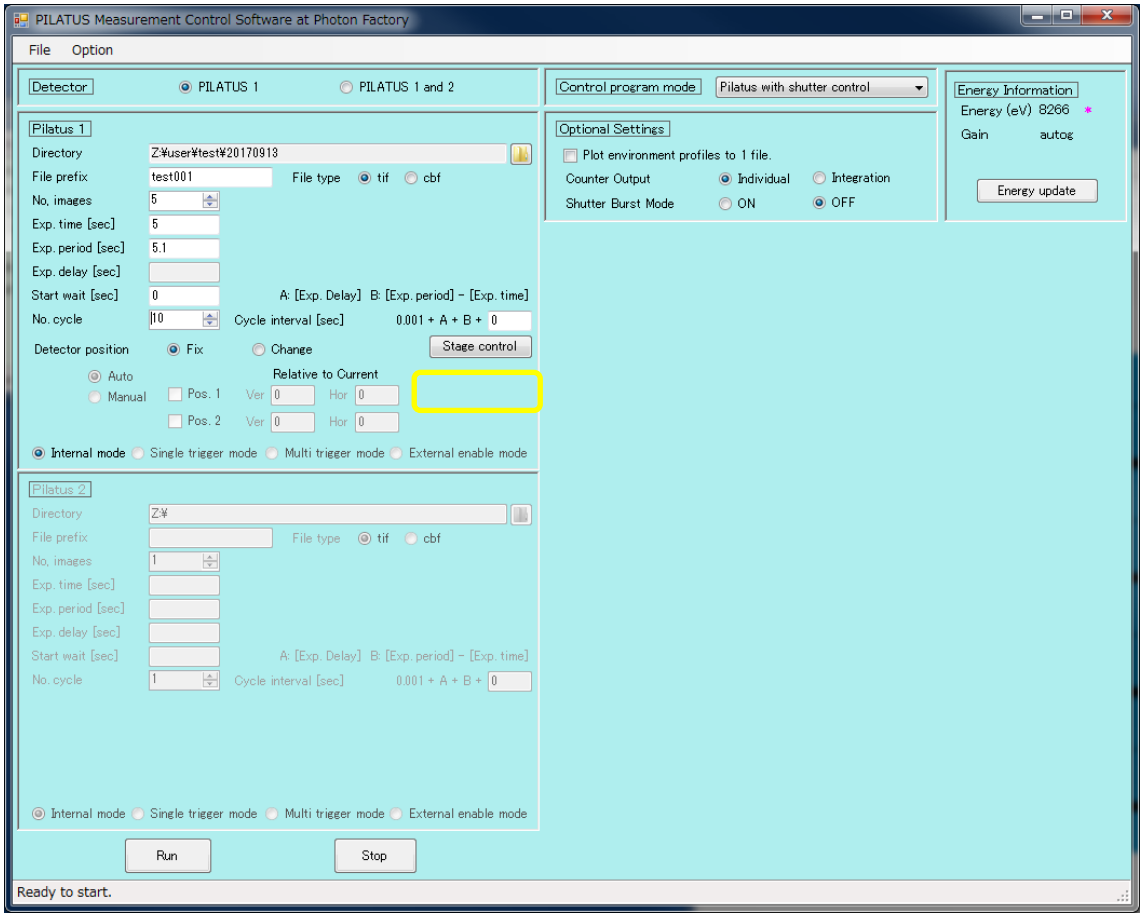


・Thereafter, you can press stat in Automatic GI Sample stage alignment to make the adjustment. After the automatic adjustment is completed, enter the value of the inflection point of Ver in the Relative field of Ver and press Go.

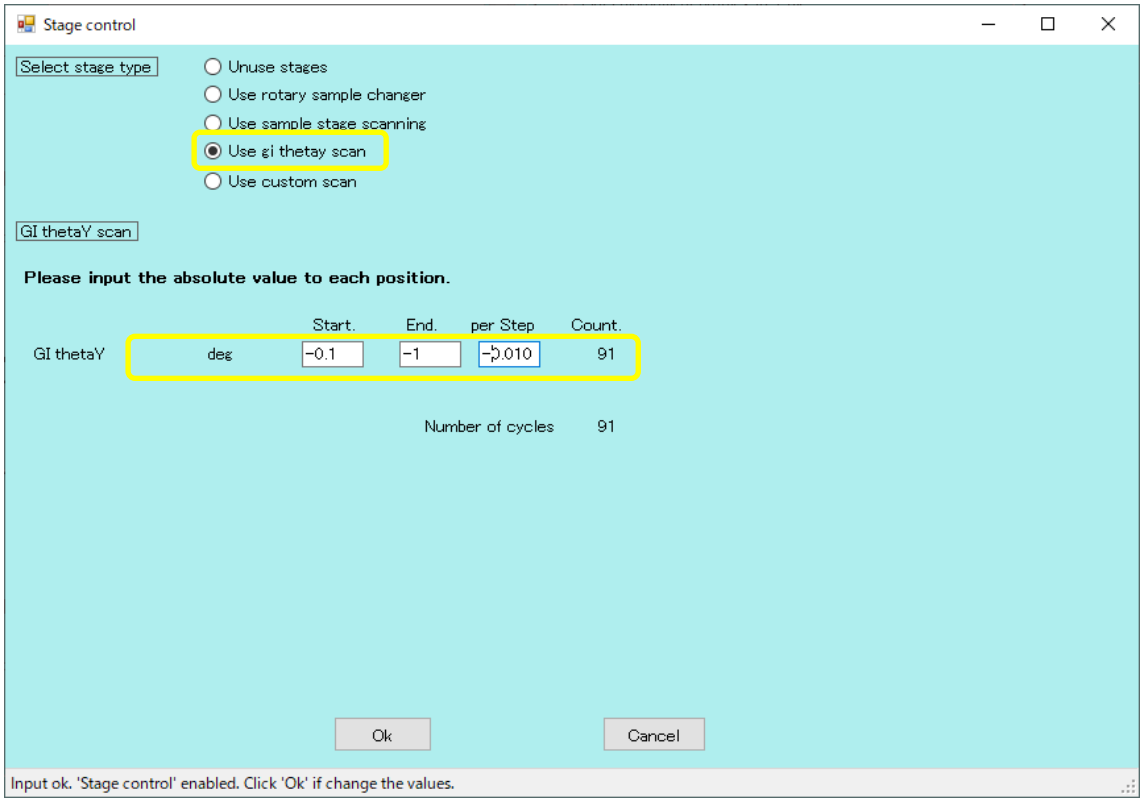
You may change the Ver and ThetaY values in the .GI stage alignment configuration.

2. measurement while changing ThetaY

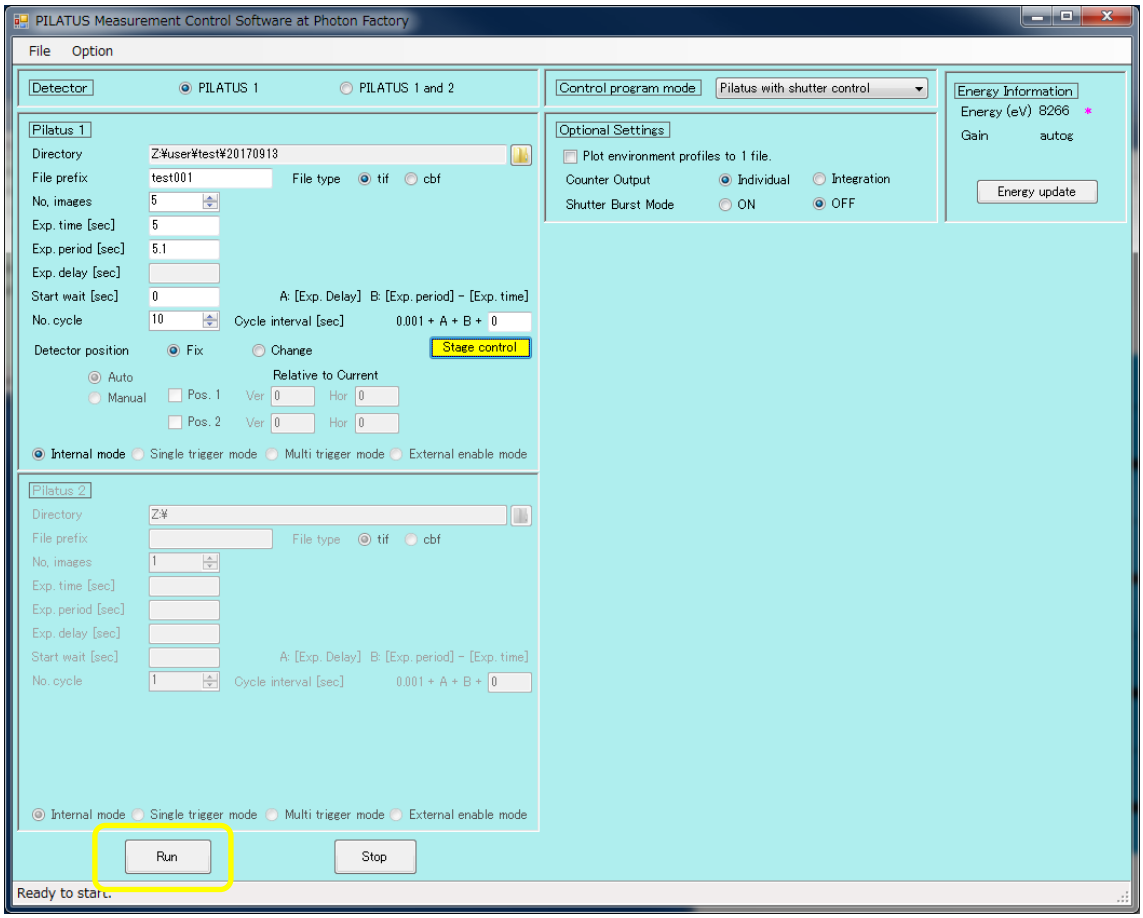
・ Click on "Stage Control" in the PILATUS Measurement Control Software at Photon Factory.



・Select "Use gi thetay scan" under Select Stage type. The following screen shows an example of scanning from -0.1° to -1° every 0.01°. Enter the direction of scan, in this case minus, to three decimal places in per Step.



・Press Run to start measurement.

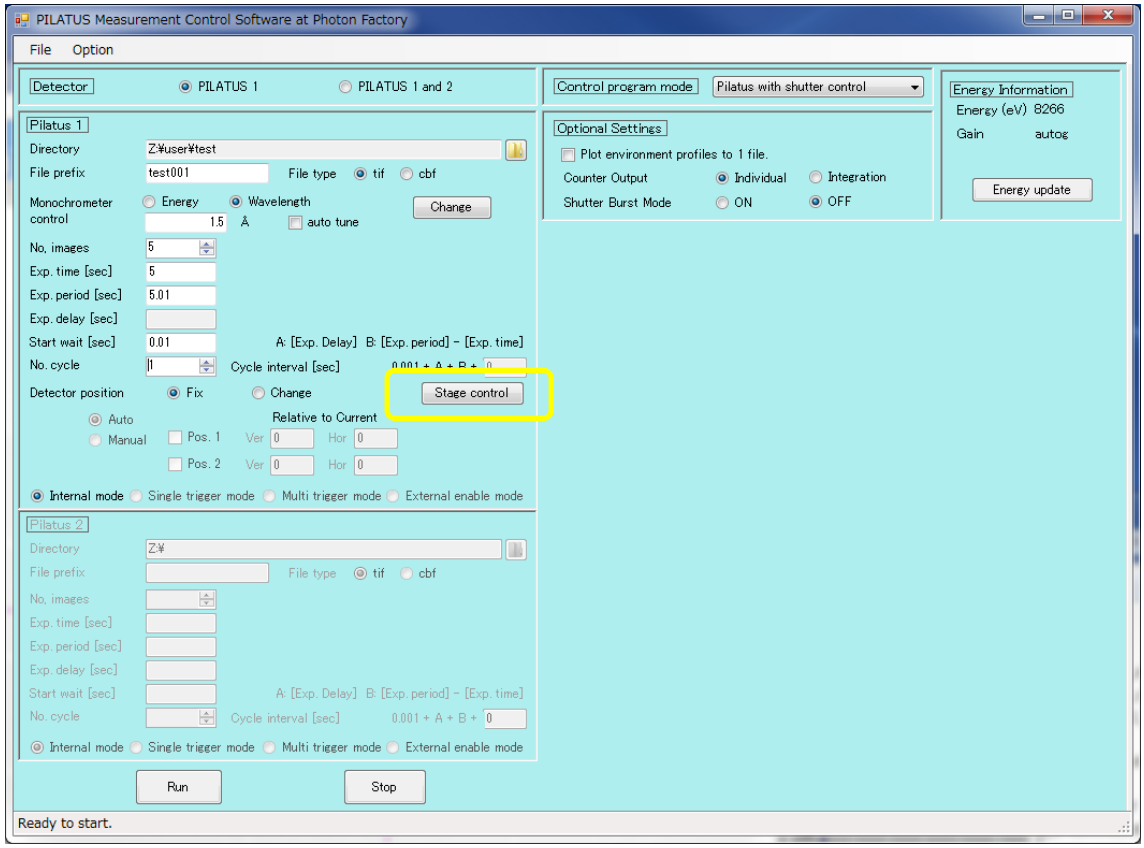


・The output file name will be test001_0 (cycles)_00000 (number of measurements).tif in the above case.

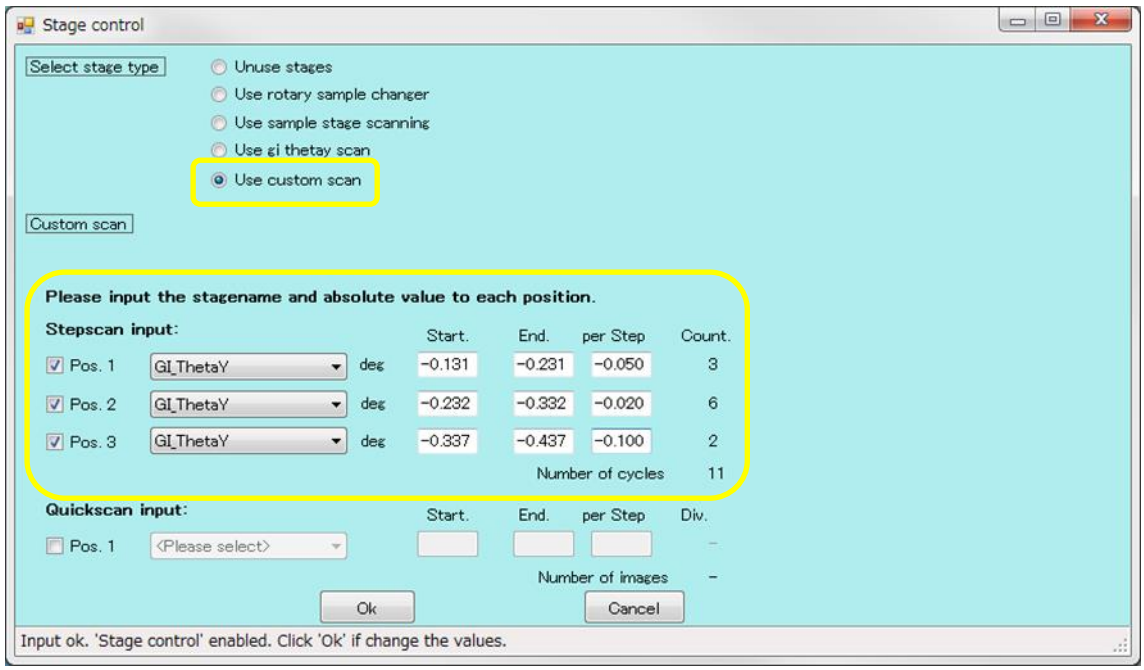
3. gradual change of GI stage scanning

・The GI stage scan can be changed in stages.

・Press Stage control in PILARUS Measurement Control Software.



・Select Use custom scan. per Step enter the direction of scan, minus if less than or equal to, to 3 decimal places. close with OK.

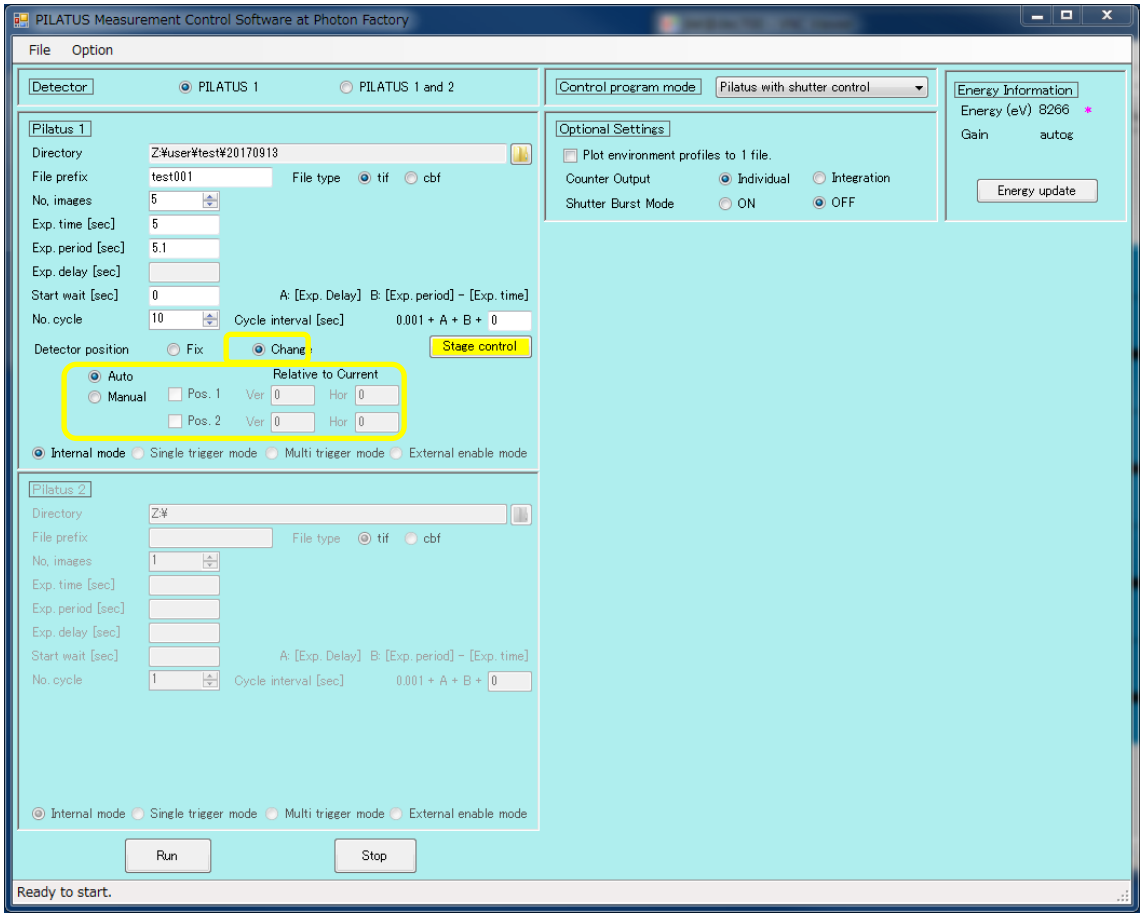


・In the above example, ThetaY can be scanned in three different steps.

4. measurement in combination with the translation function

・If the detectors are to be moved together, 2. perform the following operations following the measurement while changing ThetaY or 3. stepwise change of the GI stage scan.

・Select "change" from Detector position, then select Auto or Manual. If you select Manual, please enter the Ver. and Hor. for Pos.1 and 2.

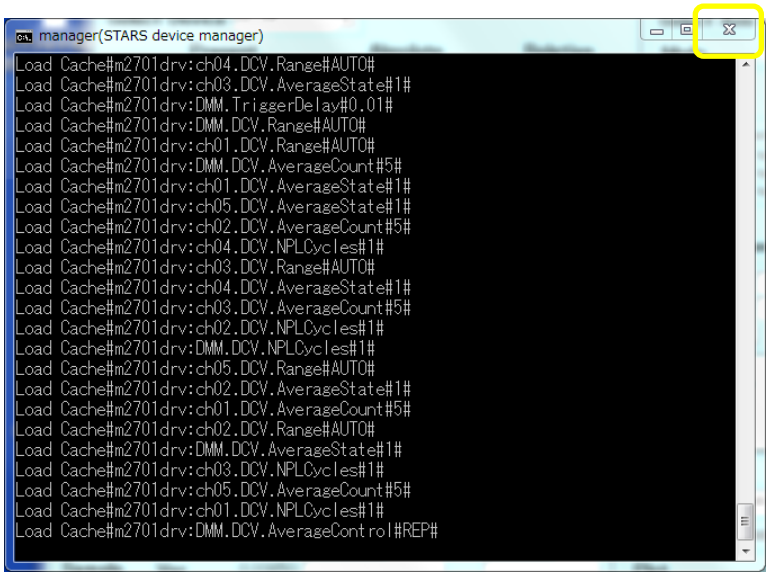


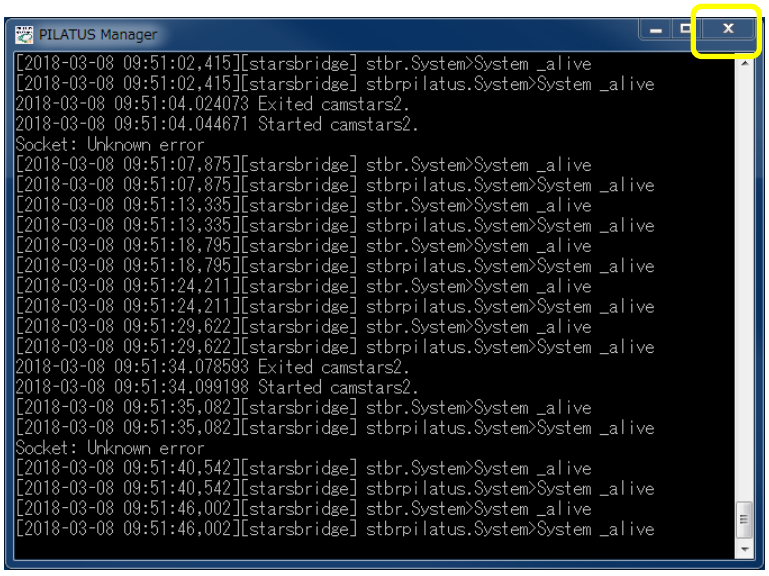
・Press Run to start measurement.

・The file name is "test001_0(cycle)_d0(translation position)_00000(number of measurements).tif".

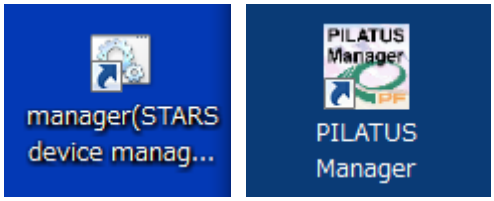
5. if it stops working during the process

・Close Manager on the measurement PC (MEAS PC) and the control PC (CONT PC) once.



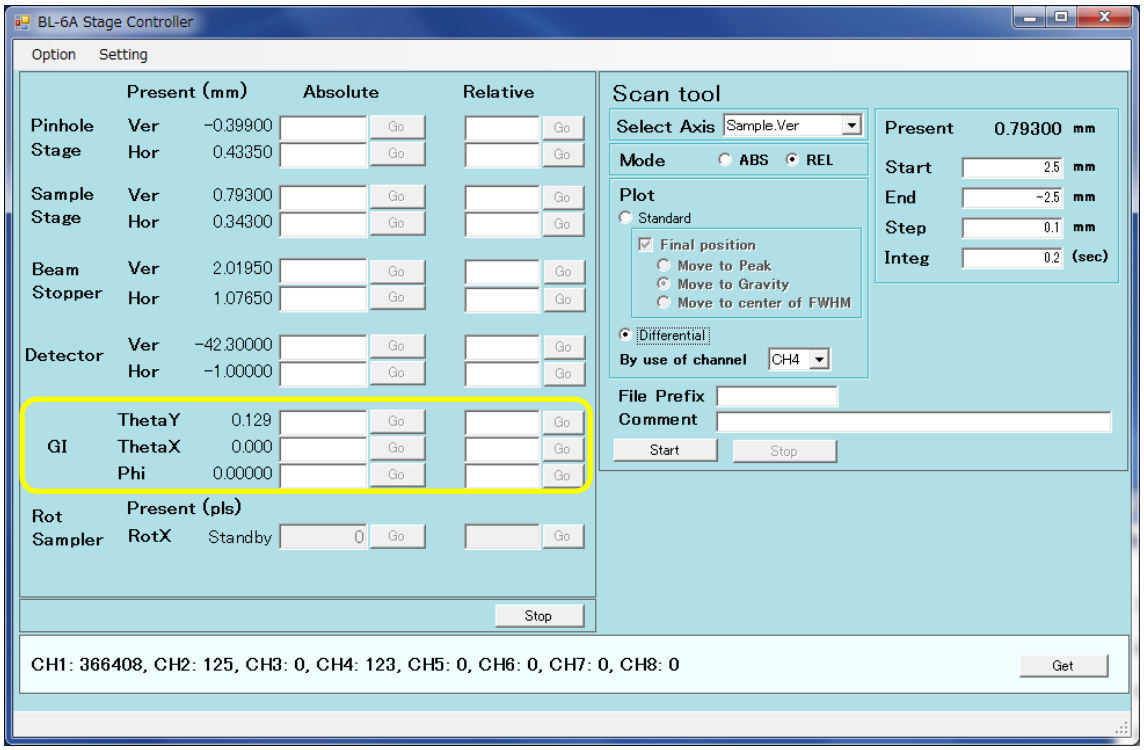


・Start the Manager on the measurement PC (MEAS PC) and on the control PC (CONT PC).



For BL-6

・On the control PC (CONT PC), actually move the axes of the GI stage from the GUI.



・If it still does not work, turn off the power to the driver in the case of the old GI stage for BL-6A and the pulse motor controller SC410 in the case of the new GI stage, wait 30 seconds, and turn it on again.