

TECH NOTE :: ClipX with Catman EASY/AP integration

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Status: HBM: Public

Short description

This is an instruction for using ClipX with the data acquisition software Catman Easy/AP from HBM.

The driver uses its own HBM ClipX API (which is not part of the HBM CommonAPI) and which uses the object dictionary for communication with ClipX and the ClipX FIFO memory for measurements. ClipX uses a fixed sample rate of 19.2 kHz. The transmission rate of the values from ClipX to Catman can be set from 0.1Hz to 1kHz.

This method uses a TCP/IP connection, so during a measurement with Catman, no other device can connect to ClipX via port 55000. The use of the web server is still possible without restrictions, because this communication does not use the port 55000.

The following assumes that Catman is already installed.

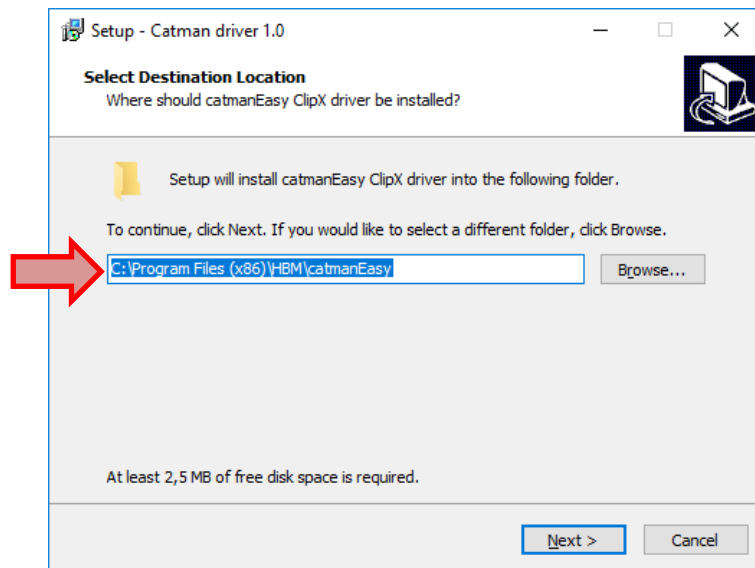
Important:

- With the representation of the NTP time format as a time channel, data transmission rates of 0.1 Hz .. 1 kHz can be set.
- If the time is to be displayed in seconds from 0 seconds, the measured value transfer rate in the ClipX must match that in Catman, that is 200Hz, otherwise incorrect measurements will occur. Other rates are then not possible or the NTP time format is shown as a time channel.



Driver installation

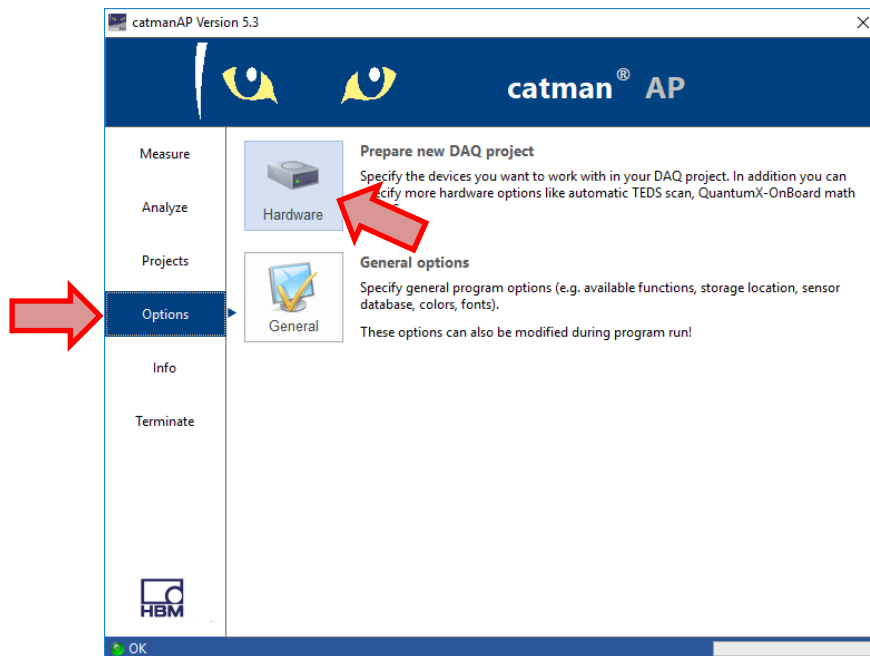
For the installation of the drivers the installer 'ClipX_Catman_Driver-Setup.exe' is required. Run the file, select the installation path of Catman and finish the process.



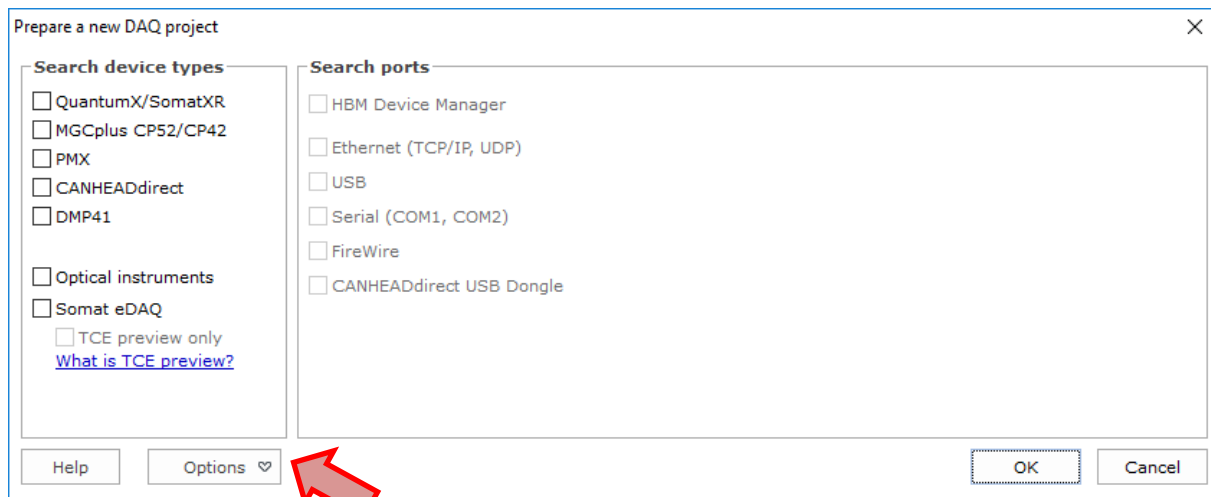
Catman settings

As soon as the driver files are copied in the right directory, Catman is started.

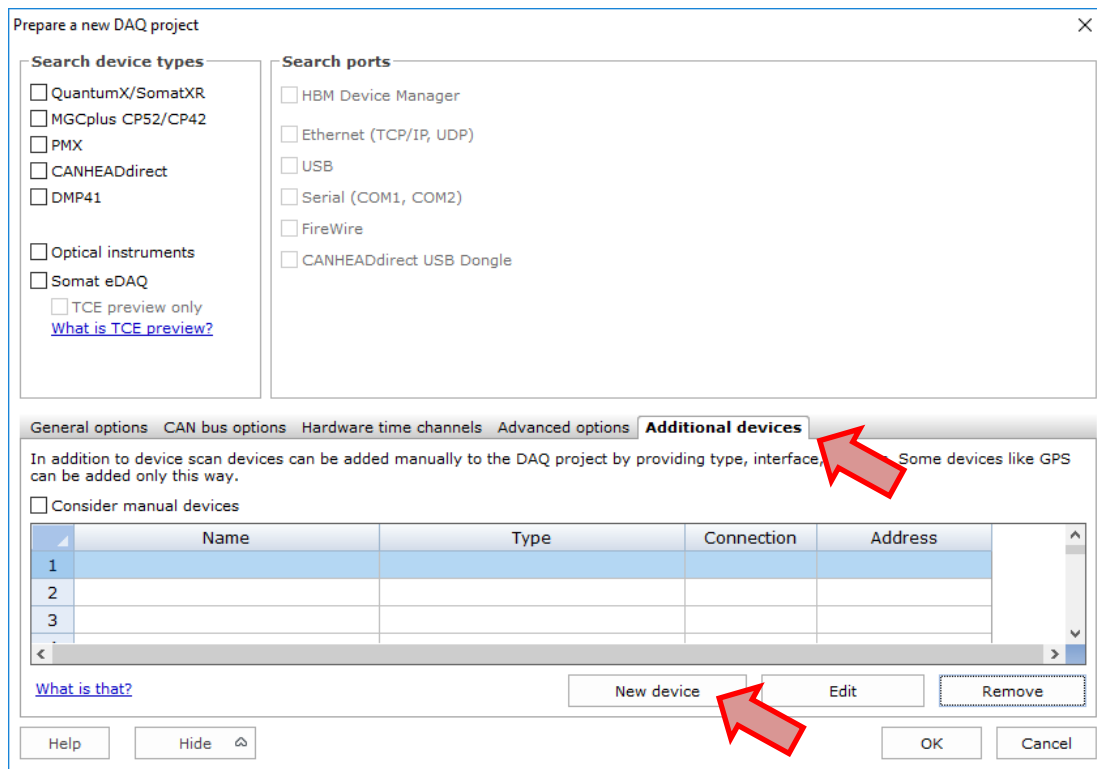
- Select the menu item 'Options'
- Then select 'Hardware'



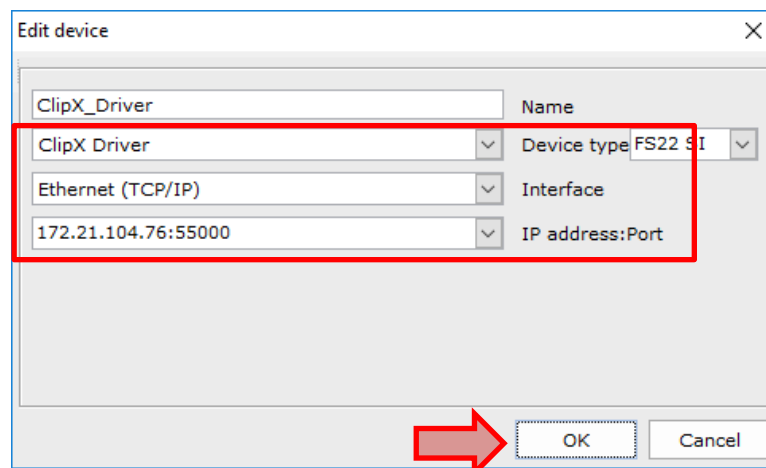
- Choose 'Options'



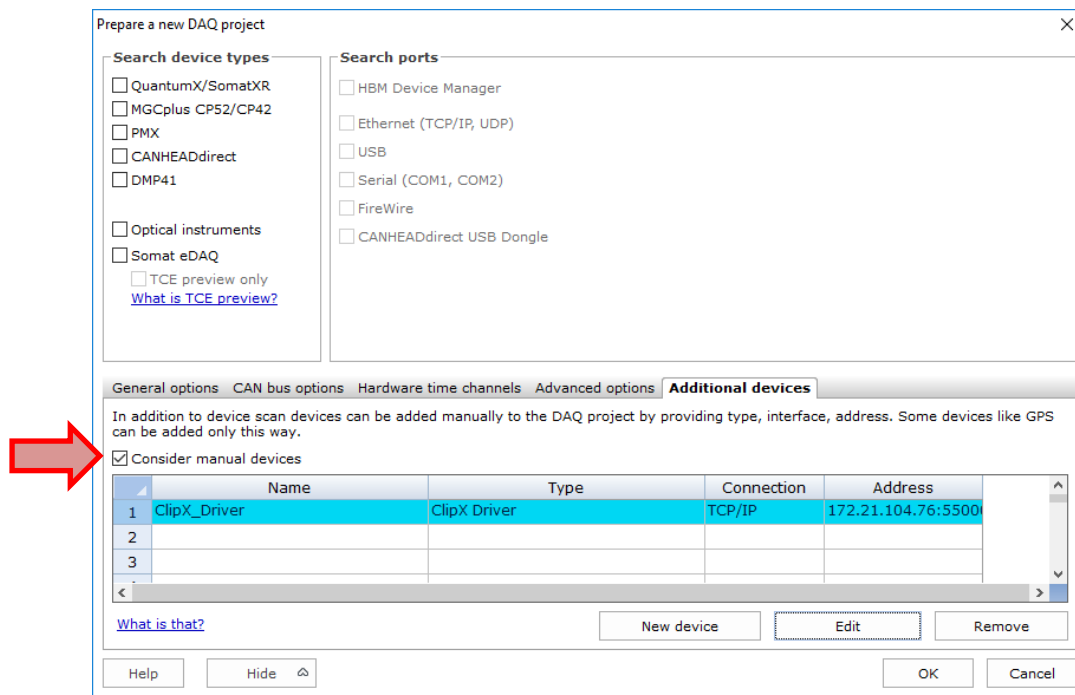
- Switch to 'Additional Devices'
- Add a 'New Device'



- Select the ClipX Driver in the drop-down menu
- Select 'Ethernet (TCP/IP)' as interface
- Enter the ip address and the port
- Confirm with 'OK'



After that the check mark at 'Consider manual devices' must be set.



Now the driver setup is done.

Channel selection for the measurement

The channel selection works by adapting the Config.ini file at the path `..\CatmanEASY\Drivers`. This should work best with e.g. Notepad ++, since this program with administrator rights can change the file directly at its storage place. Also, the IP address must set here.

```

1  [172.21.104.108]
2  Channel1=2
3  Channel2=3
4  Channel3=4
5  Channel4=5
6  Channel5=23
7  Channel6=21
8  SampleRate=1000
9
10 [172.21.104.66]
11 Channel1=2
12 Channel2=3
13 Channel3=4
14 Channel4=5
15 Channel5=25
16 Channel6=26
17 SampleRate=1000
18
19

```

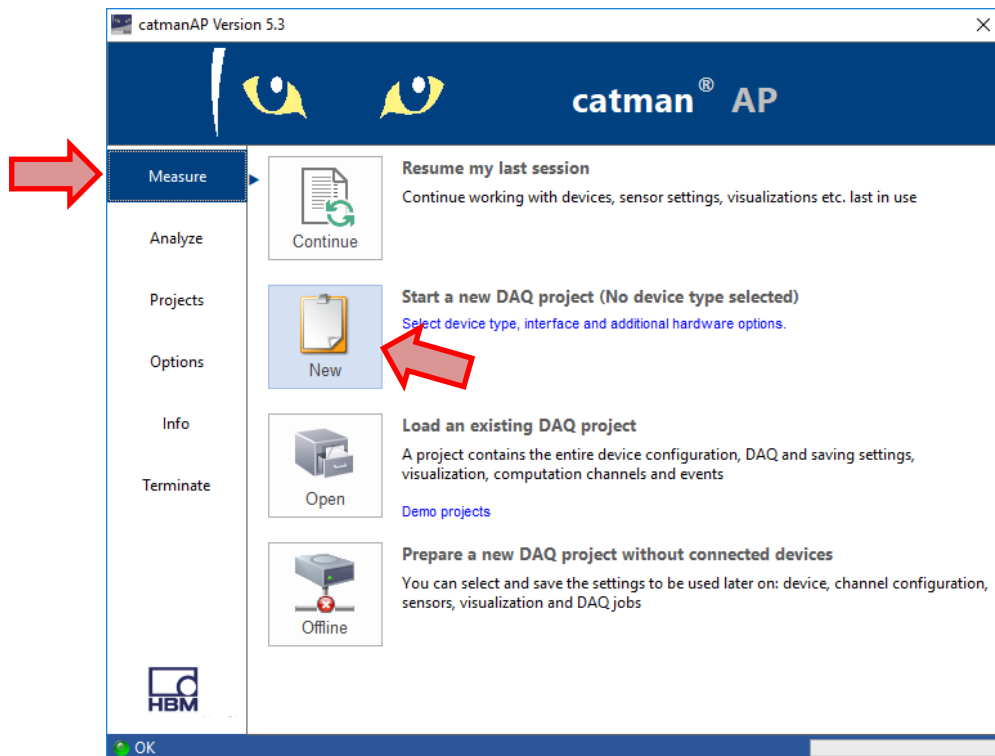
For measurement with several ClipX devices just copy the block as often as necessary.

The correspondences can be found in the table below:

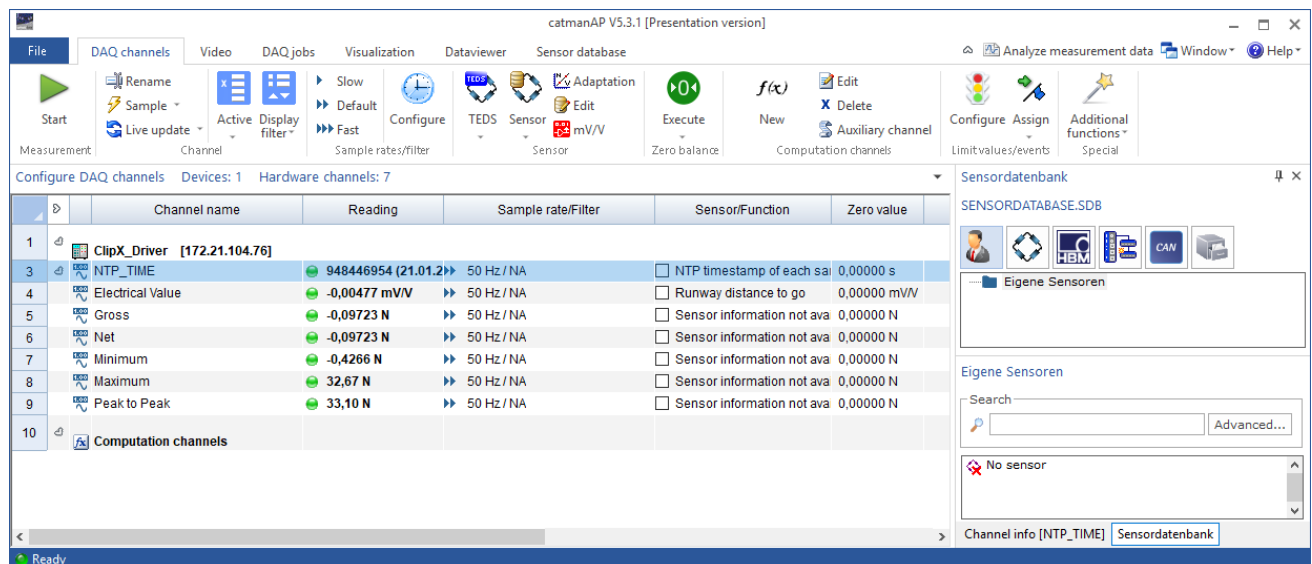
Index	Signal	Index	Signal
0	ADC Value	24	Calculated Value 4
1	Filtered ADC Value	25	Calculated Value 5
2	Field Value	26	Calculated Value 6
3	Gross Value	27	Ethernet API 1
4	Net Value	28	Ethernet API 2
5	Minimum Value	29	Fieldbus Value 1
6	Maximum Value	30	Fieldbus Value 2
7	Peak to Peak Value	31	Analog Out Value
8	Captured Value 1	32	Constant: -1
9	Captured Value 2	33	Constant: 0
10	ClipX Bus Value 1	34	Constant: 1
11	ClipX Bus Value 2	35	Constant: PI/2
12	ClipX Bus Value 3	36	Constant: PI
13	ClipX Bus Value 4	37	Constant: 2*PI
14	ClipX Bus Value 5	38	User Constant 1
15	ClipX Bus Value 6	39	User Constant 2
16		40	User Constant 3
17		41	User Constant 4
18		42	User Constant 5
19		43	User Constant 6
20		44	User Constant 7
21	Calculated Value 1	45	User Constant 8
22	Calculated Value 2	46	User Constant 9
23	Calculated Value 3	47	User Constant 10

Measurement

To carry out a measurement select 'Measure' and then new.

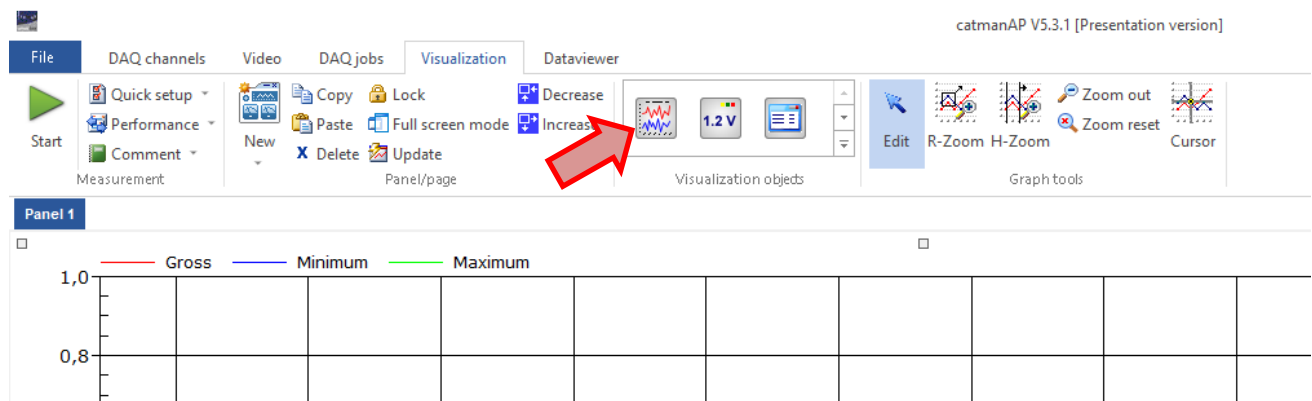


CatmanAP connects automatically with the ClipX device, which is set in the options.

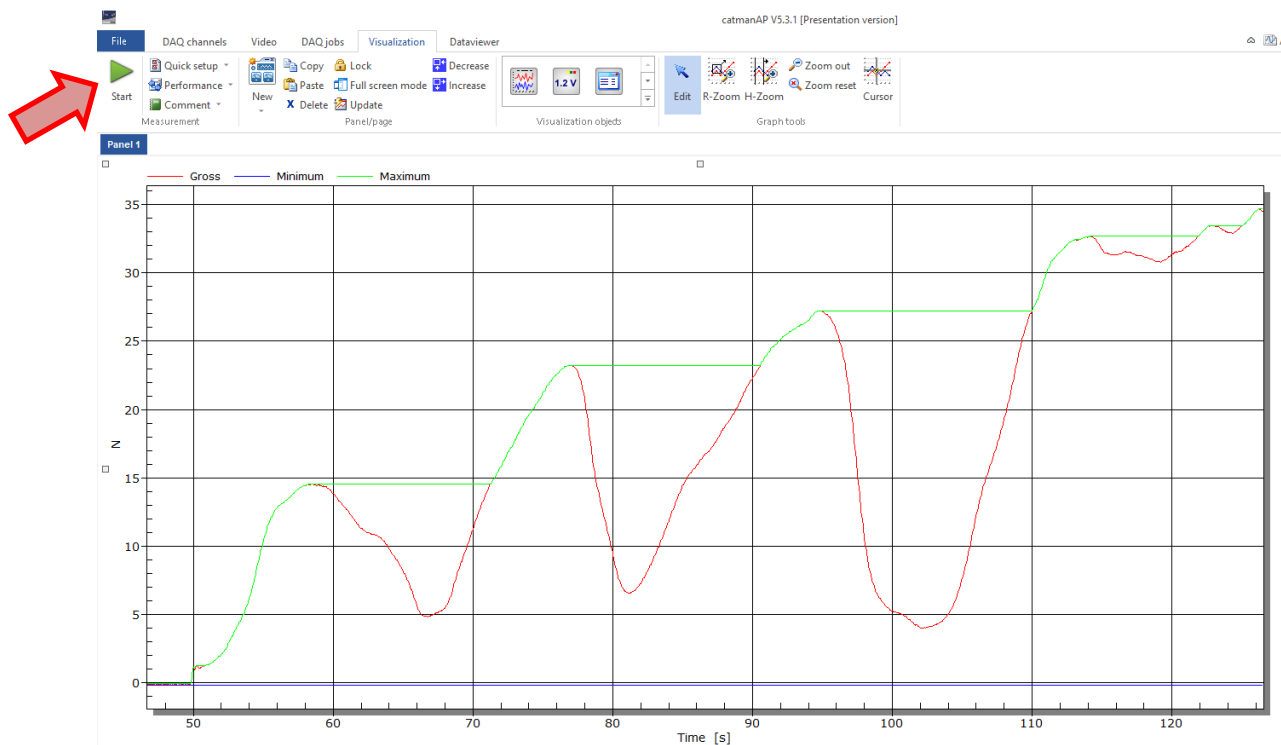


Now, e.g. a visualization can be added:

- Select 'Visualization'
- Add the desired graphic object (here: $y(t)$ graph)
- Add the signals via drag and drop



By clicking 'Start' the measurement and accordingly with 'Stop' it is stopped.



Measurement and visualization with other devices

For the measurement of ClipX with other devices, the following aspects should be noted:

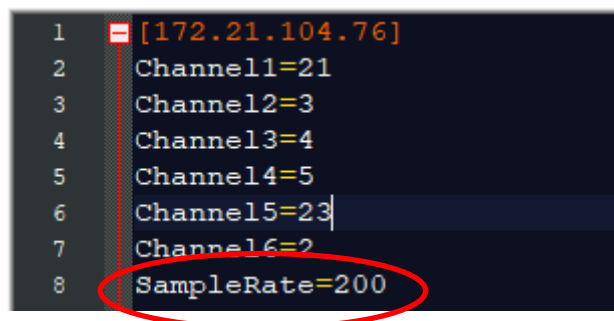
- The signals from ClipX should be plotted over ClipX's NTP time slot if a high sampling rate is required. Here, a measurement rate of up to 1 kHz (must be set in the Config.Ini file) is possible.
- If another device is to be displayed in the same plot, the measurement rate of the ClipX Fifo must match the sample rate in Catman. The highest frequency, where this is possible, is 200Hz. If this rate is set in the fifo of ClipX and in Catman, the ClipX can be displayed correctly over the Catman time and further signals from other devices, if they use the same measurement rate, can be included in the plot.

Attention: Even by using the second method, there is no guarantee, that the start point of the signals is synchronic.

Description of the procedure:

In this example, a 1Hz sine from ClipX and PMX is plotted in the same visualization.

- Set up the IP address, the channels and the 200Hz sample rate in the Config.Ini file



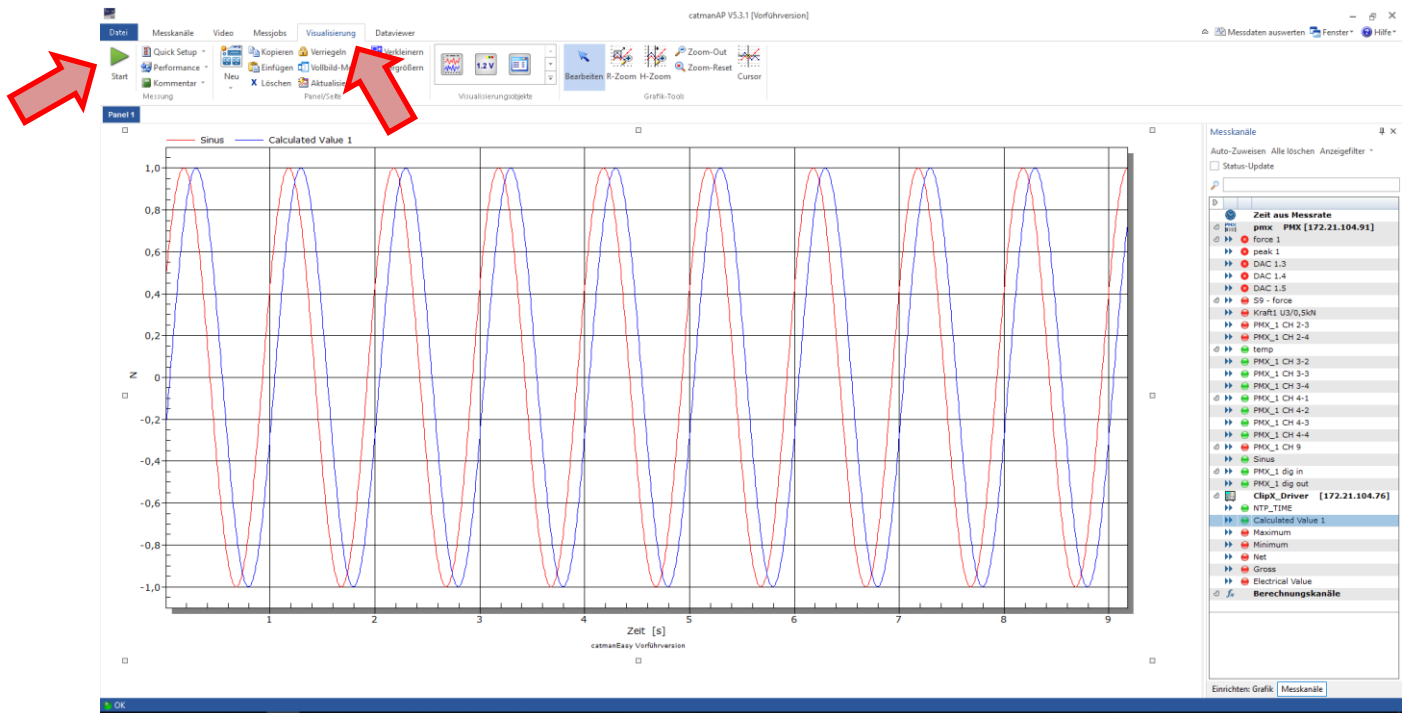
```

1 [172.21.104.76]
2 Channel1=21
3 Channel2=3
4 Channel3=4
5 Channel4=5
6 Channel5=23
7 Channel6=2
8 SampleRate=200
  
```

- Start catman, connect to the devices and set the measurement rate of Catman to 200Hz for all devices

	Kanalname	Messwert	Messrate/Filter	Sensor/Funktion	Nullwert	Grenzwerte
1	pmx PMX [172.21.104.89]					
5	DAC 1.1		200 Hz / NA	Analog OUT	N.A.	
6	DAC 1.2		200 Hz / NA	Analog OUT	N.A.	
7	DAC 1.3		200 Hz / NA	Analog OUT	N.A.	
8	DAC 1.4		200 Hz / NA	Analog OUT	N.A.	
9	DAC 1.5		200 Hz / NA	Analog OUT	N.A.	
10	BrFx	Overflow	200 Hz / BE 20 Hz (Auto)	DMS Vollbrücke	-0,6149 N	
11	BrFy	Overflow	200 Hz / BE 20 Hz (Auto)	DMS Vollbrücke	-1,097 N	
12	BrFz	Overflow	200 Hz / BE 20 Hz (Auto)	DMS Vollbrücke	59,24 N	
13	PMX_1 CH 2-4	Overflow	200 Hz / BE 20 Hz (Auto)	DMS Vollbrücke	0,00000 mV/V	
14	PMX_1 CH 3-1	-0,00411 mV/V	200 Hz / BE 20 Hz (Auto)	DC 10 V	0,00000 mV/V	
15	PMX_1 CH 3-2	0,00153 mV/V	200 Hz / BE 20 Hz (Auto)	DC 10 V	0,00000 mV/V	
16	PMX_1 CH 3-3	0,00088 mV/V	200 Hz / BE 20 Hz (Auto)	DC 10 V	0,00000 mV/V	
17	PMX_1 CH 3-4	0,00203 V	200 Hz / BE 20 Hz (Auto)	DC 10 V	0,00000 V	
18	PMX_1 CH 4-1	0,00000 Hz	200 Hz / BE 20 Hz (Auto)	Frequenz	0,00000 Hz	
19	PMX_1 CH 4-2	0,00000 Hz	200 Hz / BE 20 Hz (Auto)	Frequenz	0,00000 Hz	
20	PMX_1 CH 4-3	0,00000 Hz	200 Hz / BE 20 Hz (Auto)	Frequenz	0,00000 Hz	
21	PMX_1 CH 4-4	0,00000 Hz	200 Hz / BE 20 Hz (Auto)	Frequenz	0,00000 Hz	
22	Sinus	0,4444 No unit	200 Hz / Filter: Off		0,00000 No un	
23	Fx	Overflow	200 Hz / Filter: Off		0,00000 No un	
24	Fy	Overflow	200 Hz / Filter: Off		0,00000 No un	
25	Fz	Overflow	200 Hz / Filter: Off		0,00000 No un	
26	PMX_1 dig in	0,00000	200 Hz / Filter: Off	Digitaleingang	0,00000	
27	PMX_1 dig out	0,00000	200 Hz / Filter: Off	Digitalausgang	0,00000	
28	ClipX_Driver [172.21.104.76]					
30	NTP_TIME	943916410 (29.11.1999 23:00:10,05800)	200 Hz / NA	<input type="checkbox"/> NTP timestamp of each sa	0,00000 s	
31	Calculated Value 1	0,7645 N	200 Hz / NA	<input type="checkbox"/> Runway distance to go	0,00000 N	
32	Gross	No signal	200 Hz / NA	<input type="checkbox"/> Sensor information not ava	0,00000 mV/V	
33	Net	No signal	200 Hz / NA	<input type="checkbox"/> Sensor information not ava	0,00000 mV/V	
34	Minimum	No signal	200 Hz / NA	<input type="checkbox"/> Sensor information not ava	0,00000 mV/V	
35	Calculated Value 3	0,00000	200 Hz / NA	<input type="checkbox"/> Sensor information not ava	0,00000	
36	Electrical Value	No signal	200 Hz / NA	<input type="checkbox"/> Sensor information not ava	0,00000 mV/V	

- Switch to the menu 'Visualization'
- Add the signals via drag and drop to a plot
- Start the measurement



Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.