TECH NOTE :: PMX external trigger for data storage with catman

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Author: Michael Guckes, Silvan Ettle
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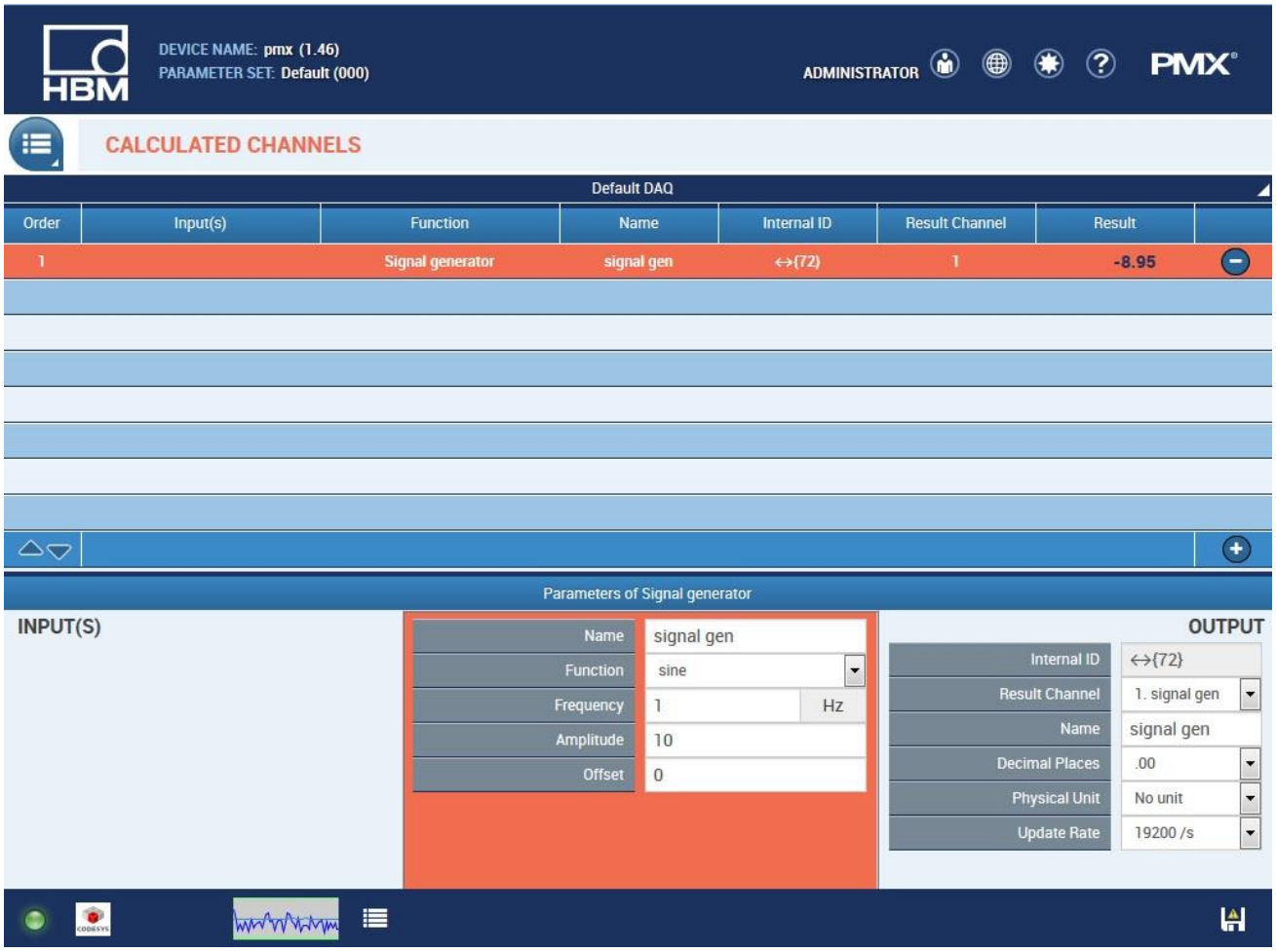
Brief description

This is an instruction to externally store measurement data from catman for a specific event. Furthermore the area around the saving point is defined and a trigger is set. This function is not directly implemented in catman therefore a workaround is achieved by using a short script.
The internal signal generator generates a signal that exemplary stands for a periodic process. Additionally the trigger is operated through the digital input of the PMX. However, there are many different possibilities to implement a trigger: PLC, CODESYS, API, catman, PMX thresholds, etc.
This specific example should only clarify the principle and can be applied to many other scenarios. Basic knowledge about catman, EasyScript and PMX are very helpful.

Process simulation

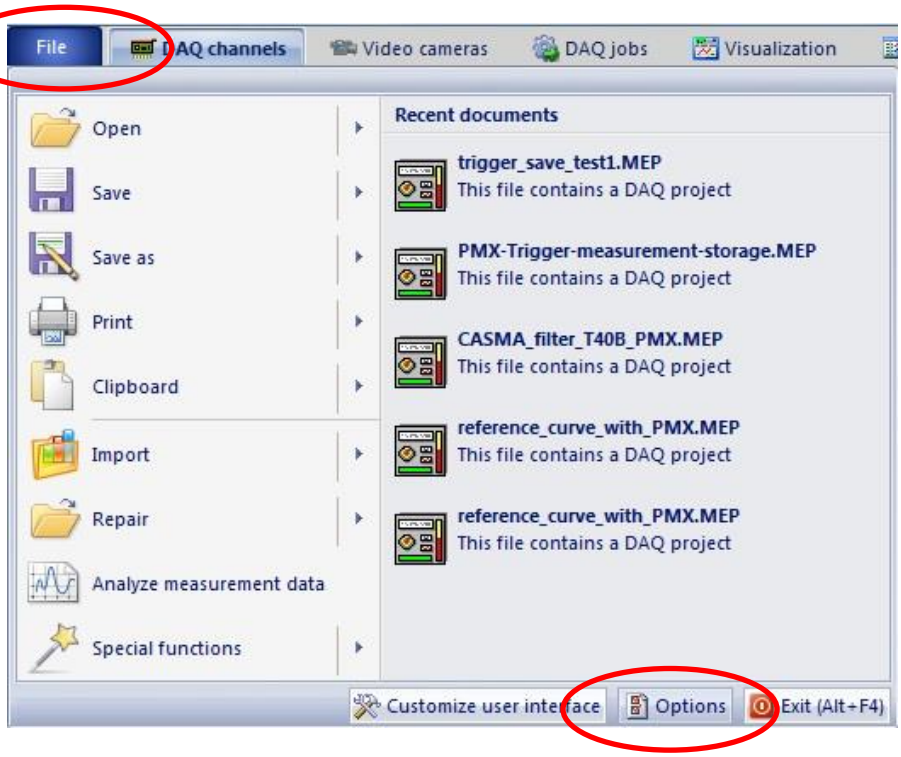
Create a signal generator
As already mentioned a periodic process should be simulated with the help of a signal generator.
Therefore create a new calculated channel as signal generator in the Technology category. Choose a sine function, a quite low frequency e.g. 1 Hz and an amplitude of 10. Do not forget to assign an output to the signal generator.



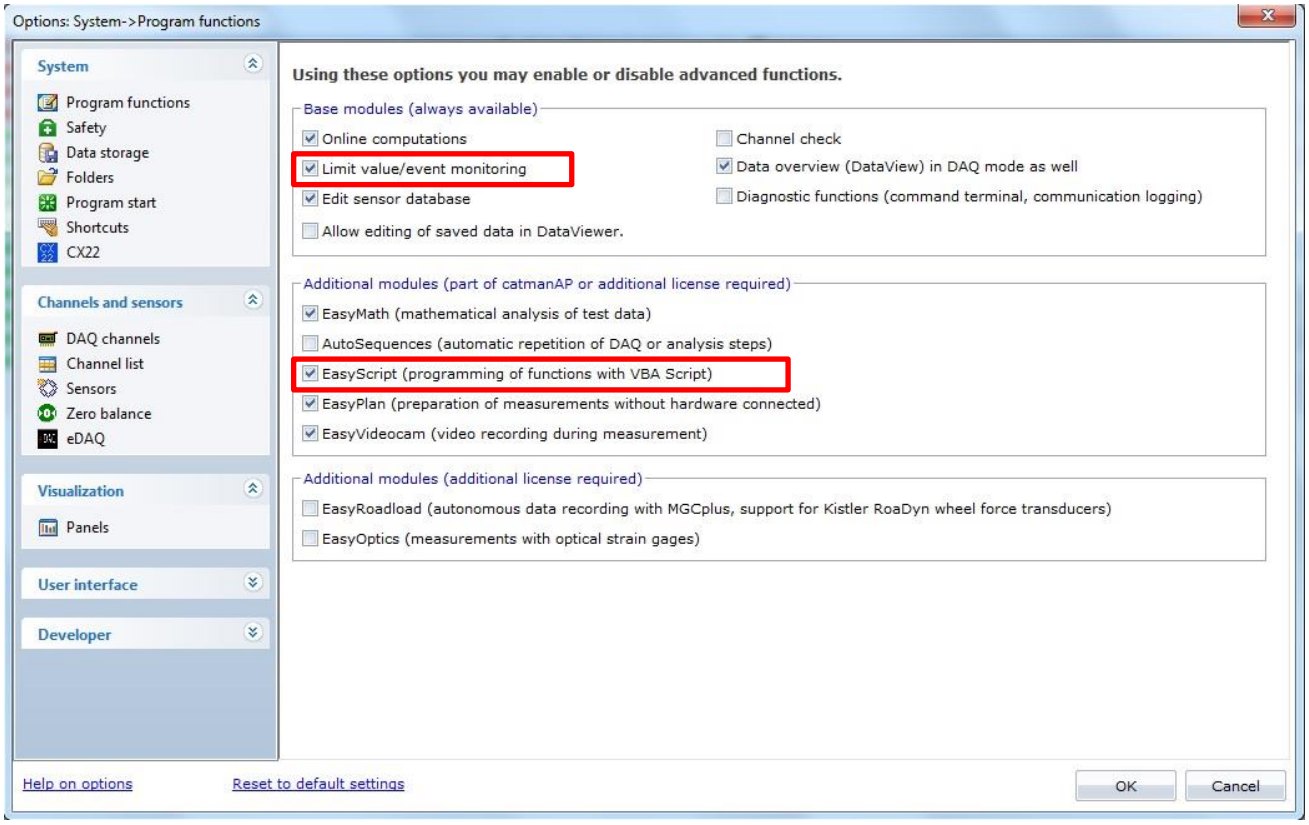
Settings

catman functions

At first you have to permit the access to advanced settings in catman. Therefore go to the “File” tab and click “options”.

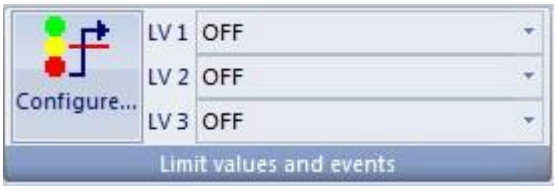


In the options window definitely activate the check box for “Limit value/event monitoring” and “EasyScript”.



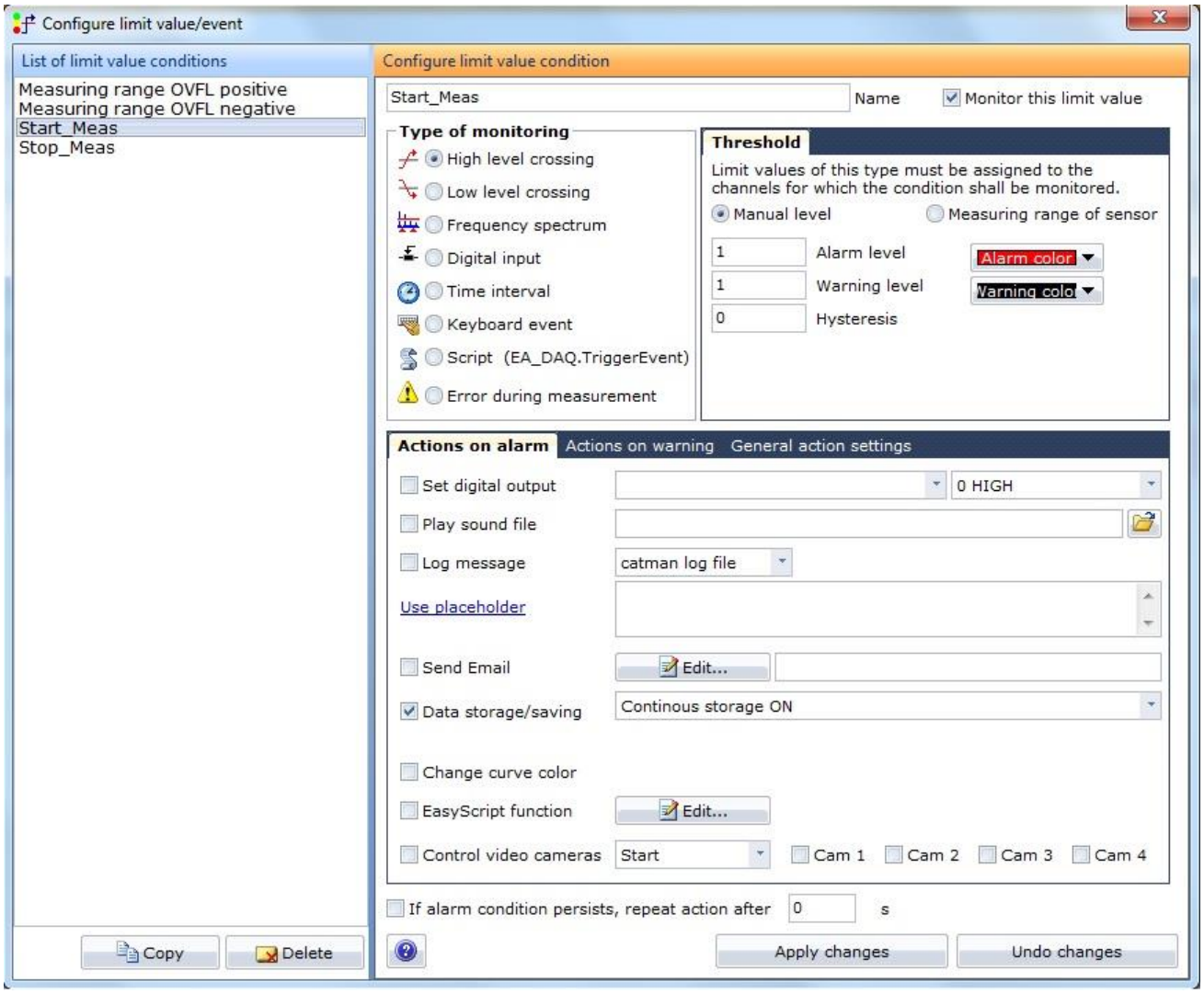
Limit values and events

By permitting the “limit values and events” a new tab appears in the top list. Click “Configure…” to create a new limit value. Up to three different limit values and events can be assigned to one channel later.

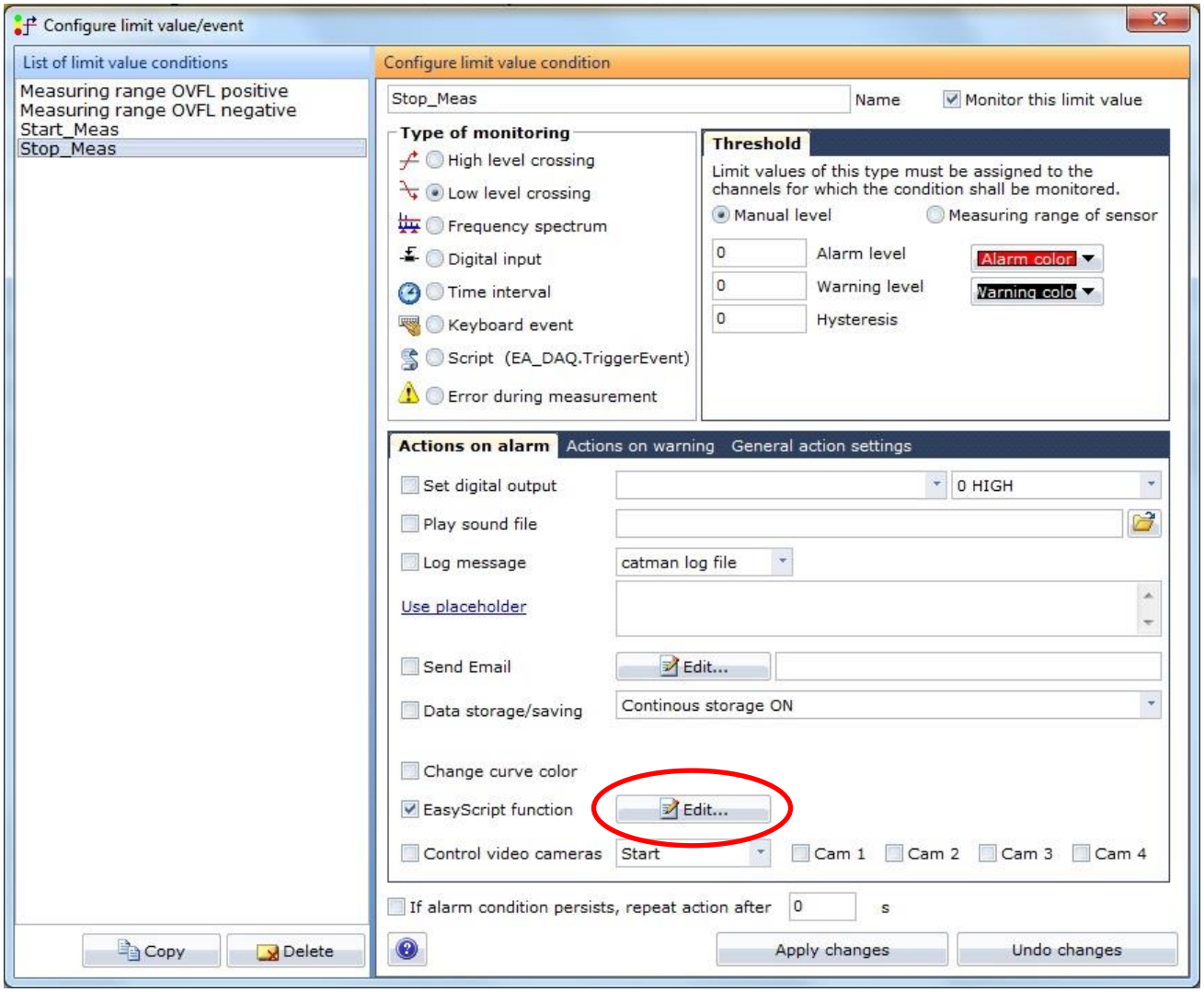


To control the data storage exactly two limit events have to be created:

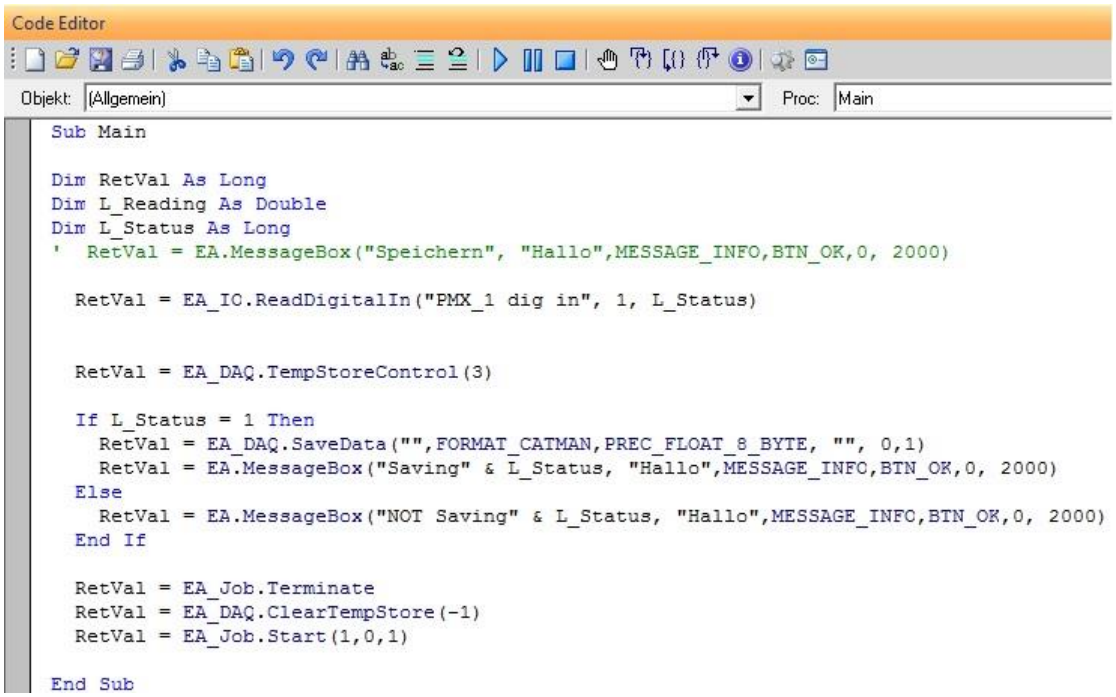
1. *Start data storage:*
   Here you define the level when data storage should start; all values below will be ignored.
   Define a level (here: 1), set the type of monitoring to “High level crossing” and activate the check box for data storage/saving and choose “Continuous storage ON” there.



2. *Stop data storage:*
   In the opposite way the area has to be limited to the top, so till which value the data should be stored. Define a level (here: 0), set the type of monitoring to “Low level crossing” and activate the check box for the “EasyScript function”.



Afterwards press the “Edit…” right next to the EasyScript function checkbox to open the script editor.

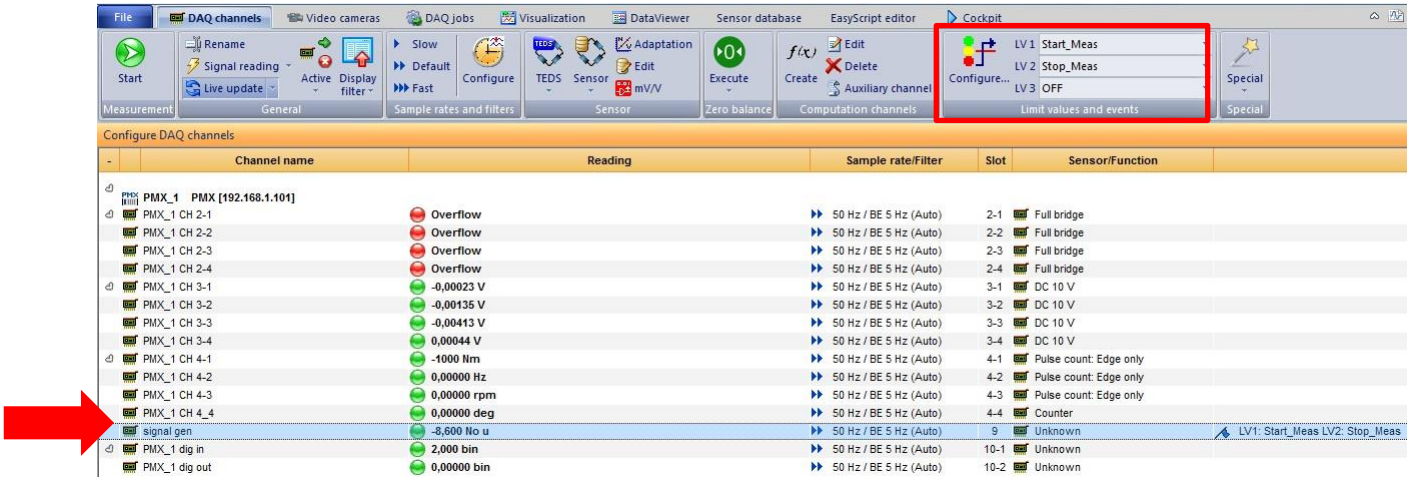



```
Sub Main

Dim RetVal As Long
Dim L_Reading As Double
Dim L_Status As Long
'  RetVal = EA.MessageBox("Speichern", "Hallo",MESSAGE_INFO,BTN_OK,0, 2000)

  RetVal = EA_IO.ReadDigitalIn("PMX_1 dig in", 1, L_Status)


  RetVal = EA_DAQ.TempStoreControl(3)

  If L_Status = 1 Then
    RetVal = EA_DAQ.SaveData("",FORMAT_CATMAN,PREC_FLOAT_8_BYTE, "", 0,1)
    RetVal = EA.MessageBox("Saving" & L_Status, "Hallo",MESSAGE_INFO,BTN_OK,0, 2000)
  Else
    RetVal = EA.MessageBox("NOT Saving" & L_Status, "Hallo",MESSAGE_INFO,BTN_OK,0, 2000)
  End If

  RetVal = EA_Job.Terminate
  RetVal = EA_DAQ.ClearTempStore(-1)
  RetVal = EA_Job.Start(1,0,1)

End Sub
```

Copy the script into the script editor. Here it is important that the Trigger reacts to “PMX_1 dig in”. If you make use of any other trigger than that you have to adjust it in the script. A detailed description of the script is not given here due to the length of this document. For further information please have a look inside the catman manual and help.
As last step press “Apply changes” to create those limit values.

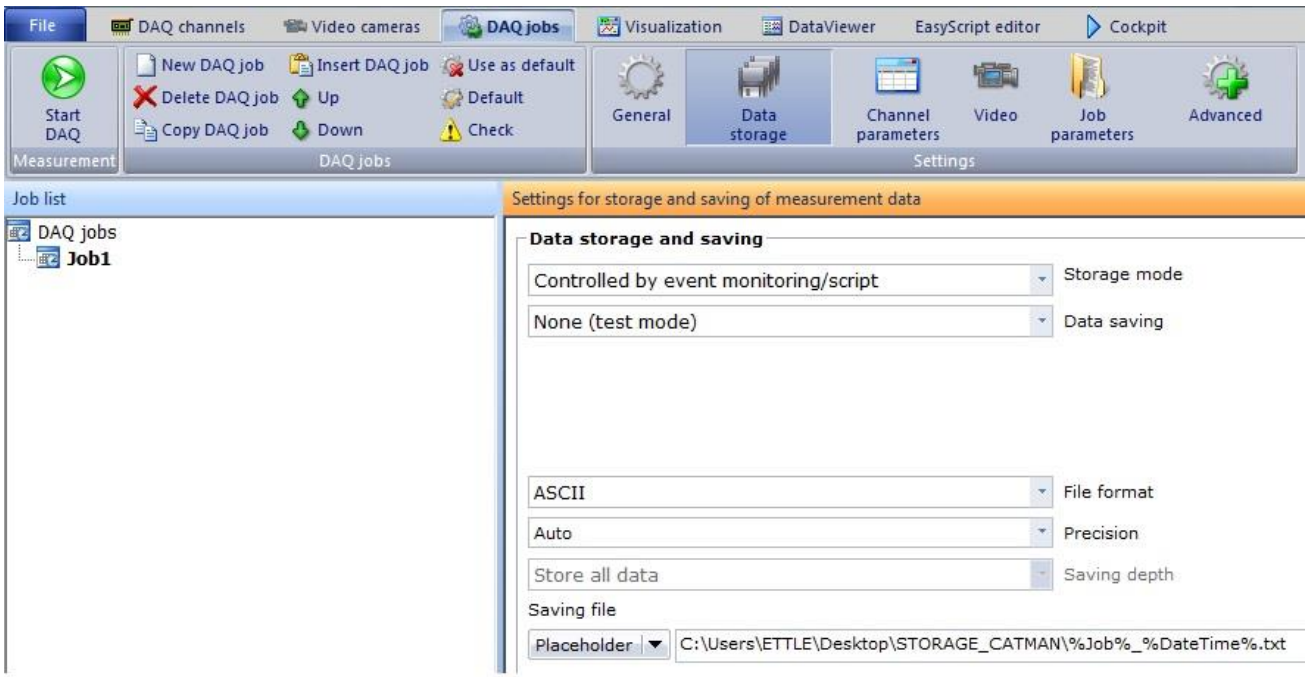
Assign limit values

The limit values and events have to be assigned to the process, in this case to the signal generator of the PMX. For this purpose select the channel and choose the two created limit values for starting and stopping the data storage from the “Limit values and events” tab.



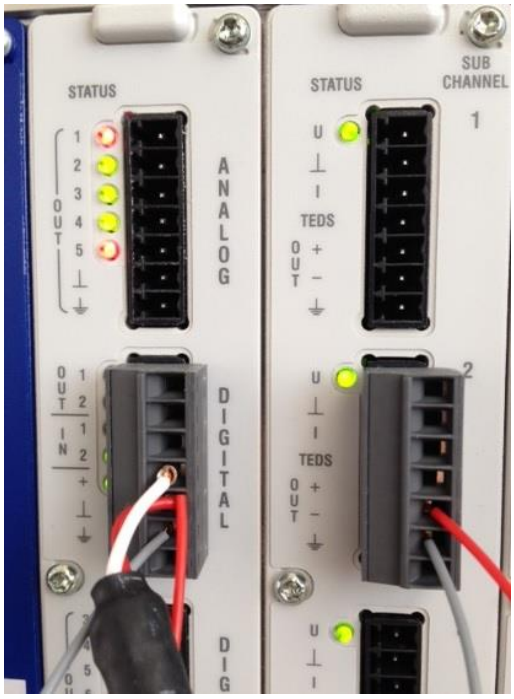
DAQ jobs

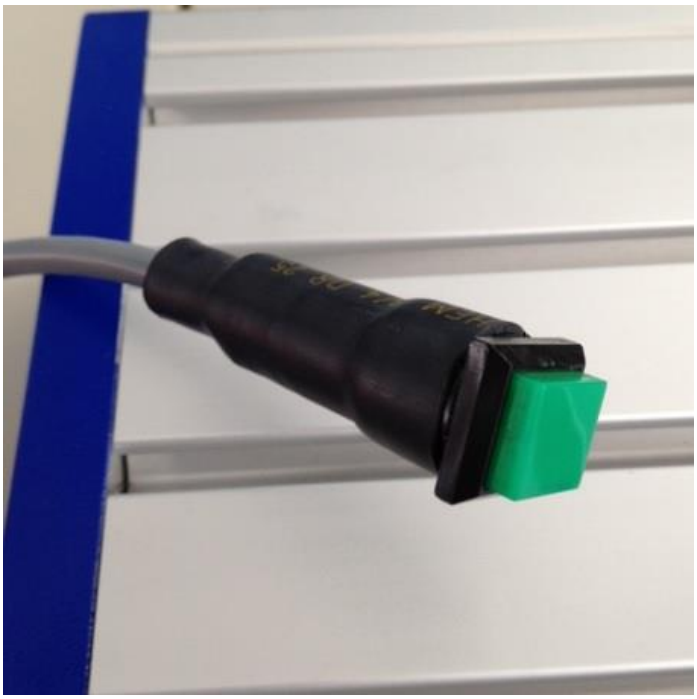
Finally several settings have to be made in the “Data storage” section inside the DAQ jobs tab. Set the storage mode to “Controlled by event monitoring/script”. For the data saving select “None (test mode)”. Choose the data format according to your needs. In a final step define a saving location.
With the tags %Job% and %DateTime% a DAQ job number and date and time is dynamically generated in the file name. A process or part number is unfortunately not possible to assign in catman.



Define Trigger

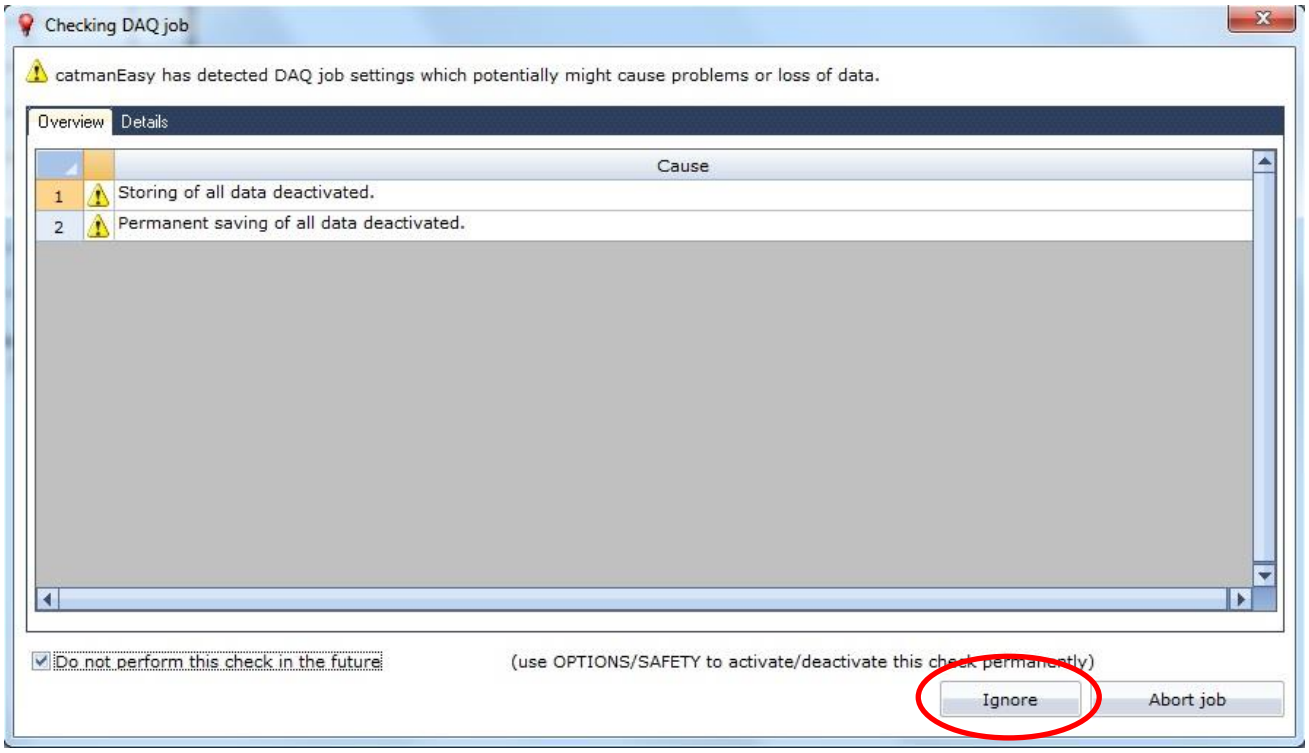
In this particular example a switch is connected to the digital input 1 of the PMX to send a trigger signal. As already described in the introduction, a trigger can be generated in many different ways.





Start measurement

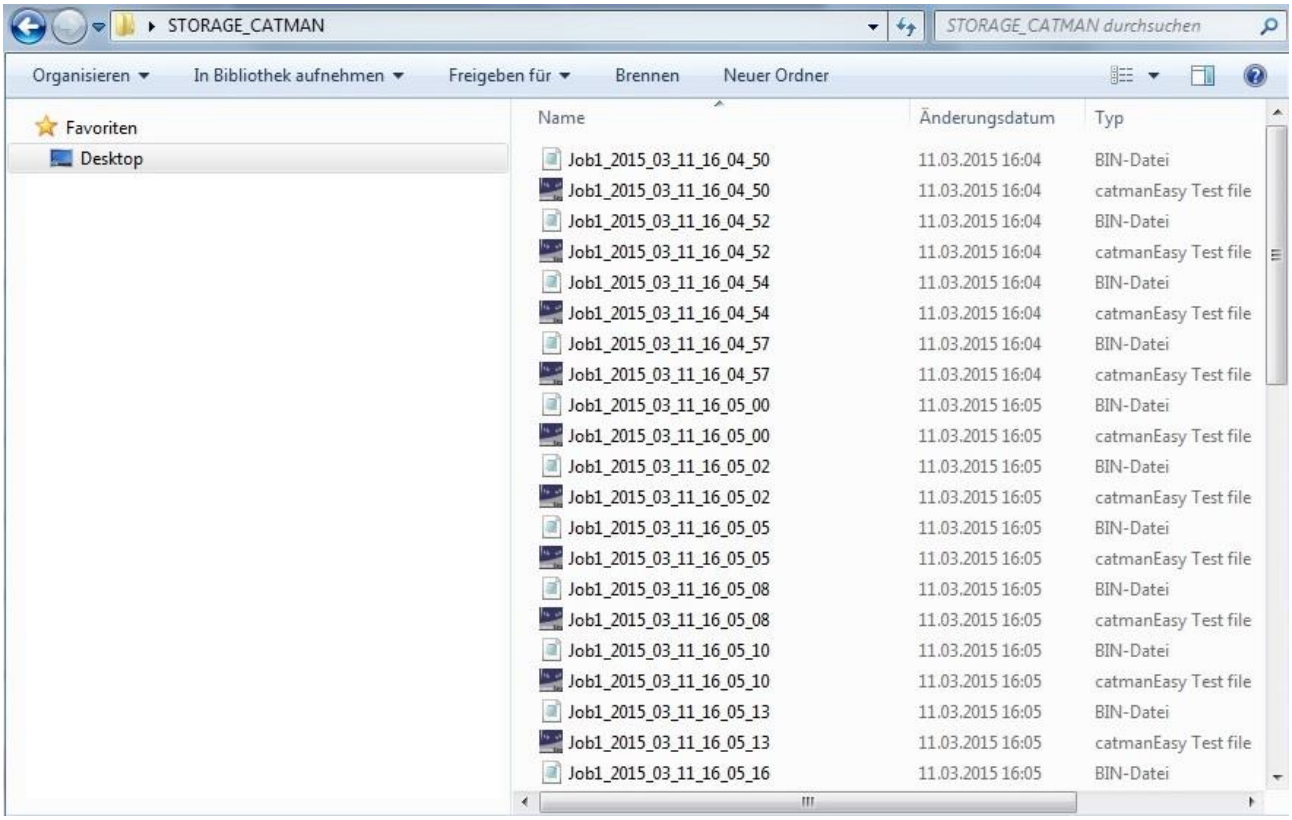
Start the measurement by clicking the green start button.
When starting for the first time the following warning will probably appear:



Optionally set the check box for “Do not perform this check in the future” and click “ignore”. Now the measurement should start without issues.

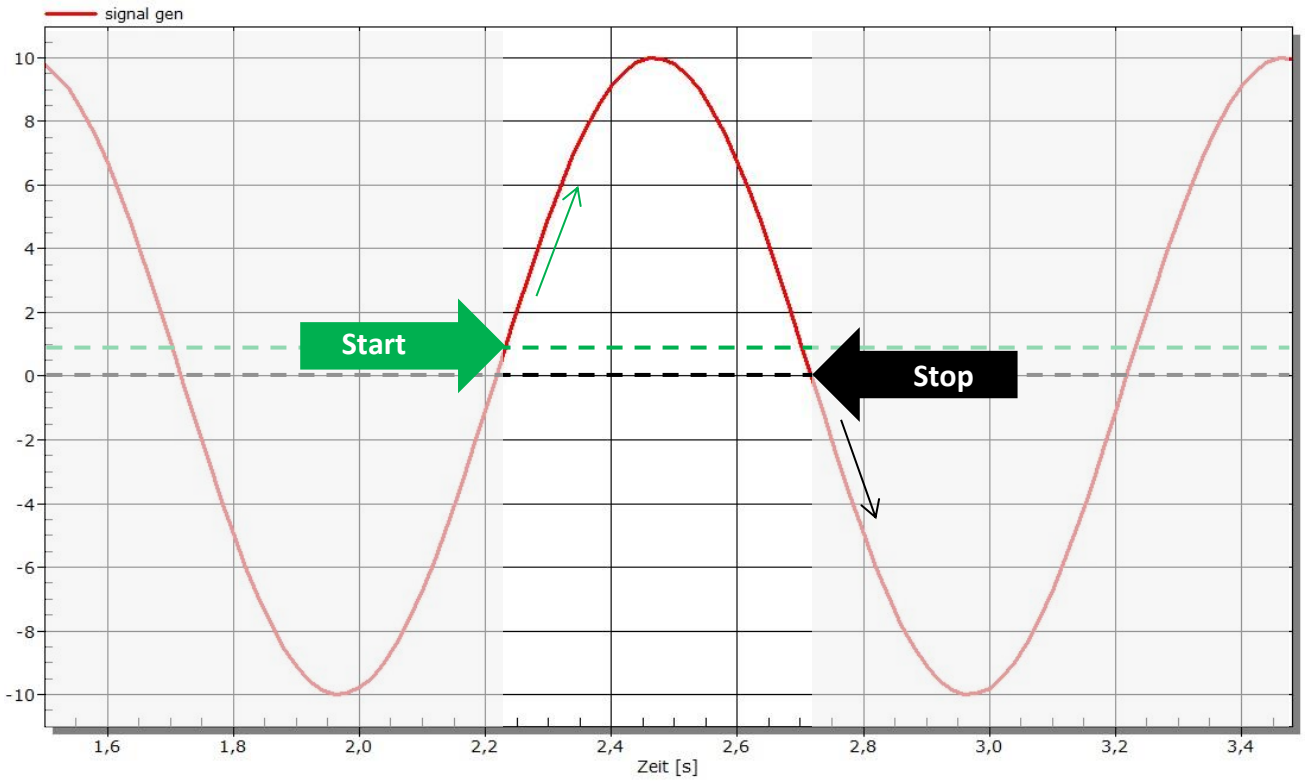
During the measurement you will receive messages for saving or not saving, especially to get a visual feedback to prove the functionality.

Then the data is stored in the chosen folder.



Graphical presentation

The sine curve in red demonstrates the periodic process that should be monitored. Every time a trigger, the digital input of the PMX in this case, is active the limit values are checked. If the level to start the data storage is crossed, catman starts to save data. If the limit value to stop the data storage is then crossed again, the saving is stopped and the file is stored.



Disclaimer

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