TECH NOTE : catman TEDS Editor

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Abstract

Beginning with catman Version 3.5 the Sensor Database Editor provides the possibility to read, write or edit the content of TEDS chips. This Tech Note describes how to use TEDS Editor.

Intro

A Transducer Electronic Data Sheet (TEDS) is a standardized method of storing transducer (sensors or actuators) identification, calibration, correction data and manufacturer-related information. TEDS formats are defined in the IEEE 1451. The TEDS can be implemented as a memory device attached to the transducer which contains information needed by a measurement instrument or control system to interface with a transducer. If the transducer has no integrated TEDS memory you can mount a standard TEDS chip into the connector or the cable of the transducer.

Advantages of TEDS

- Automatic Amplifier/Channel configuration
- Reduced setup time, more testing time
- Reliability of the data, no manual faults
- Calibration protocol in TEDS
- Sensor Tracking and traceability made easy
- Reduced maintenance effort due to constant cycles

Applications

- In the laboratory with several measurement tasks where sensors have to be switched often: There is no need to configure them for every measurement job.
- In production with several shifts if a sensor is damaged and fast replacement is needed. The new sensor with TEDS contains all necessary information and can be configured very fast.
- Big projects with several sensors. All information including the position of the sensor is stored in TEDS, no matter in which channel the transducer is plugged. Identification is easy.

TEDS technologies –according to IEEE 1451.4 standard

- 1-wire protocol (an extra wire or pin is used for TEDS)
- Zero-wire protocol (sensor and TEDS are using the same wires)

The new TEDS Editor in catman offers better usability compared to the previous TEDS Editor

- The TEDS Chip data is generated out of the sensor database
- No separate editor
- Just drag and drop the sensor to the channel
- Backup of TEDS information (calibration data) into the sensor database

Preconditions

- Transducer with TEDS chip
  - In the transducer
  - In the plug
  - In the cable
- Amplifier supporting the TEDS Technology, see datasheet
- Catman Version 3.5 or higher

Workflow

In the following examples you learn how to work with the TEDS Editor:

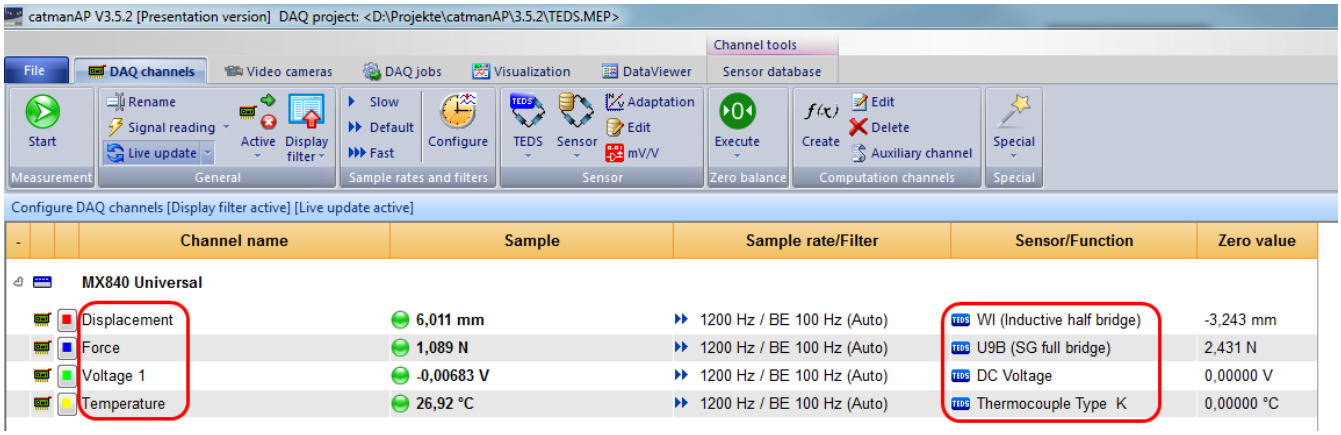
1) Read and Write TEDS data
2) Edit TEDS content
3) Save copy of TEDS content in Sensor database
4) Legacy TEDS Editor

The examples are done with a QuantumX module.

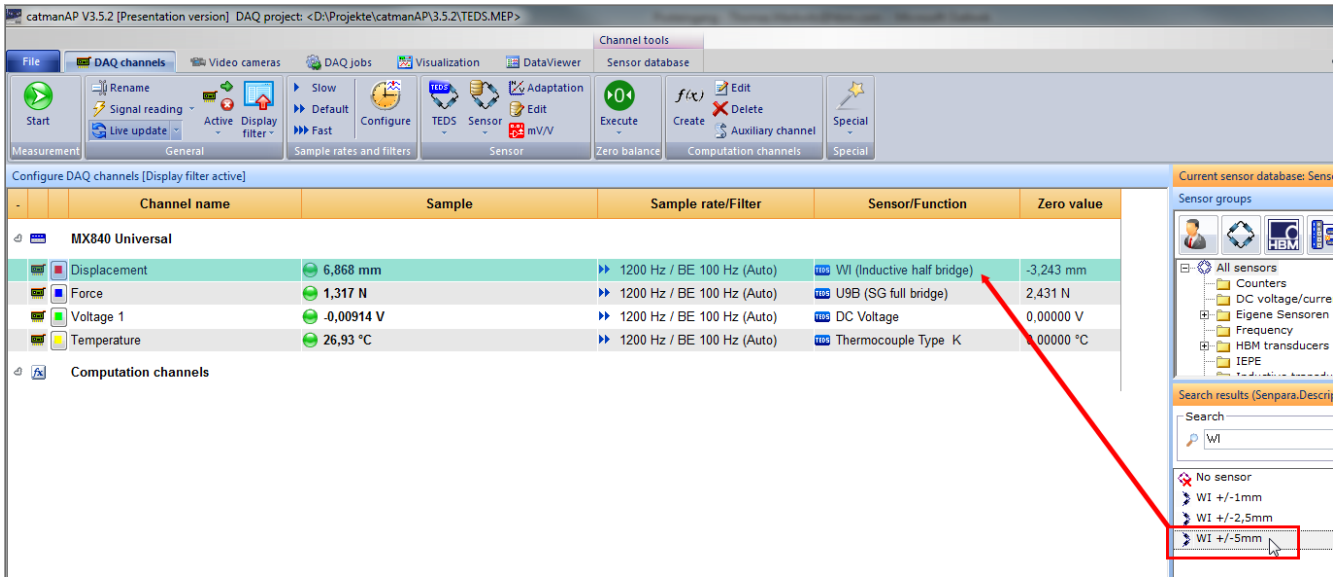
1) Read and write TEDS data

If a transducer with TEDS is connected to a QuantumX module, the TEDS content is automatically read by the module, applied to the channel and displayed in catman in the DAQ channels list (Execute TEDS scan has to be activated):

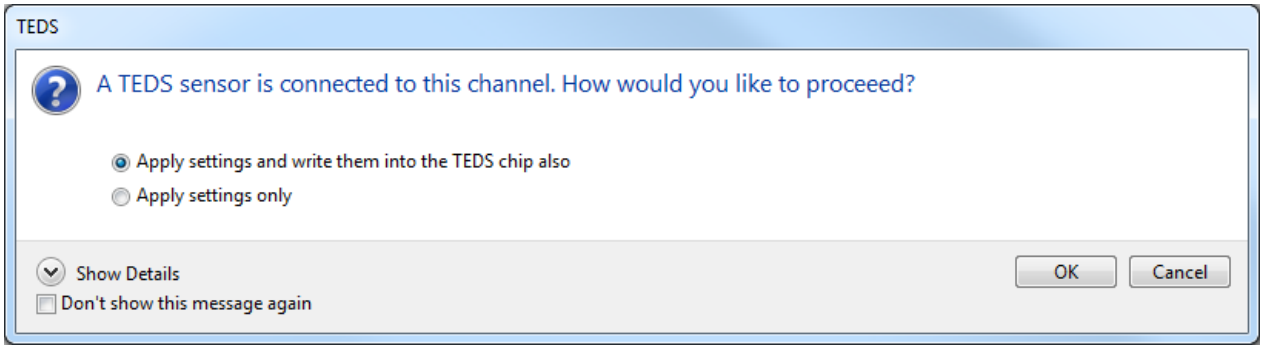
- A TEDS symbol indicates that the sensor data was read out of a TEDS
- Sensor model and sensor type
- Channel name



To overwrite the content of a TEDS or to write an empty TEDS you can use sensors from the Sensor database which is displayed on the right side of the DAQ channels. Type the name of the sensor in the search field and select the appropriate sensor. Drag and drop it on the corresponding channel:

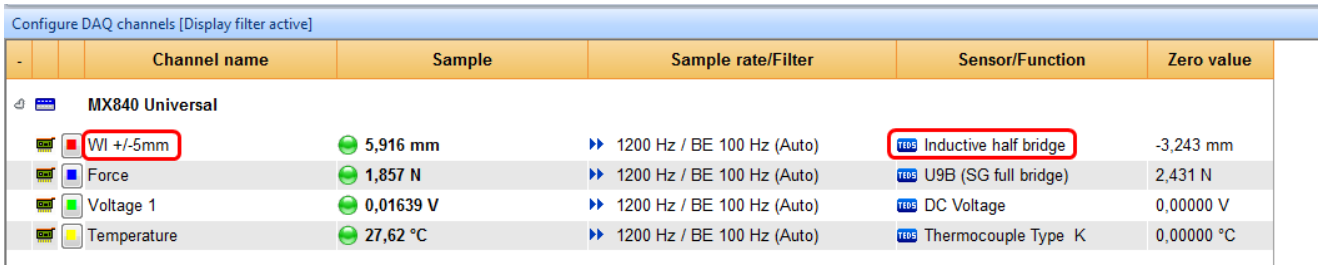


A diolog window pops up:



Select option “Apply settings and write them into the TEDS chip also” and click on OK button to write the content from sensor into the TEDS and to apply the settings on the channel.

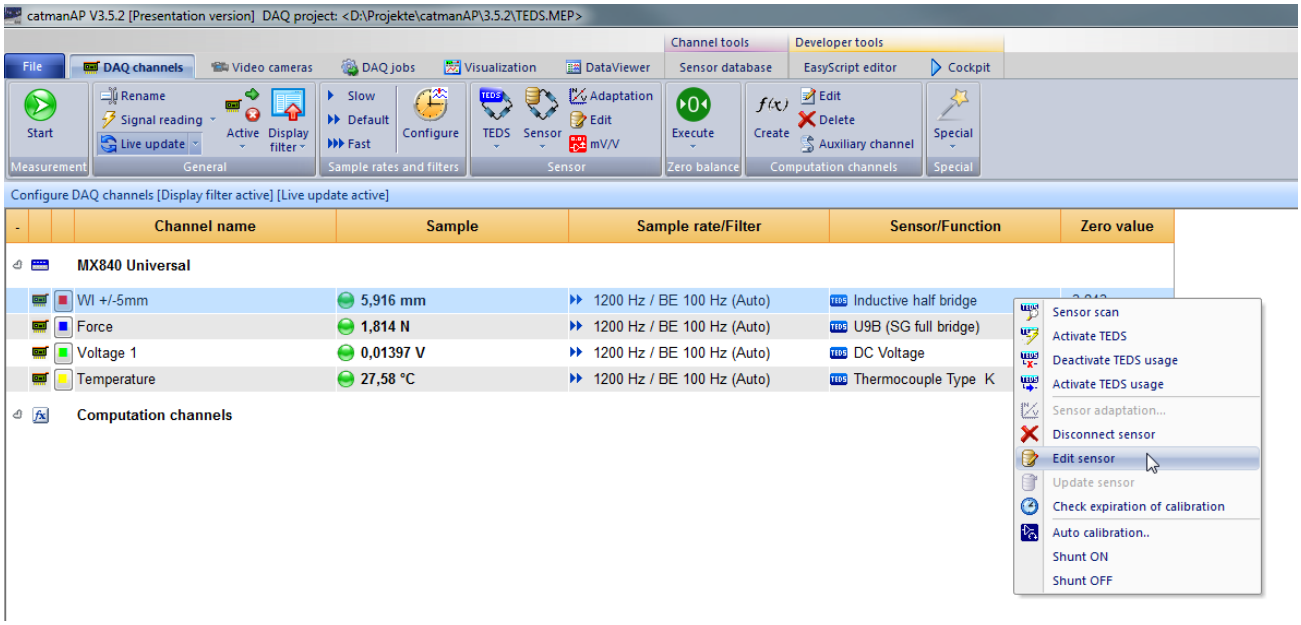
The new settings are also displayed in catman:



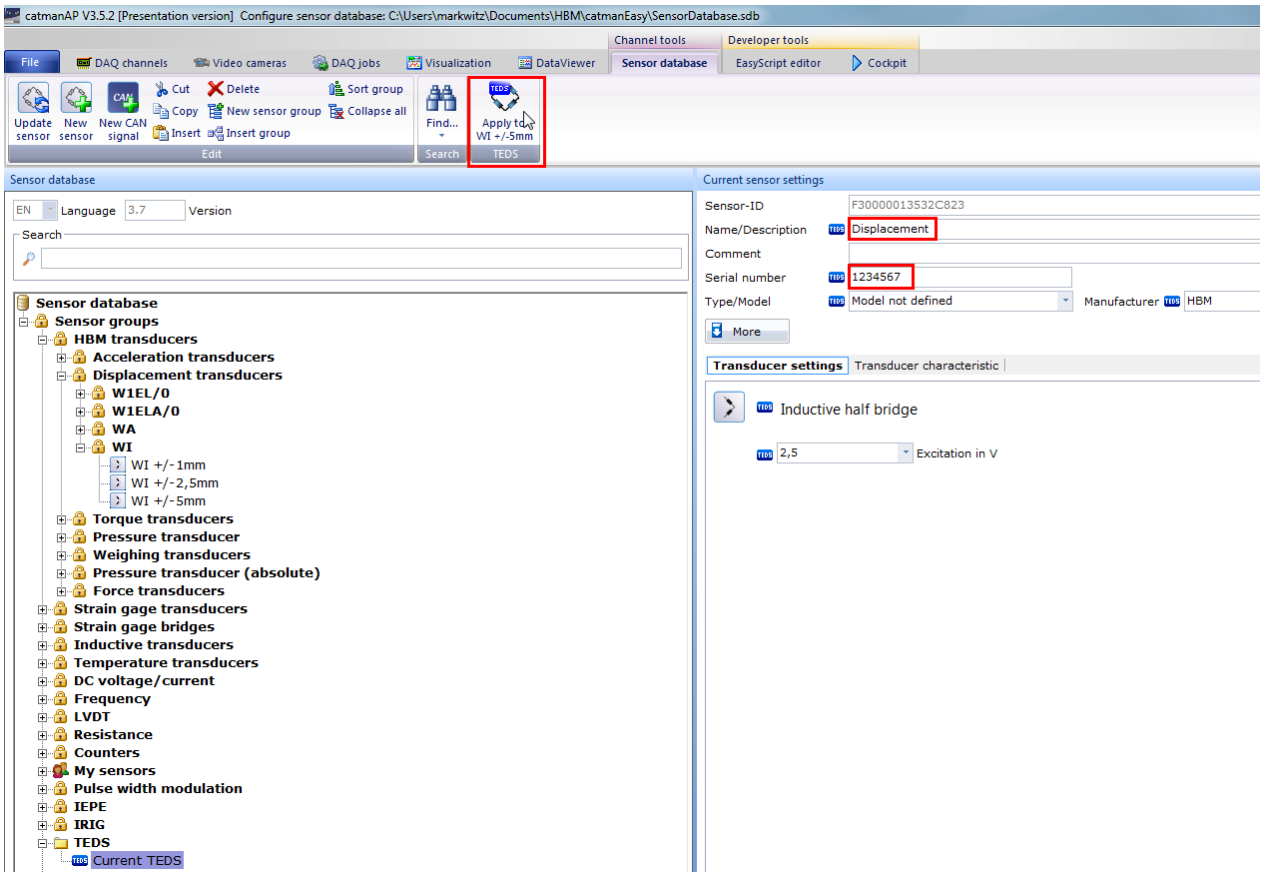
If you select “Apply settings only” in the previous dialogue, then the TEDS will not be written. TEDS functionality will be deactivated and and the settings of the sensor will be applied on the channel.

2) Edit TEDS content

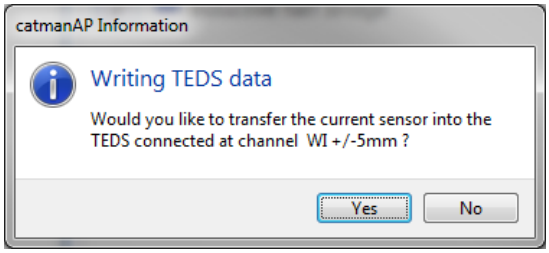
To modify the content of a TEDS make a right mouse click on the desired channel in the “Sensor/Function” column and choose “Edit sensor”.



The TEDS content is now displayed in the Sensor database and you can modify the desired fields. Only fields marked with the TEDS symbol will be transferred into the TEDS. In this example the fields “Serial number” and “Name/Description” are changed.
If you are finished click on the button “Apply to …. ”

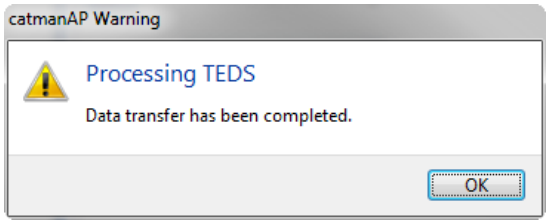


A dialog window pops:



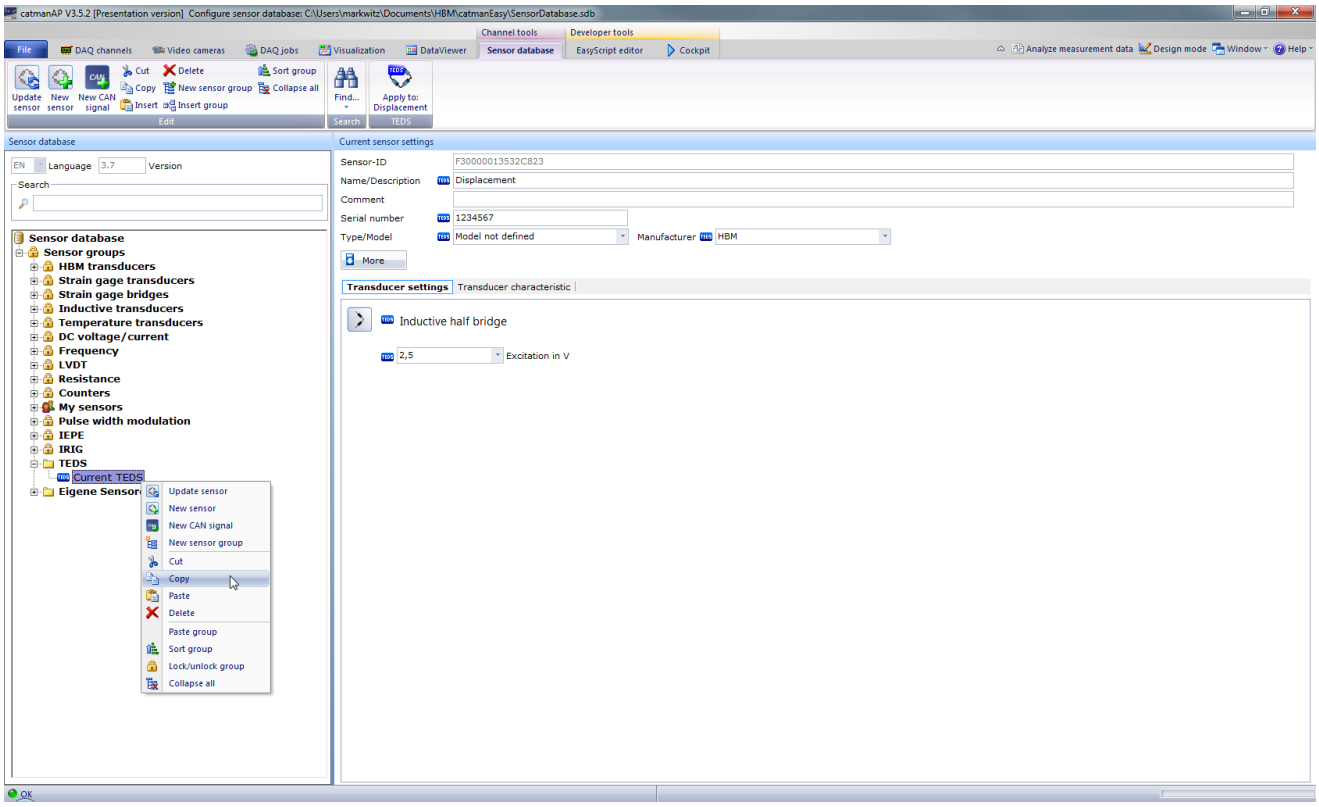
Click on “Yes” button to transfer the modifications to the TEDS.

A message window pops up to indicate successful data transfer:



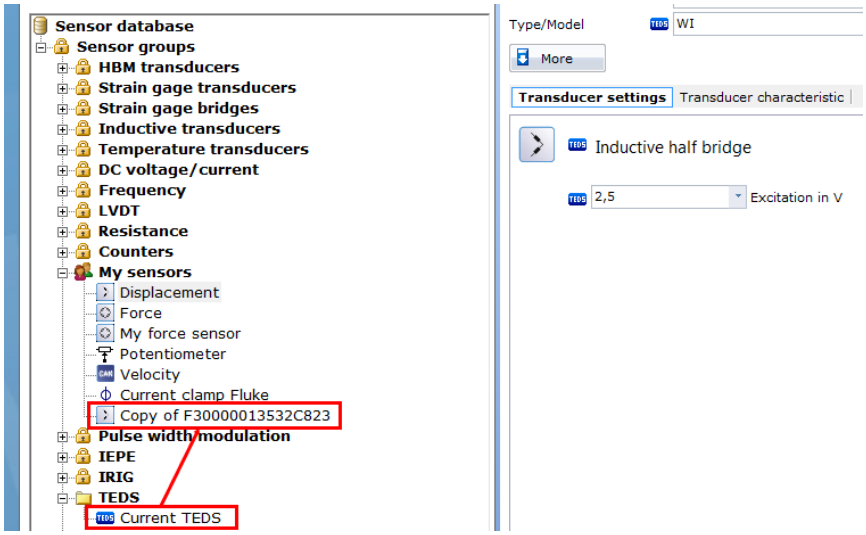
3) Save copy of TEDS content in Sensor database

To save a copy of the TEDS content in the sensor database mark “Current TEDS”, make right mouse click and choose “Copy”:



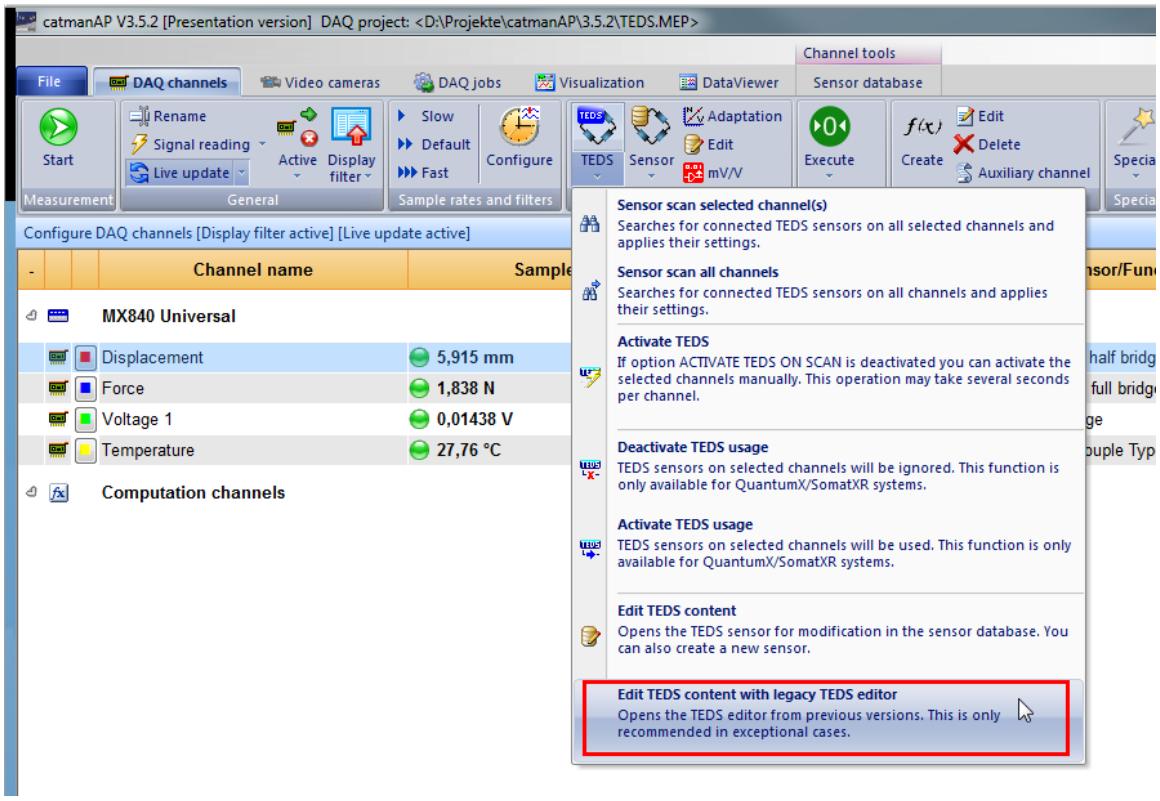
Now make right mouse click on “My sensors” and choose Paste.

The TEDS content is now available as a new sensor under “My sensors”:



4) Legacy TEDS Editor

For compatibility reasons the former TEDS Editor is still available. To use it open the TEDS drop down list in the DAQ channels tab and click on “Edit TEDS content with legacy TEDS Editor”.



Result: