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	troller		
Option			
RotSampler Pos	ition		
Select Position 0	-0.	10000 pos.	ào Stop
Presen	t (pls)	Absolute	Relative
Presen RotSampler RotX	t (pls) -10000	Absolute	Relative Go
Presen RotSampler RotX	t (pls) -10000	Absolute Go	Relative Go Stop

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				
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 Image: Cycle interval [sec] 0.001 + A + B + 0 Detector position ● Fix ○ Change Stage control						
Auto Helative to Current Manual Pos. 1 Ver Hor D Hor						
⊙ Internal mode ⊚ Single trigger mode ⊙ Multi trigger mode ⊙ External enable mode						
Pilatus 2 Directory Z¥						
File type tif cbf No, images						
Exp. time (sec)						
Start wait [sec] A: [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 1 Image: A start wait [sec] 0.001 + A + B + 10						
Internal mode Single trigger mode Multi trigger mode External enable mode						
Run						
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.

🖳 Sta	age control					(harts)	here the			-	
Select stage type O Unuse stages Image: I											
Rota	ry sample ch	langer									
Plea	ase check	the postion.					+ 0	heck all	- Unch	eck all	
	0:	0	\checkmark	9:	5000	V	18:	10000	V	27:	15000
	1:	556	V	10:	5556		19:	10556	V	28:	15556
V	2:	1111	V	11:	6111		20:	11111		29:	16111
	3:	1667	V	12:	6667	V	21:	11667	V	30:	16667
	4:	2222	V	13:	7222		22:	12222		31:	17222
	5:	2778	V	14:	7778		23:	12778	V	32:	17778
	6:		V	15:		V	24:	13333		33:	18333
	7:	3889	V	16:	8889	V	25:	13889		34:	18889
	8:	4444	V	17:	9444	V	26:	14444	V	35:	19444
Inout	ok 'Solution	n Stago control' o	nablod (Ok	if change the value	Ca	ancel				
Input	OK. SOIULIOI	n stage control e	napied, c	LICK OK	in change the valu	Jes.					.::

- 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	-	a 🗙
File Option		
Detector PILATUS 1 PILATUS 1 and 2	Control program mode Pilatus with shutter control	
Pilatus 1 Directory Z¥user¥test File prefix test File prefix test Exp. time [sec] 5 Exp. period [sec] 5.01 Exp. delay [sec] 0.1	Optional Settings Control Settings ✓ Plot environment profiles to 1 file. Gain auto Counter Output Individual Integration Shutter Burst Mode ON OFF	e te
Start wait [sec] 0 A: [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 36 Cycle interval [sec] 0.001 + A + B + 0		
Detector position		
Pilatus 2 Directory Z¥ File prefix No, images Image Image </th <th>-</th> <th></th>	-	
Start wait [sec] A [Exp. Delay] B: [Exp. period] - [Exp. time] No. cycle 1 + B Option 0.001 + A + B + 0 Image: Single trigger mode Multi trigger mode External mode Single trigger mode		
Run Stop	,	
Please select the valid Pilatus Mode. [Pilatus 1]		

- 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 and 2	Control program mode Single trigger mode
Pilatus 1 Directory Z¥user¥test File prefix test File prefix test File prefix test File prefix test File type tif Directory 5 Exp. time [sec] 5 Exp. time [sec] 0.1 Start wait [sec] 0.1 Start wait [sec] 0 A: [Exp. Delay] B: [Exp. period] - [Exp. time; No. cycle 36 Cycle interval [sec] 22 + A + B + 0 Detector position Fix Ochange Stage control @ Auto Relative to Current Manual Pos.1 Ver Hor	Optional Settings Energy (eV) 12398 * Image: Plot environment profiles to 1 file. Gain autog Counter Output Individual Integration Shutter Burst Mode ON OFF Pulse Generator Setting External Trigger ON External Trigger ON OFF Trigger Level [V] 25 CHD Module#1 ON OFF Trigger Edge RISE. FALL. Mode Single Pulse Shot X-ray Shutter Setting Pulse Width [sec] 0.005 Shutter Open Delay [sec] Shutter Close Delay [sec] 0.05 Shutter Close Delay [sec] 0.05 Pulse Polarity POS. NEG.
Pos. 2 Ver 0 Hor 0 Internal mode Single trigger mode Multi trigger mode External enable mode Platus 2	OHE Module#2 ON OFF CHF Module#3 ON OFF Mode Single Pulse Shot Mode Single Pulse Shot Mode Single Pulse Shot Pulse Width [sec] 0.005 Pulse Width [sec] 0.005 Pulse Width [sec] 0.005
Directory Z¥ File prefix No, images	Pulse Delay [sec] Pulse Delay [sec] 0 Pulse Polarity ● POS. NEG. Pulse Polarity ● POS. ● NEG. CHG1 Mondule#51 ● ON ● OFF
Exp. time [sec] Exp. period [sec] Exp. delay [sec] Start wait [sec] No. cycle 1 22 + A + B + 0	Mode Single Pulse Shot Mode Single Pulse Shot Pulse Width [sec] 0.005 Pulse Width [sec] 0.005 Pulse Delay [sec] Pulse Delay [sec] Pulse Delay [sec] Pulse Polarity © POS. NEG.
Internal mode Single trigger mode Multi trigger mode External enable mode Run Stop STARS client camstars1 is down.	

- 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).