

**Manual for
Micro-Manager with
voltage amplifier
NV40/3
NV40/3CLE**



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1 Installation

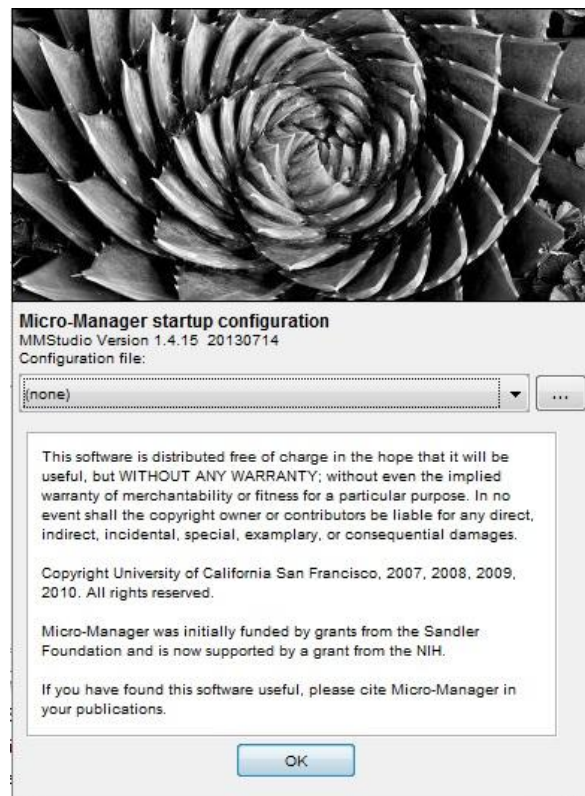
To use the Micro-Manager, a download of the software from the [homepage](#) is required. In this download-package are all needed libraries of the NV40/3CLE included. Please follow the instructions to install it.

If an older version (before 1.4.15) of Micro-Manager is installed, a download of the library of the digital system from [piezosystem jena](#) is required.

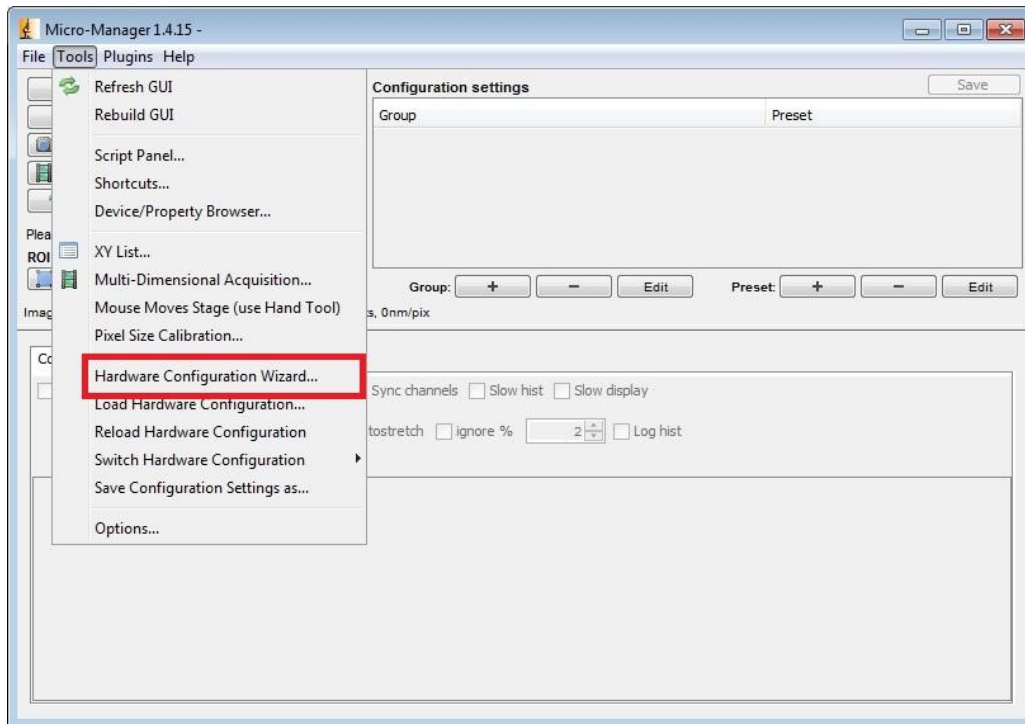
Afterwards the file „mmgr_dal_Piezosystem_NV40_3.dll“ must be extracted in the main directory of the program. Now you are able to access in program.

2 Hardware configuration

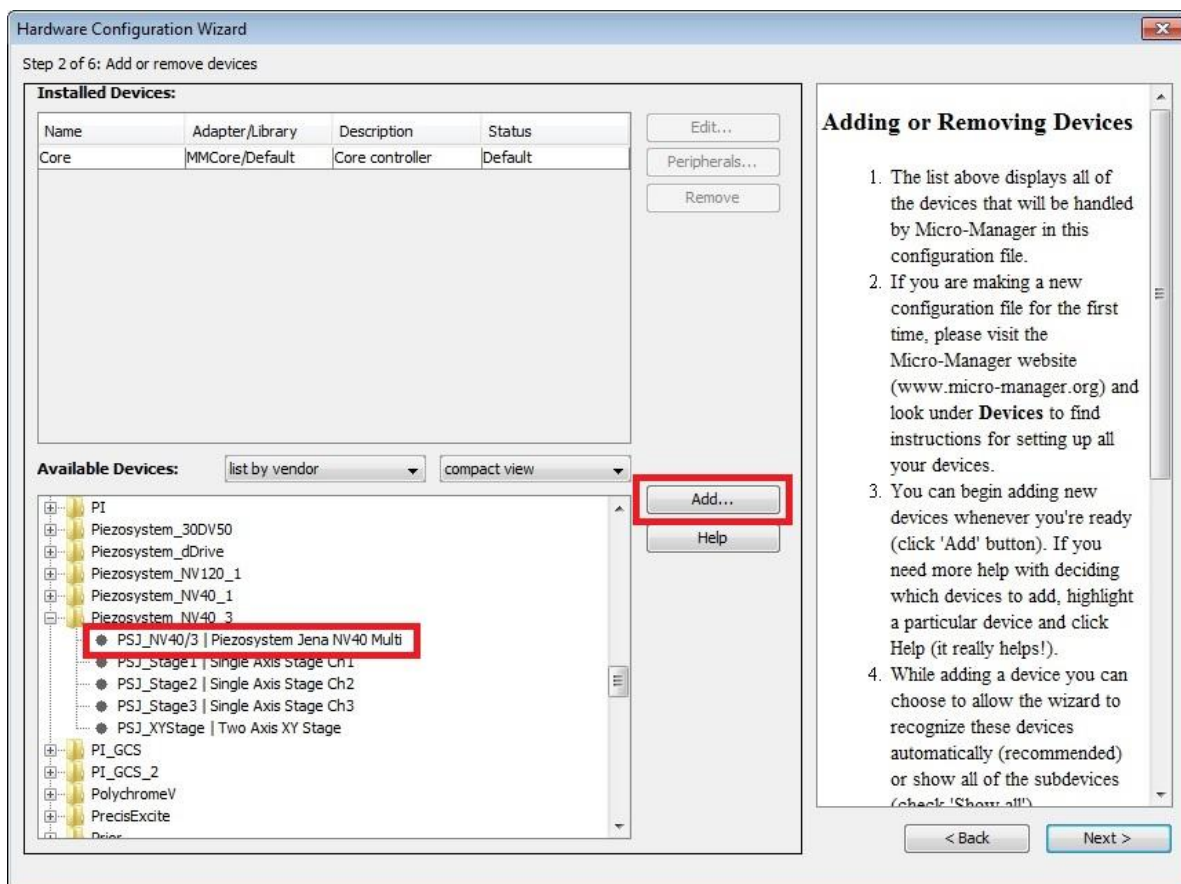
The Micro-Manager should be started without configuration („none“). Close the Window with “OK”.



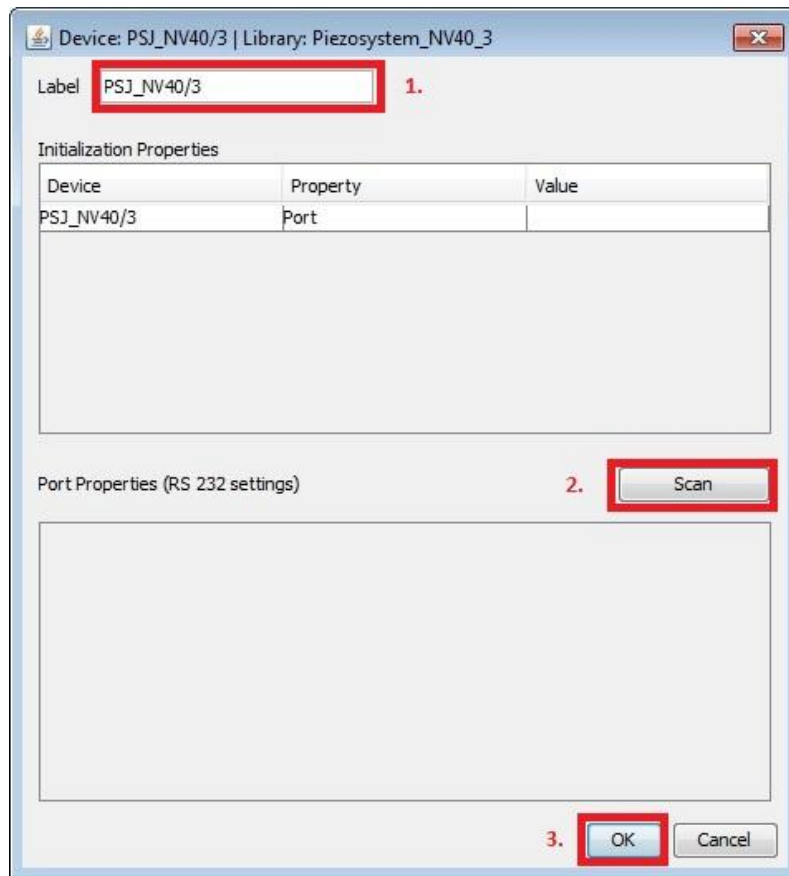
To use the NV40/3CLE, a configuration file must be created. It must be switched on. For the configuration please click in Menu **Tools→Hardware Configuration Wizard**



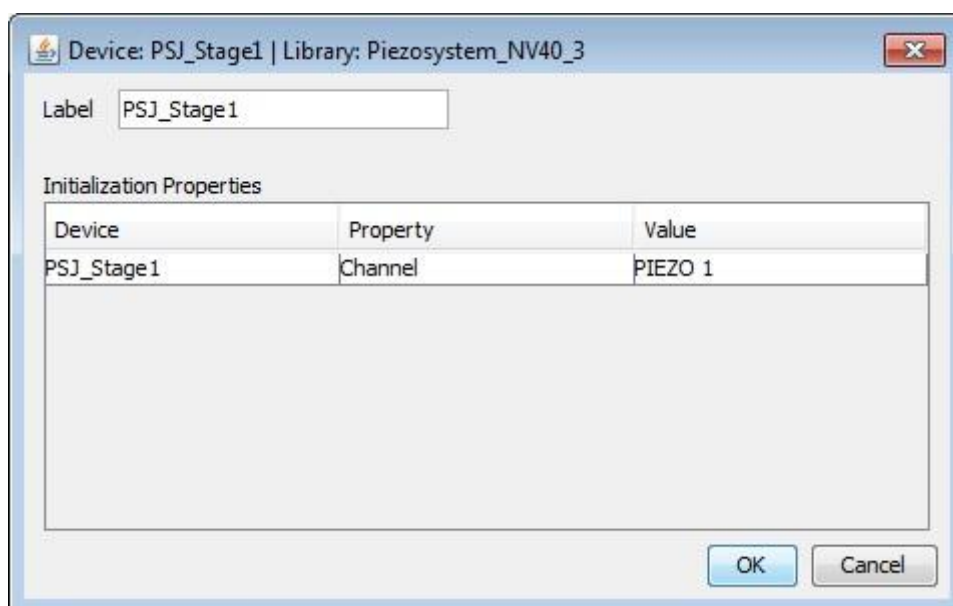
A new window will be opened. Please go to the second step with button „Next“, look for Piezosystem_NV40_3 and add it to the list with a double click or push button „Add...“.



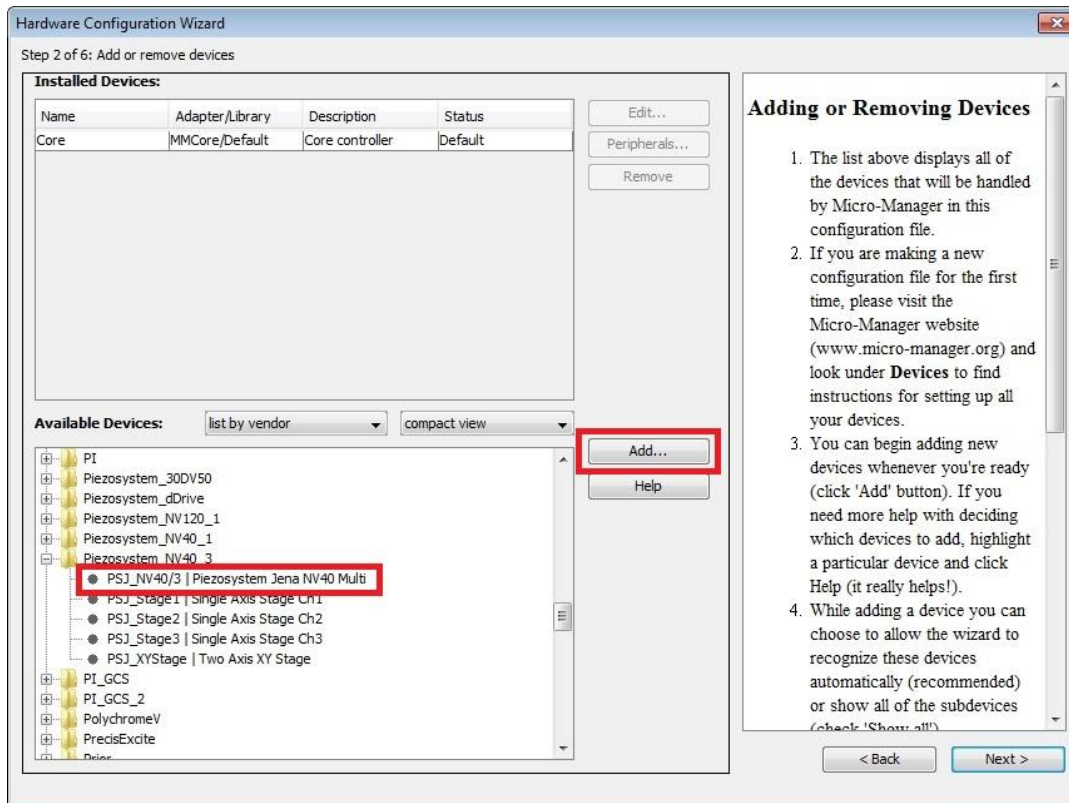
Now a new window is opening for the port setting. Click on the button „Scan“ and let the program search the device. At “Label” you could give the device an own name. Accept the settings with "OK".



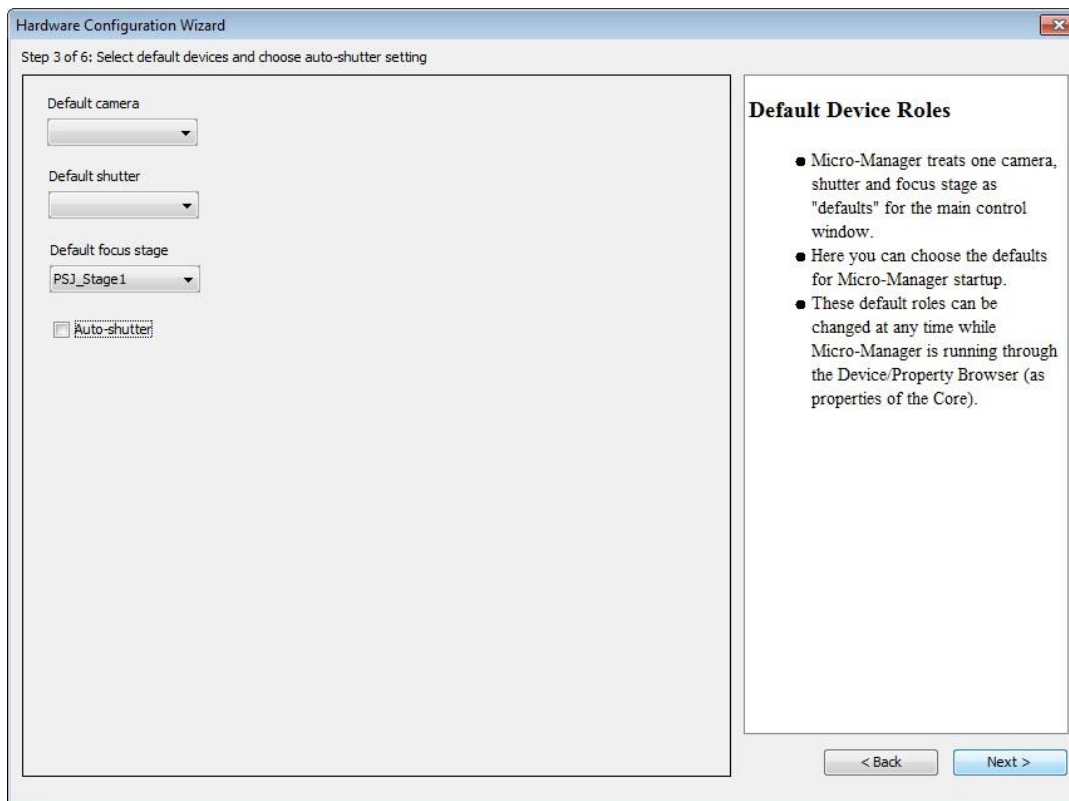
Add now the actuator with the same procedure. Please choose the channel number and an own name in the next window. Accept again with „OK“.



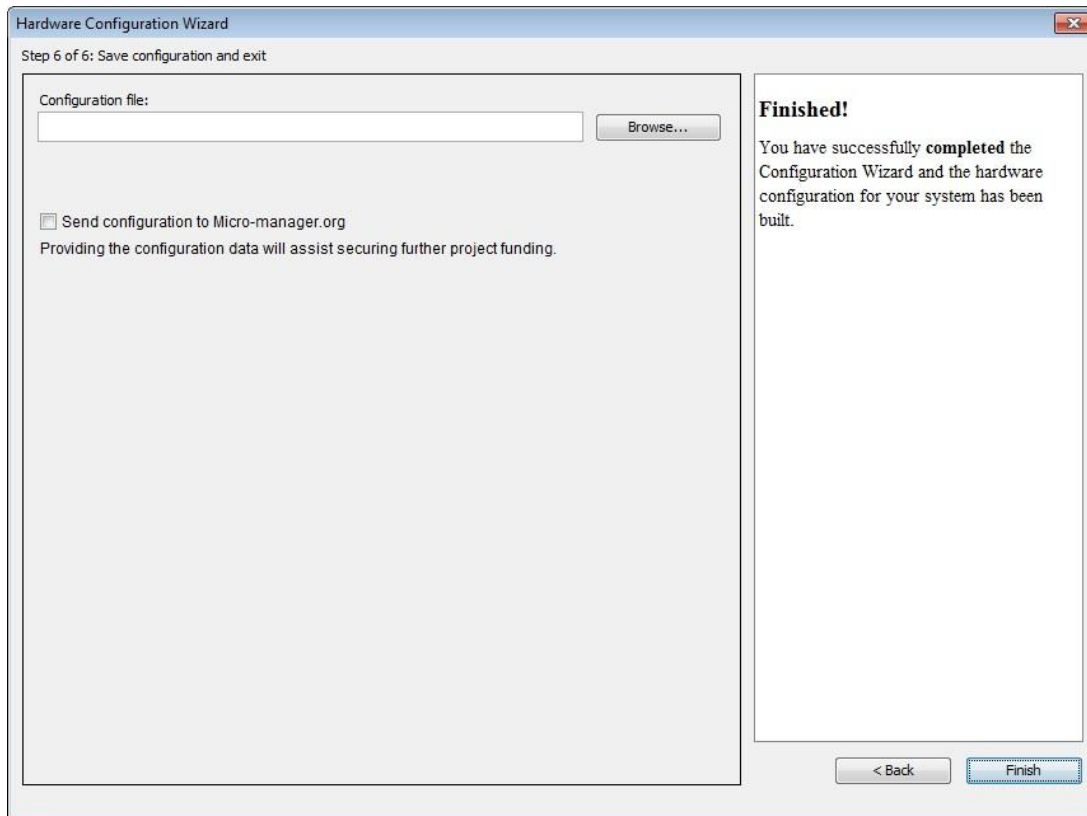
If you are finished, confirm with the button „Next >“.



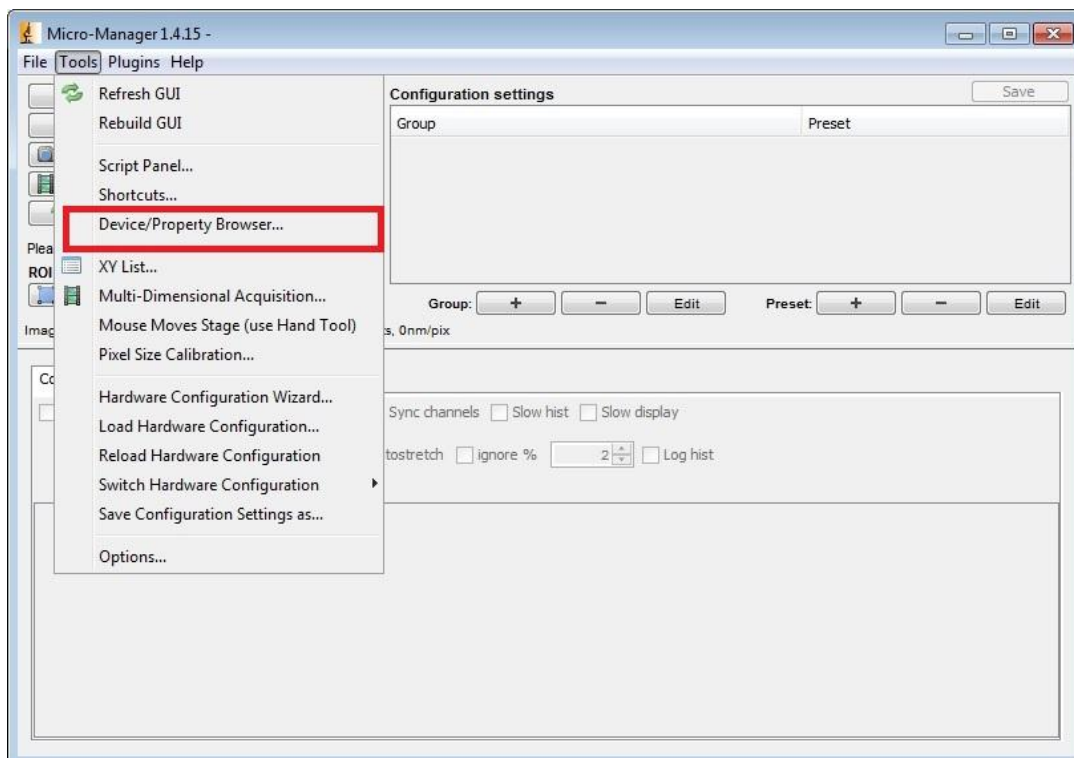
In the subsequent window you could choose default device. This can be changed later again.



Skip step 4 and 5 with "next" and save the configuration in a file. This can be loaded at the next program start. Please close the Wizard with „Finish“.



After the successful configuration the NV40 can be loaded and handled by the “Property Browser”. It is located at **Tools→Device/Property Browser**



Property	Value
PSJ_NV40/3-Name	NV403CLE
PSJ_NV40/3-device soft start	soft start disable
PSJ_NV40/3-encoder: exponent for calculation of accele...	3
PSJ_NV40/3-encoder: interval for close loop [um]	0.01
PSJ_NV40/3-encoder: interval for open loop [V]	10
PSJ_NV40/3-encoder: maximum step	100
PSJ_NV40/3-encoder: mode	EM1: adjustable interval
PSJ_NV40/3-encoder: sample interval [x * 0.02s]	1
PSJ_NV40/3-version: serno	31075
PSJ_NV40/3-version: ver	2.002.108
PSJ_Stage1-Axisname	X
PSJ_Stage1-Description	Piezosystem stage driver adapter
PSJ_Stage1-Limit Voltage max [V]	130
PSJ_Stage1-Limit Voltage min [V]	-20
PSJ_Stage1-Limit um max [microns]	100
PSJ_Stage1-Limit um min [microns]	0
PSJ_Stage1-Loop	close loop
PSJ_Stage1-Name	PXY50
PSJ_Stage1-Position [microns]	43,185
PSJ_Stage1-Remote control	off
PSJ_Stage1-Status	32.863
PSJ_Stage1-Voltage [V]	44,7775
PSJ_Stage1-actuator soft start	soft start enable
PSJ_Stage1-monitor output	1 actuator position
Core-AutoFocus	

The settings are sorted alphabetically. The grey filled fields can only be read and are for information.

3 Edit configuration file in text editor

The configuration file can be edited with any text editor. The following points can be changed:

- label
- channel of device
- port number

For example here is a file with „Label“ instead of device name. This should be change to useful names.

```
# Reset
Property,Core,Initialize,0

# Devices
Device,COM4,SerialManager,COM4
Device,Label_1,Piezosystem_NV40_3,PSJ_NV40/3
Device,Label_2,Piezosystem_NV40_3,PSJ_Stage1

# Pre-init settings for devices
Property,COM4,AnswerTimeout,500.0000
Property,COM4,BaudRate,19200
Property,COM4,DelayBetweenCharsMs,0.0000
Property,COM4,Handshaking,Software
Property,COM4,Parity,None
Property,COM4,StopBits,1
Property,COM4,Verbose,1
Property,Label_1,Port,COM4
Property,Label_2,Channel,PIEZO 1

# Pre-init settings for COM ports

# Hub (parent) references

# Initialize
Property,Core,Initialize,1

# Delays

# Roles
Property,Core,Focus,Label_2
Property,Core,AutoShutter,0

# Camera-synchronized devices

# Labels

# Configuration presets
# Group: Channel

# Group: System
# Preset: Startup

# PixelSize settings
```

The Label should be changed to:

- Label_1 → PSJ_NV40/3
- Label_2 → Stage1

```
# Reset
Property,Core,Initialize,0

# Devices
Device,COM4,SerialManager,COM4
Device,PSJ_NV40/3,Piezosystem_NV40_3,PSJ_NV40/3
Device,PSJ_Stagel,Piezosystem_NV40_3,PSJ_Stagel

# Pre-init settings for devices
Property,COM4,AnswerTimeout,500.0000
Property,COM4,BaudRate,19200
Property,COM4,DelayBetweenCharsMs,0.0000
Property,COM4,Handshaking,Software
Property,COM4,Parity,None
Property,COM4,StopBits,1
Property,COM4,Verbose,1
Property,PSJ_NV40/3,Port,COM4
Property,PSJ_Stagel,Channel,PIEZO 1

# Pre-init settings for COM ports

# Hub (parent) references

# Initialize
Property,Core,Initialize,1

# Delays

# Roles
Property,Core,Focus,PSJ_Stagel
Property,Core,AutoShutter,0

# Camera-synchronized devices

# Labels

# Configuration presets
# Group: Channel

# Group: System
# Preset: Startup

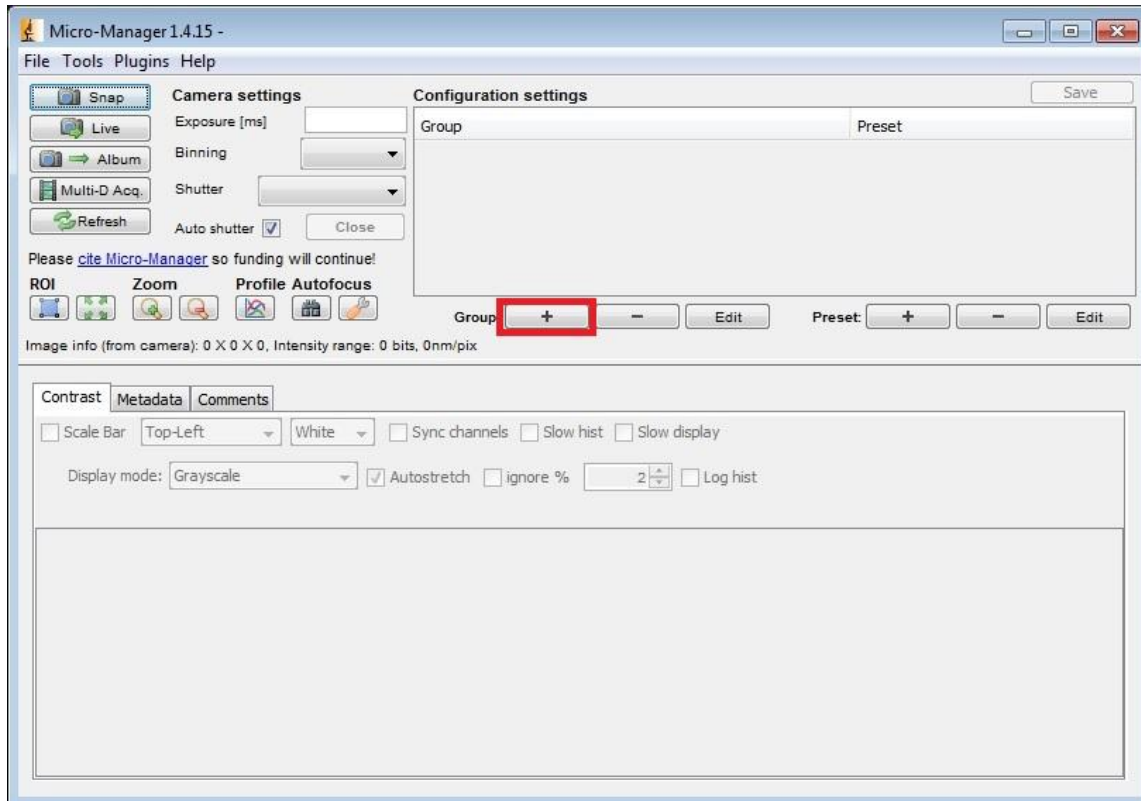
# PixelSize settings
```

Please ensure that the name only use once and don't use comma in the name.

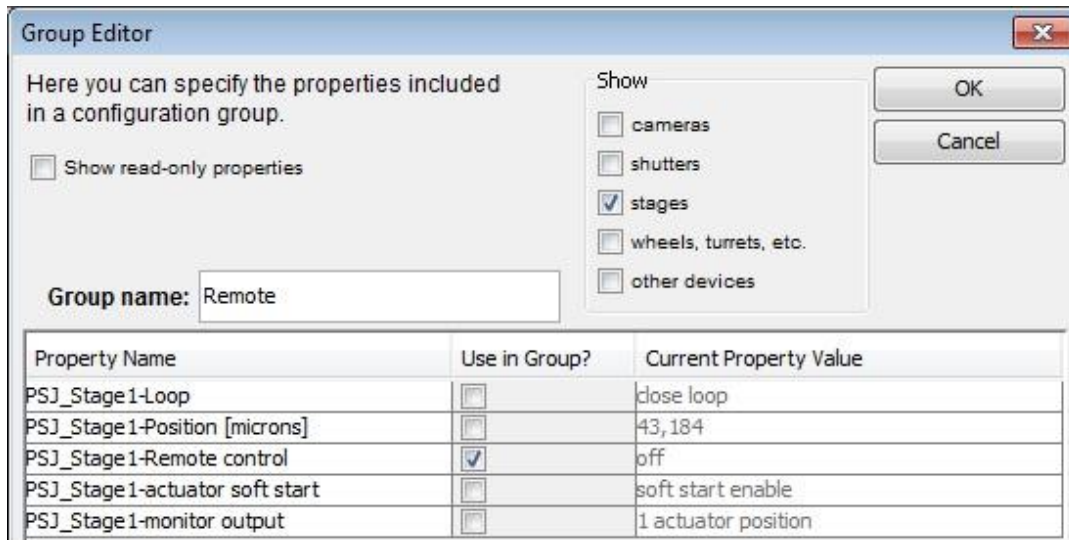
4 Create personal settings

Settings should be done in „Configuration settings“. The Property Browser is very slow and should only give an overview. Personal settings are stored in the configuration file, which was created earlier.

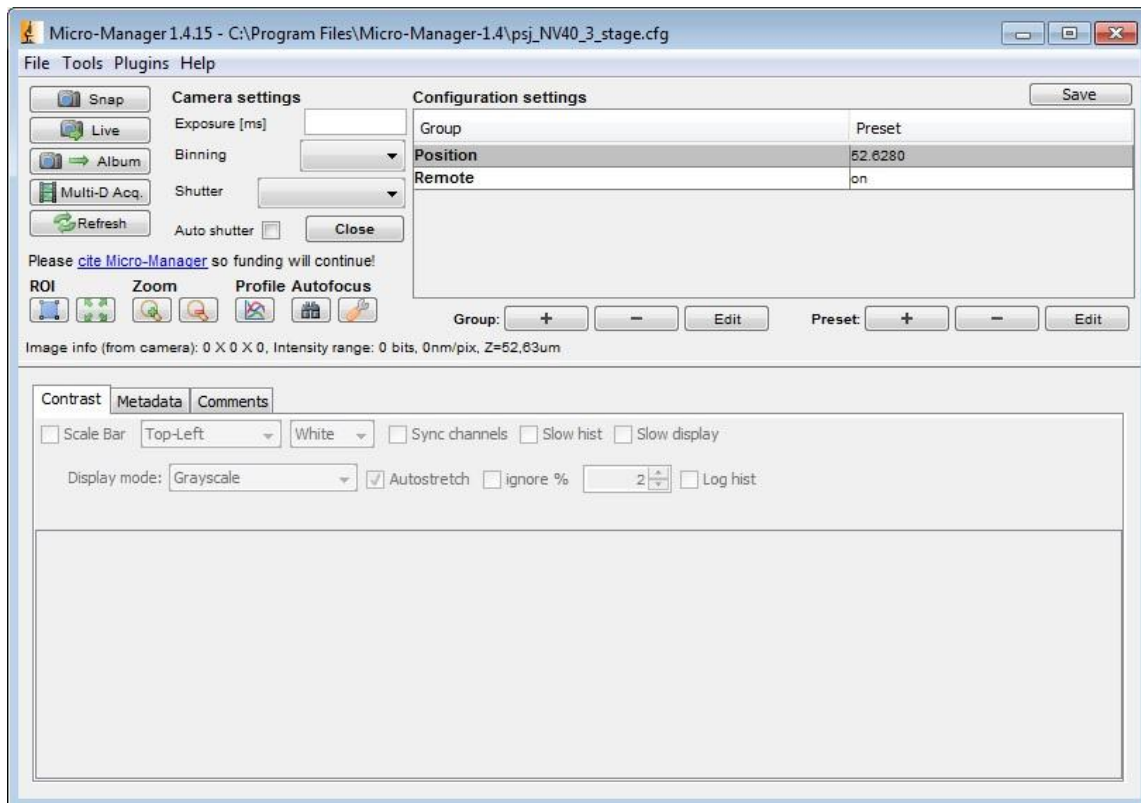
First create a group for setting. Push the button „+“ at „Group“.



In the “Group Editor” a name for a group can be chosen and the properties be selected. Accept with „OK“.

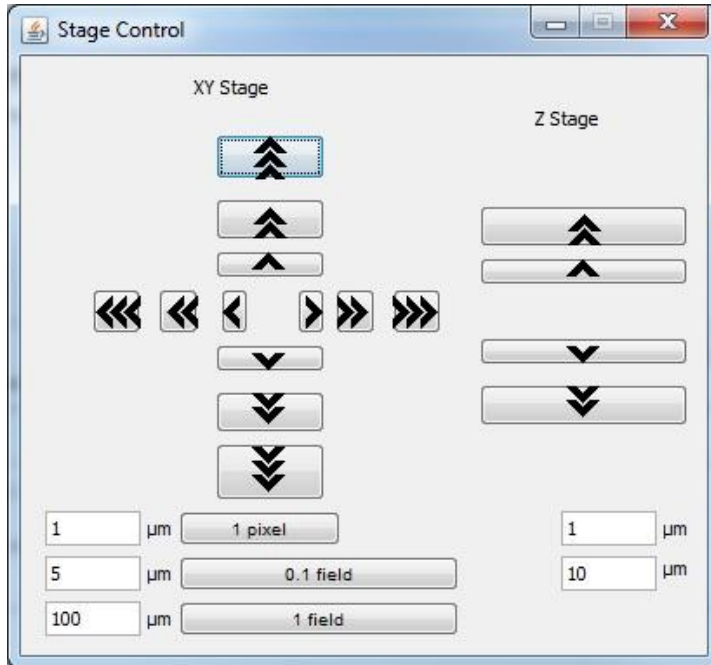


The settings can now be transmitted to NV40 in the main window.



5 Control with plug-ins

The position can also be controlled by the plug-in „Stage Control“. For this a XY Stage and a Stage for the Z-axis is needed.



It is possible to write own plug-in in Java or create own GUIs with Netbean.