Documentation:

PolluxTerm

Program-Version: 0.28
Last Update: 2013.03.24
Authors:
Bernhard Gross

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Read me:

PolluxTerm is written for the SMC-Pollux, but it also works with the SMC-Pegasus/Taurus. Everyone is invited to improve this program. If you find a bug, have a request, or you have advice, just send an e-mail in English or German to: b.gross@pimicos.com. PolluxTerm is developed with Lazarus. Why use Lazarus? I like to program with Pascal! Lazarus works with Windows, Linux, Mac, BSD, etc. It is an open source project, so I only used open source programs and libraries.

Have a lot of fun
Bernhard Gross

Controllers:

- SMC-Pollux
- SMC-Pollux NT
- SMC-Pegasus
- SMC-Taurus
- SMC-Hydra (Partially only the basics)

Supported Connections:

- RS-232
- RS-232 via USB
- Ethernet

Operating Systems:

- **Linux:**
  i386, 32Bit: Developed and tested under OpenSuse 12.2
  i386, 64Bit: Works with QT and GTK2
- **Windows:**
  Win98: working
  WinNT: working
  WinME: working
  Win2k: working
  WinXP: working
  WinVista: working
  Win 7: working
  Win32s: not working
  WinCE: not working
- **Apple**:
  Just compile and test it and give me the results

License:

Used Software:

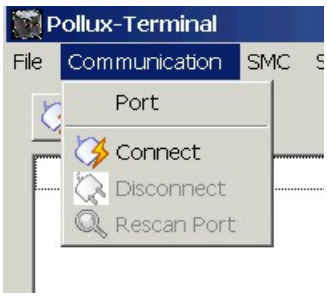
- Freepascal/Lazarus http://www.lazarus.freepascal.org/ License: GPL/LGPL
- SynaSer http://synapse.ararat.cz See also licence.txt
- Synapse TCP/IP library http://synapse.ararat.cz modified BSD style license!

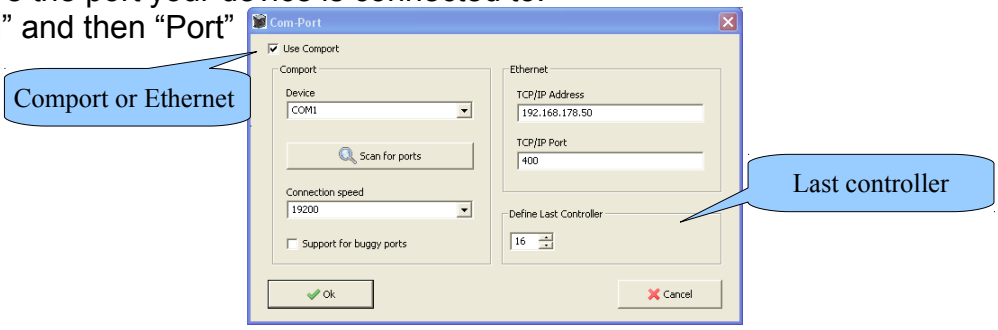
Installation:

Just copy the folder PolluxTerm-X.XX on your hard disk and start the program. There is no additional runtime library needed.

Connecting:

First you have to configure the port your device is connected to.
Click on “Communication” and then “Port”





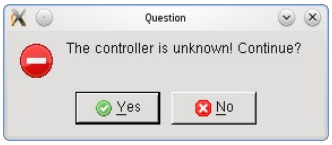
In the following window click on “Scan for Ports” and then choose the port that your device is connected to. After clicking on the connect button you are connected to your device. Now click on “Program” and then on “Save” to save your Port. This will save the port number for future reference. After doing this you will not need to scan for ports the next time you open PolluxTerm. For a faster connecting you can define here your last controller in the system.

Different controllers:

This dialog will be opened, if there is different hardware or firmware. You can switch off this warning in PolluxTerm.cfg.

(See filelist.txt)

Unknown controller:

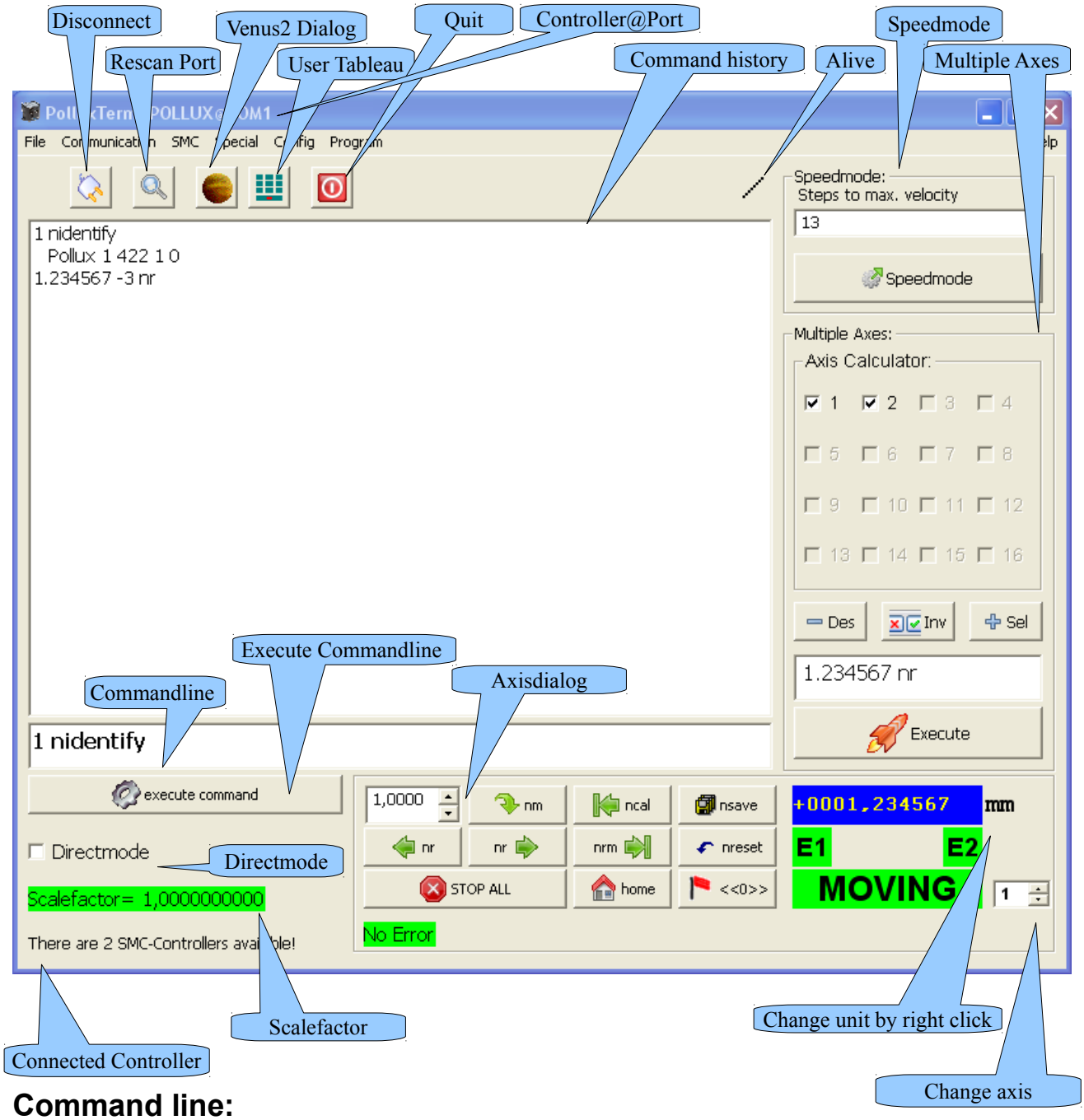


This dialog will be opened, if the command “nidentify” reads back a string which isn't written in controller.txt. The reasons why can be:

Bad USB-Sticks, bad communication, a new controller.

You can switch off this warning in PolluxTerm.cfg. (See filelist.txt)

Main Window:



Command line:

In this field you can enter commands which will be executed by pressing “Enter” or by clicking “execute command”. After the commands are executed you will see them in field

two. If you double click a command in the history it will be copied back into command line. So you can edit it and execute it again. Another way is to use the arrow up and down keys. It is also possible to save the history to a file. Just rightclick into the field, a popmenu will open with the option to “Save to File” or to clear the history.

Directmode:

If you activate “Directmode” all commands will be sent, even if they are wrong or nonexistent.

Alive:

Makes a step on every timer tic. You still see the program is working.

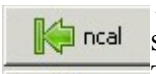
Axisdialog:

In this box you can edit how far your device moves or to which point it should move. If you click F9 you can edit the steps.

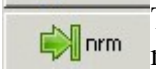
If you click on this button your device moves to the position entered in the first box (e. g. 1.000mm)

With these two buttons you can move your device to the left or right with the distance entered in the first box.

With this button you can stop all running processes or moves. (Also ESC)



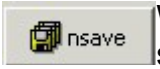
The ncal command searches for the limit in the negative direction, and sets this position to “0” (home-position).



The nrm command searches for the positive limit. After both limits are set you only can move between these two points.

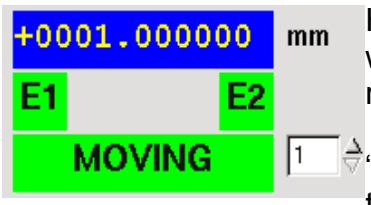
This button moves the device to the home position which is “0”.

With this button you can set the current position to “0” (home position).



When you click on this button your current settings of the controller will be saved.

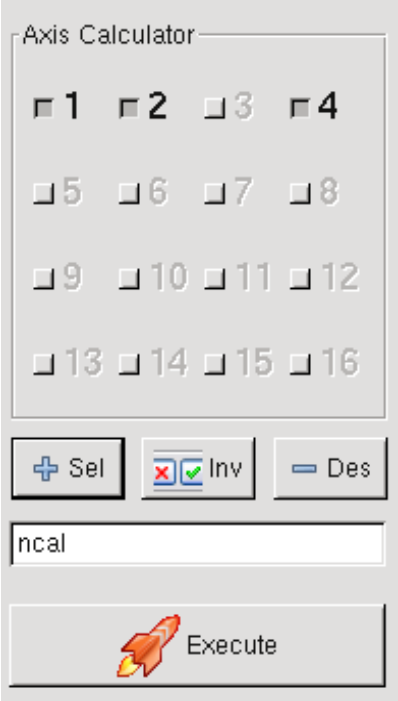
If you click on this button your device will restart and non-saved settings will be changed to their default values.



Here you can see the current position of your device. E1 and E2 will show the status of your cal-switch and rm-switch. If they are red your switch is activated, or the stage has reached a limit. The “Moving” field allows you to see the moving-status. If the field turns red, your device is moving.

You can change the units of every axis to a linear or rotary unit. This, in combination with a scale factor allows you to define your own unit.
(e. g. mm, inch, °). The controller will operate with the units it was originally configured with. However, in the main window, the positioning and moving buttons are scaled to your custom units. You can change the current axis by using the numeric up/down field

Multiple Axes:



If you have more than one controller and you want to execute the same command on a different controller. Just type the command in the execute line of the axis calculator, without an axis number, and select the controllers.

Example:

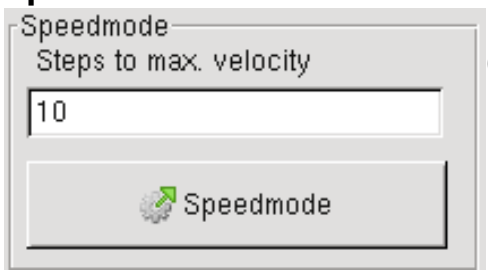
```
ncal    // -11 ncal
10. nm          // 10. -11 nm
```

The button “Sel” select all connected axes.
The button “Inv” inverts the selected axes
The button “Des” deselect all axes.
The readback commands will be operated serial.

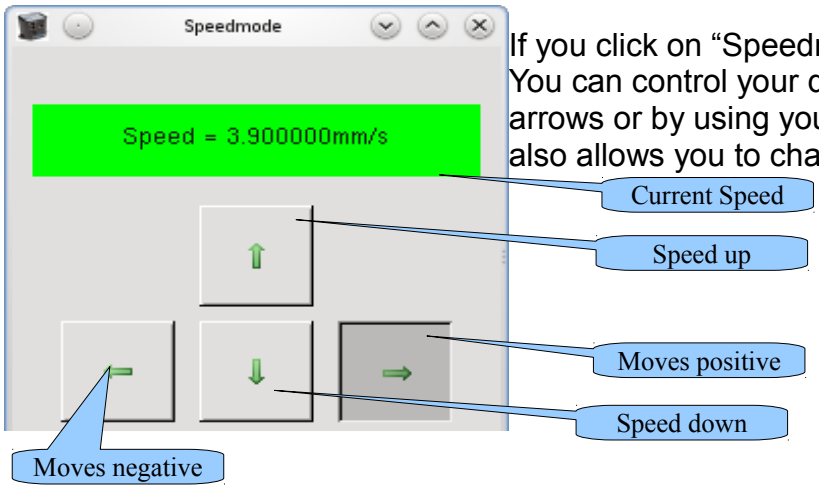
Example:

```
getserialno
1 getserialno
2 getserialno
4 getserialno
```

Speedmode:

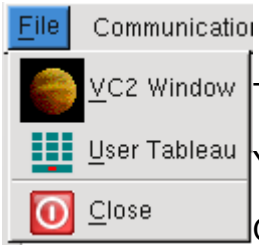


In the box above, you can change the speed steps. (linear scaling)



If you click on “Speedmode” you will see these arrows. You can control your device easily by clicking on these arrows or by using your keyboard arrow keys. This also allows you to change the speed on the fly.

Menu File:

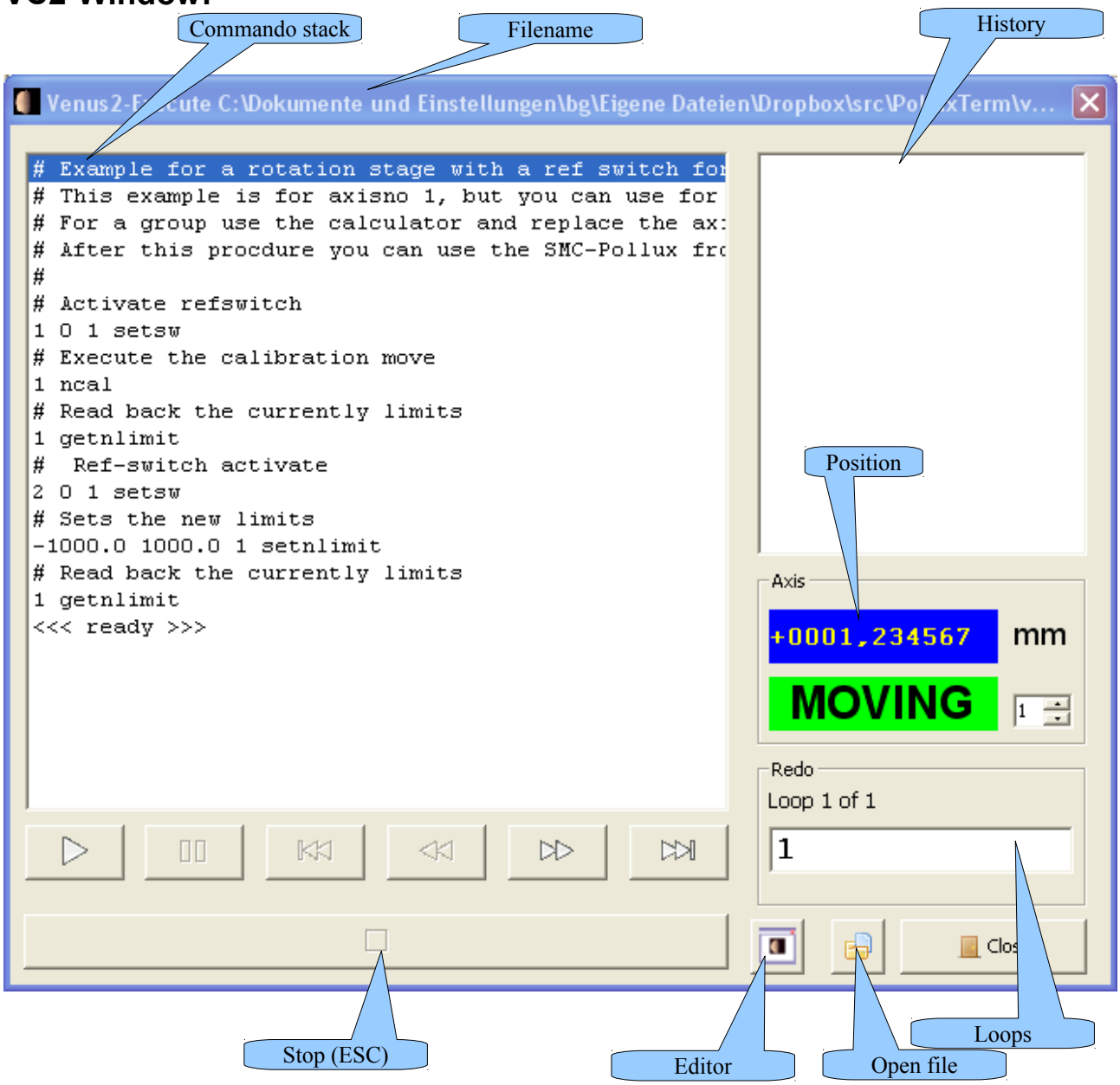


The vc2-window is for executing stack commands.

You can define some buttons.

Quit program

VC2-Window:



The sub folder vc2 includes some examples.

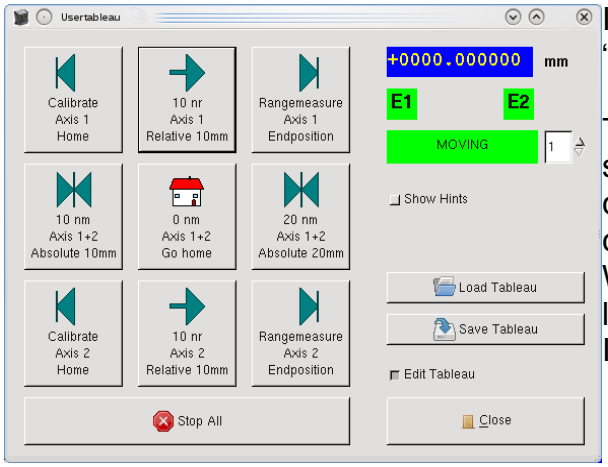
You can use there the move commands, the configure commands and the read commands.

Additional Commands:

cycles
defines the cycles of the stack
#
accompanying commentary
readpos
Reads back position
;
Appends two or more commands
pause [commentary]
Wait for a button click
delay
Wait for [x] seconds
delay_ms
Wait for [x] milliseconds

For more details take a look into Venus2-Help

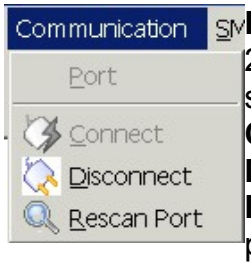
Usertableau:



If you click on “User Tableau” and load “example.ubt” you will see this:

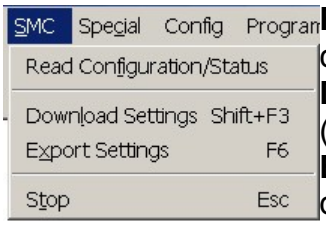
There you can create your own Tableau with shortcuts for frequently used commands and control your device easily without entering the commands.
With Linux you have three lines for your button labeling.
If “Edit Tableau” is checked, edit mode is active.

Menu Communication:



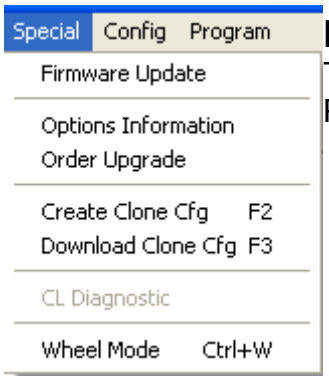
Port: The window Port is for configure your communication device. (RS-232 Port or Ethernet). If you click the button “Scan for Ports”, only the system known RS-232 ports are listed.
Connect: Connect the controllers to the current device.
Disconnect: Cut the connection to the controller and the set port free.
Rescan: Here you can disconnect your device or you can rescan your port if you have added multiple devices.

Menu SMC:



Read Configuration/Status: This option will display all available commands and save them as a text file. (In case of support)
Download Settings: Only the basic settings will be downloaded. (See Import Clone Cfg)
Export settings: You can save your standard settings for your device and with “Download Settings” you can download your saved settings to your device. (Only the basics-settings, better to use clone-cfg)
Stop: The button “Stop” cancels all executing commands. Instead of clicking on “Stop” you can press “Esc”

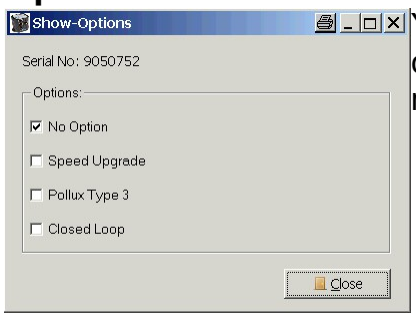
Menu SMC:



Firmware Update:

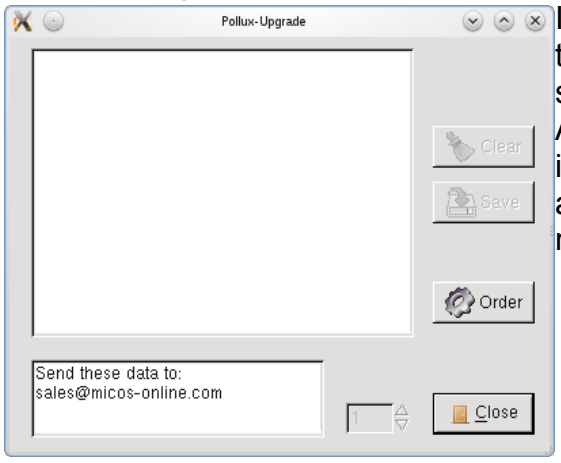
This window gives you information about updating your firmware. PolluxTerm works optimally with the latest firmware.

Options Information:



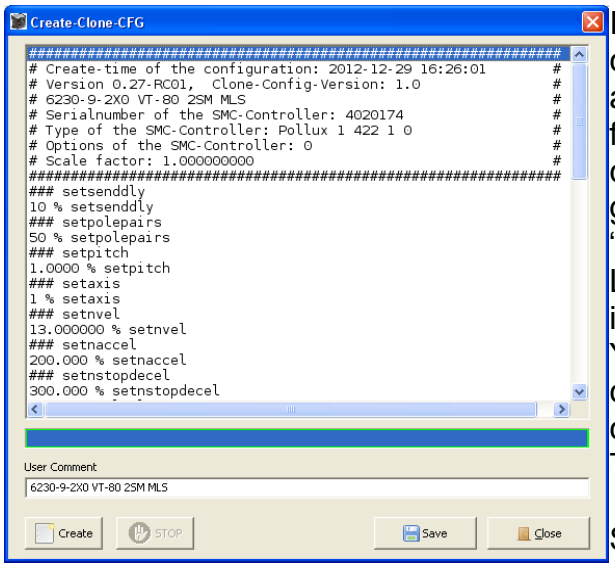
You can read back the current status of the options of the controller. Some options are only available with a software release code.

Pollux Upgrade:



If you want to buy the option “Speed upgrade” or the option “closed loop” just click on it and you should see this window:
After clicking on “Order” you can save the information you have to send to the given email address. For ordering “Closed Loop” your controller must be a Pollux-NT!

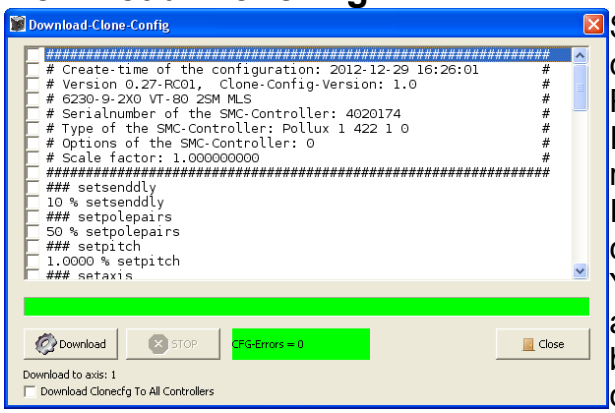
Create Clone CFG:



If you activate this window, you can create a clone of your current configuration. The clone is a standard text file and is editable. I used "###" for the following command and some comments. If there will be a detected error you get a message. The wrong settings looks like: "# ERROR % setnstopdecel".
Later, when downloading, this line will be ignored.
You can edit a line by doubleclicking it. Please check the clone before saving. In the line "User command" you can write your own comments. The letter "%" will be replaced with the axisno.

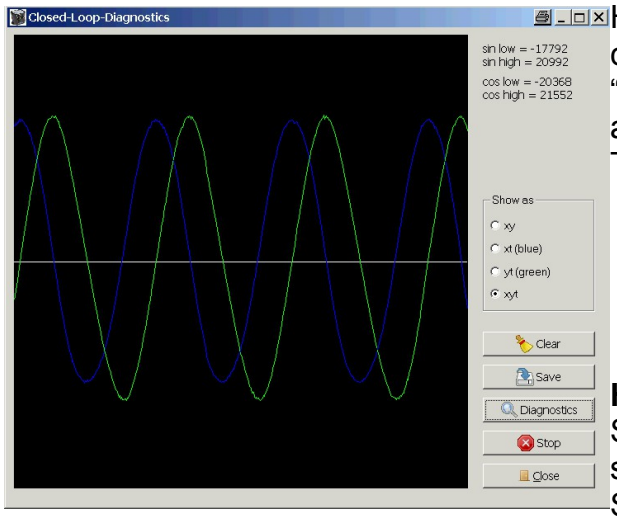
Since version 0.27 the scale factor is also stored in the clone file.

Download Clone Cfg:



Select the clone, which you want download the controller.
Press the button "download" to start.
If there are any errors the green field will turn red
If no error are detected, the command line is checked.
You can also send the clonecfg to all controllers at the same time by checking the box on the bottom. Be careful, there is no complete error check.

CL-Diagnostic:

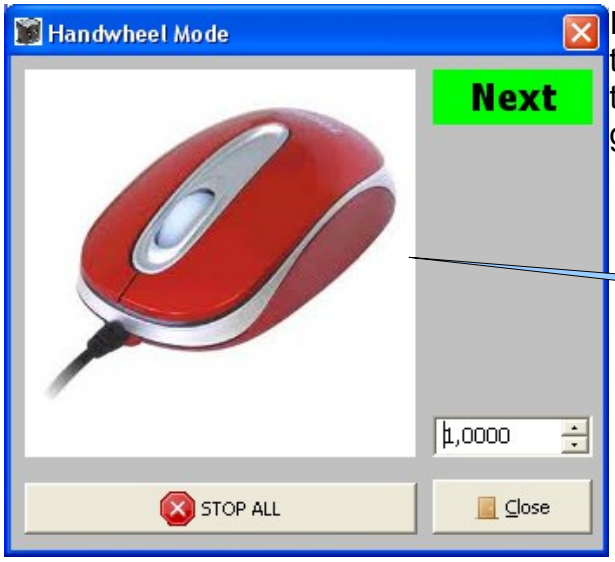


Here you can make diagnostics about your closed loop. This is only for Pollux-NT with the "Closed Loop" option. In left picture you see the analog signals (sin/cos) of a scale system.
There four different ways for diagnostic:

- xy shows a circle, if it correct
- xt shows a sinus, if it correct
- yt shows a cosines, if it correct
- xyt shows, sinus and cosines

Hint: The axis moves relative 5 times of the SMC-Parameter Cl-Period, if limit active the stage will stop.
Some other picture are stored in the sub folder misc.

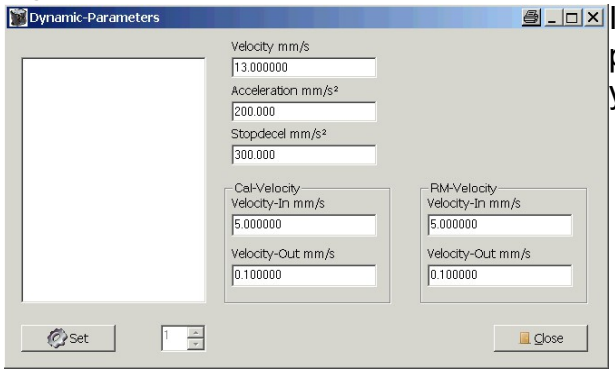
Wheel Mode:



If you use the mouse wheel in the active area, the selected axis makes a relative move with the defined distance. If the field next colored green, the system is ready for the next move.

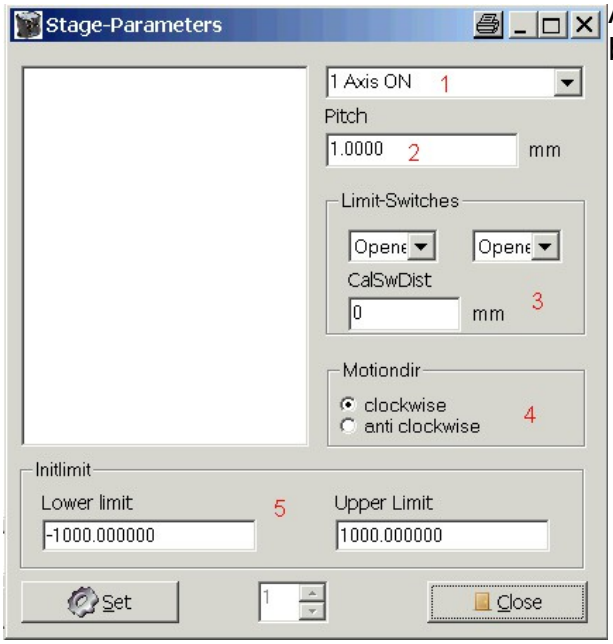
Menu Configuration:

Dynamic Parameters:



In this dialog you can change the dynamic parameters. Velocity and the acceleration for your device

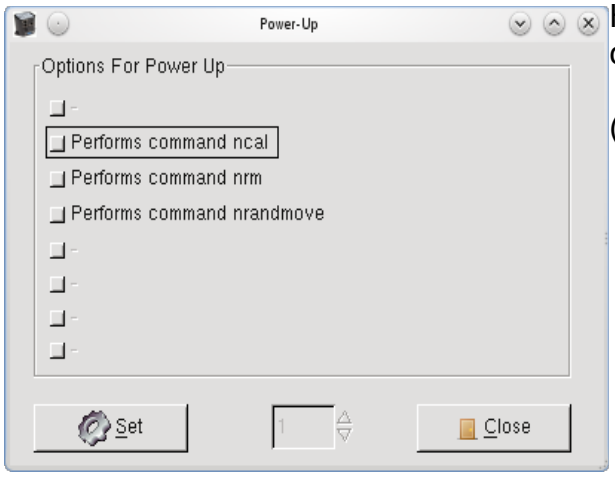
Stage Parameters:



All parameters which are stage dependent can be configured here.

1. Here you can choose if axis are on or off
2. Here you can edit your pitch
3. Here you can set your switches as opener or closer
4. Here you can make your motor turn clockwise or anti-clockwise
5. Here you can set the limits of your stage after booting

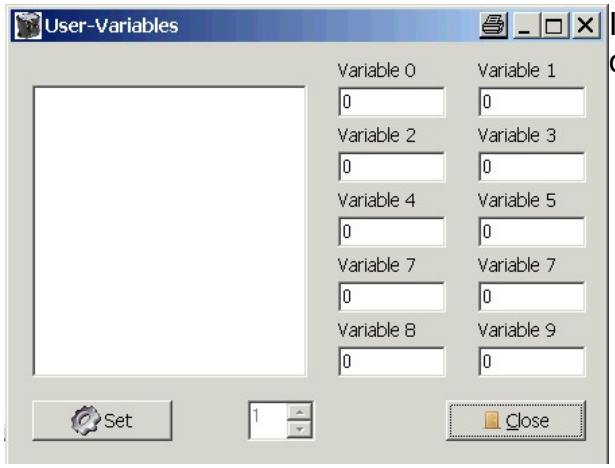
Power Up:



Here you can choose what commands the controller should execute after a power up.

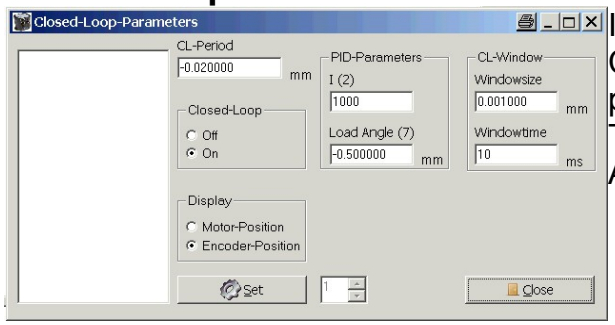
(Depending on the controller)

User Variables:



If you want to save some integer values into the controller, you can do it here.

Closed Loop:

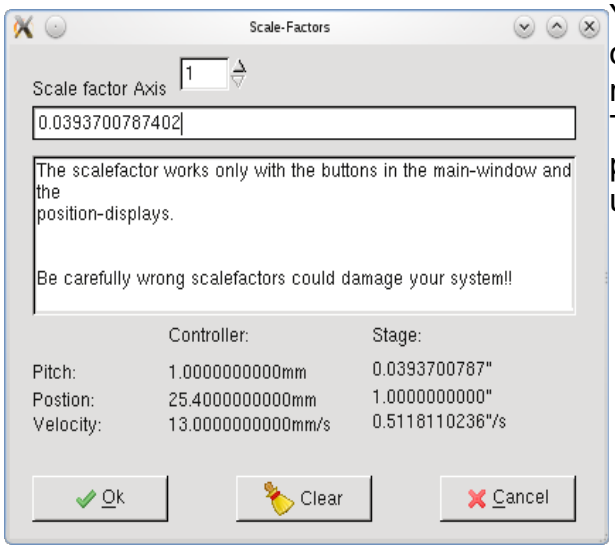


If you have a Pollux-NT with the option for Closed Loop, you can change these parameters.
The axis will be switched off, because it is safer.
After setting the new parameter:

- [axisno] nsave
- [axisno] nreset
- 1 [axisno] setaxis

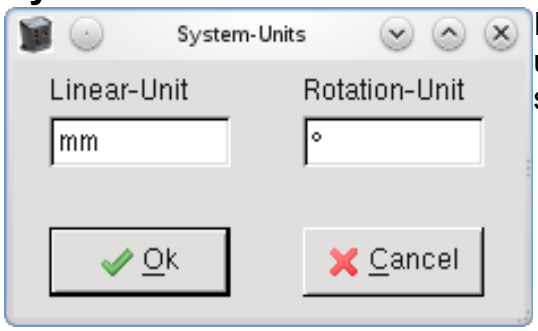
Menu Program:

Scale Factor:



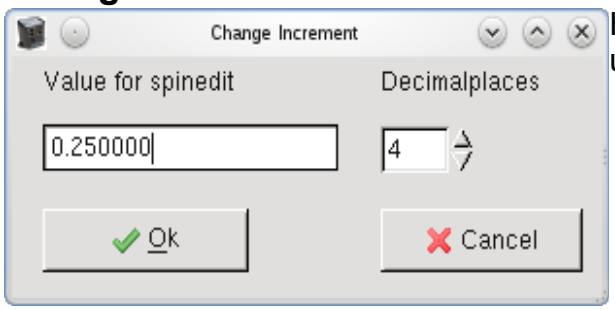
You can edit the scalefactor of the axes. This only work with buttons “nm” and “nr” in the main-window and shown positions.
The Pollux only works internally with 4 decimal places, so you correct the positioning. Or you use your define unit.

System Units:



If you click on “System Units” you can change the units (e. g. from mm to cm). Don' t forget the Pollux still works with mm!

Change Increment:



Here you can edit the values for numeric up/down field edit in the main window.

Show Hints:

“Show Hints” will show you hints when you hover over an element with your mouse.

Show Alive:

Show the Alive field in the main-window

Debug:

If you have any problems you can click on debug and when you are finished close the program. Then you can see whats wrong by looking into the saved debug file. It is also usefully for creating your own application. The whole communication to the communication device will be written with a time stamp to “debug.txt”. Be carefully about the file size!

The file is locked until PolluxTerm is closed or you click the Cancel Button in the Debug dialog.
Example:

- 16:35:40.765000 Start
- 0001.258799 1 nidentify
- 0001.277595 >Pollux 1 422 1 0<

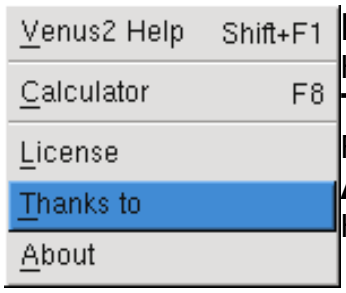
Main Window Size:

Here you can define the main-window size. Default 800 * 600 pixel.

Save:

Use this menu for saving the **program** parameters.

Menu Help:



License:

Here you can read the License for PolluxTerm!

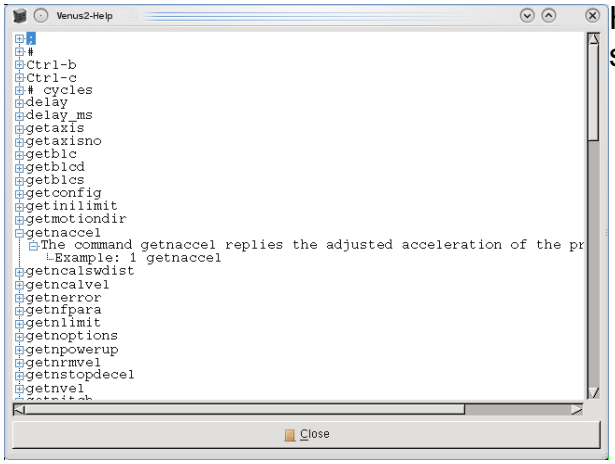
Thanks to:

For all those who have taken part in the creation of PolluxTerm!

About:

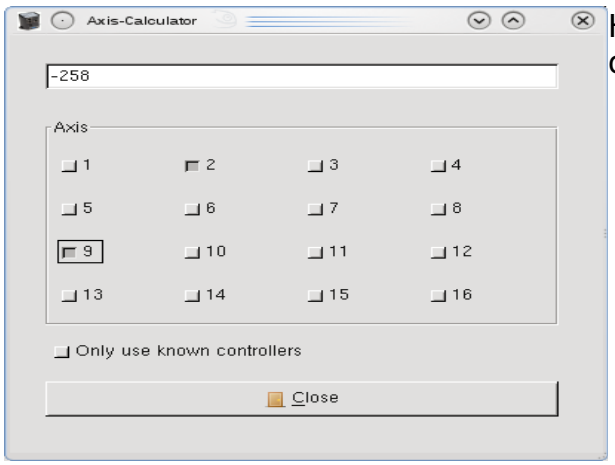
Here you can visit our homepage or you can contact me.

Venus2 Help:



Here you find a small controller dependent help screen.

Axis-Calculator:



Here you find a simple binary calculator for calculate multiple axes.

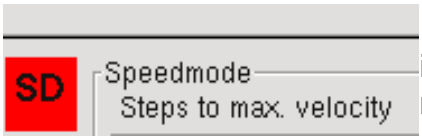
Pollux NT with Closed Loop:

If you have a closed loop controller you will have some more options.
When your device is connected you get some more information
CW displays if your device is in the closed-loop window. If it is red it is out of the window.
With AF you can turn the axis on after an error.

This shows you if there are any machine errors.
See the Error Message manual for more about this

You can delete the error message by doubleclicking on the label.

Pollux with Safety Device:



If label is red the Safety Device is currently active. If the label is yellow the device is deactivate, but the controller needs a reset to use again. Normally the label is invisible.

Shortcuts:

Esc	Stop by sending Ctrl-c (All move dialogs)
Shift+F1	Open Venus2-Help
F2	Create Clone-Cfg
F3	Import Clone-Cfg
Shift+F3	Download PImiCos standard settings
F6	Create PImiCos standard text file with the basic settings
F8	Calculator
F9	Access to the values of numeric up/down fieldedit for positioning in the main window
Ctrl+W	Wheel Mode

Program Structure:

Program Directory

- [clonecfg]
  - [pollux] //Clonecfg for Pollux 1
  - [pollux-nt] //Clonecfg for Pollux-NT
  - [pegasus] //Clonecfg for Pegasus
  - [taurus] //Clonecfg for Taurus
  - [hydra] /Clonecfg for Hydra
- [controller]
  - [pollux] //Control settings for Pollux 1
  - [pollux-nt] //Control settings for Pollux-NT
  - [pegasus] //Control settings for Pegasus
  - [taurus] //Control settings for Taurus
  - [hydra] //Control settings for Hydra
  - controller.txt //Defines controller, sub directory and polling time
- [export]
  - [pollux] //Settings export for Pollux
  - [pollux-nt] //Settings export for Pollux-NT
  - [pegasus] //Settings export for Pegasus
  - [taurus] //Settings export for Taurus
  - [hydra] //Settings export for Hydra
- [misc] //All other files
- [src] //Source code
- [usertableau] //User tableau saved files
  - example.ubt //Example for an usertableau
- [venus2] //Venus 2 saved files
- gpl.txt //License for PolluxTerm
- license.txt //License for using synaser
- PolluxTerm.cfg //Configuration for PolluxTerm
- ports-win.cfg //List of COM-Ports for Windows
- ports-linux.cfg //List of COM-Ports for Linux
- readme.txt //Informations about PolluxTerm
- readme.linux //Information about PolluxTerm on Linux
- versions.txt //Information about Program versions