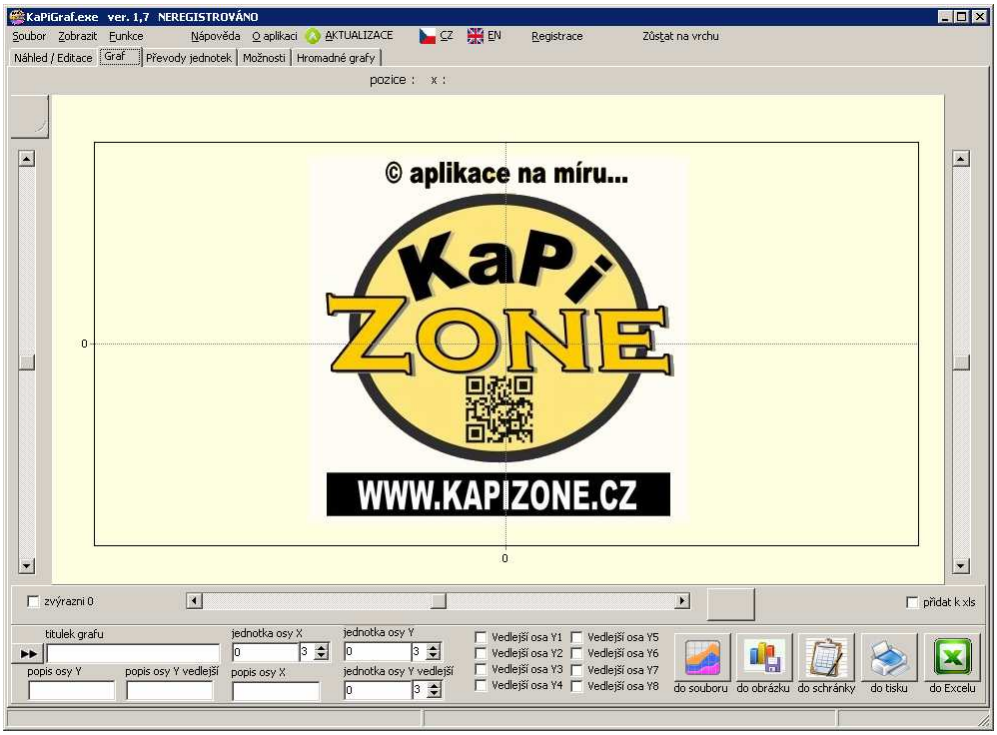
CONTENT

KaPiGraf – manual III. edition

The III. Edition does not describe all the possibilities of KaPiGraf.
Methods described in this manual do not have to work in all version of KaPiGraf.



KaPiGraf after run

1. Data opening in KaPiGraf

You can open your data for KaPiGraf in three ways.

1.1. With the mouse (method Drag&Drop)

You must click the left button of the mouse on your data in a file manager (e.g. Total Commander, Explorer) and by pressing the button move the file into the KaPiGraf window. Then release the button.

1.2. Clipboard (method Ctrl+C / Ctrl+V)

Select your data in a file manager (e.g. Total Commander, Explorer). Press **CTRL + C.** Run KaPiGraf and press **CTRL+V.**

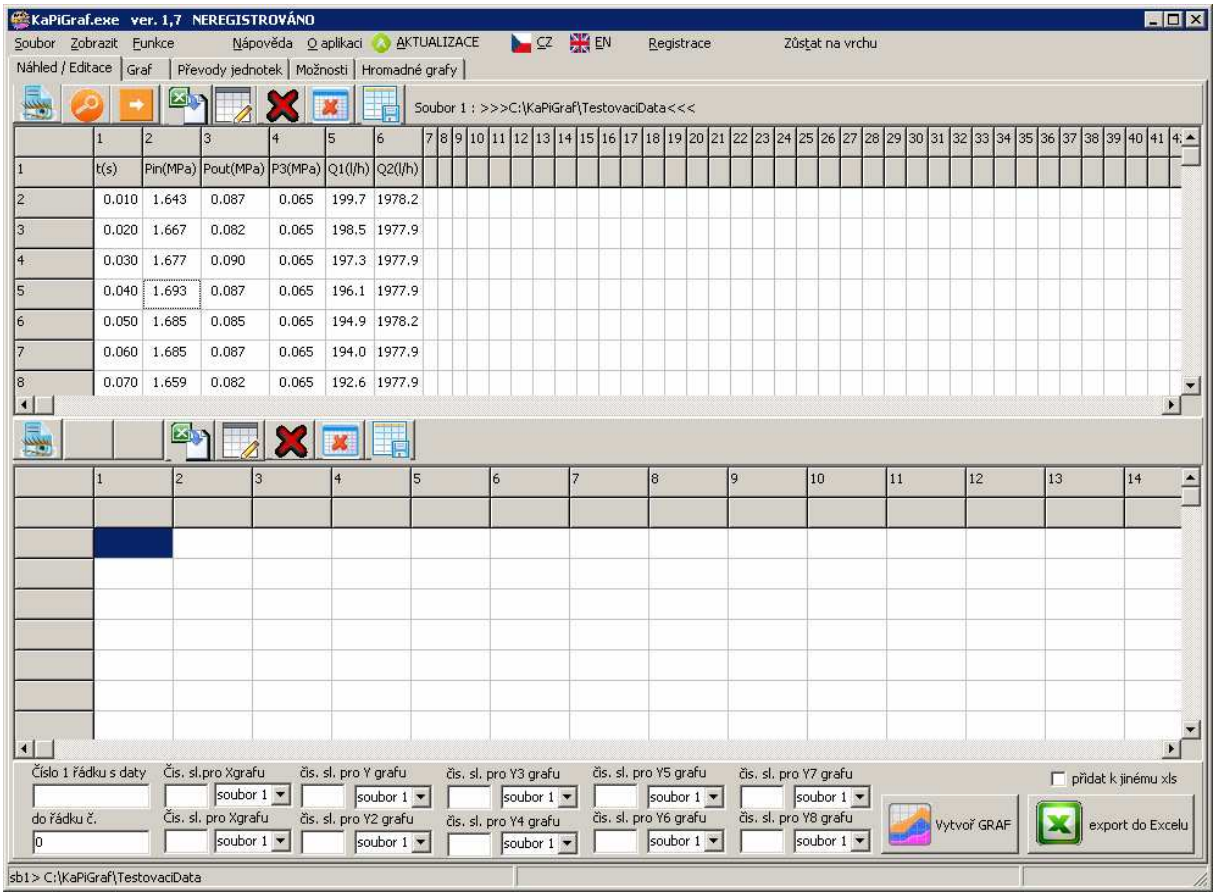
1.3. Menu selection (hot key F1 / F2)

Choose your required file from the KaPiGraf menu **File – Open file** (hot key **F1 / F2**) and then press the **Open button**.

After opening data the preview / edit window is shown.

2. Column selection for the Graph (Preview / Edit)

Pro lepší orientaci je při pohybu myši zobrazováno číslo sloupce (**Př**. s:3 – sloupec 3) v bublinkové nápovědě.



KaPiGraf – Preview / Edit

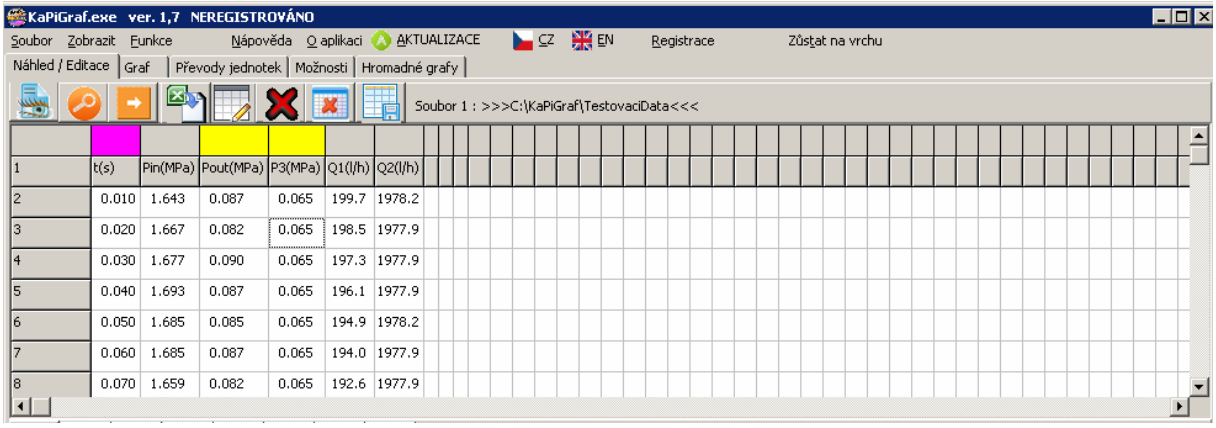
To create the graph, it is necessary to choose the data for X,Y axis. Then choose the number of the row where your data begin.(it means the first row off the head)

You can select data columns for creating the graph in three ways.

- **2.1. Fast selection (Ctrl + klik / Shift + klik)**
- **2.2. Mouse selection (right / left button)**
- **2.3. Manual selection**

2.1. Fast selection (method Ctrl+klik / Shift + klik)

Press **CTRL** and click the mouse on the required column in the following order:axis X, axis Y. After clicking the selected column, it will be shown.(in the purple / yellow color)



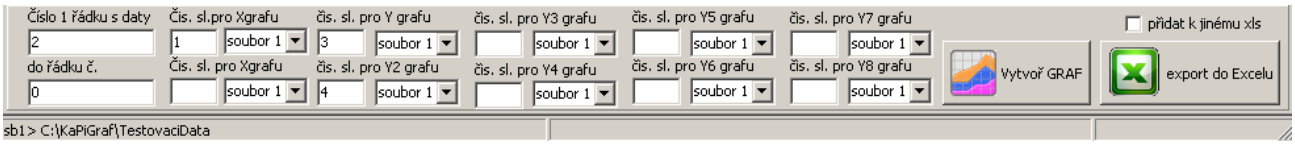
	t(s)	Pin(MPa)	Pout(MPa)	P3(MPa)	Q1(l/h)	Q2(l/h)
2	0.010	1.643	0.087	0.065	199.7	1978.2
3	0.020	1.667	0.082	0.065	198.5	1977.9
4	0.030	1.677	0.090	0.065	197.3	1977.9
5	0.040	1.693	0.087	0.065	196.1	1977.9
6	0.050	1.685	0.085	0.065	194.9	1978.2
7	0.060	1.685	0.087	0.065	194.0	1977.9
8	0.070	1.659	0.082	0.065	192.6	1977.9

KaPiGraf – Preview – selection mark

In the picture you can see that data for the **X** axis are in the column number **1 t(s)** and the **Y** data are in the column number **3 Pout(MPa)** and number **4 P3(MPa)**.

In the picture you can see that graph data begin from the row number 2 (row number 1 is the data head).
Press **SHIFT** and mouse button anywhere in the row number **2**. You will choose the data beginning from the row number 2.

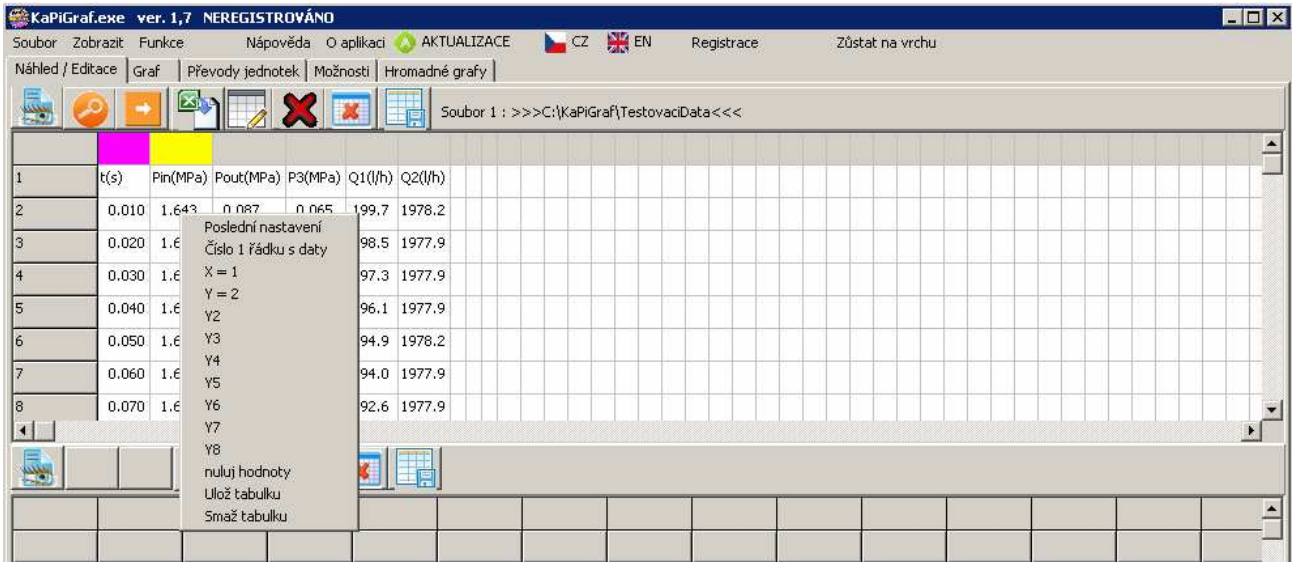
Chosen columns will be automatically shown in the down part of KaPiGraf.



KaPiGraf - Preview – selected data shown

2.2. Mouse selection (method right / left button)

Click the right button of the mouse into the chosen data column and context menu will be shown.



KaPiGraf – Preview – context menu

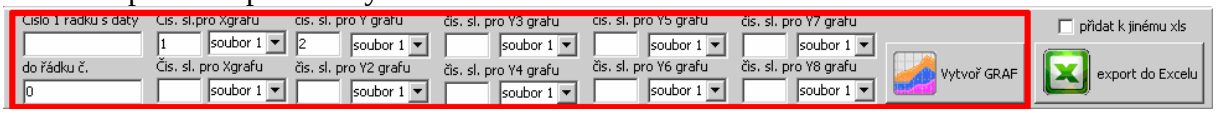
From the context menu chose (left button of the mouse) if the selected column will be on the X axis or Y axis and the first row of the data. (it means where the data head finishes)

In the picture you can see:
e.g. **X** axis is column no. **1 t(s)** and **Y** axis is the column no. **2 Pin(MPa)**

Chosen columns will be colored.

2.3. Manual selection

The least practical possibility is the manual selection.



KaPiGraf – Preview – Manual selection

After the click your choosen box it is necessary to write into them:

no. 1 data row – it is the number of the row where data begin (it means where the data head finishes)

column number for X-axis – the number of the column which is in X-axis
column number for Y-axis – the number of the column which is in Y-axis
column number for Y2-axis – the number of the column which is in Y-axis
…..

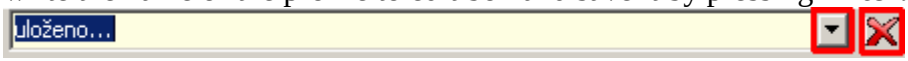
After the column selection click the button **Create GRAPH**.

2.3.1. Profiles

Profiles serve for a fast selection of saved settings to create a graph.

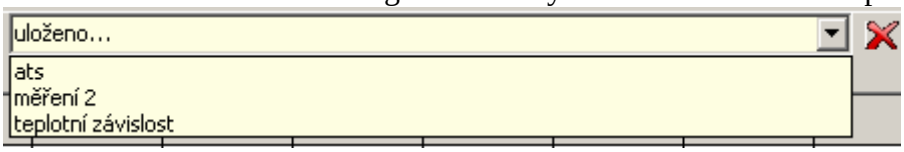
Profile save

At first you must select the columns for creating the graph (see the chapter 2.1 – 2.3). Then write the name of the profile to edit box and save it by pressing **Enter.**



Profile selection

Click the little arrow on the right side and you see the file of saved profiles.



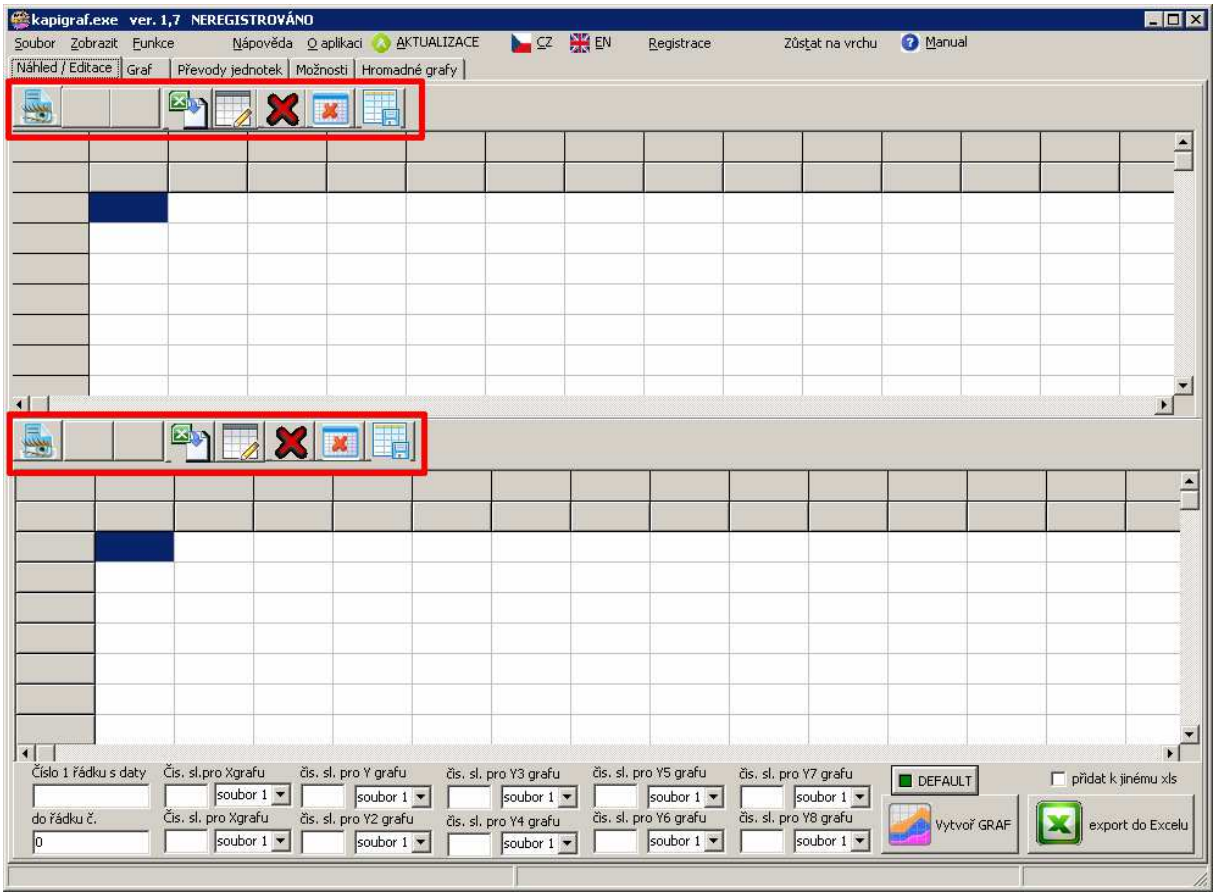
After that click the required profile.

Profile delete

You can delete the chosen profile by clicking the  on the right side.

2.4. Preview / Edit – tool bar

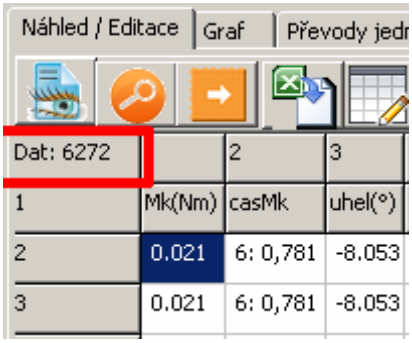
The tool bar makes the work easier and faster during the data selection. (picture below)



KaPiGraf – Preview/Edit – tool bar

 **Full preview**

After clicking the button, all file data are shown in the chart. The total number of data rows is shown in the left corner.



Without using this button there are only 50 data rows shown in the chart.

 **Find**

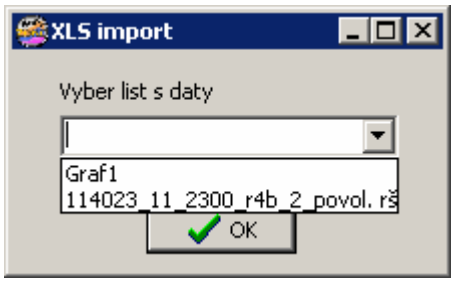
After click the button dialog window is shown. You write required text and click **OK**.
Chart moves to the first found text.

 **Find next…**

After click this button you can search for next found text.

 **Excel import**
After click this button the dialog window for open excel file is shown. (extension xls, xlsx).
After click your selected file data are shown in chart.

If excel file contains more sheets you must choose a required sheet at first.



Select Excel sheet

Select data sheet and click **OK** button.

If you want to create graph from the data, it is important to save it as text file at first (extension dat) and then to load it to the chart again. KaPiGraf does not create graph right from file xls.

 **Preview / Edit**
This button changes preview / edit mode.

You can not write the text in the chart in preview mode. This mode serves only for graph creating.

In the edit mode you can write text and calculate. (see Preview / Edit – mathematical calculations)

In edit mode the name of the data file is highlighted in yellow and the whole file is loaded automatically.

 **Clear values**
After click this button all settings for graph creating are deleted. (e.g. no. 1 row, column no. for X / Y axxis …)

 **Delete chart**
It deletes the loaded file from the chart and prepares it for a new file opening.

 **Save chart**
It saves data from the chart into text file (extension dat). After the click the dialog window is shown for the file save. You write filename and click Save.

2.5. Preview / edit – mathematical calculations

In edit mode you can write a text into chart and use simple mathematical calculations. (see picture)

Dat: 2221	1	2	3	4	5	6	7
1	t(s)	Pin(MPa)	Pout(MPa)	P3(MPa)	Q1(l/h)	Q2(l/h)	
2	0.010	1.643	0.087	0.065	199.7	1978.2	=s2+s3
3	0.020	1.667	0.082	0.065	198.5	1977.9	
4	0.030	1.677	0.090	0.065	197.3	1977.9	
5	0.040	1.693	0.087	0.065	196.1	1977.9	
6	0.050	1.685	0.085	0.065	194.9	1978.2	
7	0.060	1.685	0.087	0.065	194.0	1977.9	
8	0.070	1.659	0.082	0.065	192.6	1977.9	

KaPiGraf – Preview / Edit – mathematical calculations

As you can see in the picture, we add data from the 2nd and 3nd column in the 7th column.

Write in the cell **=** and then **s** letter (s means column) and column number. **After that click Enter key. After the second Enter click the whole file is calculated.**

Similar it is for subtraction, multiplication, division.
e.g.
=s2-s3
=s2*s3
=s2/s3

or
=s2*3,14
=15,78-s3

You can change the polarity of values **=- number of column**
e.g. =-s5 (change the polarity in column 5) see picture

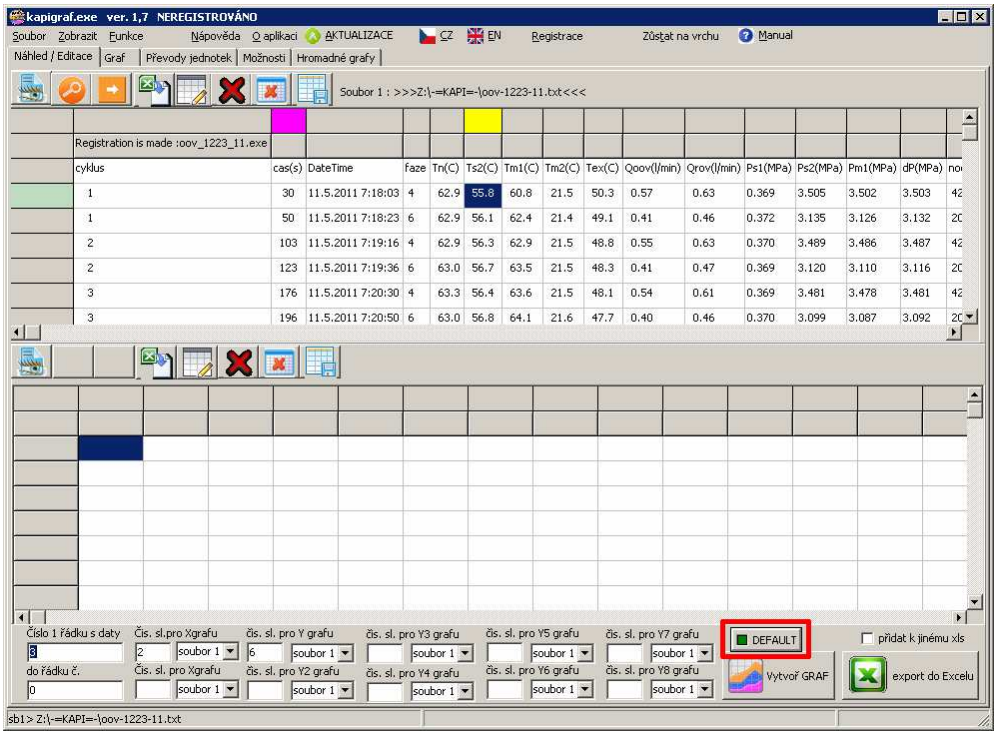
Dat: 2221	1	2	3	4	5	6	7
1	t(s)	Pin(MPa)	Pout(MPa)	P3(MPa)	Q1(l/h)	Q2(l/h)	
2	0.010	1.643	0.087	0.065	199,7	1978.2	-199,7
3	0.020	1.667	0.082	0.065	198,5	1977.9	-198,5
4	0.030	1.677	0.090	0.065	197,3	1977.9	-197,3
5	0.040	1.693	0.087	0.065	196,1	1977.9	-196,1
6	0.050	1.685	0.085	0.065	194,9	1978.2	-194,9
7	0.060	1.685	0.087	0.065	194,0	1977.9	-194
8	0.070	1.659	0.082	0.065	192,6	1977.9	-192,6

KaPiGraf – Preview / Edit – change polarity

2.6. Preview / Edit – Default settings

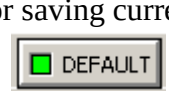
If you need to open data with the same settings more often (e.g. column number for X/Y axxis, no. 1 row) it is practical to use **DEFAULT** function. (see picture below)

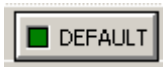
KaPiGraf opens data file and the graph is immediately created according to the default settings.



KaPiGraf – Preview/Edit – default

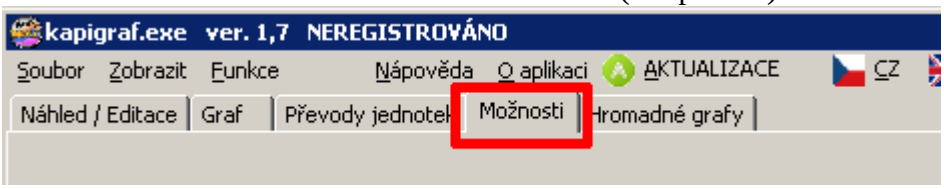
Button 

, which is shown in the picture, serves for saving current values of default settings. LED default button is ON when the function is ON 

or 

OFF.

ON/OFF DEFAULT mode is done in the tab Possibilities. (see picture).

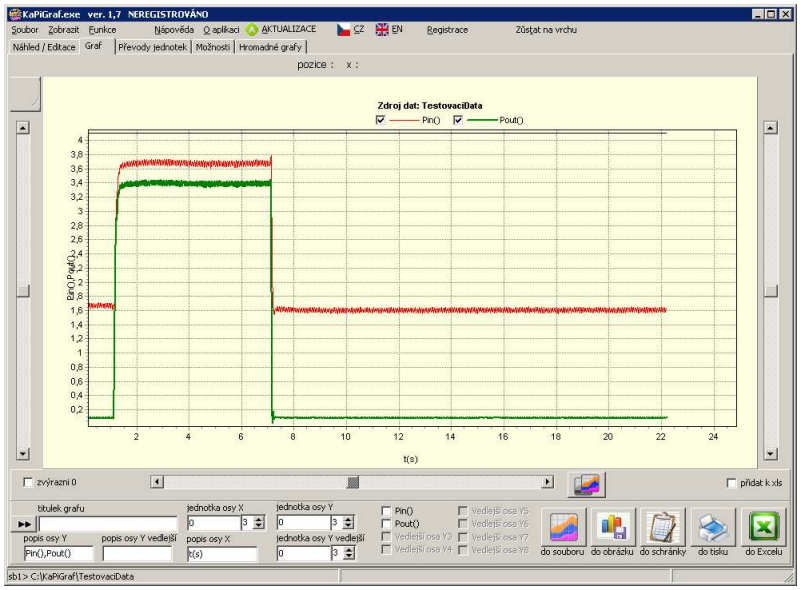


KaPiGraf – option

Further description in Possibilities chapter.

3. Graph

After the column selection and clicking the button **Create GRAPH** the graph is shown.



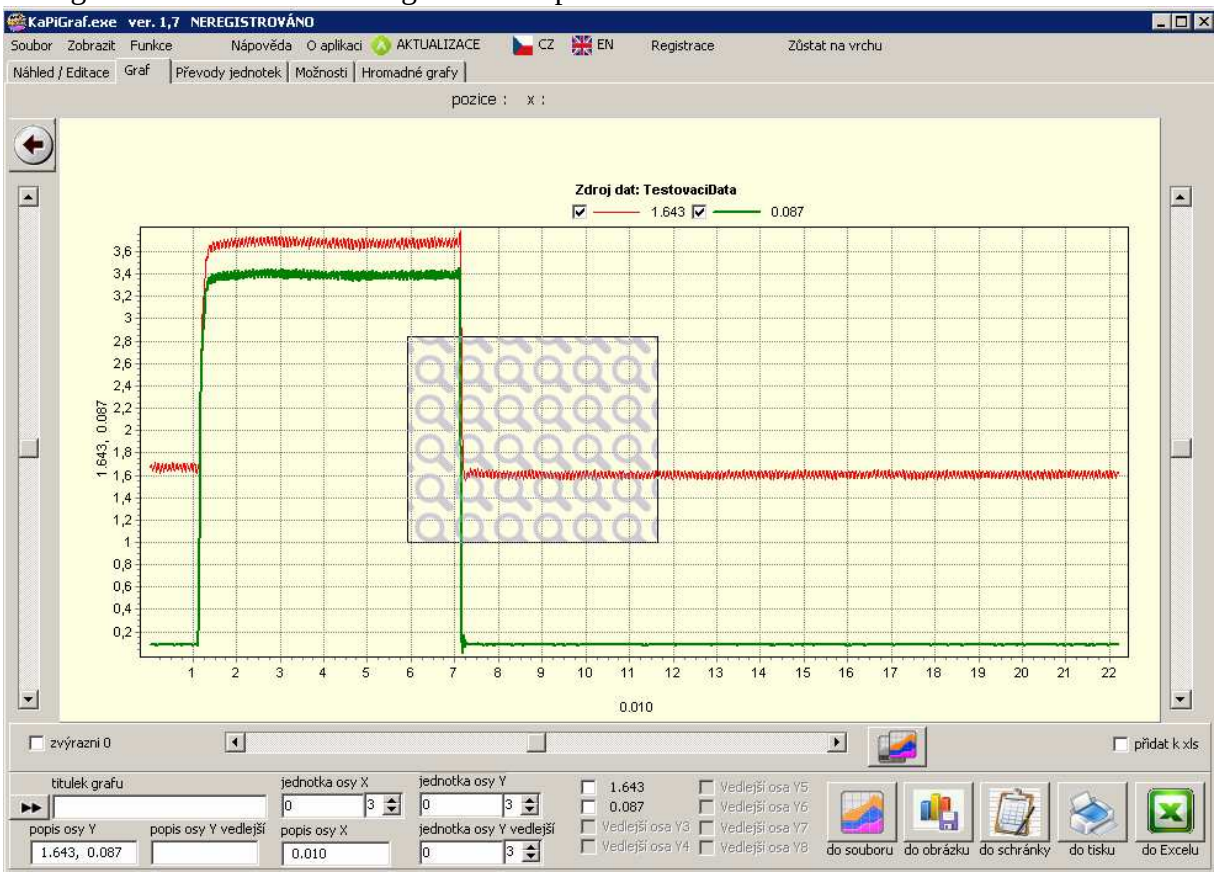
KaPiGraf – Graph

3.1. Graph – Zoom / Unzoom

The chosen graph can be zoomed in any way.

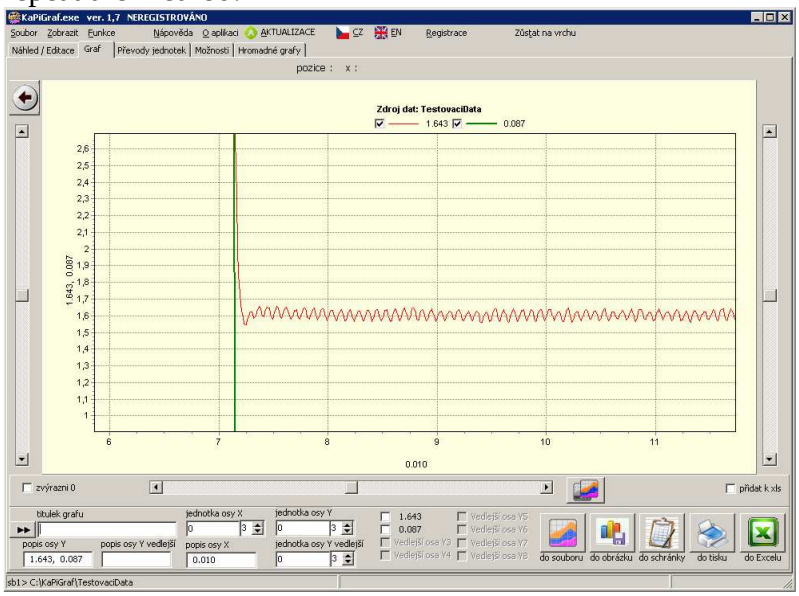
Zooming

Click the left button of the mouse in the graph and while clicking it move your mouse towards the right down corner of rectangular in the picture.



KaPiGraf – Graph – Zoom/Unzoom

After releasing the mouse button the selected area is zoomed. If you want to zoom more, repeat the method.

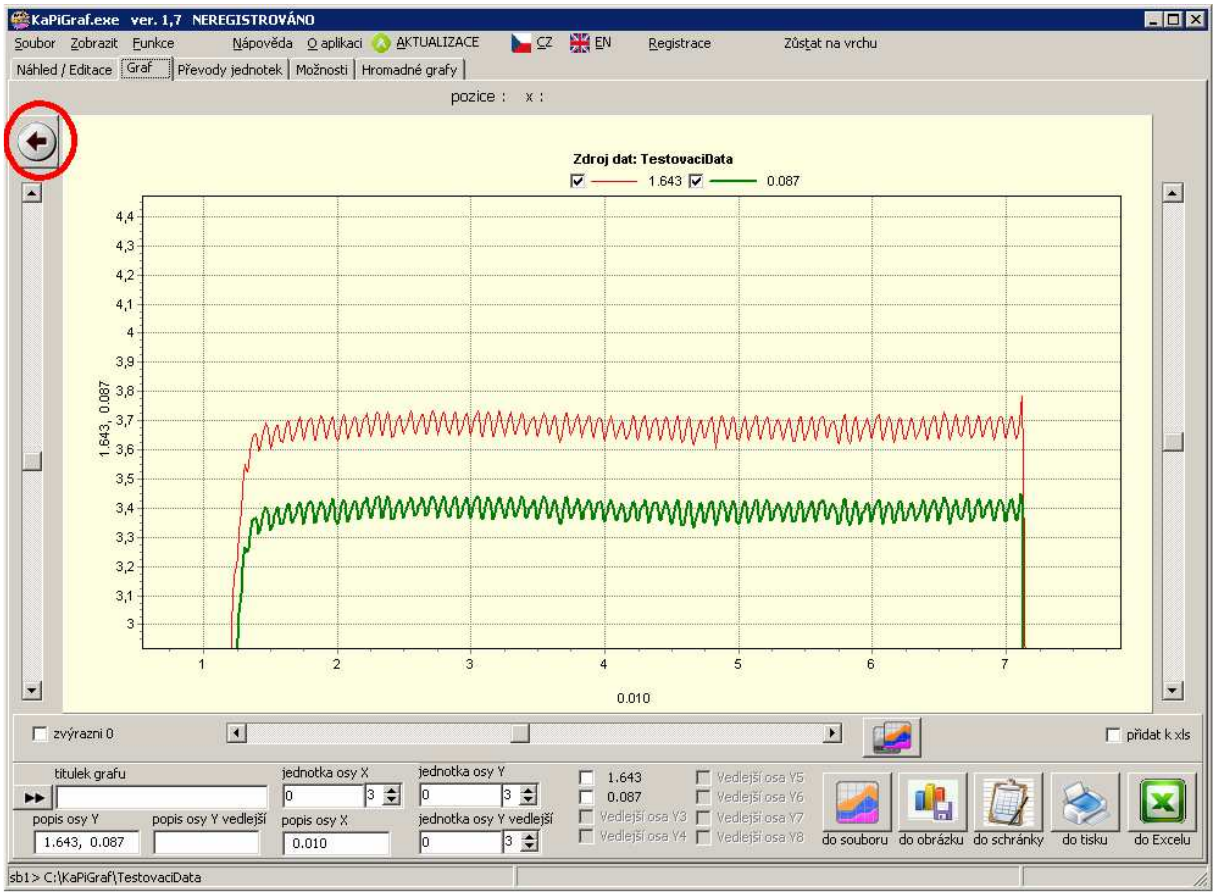


Unzooming

The unzooming is down in the opposite way then the zooming. Click the left button of the mouse anywhere in the graph and while clicking it move your mouse towards the upper left corner of the rectangular.

After releasing the mouse button the selected area is unzoomed.

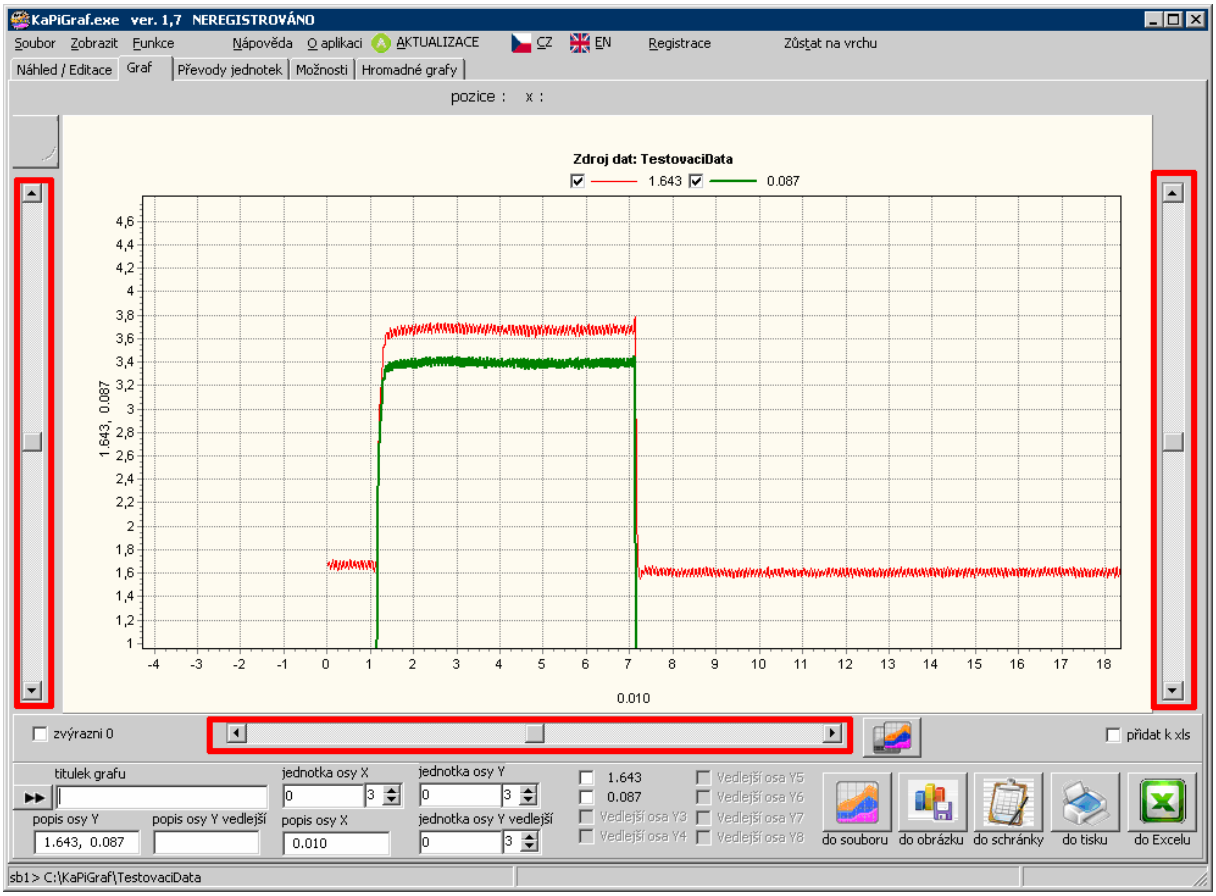
If you need to go back to the previous zooming, click  the Back button.



KaPiGraf – Graph – back button(zoom)

3.2. Graph – move

Graph shown can be moved in any way.



KaPiGraf – Graph – move (scroll bars)

Click the right button of the mouse in the graph and while clicking it move your mouse. After releasing the mouse button, the graph stay on the last position.

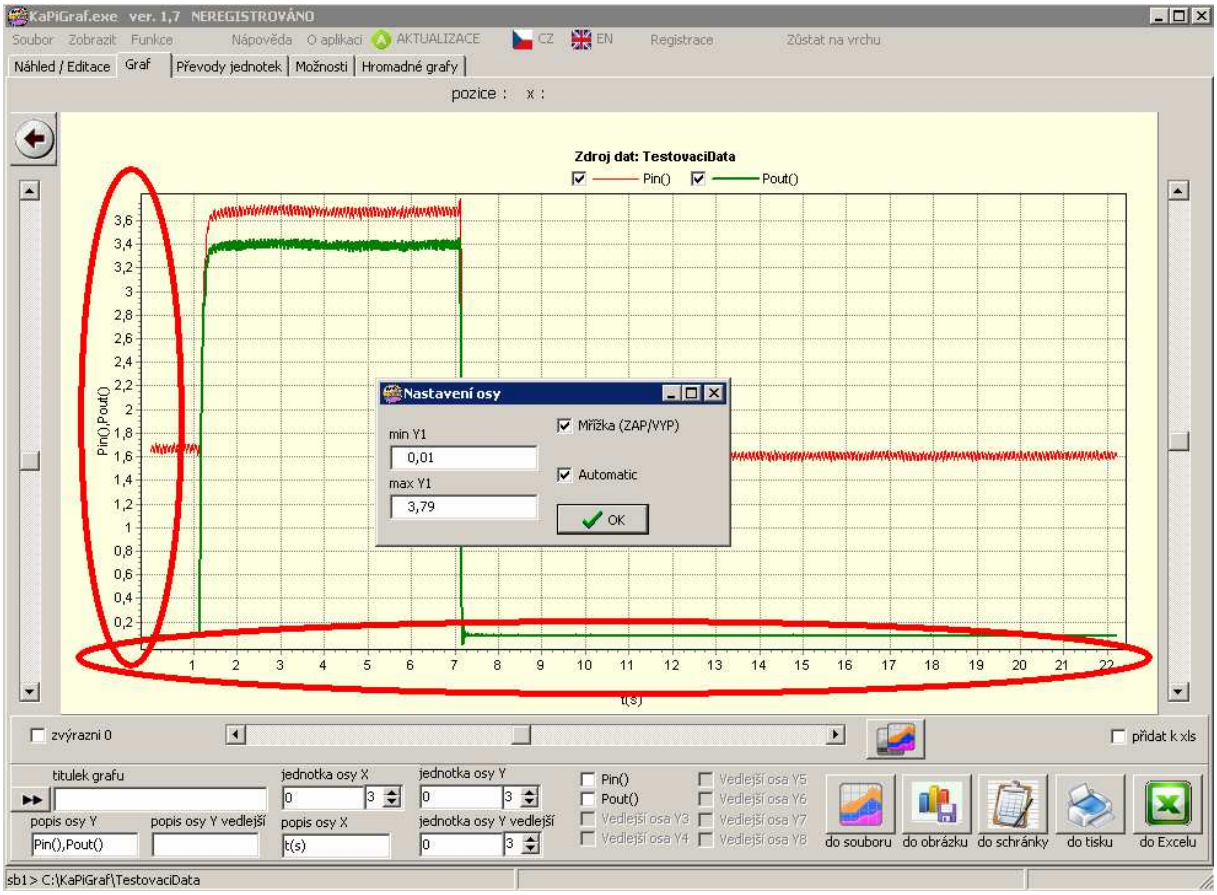
Graph can be moved via scroll bars, which are placed on the left, right and down part of the graph.

KaPiGraf – Graph – scroll bar

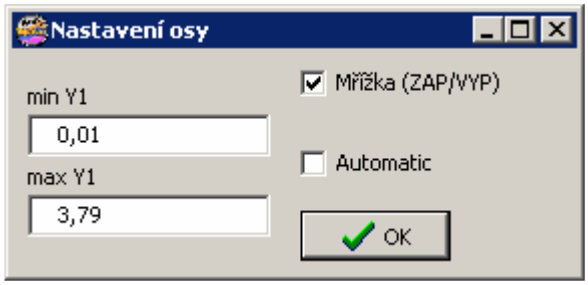
You can click the arrows  which are placed on the sides of scroll bars or right the square  (placed between both arrows) where you must keep the left mouse button clicked and move the mouse.

3.3. Graph – Axis setting

If it is necessary , axis settings can be adjusted. Move the mouse cursor towards the X or Y axis until the cursor is changed into the hand. Then click the X or Y axis and the window **Axis Settings** is shown.



KaPiGraf – Graph – axis setting



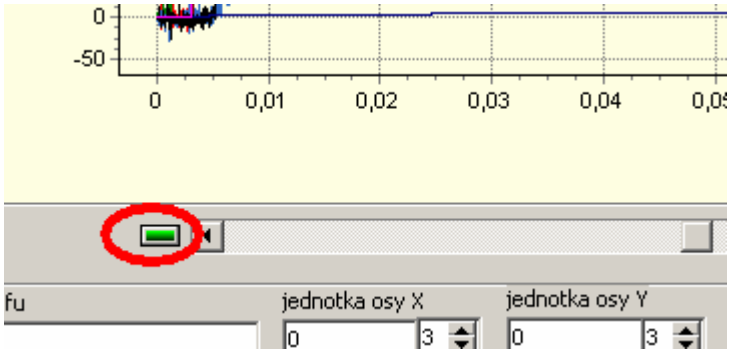
Axis setting

Legend:

Grid (ON/OFF) – it switches ON/OFF the grid view of the selected axis X/Y.
min Y1 – it is minimum value of the selected axis
max Y1 – it is maximum value of the selected axis
Automatic – it is automatic scale of the selected axis
The change of the settings is shown after the click **OK** button.

3.3.1. Graph - fast axis selection

If you need to adjust the axis settings fast, you can use the following method.
Move your mouse cursor to required axis (X,Y) until the mouse cursor turns into the hand.
Then click the right mouse button (select FROM) and LED turns green. (see the picture)



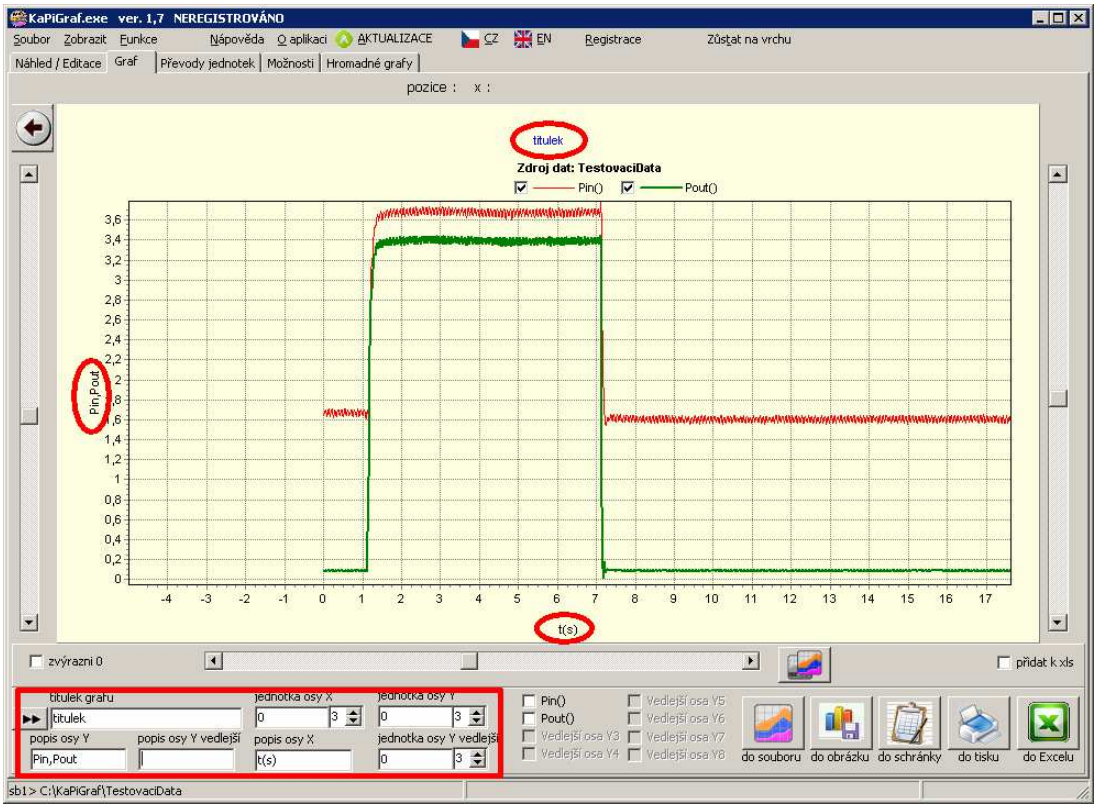
KaPiGraf – Graf – informační LED

Then move the mouse cursor back to axis and click the right mouse button again(select **TO**) , LED turns black and selected axis is set to new values.

For default settings click the mouse wheel.

3.4. Graph – graph title, axis description, unit settings

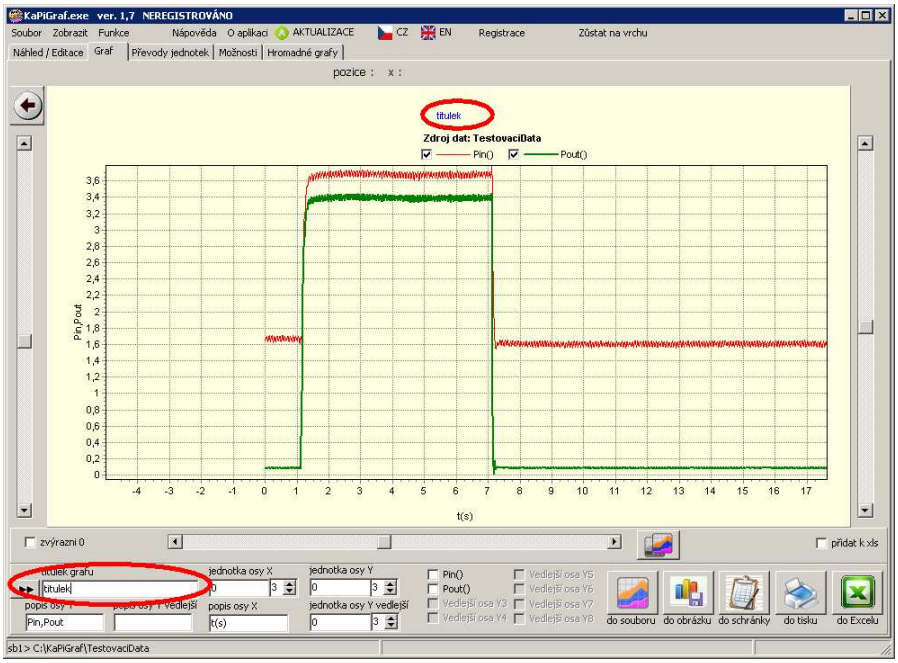
You can adjust graph title, axis description and unit settings in the down part of KaPiGraf. (shown in the picture below)



KaPiGraf – Graph – graph title, axis description

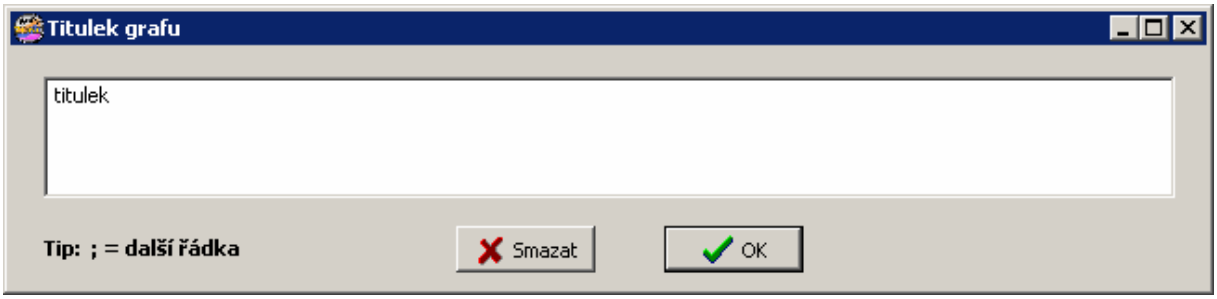
Graph title

Click the left mouse button in the box Graph title and write your own text. The Graph title is automatically changed. (the picture below)



KaPiGraf – Graph – graph title

It is suitable to click the  button for longer texts. Then the edit box is shown for graph title. (the picture below)

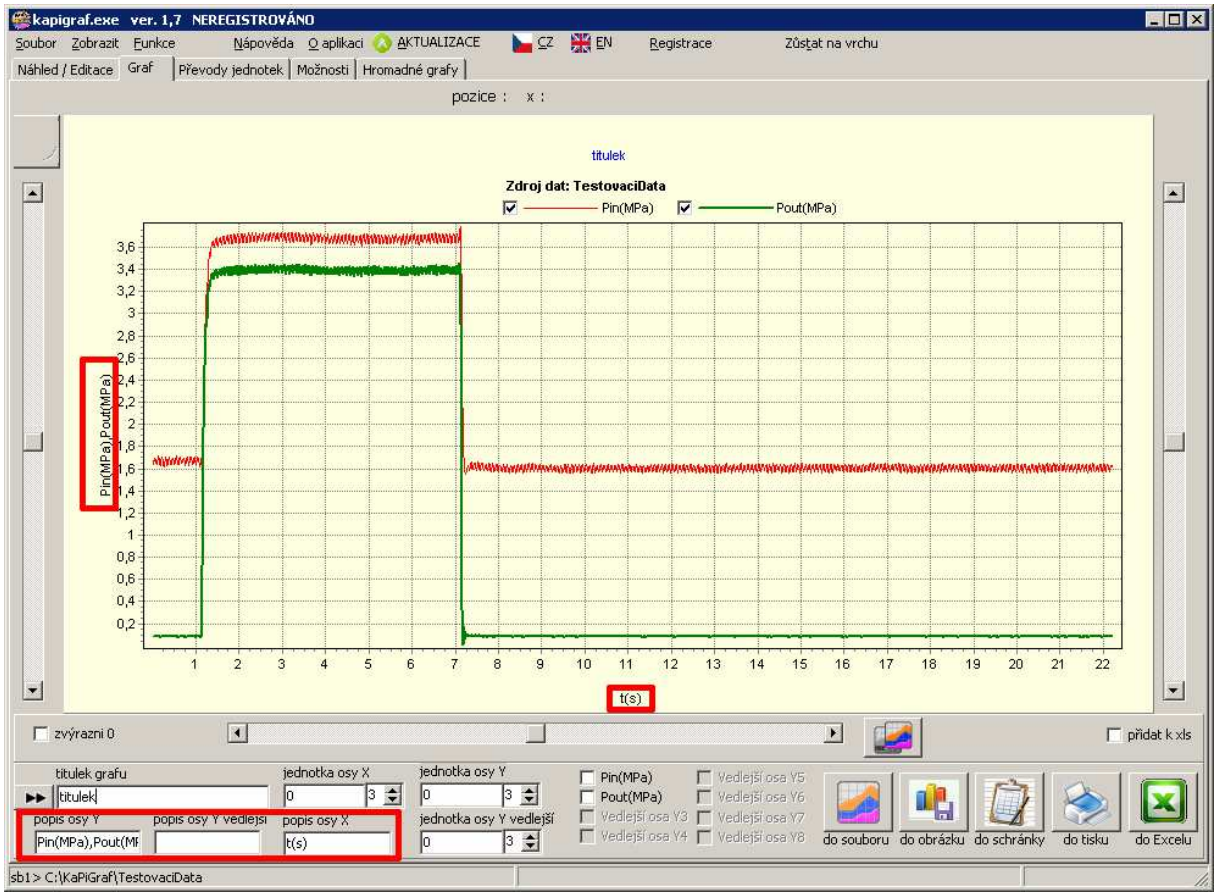


Graph title – edit box

If the graph title is longer, it can be divided into more rows by using semicolon **;**
Example: title1;title2

You can see the changes after clicking **OK** button.

Axis description
Click the left mouse button into Y / X Axis description box in the down part of KaPiGraf and write in your own text. Axis description in the graph is changed automatically.

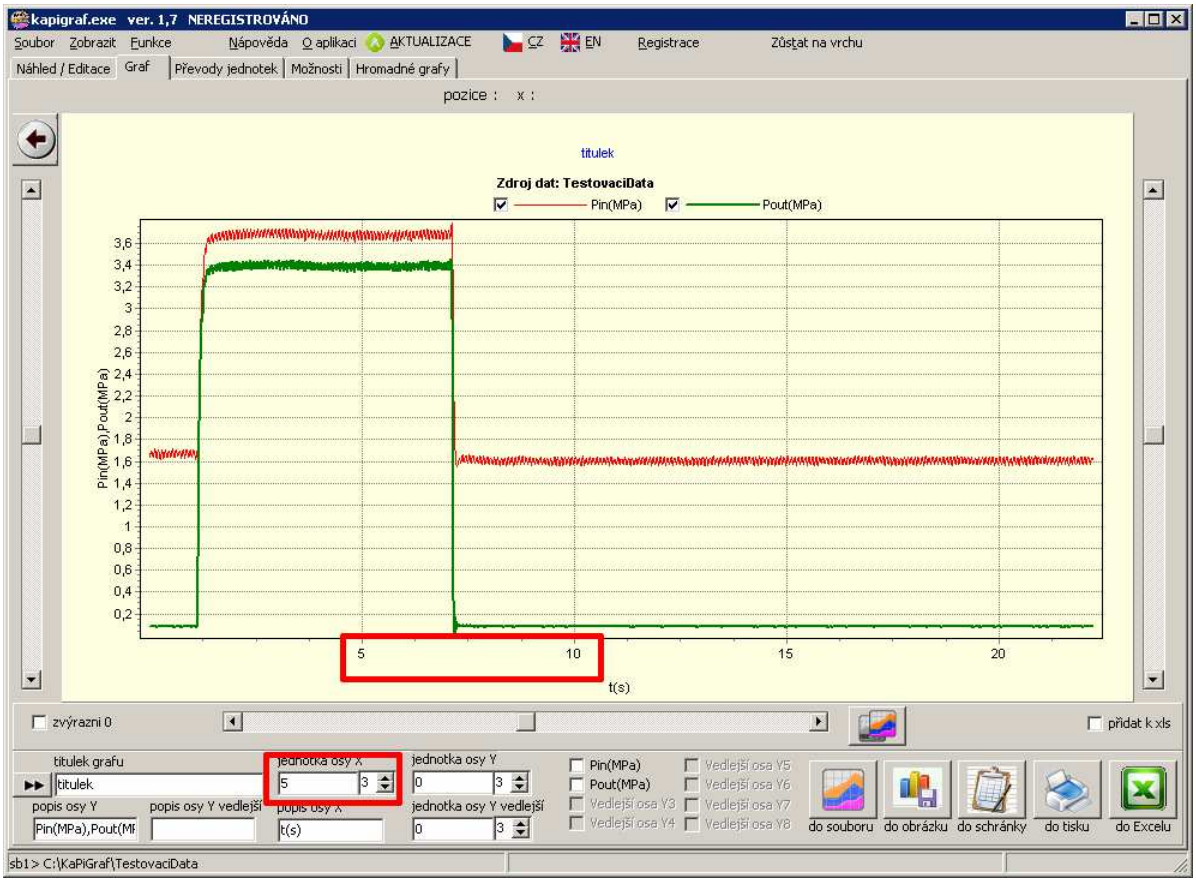


KaPiGraf – Graph – axis description

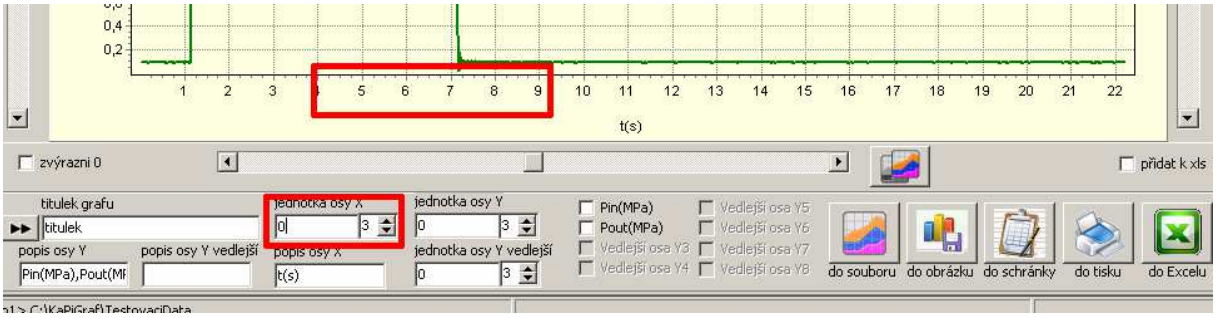
Main axis units

If you need to change **X,Y** axis units, click the left mouse button into the required edit box in the down part. Then write in a new value.

For example: we set value **5** for **X**-axis , the picture below



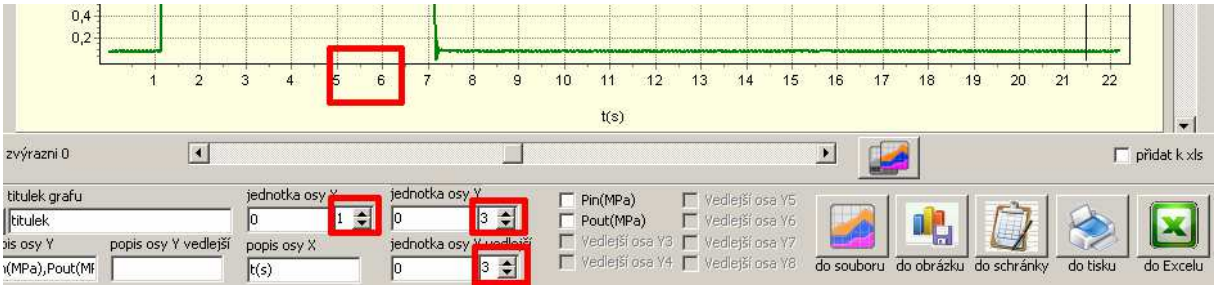
If the value is **0,** the unit is set automatically.



KaPiGraf – Graph – main axis units

Minor axis units

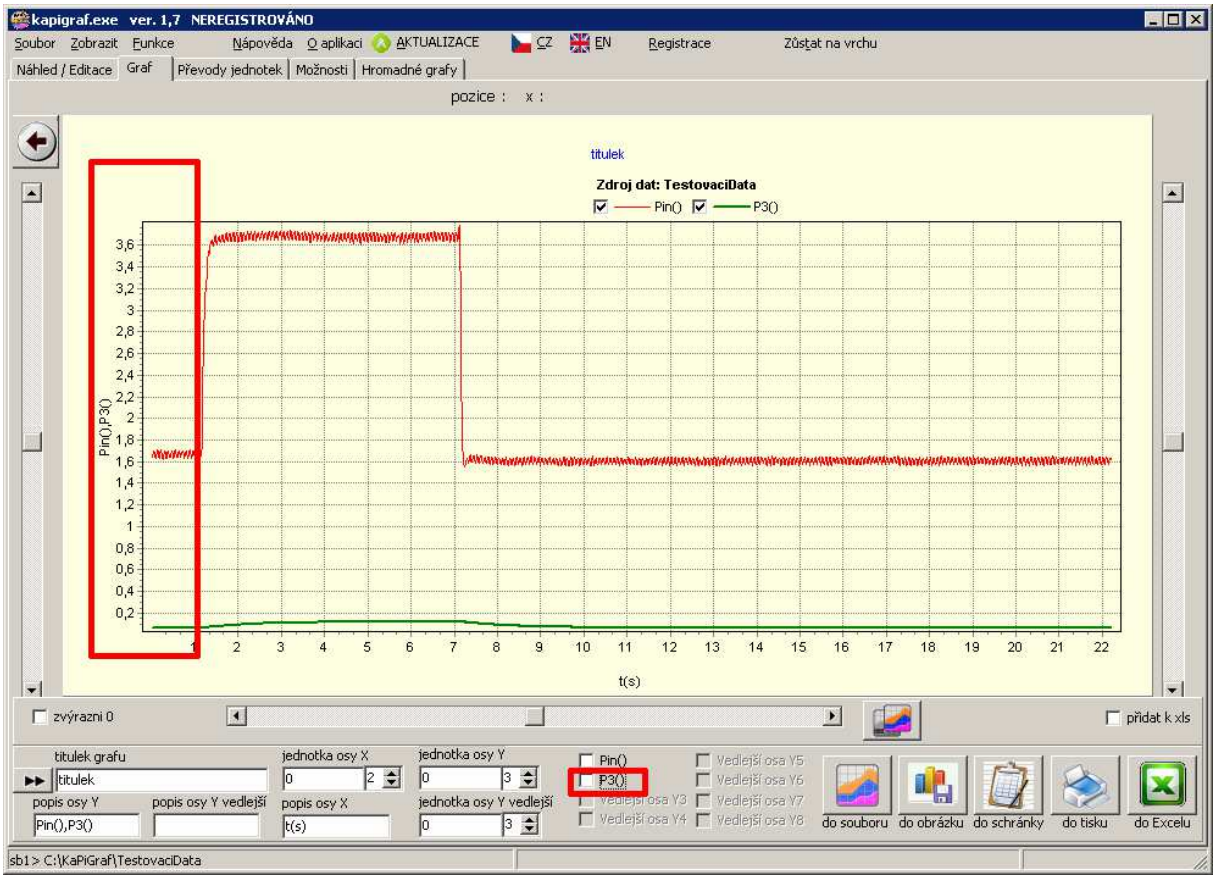
You can change the minor X/Y axis unit by clicking  arrows of the selected unit. (picture below)



KaPiGraf – Graph – minor axis units

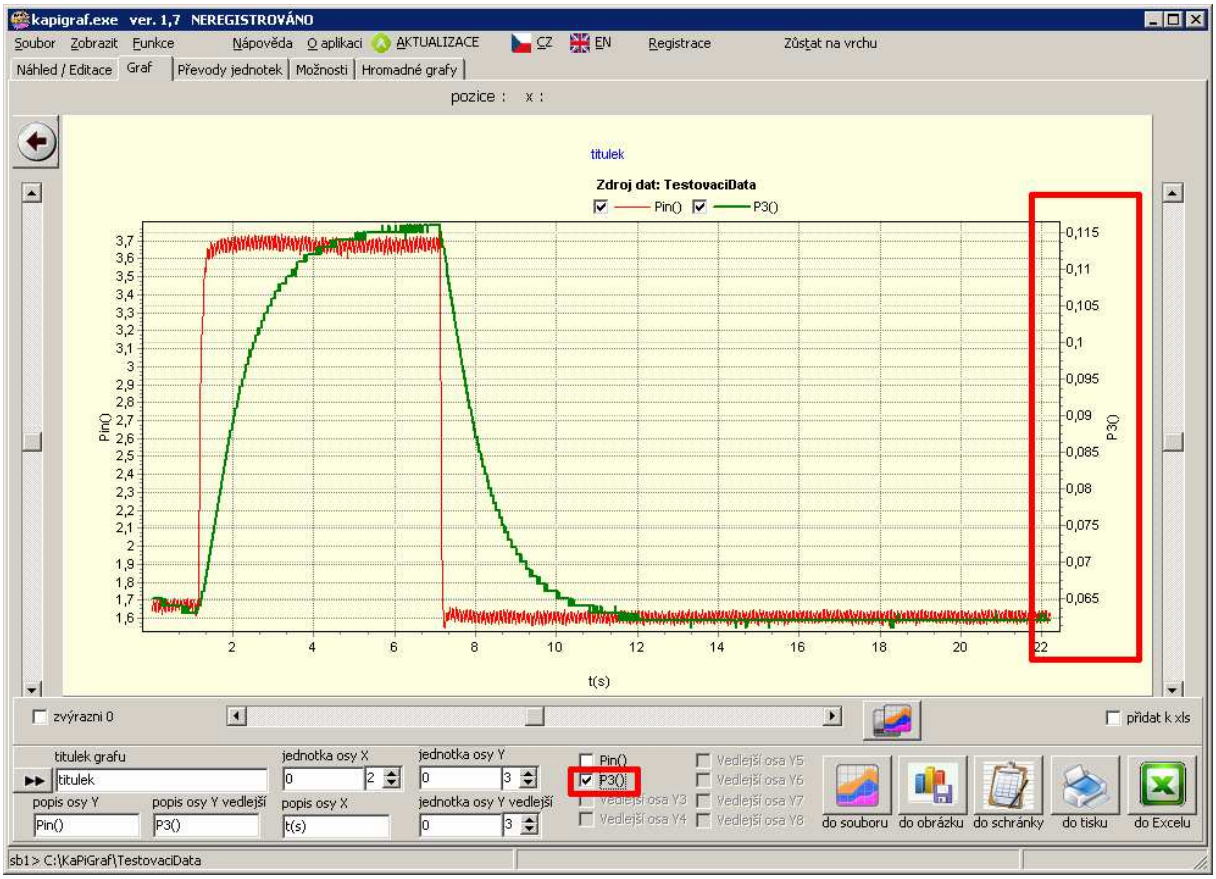
3.5. Graph – Main / Minor axis

After creating the graph, curves are shown on the main axis – left axis (picture below)



KaPiGraf – Graph – minor axis

To get these cord green curve onto the minor axis – right axis, click the left mouse button onto P3 check-box (picture above)
After that then green curve P3 is shown on the minor axis – right axis.

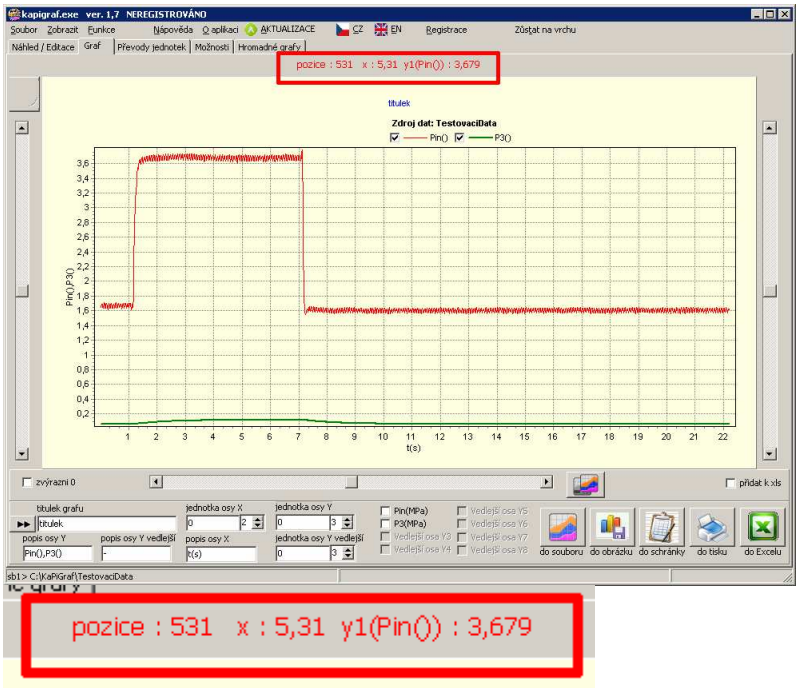


KaPiGraf – Graph – minor axis

If you wish to move the green curve back to the main axis, click the green P3 check-box again.

3.6. Graph – the current value

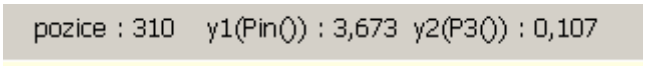
If you move the cursor mouse onto the curve, it is current value is shown in the graph header. (picture below)
The color of the text is the same as the color of the selected curve.



Legend:

position – the number of data record
x – current X-axis value
y – current Y-axis value

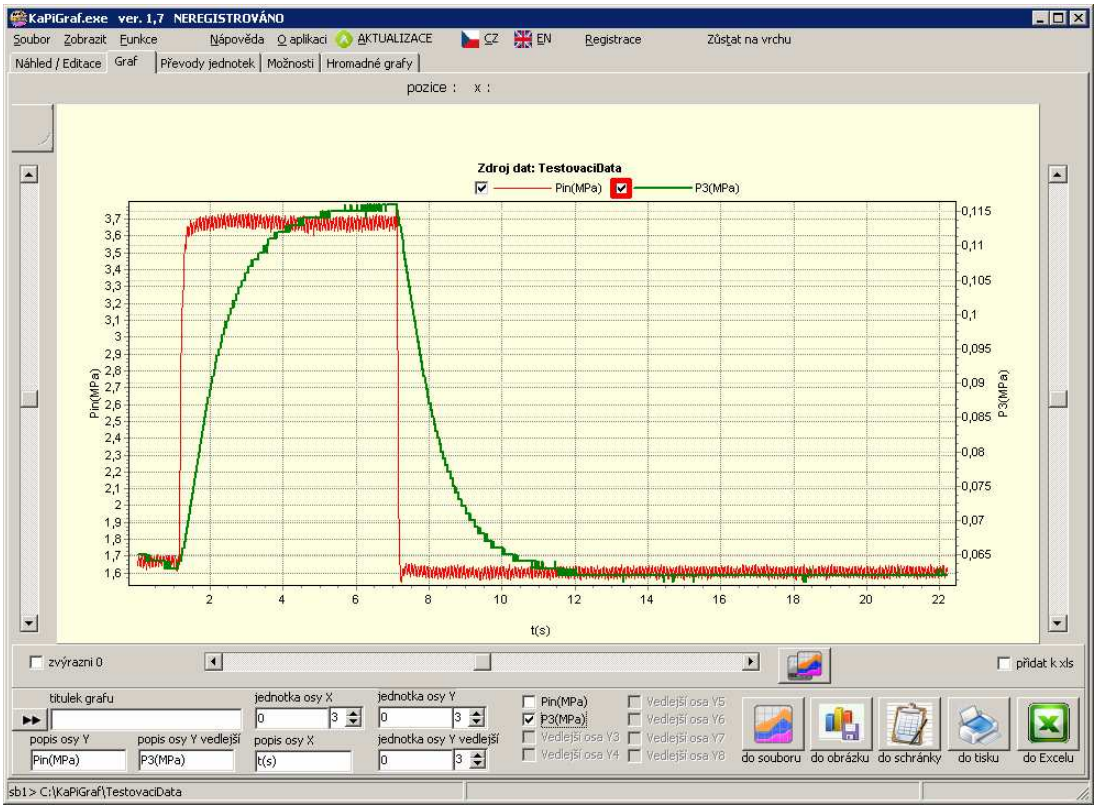
If we want to show the current value of all the curves, we move the mouse cursor onto a selected curve while pressing the SHIFT button.
The value of the second curve is shown in the header.(picture)



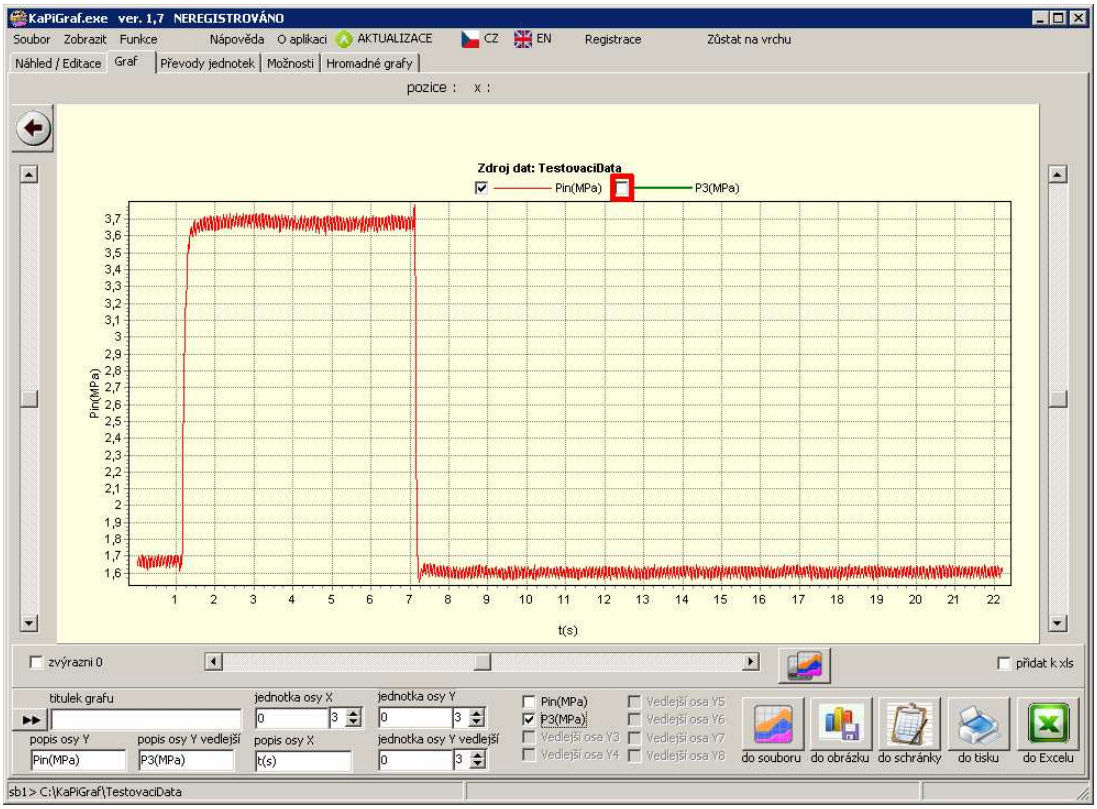
Curves are marked as Y1 to Y8. The data head (e.g. y1(Pin) is shown in the brackets.

3.7. Graph – hide / show of curve

If you need to hide a curve, click the check-box in the graph legend.



KaPiGraf – Graph – green curve is shown

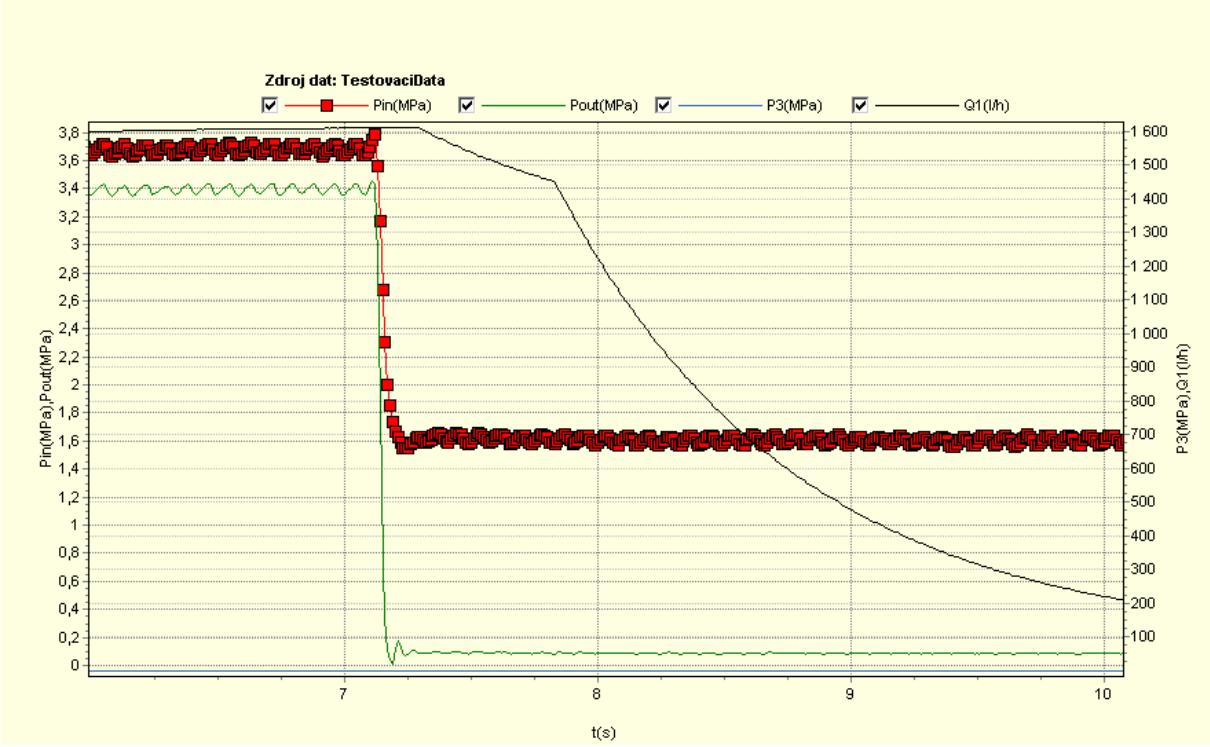


KaPiGraf – Graph – green curve is hidden

3.7.1. Graph – curve feature

3.7.1.1. Size of Data points – Show / Hide

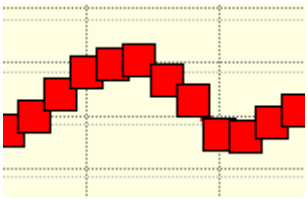
For fast view of data points move the mouse cursor to the selected curve until the mouse cursor changes in the cross. Then click **CTRL + left button click** (see picture below)



KaPiGraf – Graph – Data points

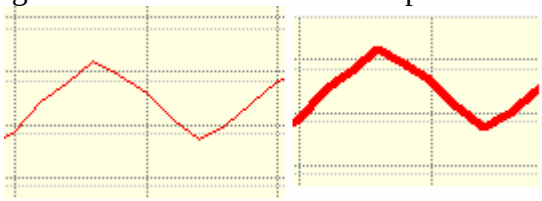
CTRL + left button again serve for hiding Data points.

Size of data points can be changed by the mouse wheel.



3.7.1.2. Curve width

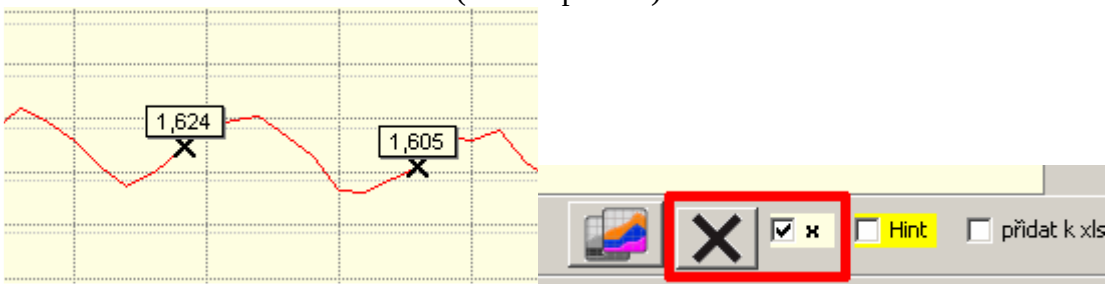
For fast settings of the curve width move the mouse cursor to the selected curve until the cursor changes in the cross. The you can set the width of curve with the mouse wheel. ESC key sets default settings of curve width and the data point size.



KaPiGraf – Graph – curve width

3.7.1.3. Data label

Move the mouse to the selected curve until the cursor changes in the cross. Then click the mouse wheel. Data label is shown. (see the picture)



Label show – hide can be done by  .

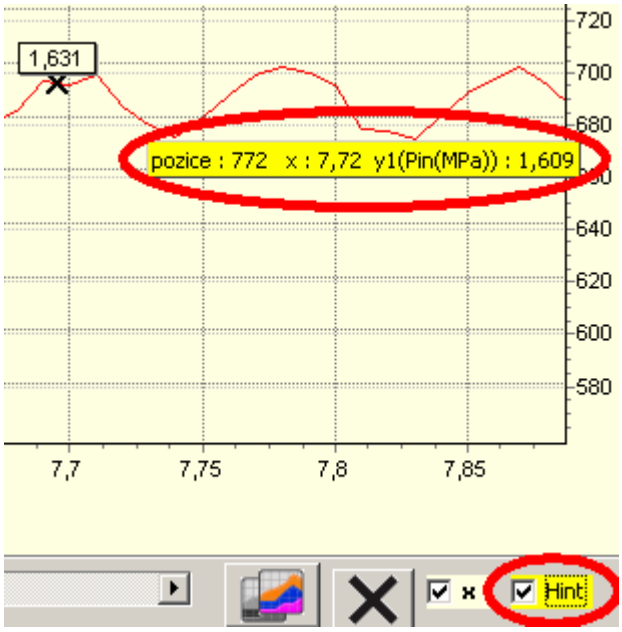
Mark hide can be done by click button 

Data label is shown in the Graph title and you can edit it further.(see the graph title)

3.7.1.4. Current value in hint

If you need to show current curve value tick Hint and move the mouse cursor to the selected curve.

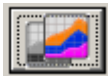
The hint is shown(picture below)



KaPiGraf – Graph – current curve value

3.8. Graph – tool panel

Tool panel in the right down part of KaPiGraf contains following possibilities.

 **Cloning –** after the click on this button current graph is cloned into next window which you can work further with.

 **File save** – after the click on this button the selected graph is saved into the file with .bat extension. You can run this bat file (as well as exe file) right from file manager (Total commander or windows Explorer). After running bat file there will be shown the same graph with you left.

Bat file contains only initial parameters for KaPiGraf run. You can use it in your own programs, projects etc.
You can run KaPiGraf with these parameters and your graph is shown.

Eg. Bat file

MODE CON CP SELECT=1250 *nastavení znakové sady pro podporu české diakritiky*
"Z:\-=KAPI=-\kapigraf.exe" "C:\KaPiGraf\TestovaciData" "-" 1 2 0 4 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0,010 22,200 0 3 0,061 3,786 0 3 0,000 0,000 0 3 H H H H H H H H "t(s)" "Pin(MPa),P3(MPa)" "-" "-" "Pin(MPa)" "P3(MPa)" "-" "-" "-" "-" "-" "-" "" "" "" "" ""

KaPiGraf path - data file path – X,Y axis column settings – axxis scale – main / minor axis – graph legend

 **to picture** – graph is saved as jpg or bmp

 **to clipboard** – graph is saved into clipboard (**CTRL+V** paste to another program)

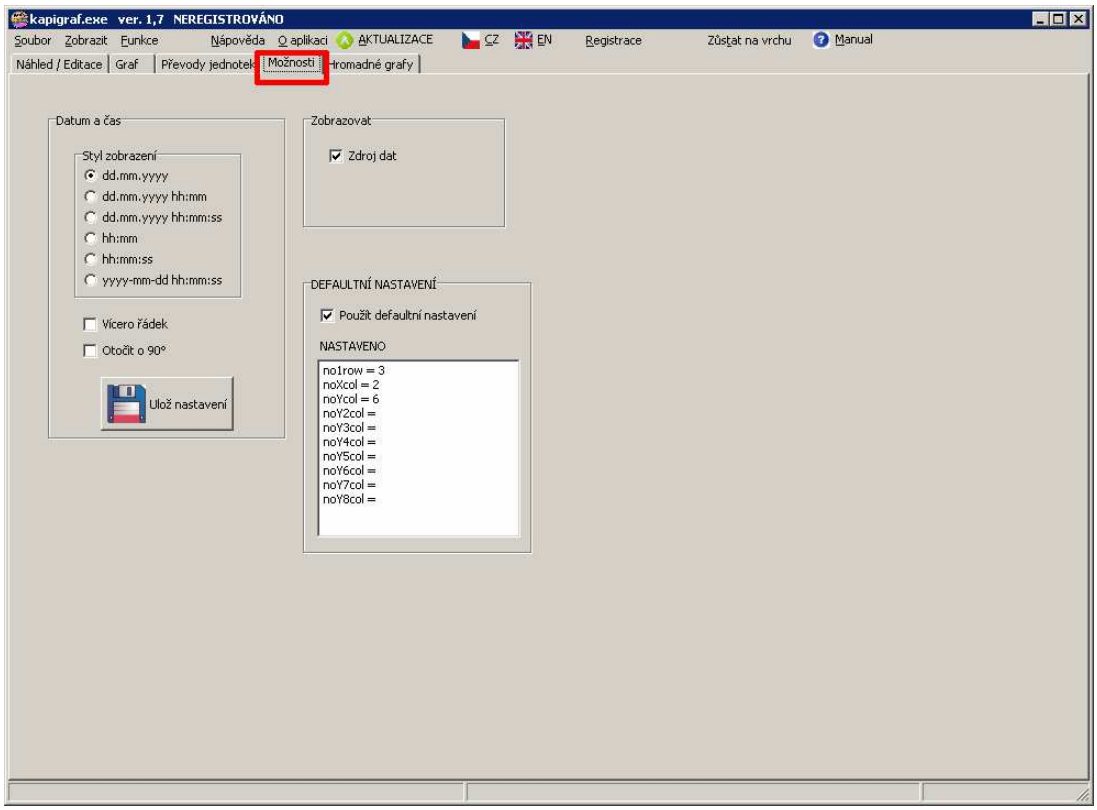
 **print** – print selection – print graph

 **to excel** – it exports your graph and data into MS Excel (MS Excel must be installed in PC)

- if you click this check-box before the excel click, you can add exported data as another lists into an existing excel file

4. Possibilities

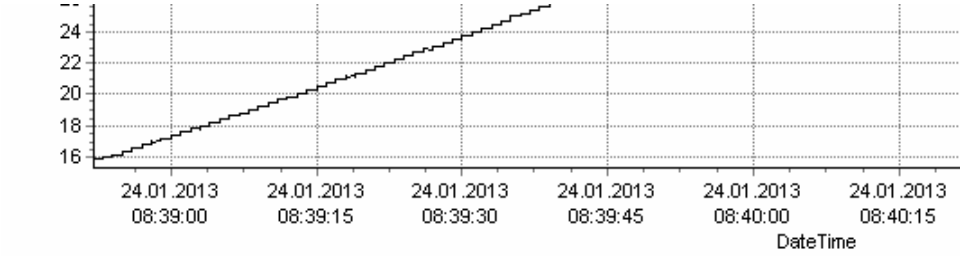
It serves for graph elements settings.

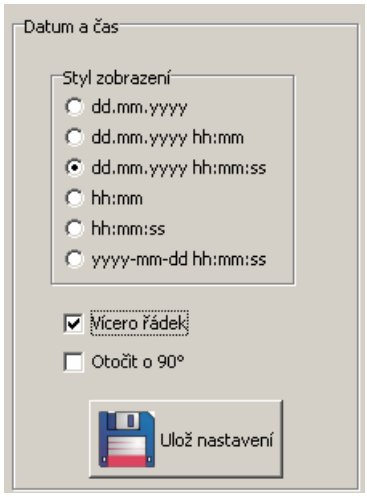


KaPiGraf – Options

4.1. Possibilities – Date and Time

If there is time value in the X-axis, you can set it is style.

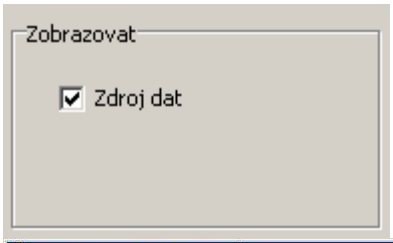


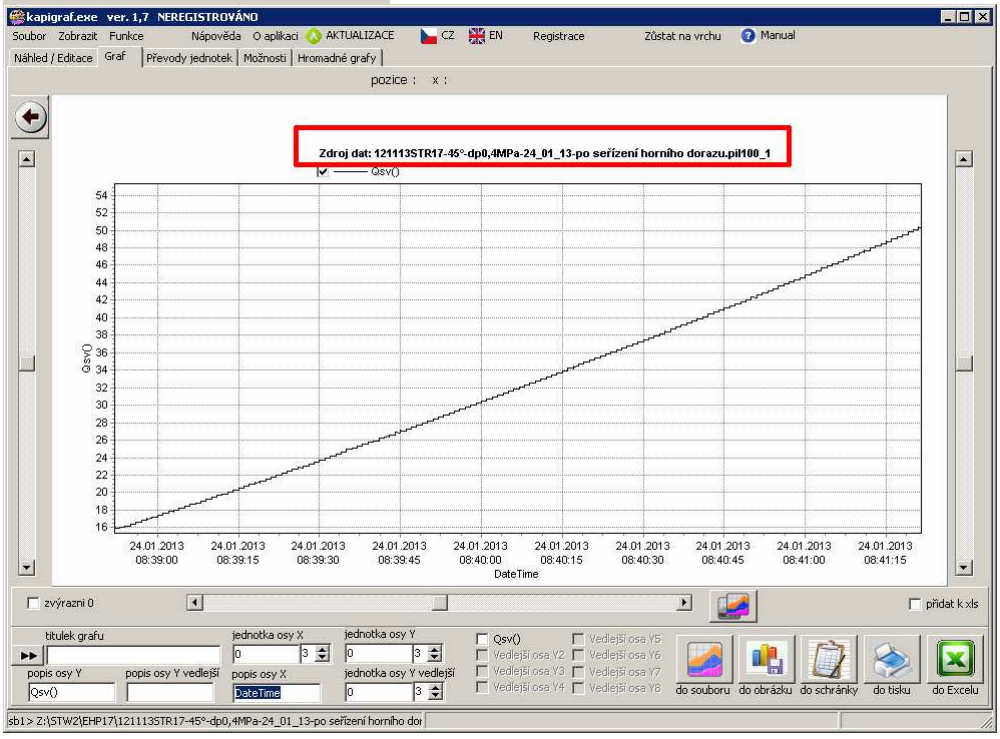


Legend:

dd – day
mm – month
yyyy – year
hh – hour
mm – minute
ss - second
multi line – the description is in more rows
turn by 90° - it turnes the description by 90°

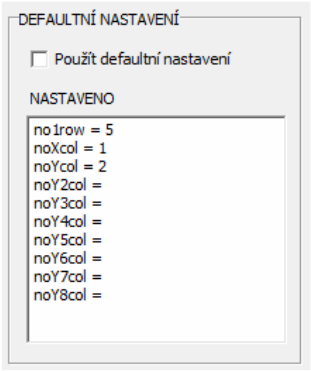
4.2. Possibilities – source of data





If the data source is ticked, the name of the source file is shown in the subtitle of the graph.

4.3. Possibilities – default settings

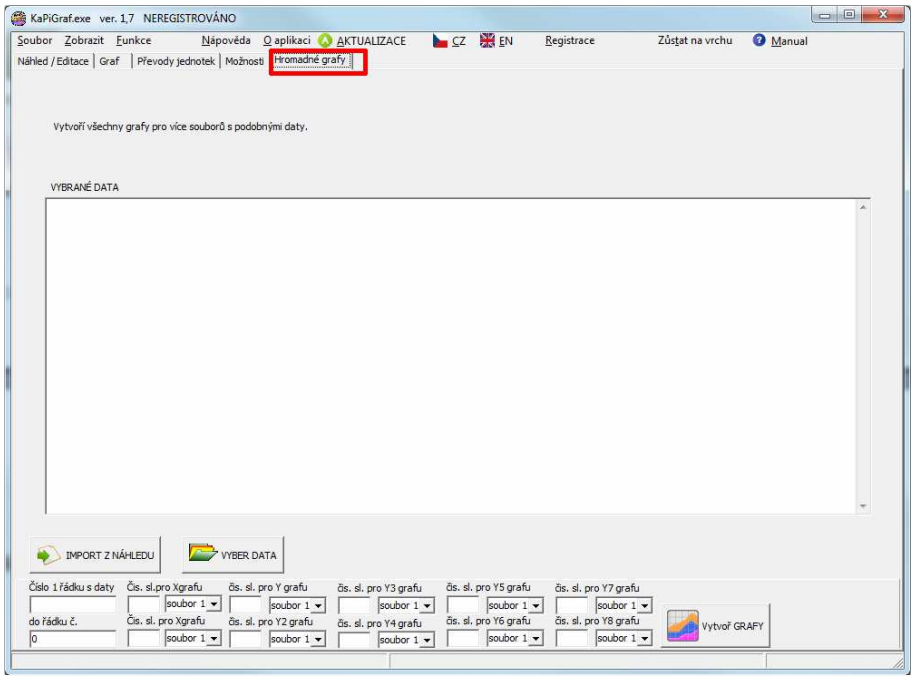


It shows currently set values and **ON/OFF Default function.** If default function is ON, data are loaded into KaPiGraf automatically and the graph is drawn according to selected(default) values.
Further description is in the 2.6. chapter.

5. Multiple graphs

Multiple graphs serve for opening more data files with similar data, when you require the same values for X-axxis, Y-axxis.
(**e.g**. you always require column 1 in X-axxis and column 5 in Y-axxis)

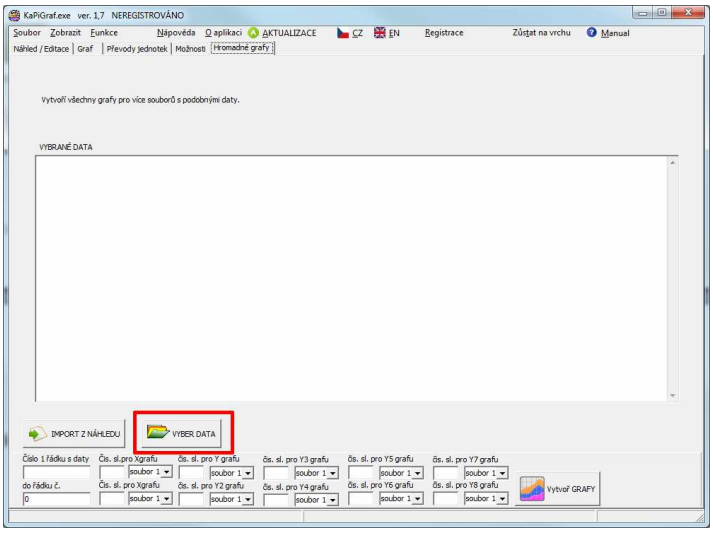
Click the tab **Multiple graphs** (see picture below)

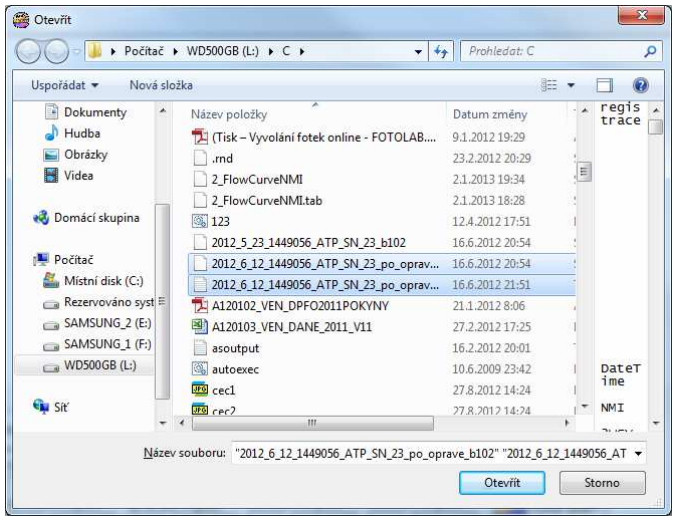


KaPiGraf – Multiple graphs

Now select your required data files by clicking the **Select Data** button. (see picture)

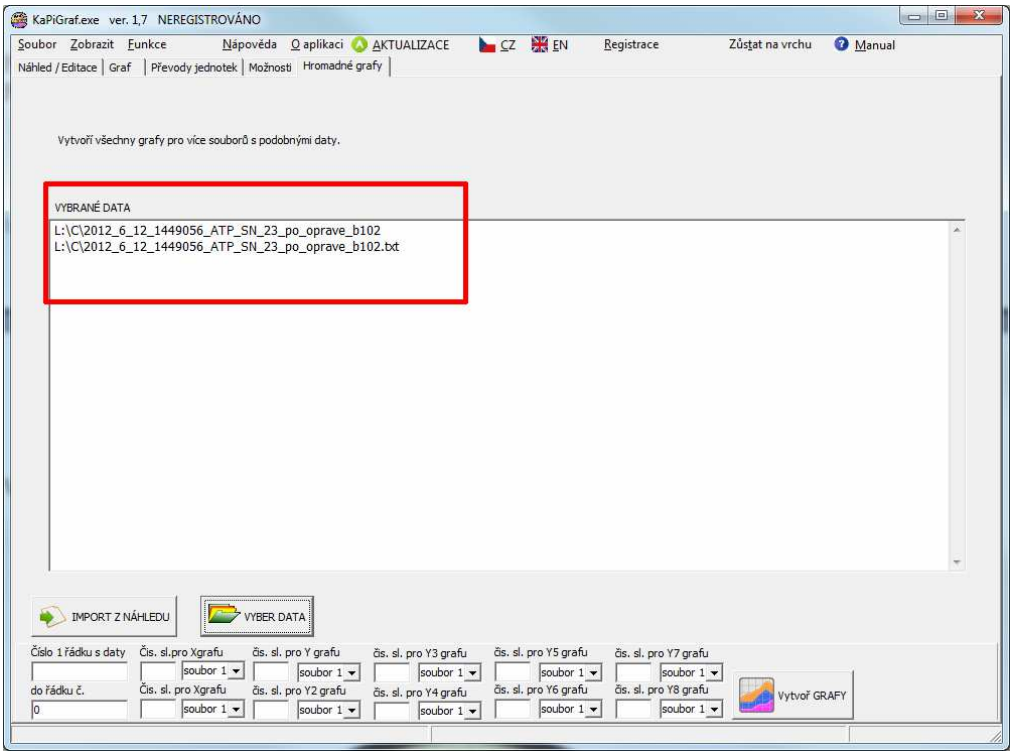
Note. Data should be placed in the same directory.





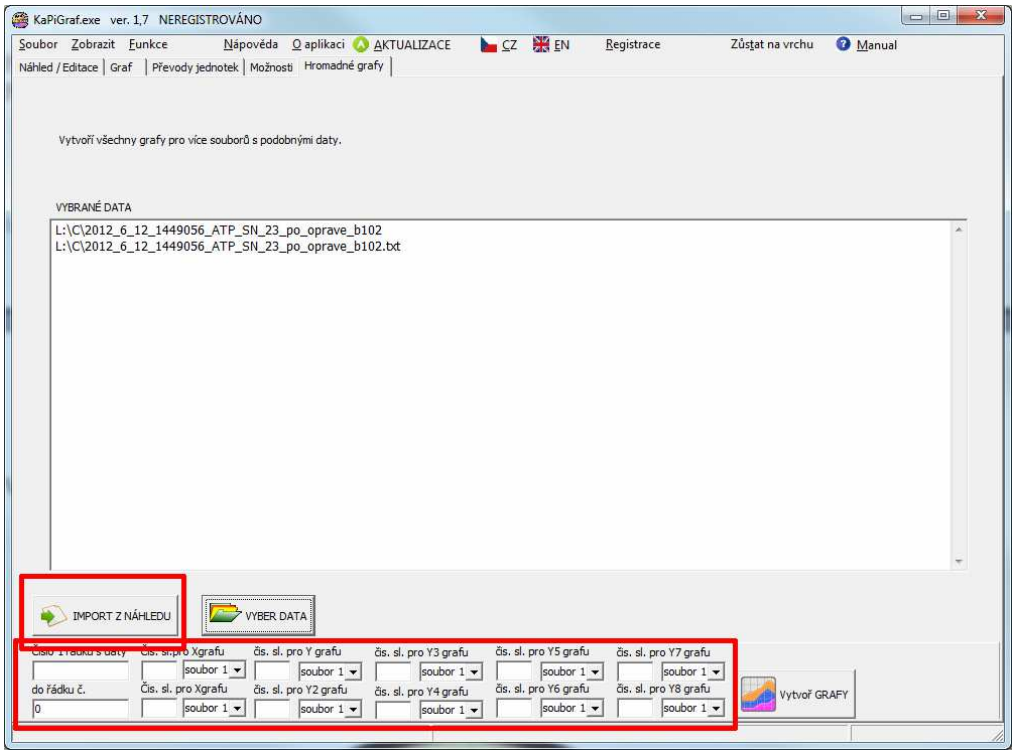
For marking more files use the hot key **Ctrl+click** or **Shift+click** your selected file. Confirm by the **Open button.**

Selected file are shown in the window **Selected Data** (see picture below)

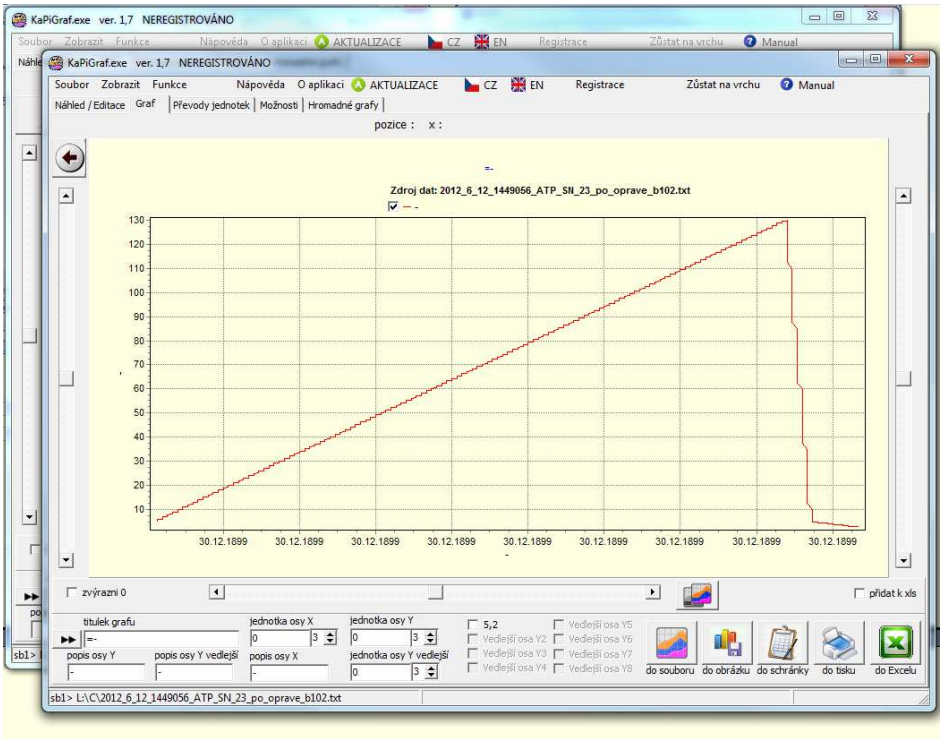


KaPiGraf – Multiple graphs – Selected Data

Now you must set the column selection for creating your graph.(see picture below)
You can write it manually (see the chapter 2.3.) or you can use the button **Import Preview.**



If the column selection is set in the tab **Preview/Edit** , after the **Import Preview** click the settings are copied and shown in the right boxes. Then click the **Create Graphs**.



KaPiGraf – Multiple graphs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