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measurement innovation

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How to read/write a TEDS chip

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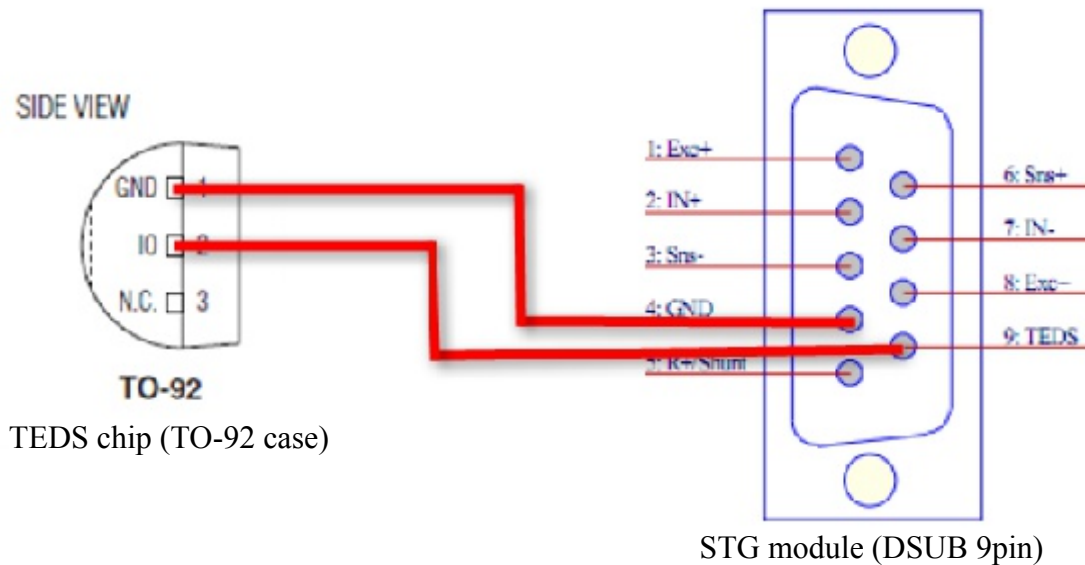
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Connecting the TEDS chip

In this example we use the DS24B33 chip from Maxim.

Here the connection for a SIRIUS STG module (with 9 pin DSUB) is shown.



Enable TEDS interface in DEWESoft

At first we have to activate the TEDS detection in DEWESoft (usually this is done by default). Start DEWESoft and go to Settings -> Hardware Setup (1) and activate the checkbox "MSI adapters / TEDS sensors" (2).

Hardware setup

Analog device: DEWESoft USB

Amplifiers: Dewe-USB onboard

- Onboard amplifier
- MSI adapters / TEDS sensors

Dewesoft USB hardware

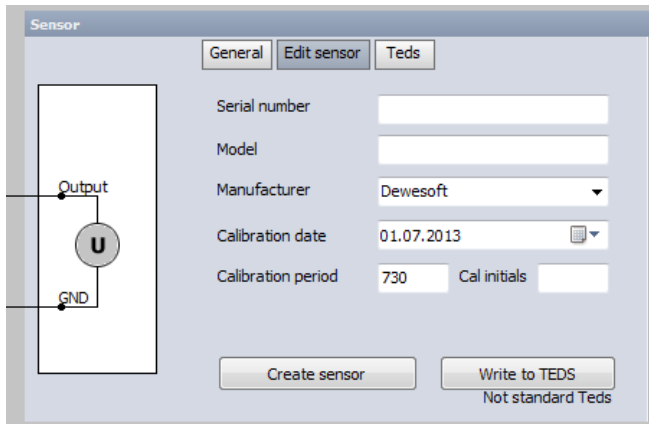
Index	Name	SN	FW Ver.	Sample rate	AI Ch.	AI Res.	DI Ch.	CNT Ch.	Sync	Setup
A	DS-SIRIUS	D0A9B4EC	3.0.11.16	200 kHz	8	24 bits	12	4	Standalone	Set Card...

Registration status: TRIAL (04.03.2012)

Reading TEDS

When the empty TEDS chip is connected, there will be no reaction. But you can check, if the TEDS chip is working by entering the Channel Setup.

The button "Write to TEDS" and an additional tab "Teds" will be visible.

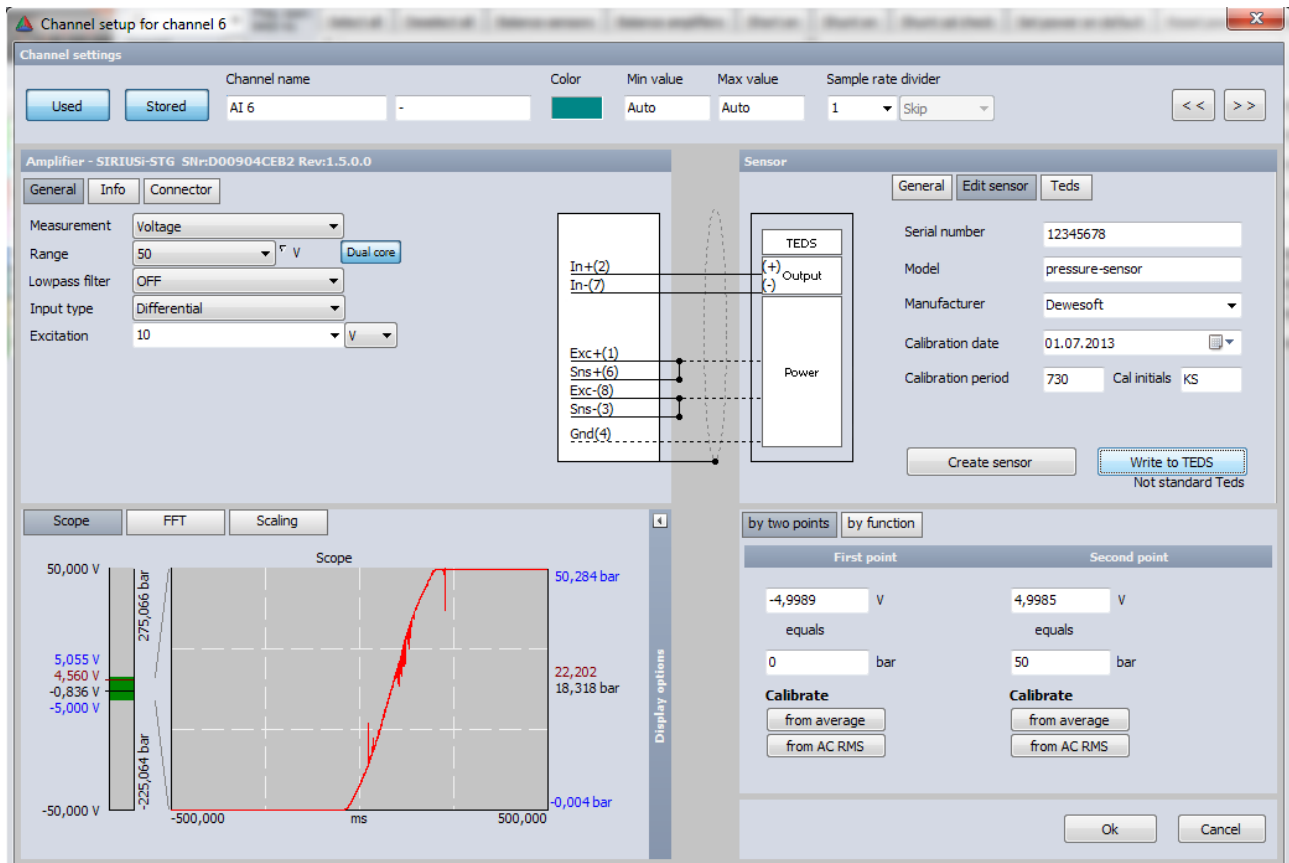


Writing TEDS

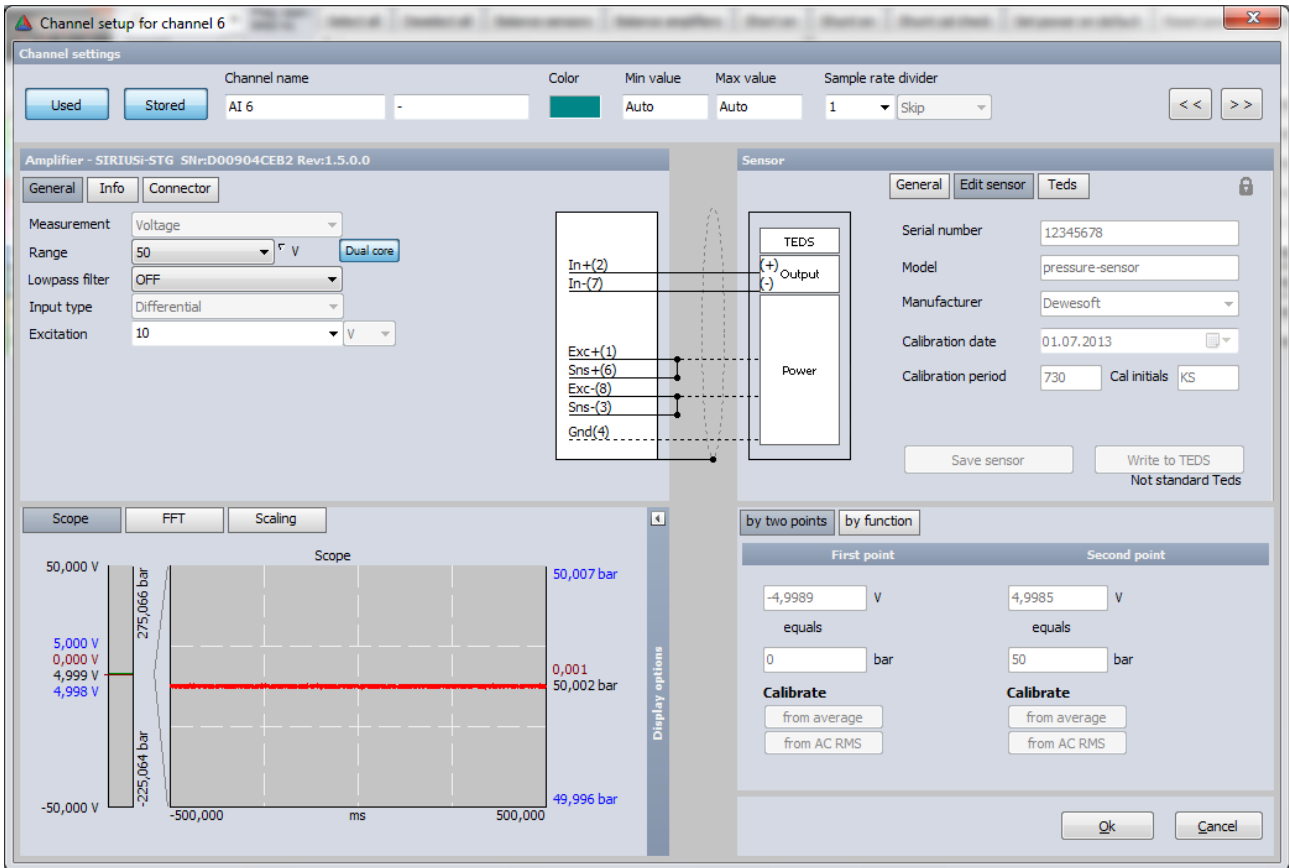
In this example we have a potentiometer connected to the input, so we can vary the input voltage. The scaling is done to simulate a pressure sensor from 0 bar to 50 bar.

Note: DEWESoft does not allow to write to TEDS if it was created by a Manufacturer other than Dewesoft.

Press the "Write to TEDS" button, when you have done all the settings.

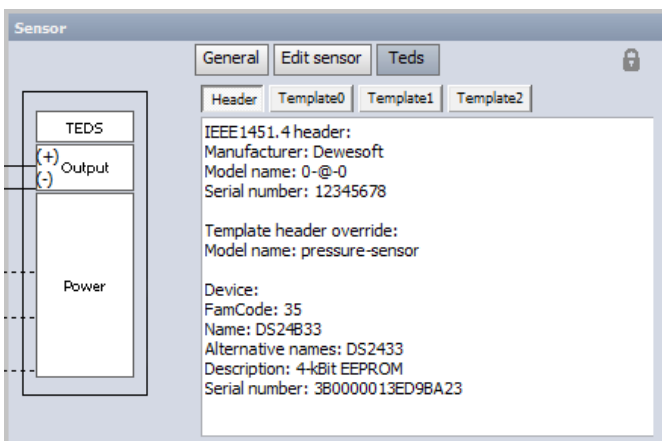


Now all the settings are stored to the chip and therefore locked.

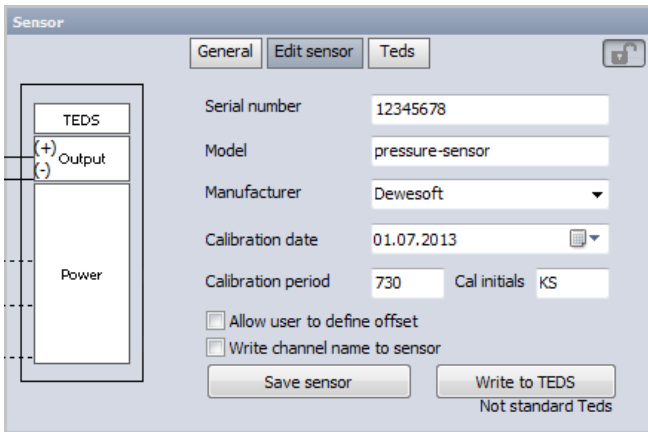


The major advantage about DEWESoft TEDS is, that next to the sensor also all the amplifier settings (like range, type of input, filter, exc voltage...) and some more informations are stored to the chip!

In the TEDS section there appear multiple templates now.



If you want to edit the sensor, just click the lock symbol on the right upper corner to unlock.



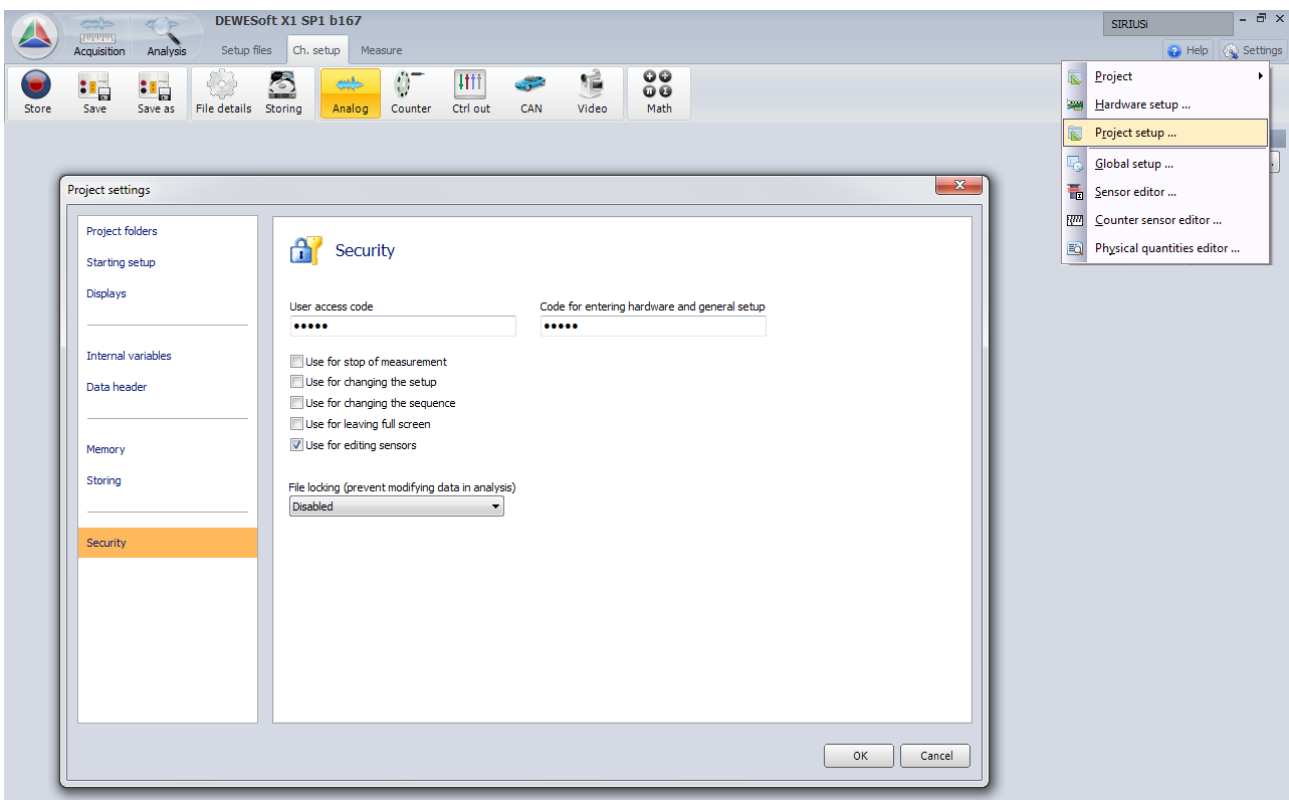
If the option "Allow user to define offset" is checked, the user can e.g. do a "Zero" on the channel. Otherwise this setting will be locked.

The option "Write channel name to sensor" will immediately overwrite the current channel name with the one stored on the chip, when plugging in the sensor.

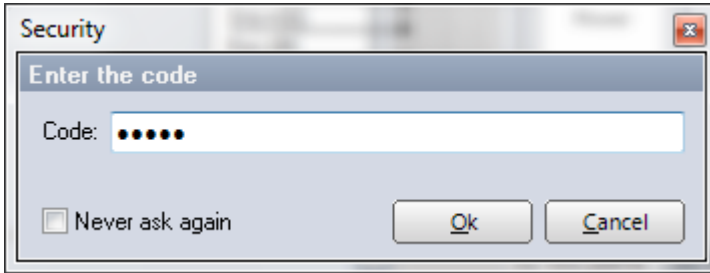
TEDS security code

Not everyone should be allowed to change the settings stored in the sensors (e.g. only the calibration lab which creates sensors), so you can apply to be asked for a password when entering the settings.

Go to Settings -> Project Setup -> Security. Enable the checkbox "Use for editing sensors" and enter a User access code.



Next time unlocking the chip, it will ask for the access code.



Connect to another channel

Now just connect the sensor with TEDS to another STG channel. You will see that all settings are overtaken correctly.

It will also work on similar amplifiers, like STG-M, if the same settings are supported there.

A screenshot of the DEWESoft software interface. At the top, there are several tabs: 'Device preview', 'Dynamic acquisition rate', and 'Channel actions'. Below these are various controls like 'Select all', 'Deselect all', 'Balance sensors', etc. The main part of the screenshot is a table with columns: 'Id', 'Used', 'C', 'Name', 'Ampl. name', 'Measur...', 'Input type', 'Range', 'Dual-core', 'Exc.', 'Physical qua.', 'Units', 'Min', 'Values', 'Max', 'Zero', and 'Setup'. The table contains 8 rows of channel data.

Id	Used	C	Name	Ampl. name	Measur...	Input type	Range	Dual-core	Exc.	Physical qua.	Units	Min	Values	Max	Zero	Setup
1	Unused		AI 1	SIRIUSI-ACC+	Voltage		10 V	On			V	-10	0,000	10	Zero	Setup
2	Unused		AI 2	SIRIUSI-ACC+	Voltage		10 V	On			V	-10	0,000	10	Zero	Setup
3	Unused		AI 3	SIRIUSI-MUL	Bridge	Quarter bridge 3...	10 mV/V	On	10 V		mV/V	-10	-0,804	10	Zero	Setup
4	Unused		AI 4	SIRIUSI-MUL	Voltage	Single ended	10 V	On	0 V		V	-10	-0,060	10	Zero	Setup
5	Used		AI 5	SIRIUSI-STG	Voltage	Differential	50 V	On	10 V	Pressure	bar	-225,064	50,00	275,066		Setup
6	Used		AI 6	SIRIUSI-STG	Voltage	Differential	50 V	On	10 V	Pressure	bar	-225,064	25,00	275,066	Zero	Setup
7	Unused		AI 7	SIRIUSI-HV	Voltage		1000 V	On			V	-1000	0,00	1000	Zero	Setup
8	Unused		AI 8	SIRIUSI-HV	Voltage		1000 V	On			V	-1000	-0,01	1000	Zero	Setup

TEDS and Sensor editor

When you write a TEDS chip or when a TEDS chip is detected in DEWESoft for the first time, it will also be written into the Sensor database. The TEDS has always highest priority, if you plug it in, the Sensor database will be automatically updated with the settings from the chip.

Version History

Documentation Version

Revision number: 2.1

Doc Version	Date	Notes
1.0	04.05.12	Created new
1.1	20.06.12	Text boxes added in connection diagram
2.0	01.07.13	Completely re-created, because of simplification in software
2.1	24.09.14	Changed note to: "DEWESoft does not allow to write to TEDS if it was created by a Manufacturer other than Dewesoft."

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