User Manual about "Control-BL29XU.exe" (BL-Control Program)

Abstract

This program has an operation panel of seven pieces.

1. [Control ID - Mono.]
   - Operation of ID and Mono. Calculation 1st order Harmonics
   - Pulse count of Beam intensity
2. [ID]
   - Operation of ID. Open or Close of MBS and DSS
3. [Mono.]
4. [TC-Mirror, TC-Slit and Collimator]
5. [Change FE Slit]
6. [Energy Scan and Mono. Angle Scan]
7. [Position Scan] (1Axis Scan and 2 Axis Scan)

"Check Status" button is used to check current position. (We can't use this button at ID and Mono. panels) "Motion Stop" button is used to stop motion during move. "Stop Program" button is used to turn off this program. We can use these 3 buttons at all panels.
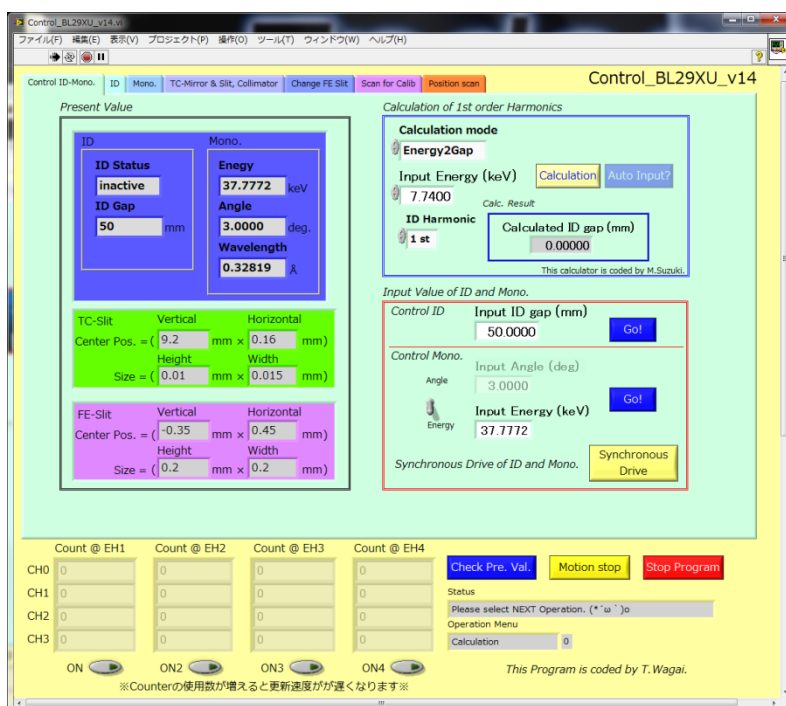

Fig.1 Control_BL29XU.exe (Main screen)

Fundamental Information

1. If you don't operate for 2 minute, this program updates the present positions.

2. If you don't operate for 10minute, this program is turn off automatically.

3. A gray frame is display present position. A white frame is able to input value.

About operation

- Run program

You push "⟨▭⟩" button, program is run. After that, it gets some value (Ex : ID Gap etc…) using communication with "MADOCA*". When displayed on "Status" as "Please select NEXT Operation", you can operate this program.

MADOCA* ("Massage and Database Oriented Control Architecture") is a frame work.
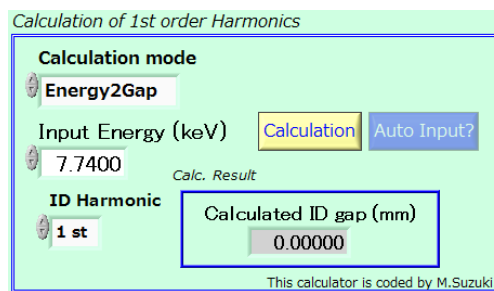

1. Main screen

1-1 Calculation

Fig.2 Calculator

- Operation

  1. You should select "Calculation mode" (Energy2Gap or Gap2Enrgy).

   - Energy2Gap

     This mode calculates "ID Gap" corresponding to "Input Energy".

   -Gap2Energy

     This mode calculates "Energy" corresponding to "Input ID Gap".

  2. When you select "Energy2Gap" mode

     After you pushed "Calculation" button, you can get fixed ID Gap's value corresponding to Input Energy. (This value is shifted about 0.1mm)

  3. You can push "Auto Input" button after push "Calculation" button.

     After that, it is automatically inputted into value of "ID and Mono.".

     (Input angle is not update)

1-2 ID and Mono

Fig.3 ID and Mono.

- Operation about ID (⌐ ⌐ area)

In this area, you can change parameters of ID Gap and Mono. If you push "Go!" button, they are changed according to an input parameter.

- Operation about Mono. (Not ⌐ ⌐ area)
    1. You should select "Input Type. Input types are "Angle(deg)" and "Energy(keV)", Please input absolute value.
    2. If you push "Go!" button, according to Input Value, you can control them.

- Synchronous drive ID and Mono.

If you push "Synchronous Drive" button, ID and Mono. are change synchronous according to Input value which ID and Mono.

1-3 Counter

Fig.4 Counter

- Operation

If you want to use a counter, please push "ON" button under each display. If multi

panel are on, Update speed will be decrease. This function is effective only at the time of waiting next operation.
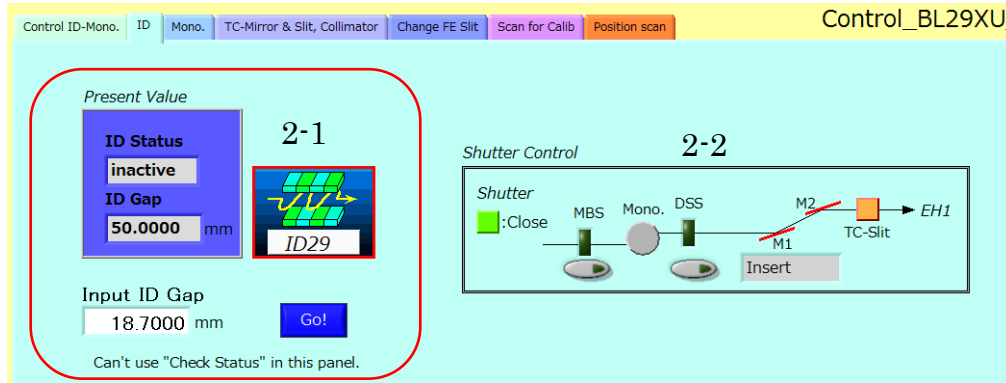
2. ID and Shutter

Fig.5 Change ID Gap

2-1 ID

1. Please input value in "Input Value".
2. Please push "Go!" button. After that, ID Gap is changed.

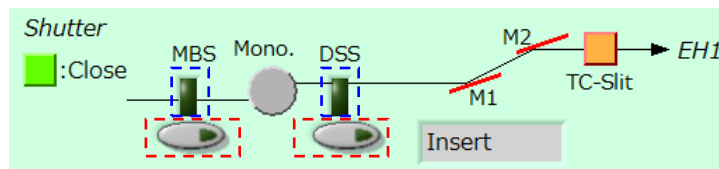### 2-2 Open or close of Main Beam Shutter (MBS) and Down Stream Shutter (DSS).

Fig.6 Operation of Shutter

- Caution

   If you use this function, you have to change the operation mode on Graphic panel from "Local only" to "Local + Remote" mode. And, it is needs Beamline Status is "All Green".

- Operation

   ⬚ is displayed condition of the shutter. If ⬚ is lighting (Color is Green), Shutter is close. So, Fig.2 is displayed open both shutter.

   ⬚ is button for shutter operation. When you push button, this program confirms present status, whether open or not, it does operate as following.

$$\left[\begin{array}{l} \text{- When Shutter is "Close" -> it does open operation} \\ \text{- When Shutter is "Open" -> it does close operation} \end{array}\right.$$

- If displayed as "Error 56"

This case is that can't communicate to MADOCA. So, you should restart X-terminal.

http://beamline.harima.riken.jp/bl29xu/TroubleShooting/BLWShungup_eng.html
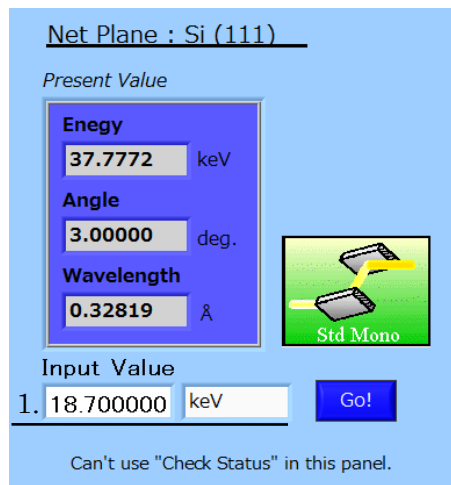
3. Mono.

Fig.7 Change Monochromator

- Operation

1. Please input value in "Input Value", and decide a unit.

2. Please push "Go" button. After that, ID gap is changed.

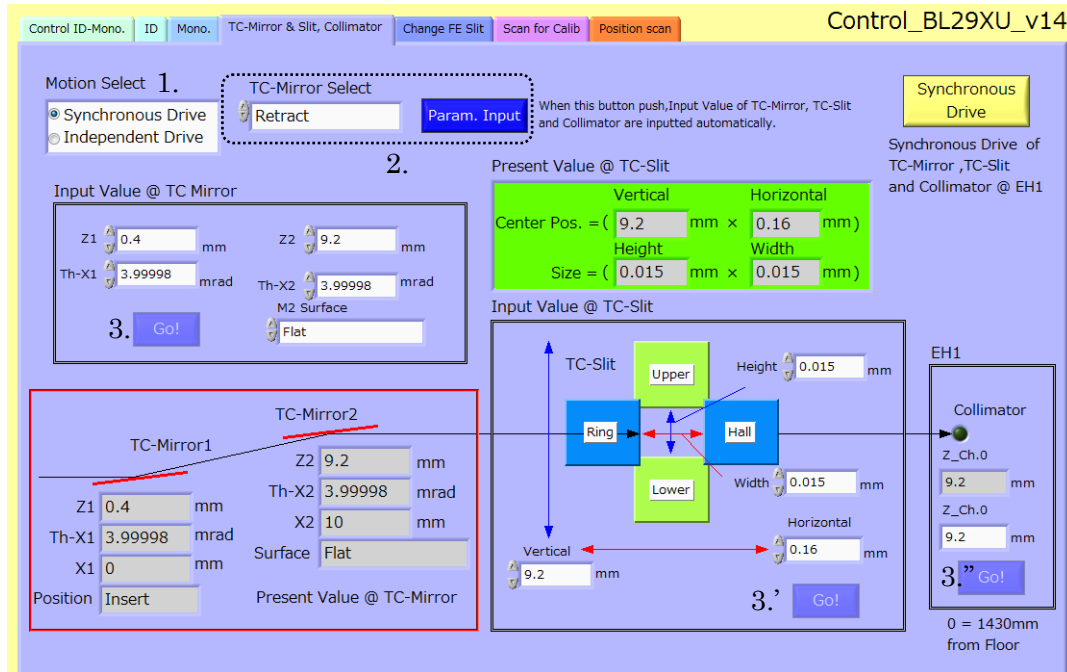## 4. TC-Mirror & TC-Slit

Fig.8 TC-Mirror & TC-Slit

- Operation

1. Please select Motion Select from the following .

   - Synchronous Drive: TC-Mirror, TC-Slit and Collimator move synchronously.

   - Independent Drive: TC-Mirror, TC-Slit and Collimator move independent.

   If you select Independent Drive, You should operate as following 3.

2. Please select TC-Mirror condition as following.

   - 5mrad, 4mrad, 3mrad, 1.25mrad (for focusing) or Retract

   You push "Param. Input" button, a value is inputted automatically into "Target

   Position @ TC-Mirror" and Vertical of TC-Slit.

3, 3' and 3". Operation of any Component

  You push "Go!" button, compare to present value, value of each axis is changed.

  If you need, you can change value of each axis manually.
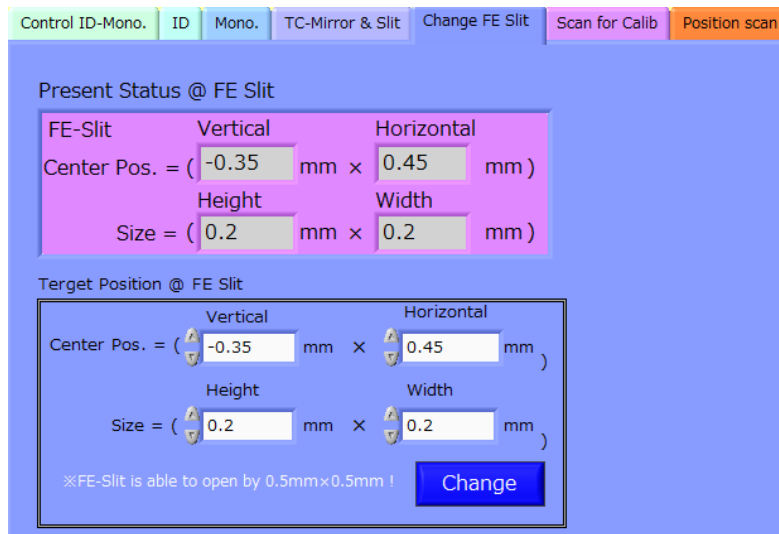
5. Front End Slit (FE-Slit)

Fig.9　FE-Slit

- Caution -

　If opening size of FE-Slit open more than "0.25mm²", "Crystal of Mono." melts with
　heat. So, "Height" and "Width" must not input a value of over 0.5mm.
　(Size of Height and Width ≦ 0.5mm)

- Operation

You push "Change" button, compare to present status, value of each axis is changed.

If you input over 0.5mm to "Height" or "Width", Value is changed 0.5mm compulsory.

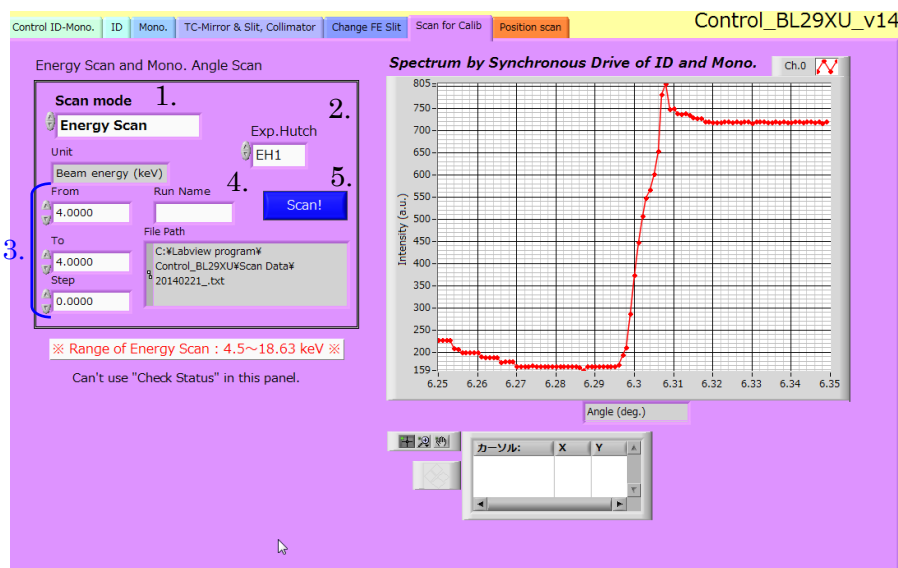## 6. Energy Scan and Mono. Angle Scan

Fig.10 Energy Scan and Mono. Angle Scan

- Operation

1. Please select "Scan Mode" as following.

   - "Energy Scan" or "Mono. Angle Scan".

2. Please select No. of "Exp. Hutch."

3. Please <u>input value into "From", "To" (From < To)</u> and "Step".

4. Please input a character into "Run Name". File-pass is changed according to "Run Name" like ["day"_"Run Name".txt].

5. You push the "Scan!" button, Measurement starts.

   When measurement finishes, it is displayed on Status as "Please Select NEXT Operation."
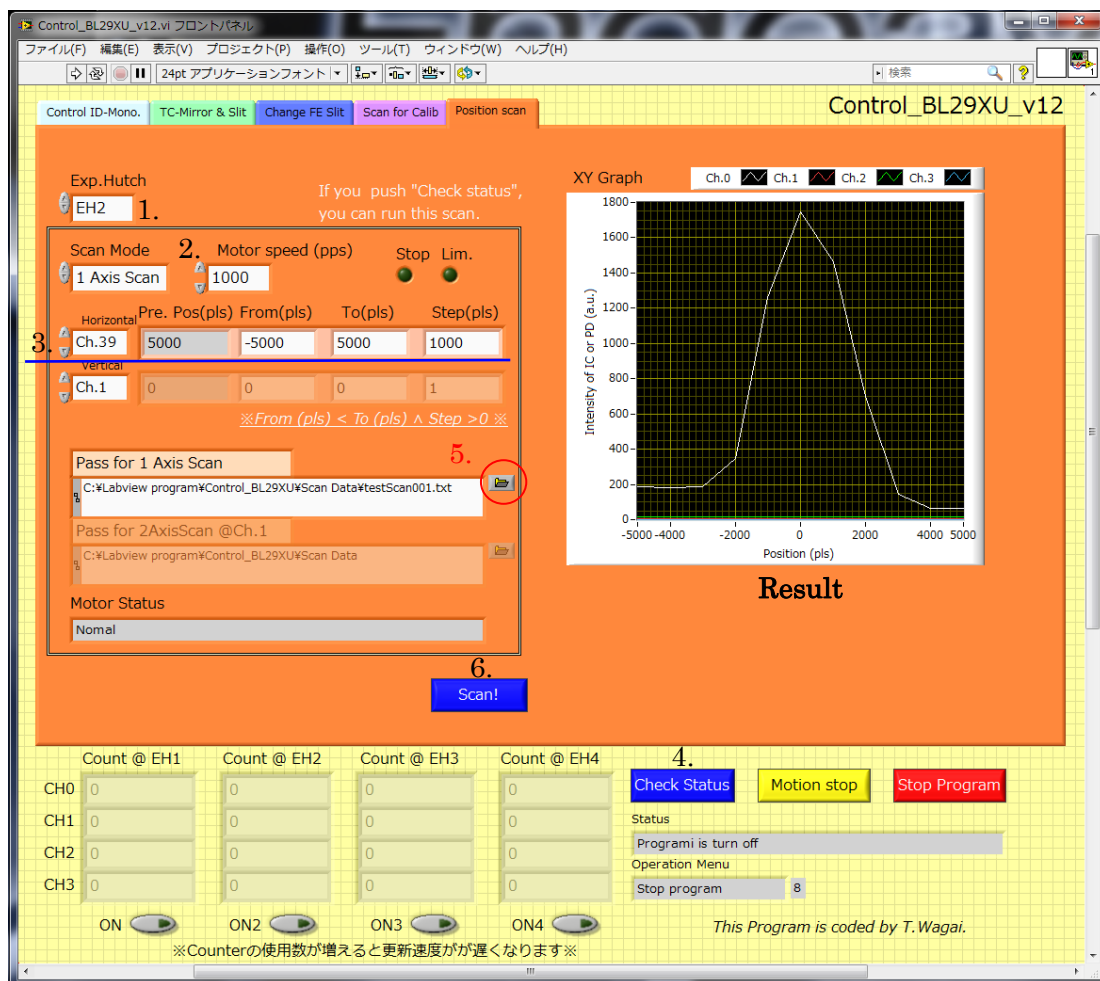

. Position Scan

7-1. 1 Axis Scan

Fig.11 Position Scan (1 Axis Scan)

This 1 Axis Scan program can monitor beam intensity of four channels.

- Operation

1. Please select No. of Exp. Hutch.

2. You should select "1 Axis Scan" on "Scan Mode", and select motor speed.

3. You should select channel No. of Horizontal. And, please <u>input value into "From" , "To"</u> <u>(From < To)</u> and "Step".

4. Please push "Check Status" button. This order gets all present position Which BL-WS is saved. <u>After that, "Scan" button is enable</u>.

5. You should push ◯ button, and select file-path on "Pass for 1 Axis Scan". Please select existing file or new file as file-path.

6. You push "Scan!" button, 1 axis scan starts. When this scan is finished normally, data is saved and is displayed "Complete". Moreover, motor position reach limit position, or you push "Motor Stop" button during scan, it is displayed like "This scan is canceled". This case does not save data.

7-2. 2 Axis Scan

Fig.12 Position Scan (2Axis Scan)

This 2 Axis Scan program can monitor beam intensity 2-dimensional. If it takes position which intensity is max, it saves the position at that time on "Max @Ch.0" and "Ch.1". The result is saved as txt file.

- Operation (It is almost the same as 1 axis scan)
1. Please select No. of "Exp. Hutch".
2. You should select "2 Axis Scan" on "Scan Mode", and select motor speed.
3. You should select channel No. of Horizontal and Vertical. And, please input value into "From" , "To" (From < To) and "Step".
4. Please push "Check Status" button. This order gets all present position Which BL-WS is saved. After that, "Scan" button is enable.
5. You should push ○ button, and select file-pass on "Pass for 2 Axis Scan". Please select existing file or new file as file-pass.
6. You push "Scan!" button, 1 axis scan starts. When this scan is finished normally, data is saved and is displayed "Complete". Moreover, motor position reach limit position, or you push "Motor Stop" button during scan, it is displayed like "This scan is canceled". This case does not save data.

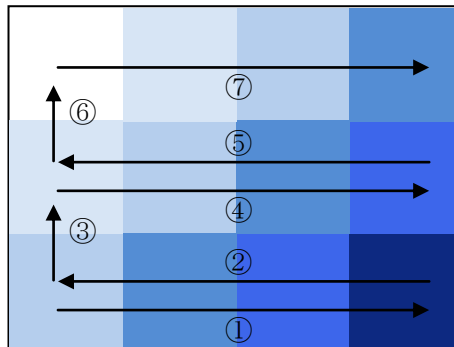This scan is done like fig.11.
Bright area shows that beam intensity is stronger than dark area.

Fig.13 How to move 2 Axis Scan

That's All //