Rotating Sample Changer User Manual

With this rotating sample changer, you can continuously measure samples by attaching them to each hole of the 36-hole circular plate. The disc rotates and automatically switches the samples for measurement. Below is an explanation of how to use it.



1.Disk Fixation and Datum (Origin Return Operation)

- Please fix the samples on the disk using tape or other means.

- Fix the disk to the main body of the rotating sample changer. Push the disk firmly until it is securely seated at the back. When fixing, avoid rotating the sample stage as it may cause pulse misalignment. In such cases, please perform the following Datum.

Press the ORG (F1) key on the SC210 motor controller to switch to the ORG screen.



Press the [1] (F2) key to Datum CH1.



- Once the Datum operation is completed, the Datum position will be set to "0" for BL-6A and BL-15A2, and "-10000" for BL-10C.

- Only for BL-10C, on the Hatch Outside Control PC, in the RotSampler Controller GUI, the RotSampler RotX axis is displayed as "-10000". Please select "0" from the Select Position and press "Go". The stage will rotate, and the pulse will come to the 0 position.

💀 BL-10C RotSampler Cont	roller		
Option			
RotSampler Pos	ition	_	
Select Position 0	- C).10000 pos.	Go Stop
			1
Presen	t (pls)	Absolute	Relative
Presen RotSampler RotX	t (pls) -10000	Absolute Go	Relative
1			

2.Measurement Procedure

- Please click on "Stage Control" in the PILATUS Measurement Control Software at Photon Factory.

💀 PILATUS Measurement Control Software at Photon Factory					
File Option					
Detector PILATUS 1 PILATUS 1 and 2	Control program mode Pilatus with shutter control	Energy Information Energy (eV) 12398 *			
Pilatus 1 Directory Z¥user¥test	Optional Settings Plot environment profiles to 1 file.	Gain autog			
File prefix test File type tif @ cbf	Counter Output Individual Integration Shutter Burst Mode ON OFF	Energy update			
Exp. time [sec] 5 Exp. period [sec] 5.01					
Exp. delay [sec] 0.1 Start wait [sec] 0 A: [Exp. Delay] B: [Exp. period] - [Exp. time]					
No.cycle 1 Cycle interval [sec] 0.001 + A + B + 0 Detector position Fix Change Stage control 					
Auto Relative to Current Manual Pos. 1 Ver Hor D Hor D Pos. 2 Ver 0 Hor 0					
Internal mode Single trigger mode Multi trigger mode External enable mode					
Pilatus 2 Directory Z¥					
File prefix File type					
Exp. time [sec] Exp. period [sec] Exp. delay [sec]					
Start wait [sec] A: [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 1 • Cycle interval [sec] 0.001 + A + B + 0					
Internal mode Single trigger mode Multi trigger mode External enable mode					
Run Stop					
Please select the valid Pilatus Mode. [Pilatus 1]					

- Select "Use rotary sample changer" for Stage type. Choose the positions of the holes you want to measure, and then close the window by clicking "OK". The following is an example of measuring all the holes.

Select stage type	● Use r ⊙ Use s	e stages otary sample cha sample stage sca și thetay scan							
Rotary sample cha Please check t					+ Che	eck all	– Unch	eck all	
0:	0	9:	5000	V	18:	10000		27:	15000
V 1:	556	V 10:	5556	V	19:	10556	V	28:	15556
2:	1111	V 11:	6111		20:	11111	V	29:	16111
3:	1667	V 12:	6667		21:	11667	V	30:	16667
V 4:	2222	V 13:	7222	V	22:	12222	V	31:	17222
5:	2778	V 14:	7778	V	23:	12778		32:	17778
6:		V 15:		V	24:	13333	V	33:	18333
7:	3889	V 16:	8889	V	25:	13889	V	34:	18889
8:	4444	V 17:	9444	V	26:	14444	V	35:	19444
		Ok		Ca	ancel				

- The "No. Cycle" will be automatically set according to the number of selected holes. The measurements will be distinguished by the sample position = Cycle number.

- Determine the measurement conditions (number of image acquisitions, exposure time, and exposure interval).

- In the PILATUS Measurement Control Software at Photon Factory, input the number of images, exposure time, and exposure period according to the measurement conditions.

PILATUS Measurement Control Software at Photon Factory					
File Option					
Detector O PILATUS 1 O PILATUS 1 and 2	Control program mode Pilatus with shutter control	Energy Information Energy (eV) 12398 *			
Pilatus 1 Directory Z¥user¥test File prefix test File type tif No, inaees 60 Exp. time [sec] 5 Exp. period [sec] 5.01 Exp. deg(sec) 0.1	Optional Settings Image: Plot environment profiles to 1 file. Counter Output Individual Integration Shutter Burst Mode ON Image: OFF	Gain autos			
Exp. belay B: [Exp. period] - [Exp. time] Start wait [sec] 0 A: [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 36					
Auto Auto Auto Auto Pos. 1 Ver Hor Pos. 2 Ver Hor O Internal mode Single trigger mode Multi trigger mode External enable mode					
Pilatus 2 Directory Z¥ File prefix No, inages Exp. time [sec] Exp. period [sec] Exp. delay [sec]					
Start wait [sec] A: [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 1 + O Cycle interval [sec] 0.001 + A + B + 0 Image: Single trigger mode Multi trigger mode External enable mode					
Run Stop					
Please select the valid Pilatus Mode. [Pilatus 1]		.4			

- Press "Run" in the PILATUS Measurement Control Software at Photon Factory to start the measurement. The file name will be "sample_0 (hole position)_00000 (number of measurements).tif".

3. Measurement with Translation Function

- If you want to translate the detector, continue with the following steps after the measurement procedure.

- Select "Change" from the Detector position, and then choose either "Auto" or "Manual." If you choose "Manual," please input the Ver. and Hor. values for Pos.1 and Pos.2.

PILATUS Measurement Control Software at Photon Factory	
File Option	
Detector PILATUS 1 PILATUS 1 PILATUS 1 and 2	Control program mode Single trigger mode
Pilatus 1 Directory Z¥user¥test File prefix test File type tif Exp. time [sec] 5 Exp. period [sec] 5.01 Exp. delay [sec] 0.1 Start wait [sec] 0 A: [Exp. Delay] B: [Exp. period] - [E: No. cycle 36 Cycle interval [sec] 2.2 + A + B + Detector position Fix O Hance Stage of Ø Auto Pos. 1 Ver Hor	, 0 Trieger Edge @ R3SE. FALL. Mode Single Pulse Shot
Pos. 2 Ver 0 Hor 0 Internal mode © Single trigger mode © Multi trigger mode © External enab	Pulse Width [sec] 0.005 Pulse Width [sec] 0.005
Directory Z¥ File prefix File type (a) tif (cbf No, images 1 (c)	Pulse Delay [sec] 0 Pulse Delay [sec] 0 Pulse Polarity POS. NEG. Pulse Polarity POS. NEG. Pulse Polarity POS. NEG. Pulse Polarity POS. PO
Exp. time [sec] Exp. period [sec] Exp. delay [sec] Start wait [sec] No. cycle No. cycle Cycle interval [sec] 22 + A + B +	Mode Single Pulse Shot Mode Single Pulse Shot Pulse Width [sec] 0.005 Pulse Width [sec] 0.005 Pulse Delay [sec] Pulse Delay [sec]
Internal mode Single trigger mode Multi trigger mode External enab Run Stop STARS client camstars1 is down.	ole mode

- Press the Run button to start the measurement.

- The file name will be "sample_0 (hole position)_d0 (translation position) 00000 (number of measurements).tif."

4.If the disc stops moving midway.

- Please check if the motor cable or RS232C cable is disconnected. When plugging or unplugging the motor cable, please ensure to turn off the power beforehand to prevent electric shock.

- Please turn off the power of SC210, and then turn it back on.

- Execute the "Datum" command.

- If the disc still does not move, please restart the PILATUS Measurement on the Control PC (CNTL PC).