

GSYS (Graph Suchi Yomitori System)

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- (1) THIS IS THE SYSTEM IN ORDER TO DIGITIZE THE DATA ON THE FIGURE SUCH AS EXPERIMENTAL DATA ON THE PRINTED MATTER. You can download files from <http://www.jcprg.org/>. The program of this system employs the "Java" and therefore your computer should install "Java" for the use of this system. The source program is "Gsys.java" and you can run the system by "java Gsys" command. If you do not have class files, you should compile by "javac Gsys.java" beforehand. And you need to prepare a image file(PNG, GIF,JPEG) which has the figure of data.
- (2) When you run the system, firstly you should download a image file by "L.F" button.
- (3) You can magnify(reduce) the size of the figure by "+F(-F)" button. You can set the initial size by "R.F" button.
- (4) In order to enlarge(reduce) the scroll panel, you can use the "+W(-W)" button for the width, and "+H(-H)" button for the height. You can set the initial size by "R.SP" button.
- (5) **Setting the X-axis :**
Click the "Xa" button and then click the each ends of the X-axis on the figure.
- (6) **Setting the Y-axis :**
Click the "Ya" button and then click the figure as you did for "X-axis". Or, if the Y-axis starts at same position as X-axis starts, you can use "*Ya" button and then click only the end of Y-axis.
- (7) **Setting the data :**
In order to set the data, first click the "Ad" button and then click the data on the figure and then you can find the red circle on the figure where you have clicked. If you click the another position, you can add another data. The latest data is given by the red color and others are by the purple color.

If you click the "Ad" button again, you can stop this procedure ("Ad" button change its color from the red to the white). When one of data has a red color, you can move, remove, and set the error bars of this data by following procedures (8) and (9).

And after the figure is magnified, the marked data is often escaped from the view of GSYS display. In such case, if you click the Enter key, the scrollbar will be automatically moved so that the marked data comes to the center of the display. This is applied for the start and end of X, Y-axis. If there is no marked data, the scrollbar will move so that display shows the left-upper corner of figure.

(8) Move and Remove the data :

In order to remove and move the data, firstly click "Ma" button and then click the data which you want to move or remove. Then you can find the data changes its color from the purple to red. If you click the different data, you can change the red color data. You can stop this procedure when you click the "Ma" button again("Ma" button changes its color from the red to the white).

If you want to remove the data, you can do for red color data when you click the "Rem" button. If you want to move the data, click the "Mo" button and use the arrow keys. You can find that the red color data move accordingly. The arrow keys work only when the focus lies on the figure(so click the figure if the keys does not work). You can stop this procedure by click "Mo" button again("Mo" button changes its color the red to the white). You can do same for the each ends of the X-axis or Y-axis. After click the "Ma" button and the click the end of the X- or Y-axis(You can see the color changes from the blue to the red). Use "Mo" button and the arrow keys as you did for the data. But you cannot use "Rem" button for the ends of the axis, so reset the axis by "Xa", "Ya", "*Ya" buttons if necessary.

(9) Setting the error bars :

In order to set the error bar of X or Y direction, firstly mark the data which you want to set error bar by "Ma" button as you did in (8)(changes its color from the purple to red). Then, if it is the symmetrical error, click the "X err(sys)" for X direction or "Y err(sys)" for Y direction and then click the one end of the error bar on the figure.

If it is asymmetrical error bar, you can use "X err(asy)" or "Y err(asy)" and click the each ends of the error bar.

When you move the data by "Mo" button and arrow keys, error bars also move together with data. If you want to move only one of the error bars, you can use "F5", "F6", "F7", "F8" keys after clicking the "Mo" button. When you click one of above four keys, you can find the red circle appearing at end of error bar and then you can move that error bar by arrow keys. If you want to stop this procedure, click the "Mo" button again. The "F5", "F6", "F7", "F8" keys works only when the focus is on the figure(so click the figure when these does not work). The correspondence of these key are following,

F5 Firstly specified error bar of X direction.

F6 Secondly specified error bar of X direction (for asymmetrical error bar).

F7 Firstly specified error bar of Y direction.

F8 Secondly specified error bar of Y direction (for asymmetrical error bar).

remove the error bar by "Rem" button and you must set newly erro bar if necessary.

(10) Full cancel :

When you want to cancel all above procedures, you can do by "C" button.

(11) **Keys :**

You can use keys instead of some of buttons. Correspondence are following.

(Button)	(Key)
+F	Up arrow key(when "Mo" button is not used).
-F	Down arrow key(when "Mo" button is not used).
R.F	R
Ad	A
Ma	M
Rem	Esc
Mo	V
Data	O
X err(sy)	F1
X err(asy)	F2
Y err(sy)	F3
Y err(asy)	F4

These keys work only when the focus is on the figure (Click the figure when these does not work).

(12) **Output of numerical data :**

In order to get numerical data, click the "Data" button after above procedures, then you can find another window. Then put the value of start and end of X- and Y-axis at "x(start)", "x(end)", "y(start)", "y(end)", respectively. Next, at the "Error value", select the correct choice at "(Set Error)" and "(Set notation)".

* Choice at (Set Error),

No Error	Not show any error.
X error	Show only error of X direction.
Y error	Show only error of Y direction.
X & Y error	Show both error.

* Choice at (Set notation),

Relative	Show the relative value of error.
Absolute	Show the absolute value of error.

Next, at the "Scale", select about the scale ("Liner" or "Log") at "(X-axis)" and "(Y-axis)".

Finally, after above setting, you can get numerical data by "Write" button. You can change the order of the data by "Sort X" and "Sort Y" buttons according to the order of the numerical value of X and Y. "Write" button can return the initial output.

You can save the output by "Save" button.

You can use "+W", "-W", "+H", "-H" in order to change the size of frame of the output.

You can close this window by "Close" button.

(13) **Notice :**

In order to get numerical data with high accuracy as much as possible in (12), you should adjust the data correctly by "Mo" button after the figure are enough magnified by the "+F" button.

(14) **Properties :**

If you click "Pro" button, you can find new window for the properties. With this, you can change the color of data and X,Y-axis and the size of circle.

(15) **About the button :**

"L.F"	Load the image file.
"Pro"	Open properties Window.
"+F"	Magnify the size of the figure.
"-F"	Reduce the size of the figure.
"R.F"	Reset the size of the figure.
"+SPW"	Enlarge the width of the scroll panel.
"-SPW"	Reduce the width of the scroll panel.
"+SPH"	Enlarge the hight of the scroll panel.
"-SPH"	Reduce the hight of the scroll panel.
"R.SP"	Reset the size of scroll panel.
"Ad"	Add the data.
"Ma"	Mark the data in order the move, remove, set the error bar.
"Rem"	Remove the marked data.
"Mo"	Move the marked data by the arrow keys.
"Xa"	Set the X-axis.
"Ya"	Set the Y-axis.
"*Ya"	Set the Y-axis when it start at same position as the X-axis starts.
"C"	Cancel all setting.
"X err(sy)"	Set symmetrical error bar of X direction.
"X err(asy)"	Set asymmetrical error bar of X direction.
"Y err(sy)"	Set symmetrical error bar of Y direction.
"Y err(asy)"	Set asymmetrical error bar of Y direction.
"Data"	Give another window for the output.
"Exit"	Exit the system.

About the button in the window created by "Data" button:

- "Write" Write the numerical data.
- "Save" Save the output data.
- "Sort X" Change the order of the data according to the order of X value.
- "Sort Y" Change the order of the data according to the order of Y value.
- " +SPW" Same as above.
- " -SPW" Same as above.
- " +SPH" Same as above.
- " -SPH" Same as above.
- "Close" Close window.