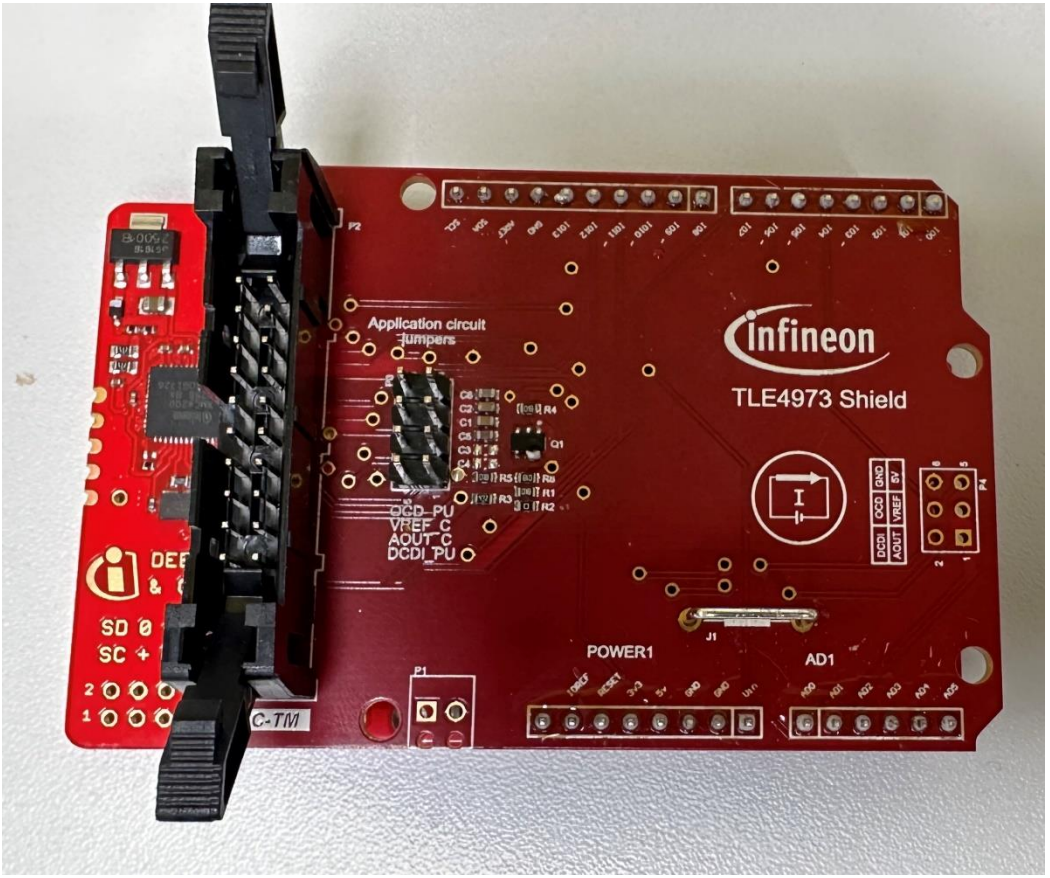
TLE4973 Bootkit Evaluation Kit
Getting Started

2023.06.12

restricted

Content

– The TLE4973 Bootkit is a kit that enables the evaluation of the TLE4973 current sensors.



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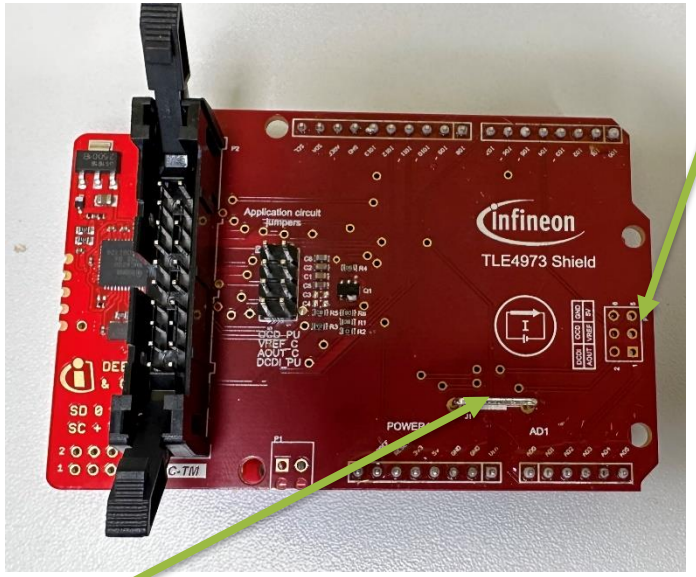
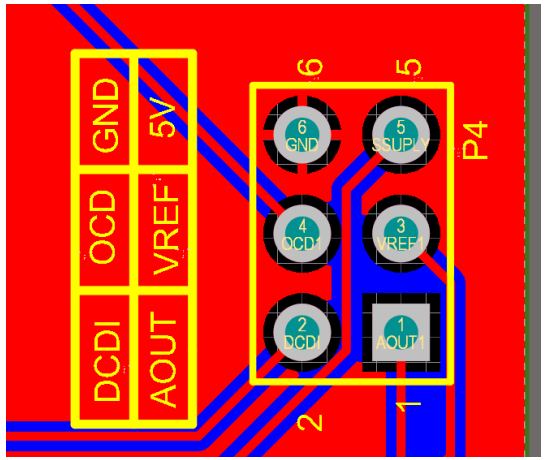
Content – TLE4973 Bootkit

– TLE4973 Bootkit pin connection:



› Connector for single sensor



› GND Connector for external measurements

Pin	Signal	Pin	Signal
6	GND	5	SSUPLY
4	OCD1	3	VREF1
2	DCDI	1	AOUT1

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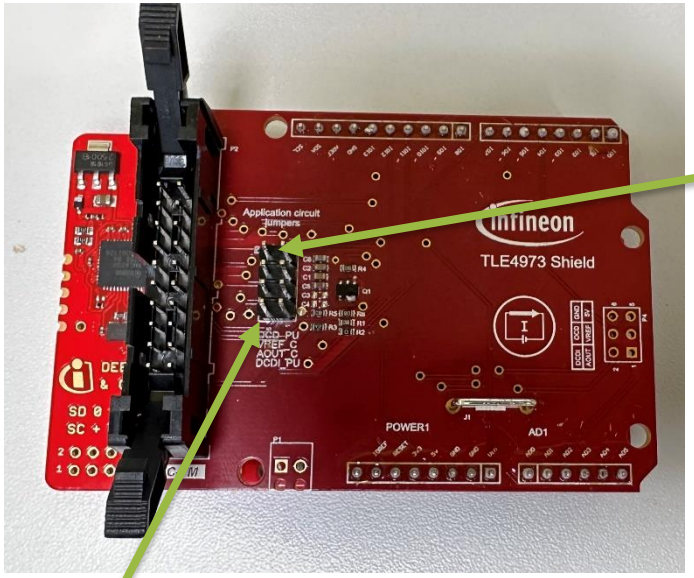
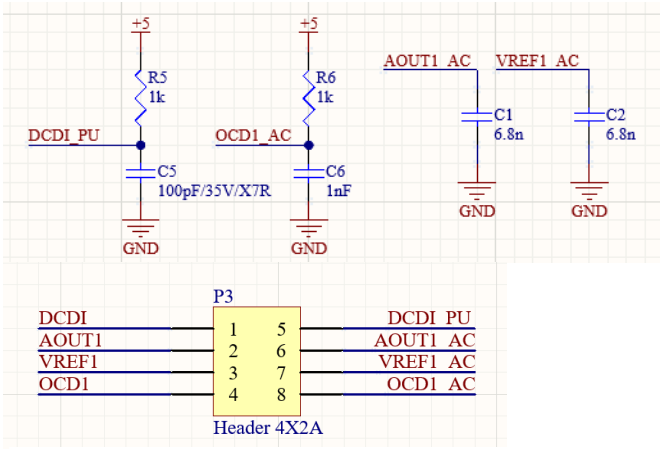
Content – TLE4973 Bootkit

- TLE4973 Bootkit pin connection:
  - Application circuit connection:
    - If the evalkit is used with standalone sensor you can connect jumpers to include the application circuit for the sensor



› Jumper 1

› Application circuit jumper connection



Jumper	Function
1	DCDI App Circuit
2	AOUT1 App Circuit
3	VREF1 App Circuit
4	OCD1 App Circuit

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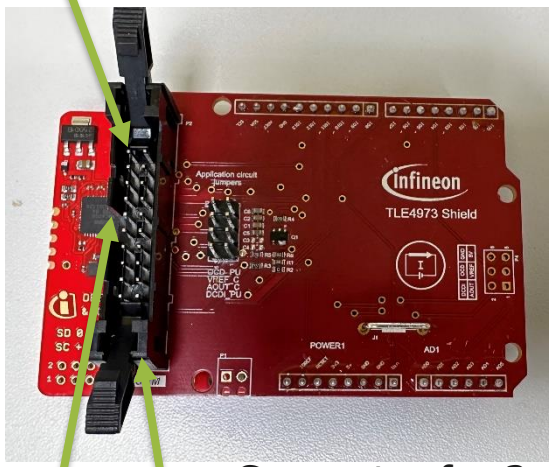
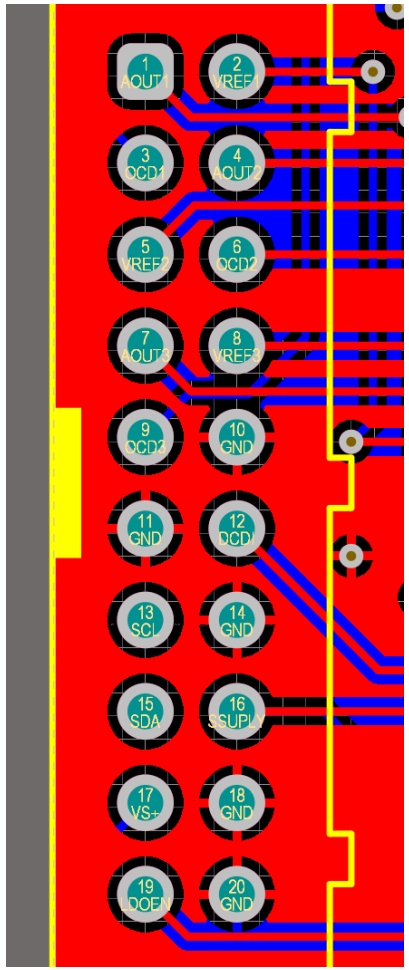
Content – TLE4973 Bootkit

– TLE4973 Bootkit pin connection:





Pin	Signal	Pin	Signal
1	AOUT1	2	VREF1
3	OCD1	4	AOUT2
5	VREF2	6	OCD2
7	AOUT3	8	VREF3
9	OCD3	10	GND
11	GND	12	DCDI
13	SCL	14	GND
15	SDA	16	SSPULY
17	VS+	18	GND
19	LDOEN	20	GND

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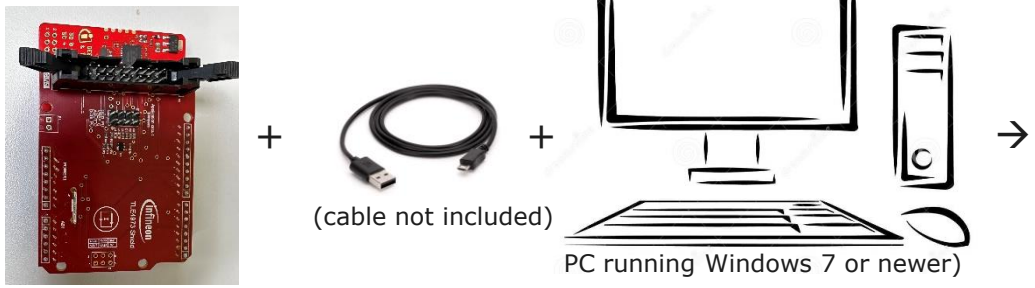
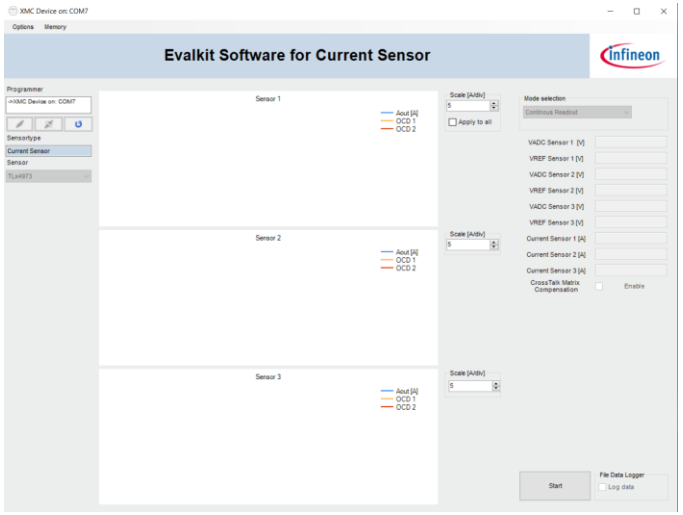
Usecase: TLE4973 Bootkit:

- It can be used as independent evaluation kit by connecting sensor board + MCU board together. The provided GUI is plug & play
- It can be used as Arduino shield by plugging the sensor board together with the shield board.





GUI provided by Infineon

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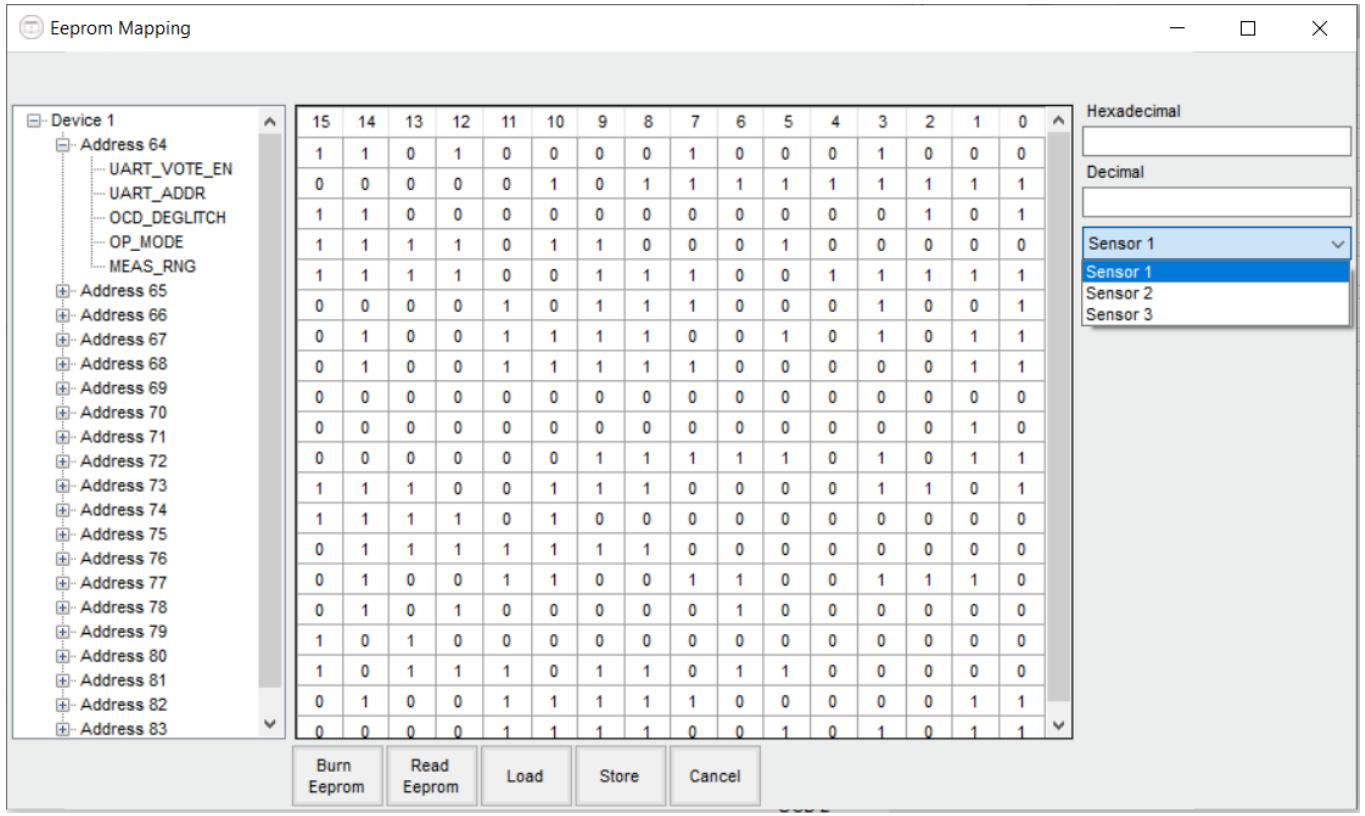
Usecase: Software -> EEPROM Map View



- View EEPROM Map content
- Change EEPROM Map content
- Store/Load EEPROM Map content
- Select each sensor out of the 3 phase boards (dropbox menu contains only sensors detected as connected)
- Each memory address contains brief description of fields

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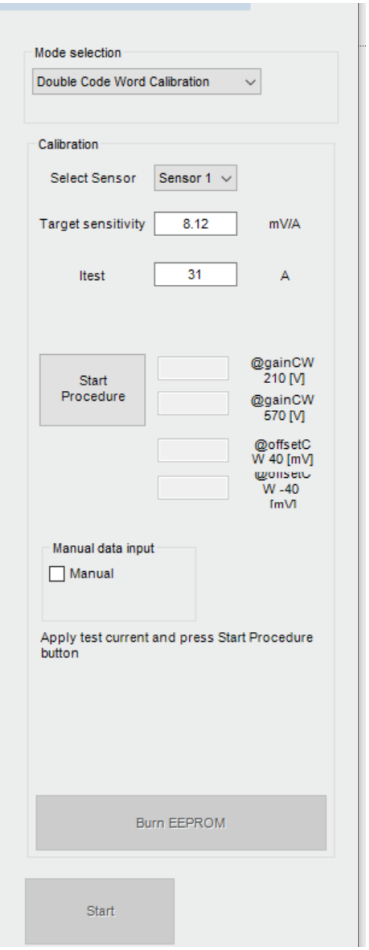
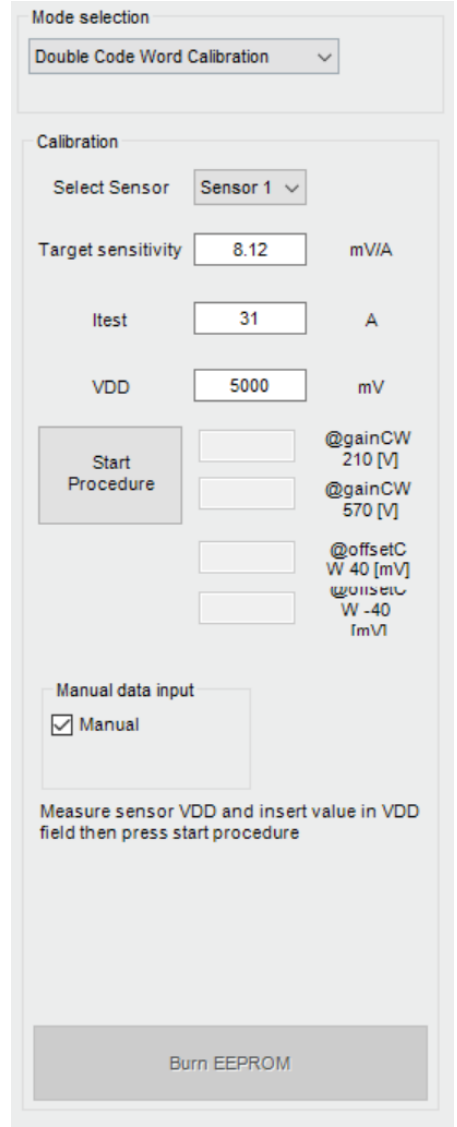
Usecase: Software -> Double code word calibration



- Double code word calibration procedure
  - Automatic (Manual checkbox is unchecked; left picture)
    - Select sensor that needs calibration
    - Fill target sensitivity textbox with desired sensitivity value
    - Fill Itest textbox with the value of the current used for calibration
    - Follow pop-up instructions
    - At the end of the procedure, new gbase and obase values will be provided in the lower textbox
    - Press Burn EEPROM button to burn new values in sensor eeprom
    - Select a different sensor and restart calibration
  - Manual (Manual checkbox is checked; right picture)
    - Select sensor that needs calibration
    - Fill target sensitivity textbox with desired sensitivity value
    - Fill Itest textbox with the value of the current used for calibration
    - Fill VDD textbox with sensor VDD value (measured with multimeter)
    - Press Start Procedure button
    - Popup will appear and ask for multimeter readout of sensor Aout
    - 6 measurements are needed during calibration
    - At the end of the procedure, new gbase and obase values will be provided in the lower textbox.
    - Press Burn EEPROM button to burn new values in sensor eeprom



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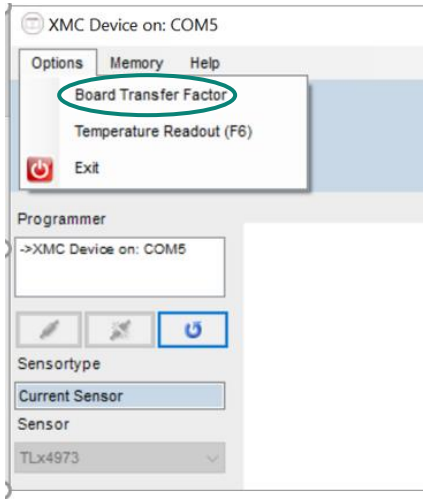
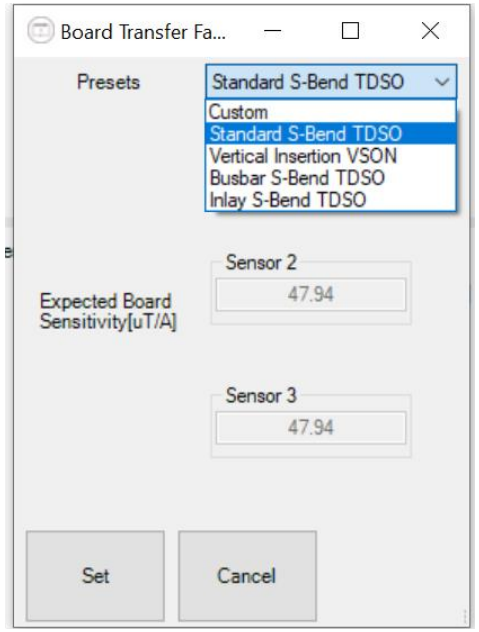
Usecase: Software -> Board transfer factor





- Options -> Board transfer factor menu item
- In order for the evalkit to calculate the current in amps, the board transfer factor has to be known
- 5 Items available
  - Custom
    - For user custom setup. Value has to be known/calculated
  - 4 Presets for Infineon provided boards

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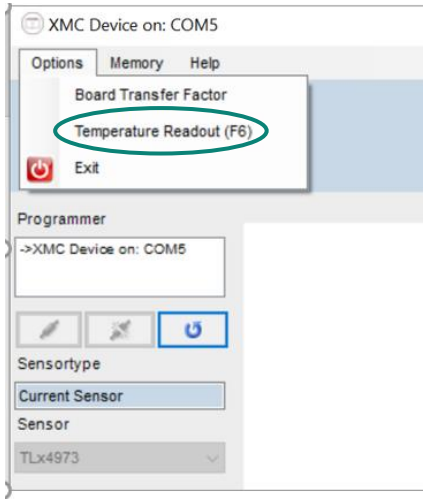
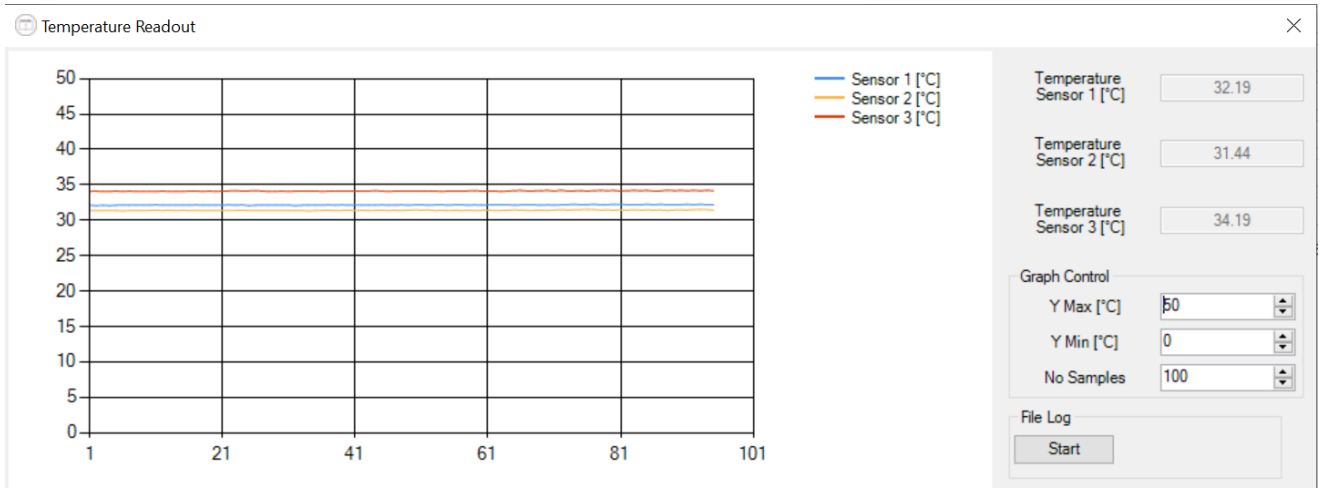
Usecase: Software -> Temperature / registers Readout





- Options -> Temperature /registers readout
- Internal temperature / registers value

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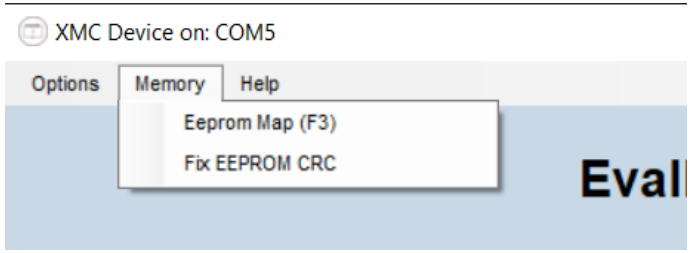
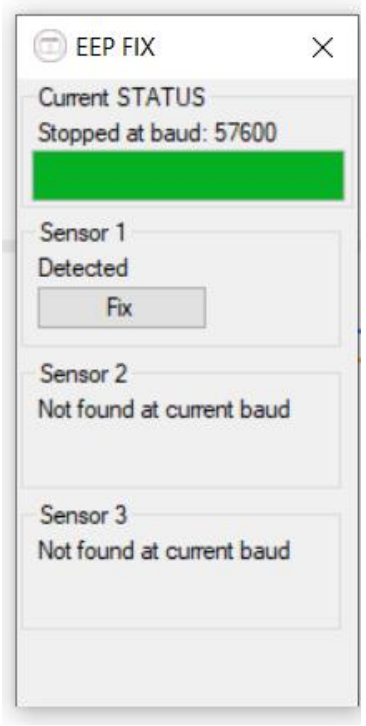
Usecase: Software -> EEPROM fix





- In case that the EEPROM is programmed with a wrong EEPROM CRC, the sensor doesn't load the EEPROM content at startup. That leads to communication errors on the DCDI line. In this state, it is impossible to communicate with the sensor and restore the correct EEPROM content
- The Evalkit software provides a tool to identify sensors with communication issues and fix the wrong EEPROM CRC, allowing the sensor to communicate again through DCDI
- Memory -> Fix EEPROM CRC
- Click on "Fix" under detected sensors

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