TLE5571 U-shape evaluation board user guide

XENSIV™ current sensors

About this document

Scope and purpose

This user guide describes the hardware and software functionalities of XENSIV™ TLE5571 current sensor U-shape evaluation board (EVAL_TLE5571-AUS_5V).

Intended audience

This document is intended for design engineers, technicians, and electronic system developers evaluating the XENSIV™ TLE5571 current sensors.

About this product group

Target applications

- Server power supply units (PSU)
- DC-DC converters
- On-board charging
- General purpose motor drive
- Photovoltaic

Product family

Infineon's XENSIV™ current sensors deliver precise AC and DC current measurements with internal current rail packages and support measurements of currents up to several kiloamperes with external current rail packages.

Evaluation board

This board is to be used during the design-in process for evaluating and measuring characteristic curves, and for checking datasheet specifications.

Note: PCB and auxiliary circuits are NOT optimized for final customer design.

Safety precautions

Note: Please note the following warnings regarding the hazards associated with development systems.

Safety precautions

	**Warning**: *The evaluation or reference board contains DC bus capacitors which take time to discharge after removal of the main supply. Before working on the drive system, wait five minutes for capacitors to discharge to safe voltage levels. Failure to do so may result in personal injury or death. Darkened display LEDs are not an indication that capacitors have discharged to safe voltage levels.*
	**Warning:** *Remove or disconnect power from the drive before you disconnect or reconnect wires or perform maintenance work. Wait five minutes after removing power to discharge the bus capacitors. Do not attempt to service the drive until the bus capacitors have been discharged to zero. Failure to do so may result in personal injury or death.*
	**Caution:** *The heat sink and device surfaces of the evaluation or reference board may become hot during testing. Hence, necessary precautions are required while handling the board. Failure to comply may cause injury.*
	**Caution:** *Only personnel familiar with the drive, power electronics and associated machinery should plan, install, commission and subsequently service the system. Failure to comply may result in personal injury and/or equipment damage.*
	**Caution:** *The evaluation or reference board contains parts and assemblies sensitive to electrostatic discharge (ESD). Electrostatic control precautions are required when installing, testing, servicing or repairing the assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with electrostatic control procedures, refer to the applicable ESD protection handbooks and guidelines.*
	**Caution:** *A drive that is incorrectly applied or installed can lead to component damage or reduction in product lifetime. Wiring or application errors such as undersizing the motor, supplying an incorrect or inadequate AC supply, or excessive ambient temperatures may result in system malfunction.*
	**Caution:** *The evaluation or reference board is shipped with packing materials that need to be removed prior to installation. Failure to remove all packing materials that are unnecessary for system installation may result in overheating or abnormal operating conditions.*

Table of contents

About this document **1**
About this product group **1**
Safety precautions **2**
Table of contents **3**
1 The board at a glance **4**
1.1 Scope of supply 4
1.2 Sensor characteristics 5
1.3 Connection guide 6
1.4 Connector details 7
2 Evaluation software **8**
2.1 Requirements 8
2.2 Software download 8
2.3 Software installation 8
2.4 Uninstalling the software 11
3 Using the evaluation software **12**
3.1 Startup screen and connecting to the programmer 12
3.2 Initialization wizard 12
3.3 Main window and scenarios 13
3.3.1 Current readout 14
3.3.2 Sensor data logging 15
3.3.3 Software calibration 16
3.3.4 Wire on chip 17
3.3.5 External EEPROM 18
4 Troubleshooting **20**
5 Hardware design **21**
5.1 Schematics 22
5.2 PCB layout 24
5.3 Bill of materials 24
6 Related resources **26**
References **27**
Glossary **28**
Revision history **29**
Disclaimer **30**

1 The board at a glance

XENSIV™ TLE5571 is a high-bandwidth, high-precision, automotive, coreless, tunnel magnetoresistance (TMR) current sensor with analog output and fast overcurrent detection (OCD). The wire on chip (WOC) pins provide device testing capabilities within the application using low test current.

The following sections describe the different parts of the XENSIV™ TLE5571 U-shape evaluation board, the required hardware connections, and the software installation procedure. They also explain how to use the graphical user interface (GUI) to perform the first evaluation of the sensor in a particular application. The XENSIV™ TLE5571 evaluation board can be operated at low voltages, as described in the Safety precautions section. The current sensor provides galvanic isolation. Consider the safety precautions for high-voltage applications as described in the disclaimer document provided with the evaluation board.

1.1 Scope of supply

The evaluation kit contains the XENSIV™ TLE5571 evaluation board (EVAL_TLE5571-AUS_5V).

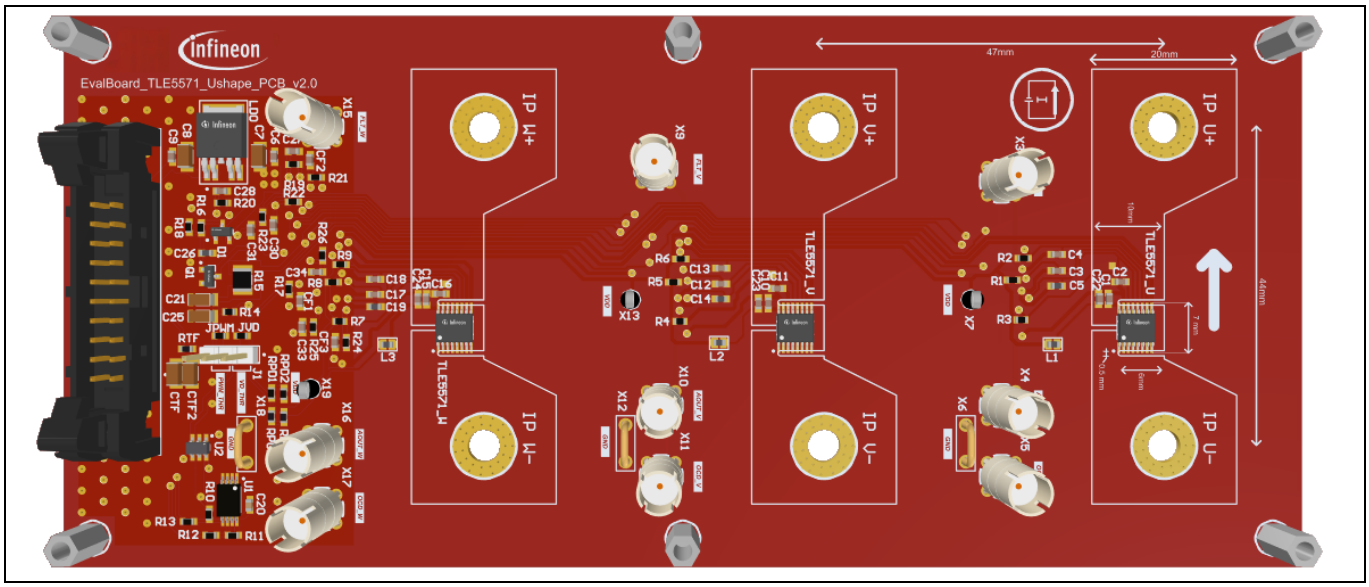

Figure 1 XENSIV™ TLE5571 current sensor U-shape evaluation board

To use the (EVAL_TLE5571-AUS_5V) evaluation board, some additional components that do not come with the evaluation kit are also required:

- Current sensor programmer shield (CUR SENSOR PROG GEN2)
- XMC1100 Boot Kit (KIT_XMC11_BOOT_001) from Infineon XMC™ MCU family
- Ribbon cable

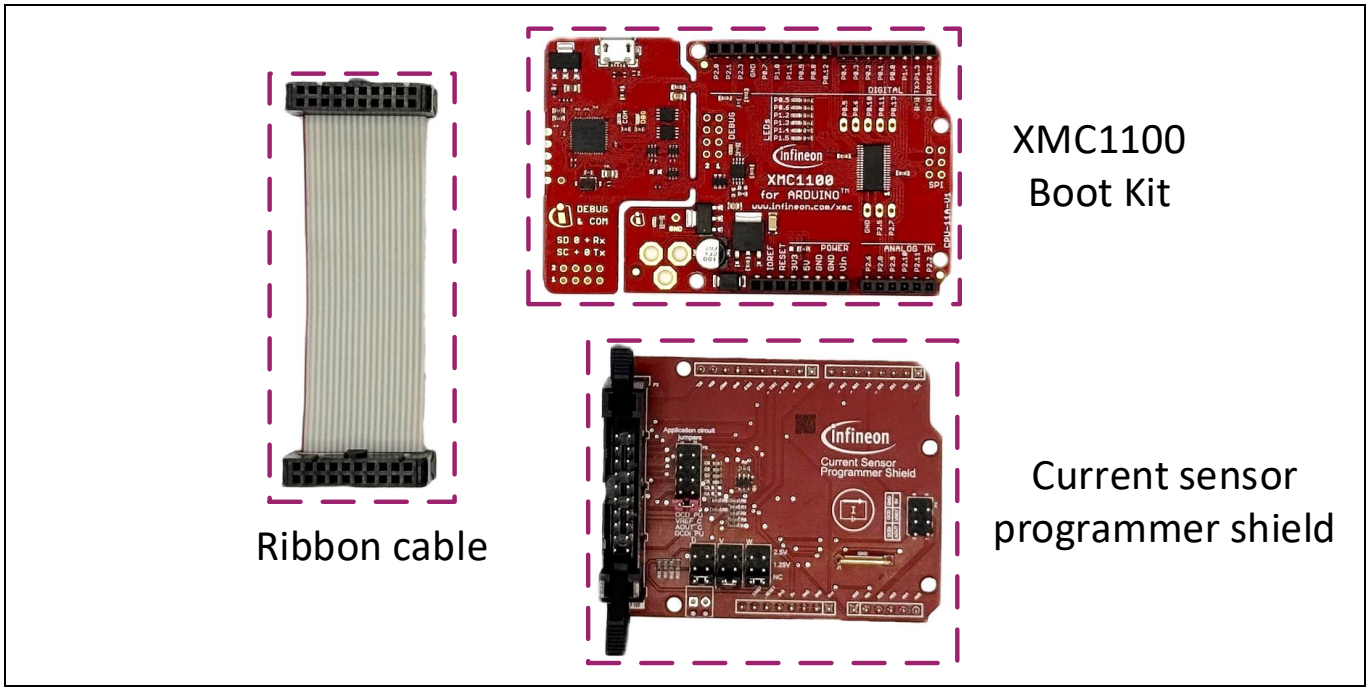

Figure 2 Additional components required for the XENSIV™ TLE5571 evaluation kit

1.2 Sensor characteristics

The XENSIV™ TLE5571 current sensor is available in four sensitivity variants. The sensors on the TLE5571 U-shape evaluation board are the S4 variant. Detailed sensor characteristics can be found in the product datasheet [1].

Table 1 Sensor characteristics (TLE5571 S4)

Parameter	Symbol	Value	Unit
Sensitivity (S4)	S4 [mV/mT]	432	mV/mT
Full-scale range	FS [A]	[–51, 51]	A
Board transfer factor	TF [µT/A]	98	µT/A
Board sensitivity	S [mV/A]	42.34	mV/A

These are average values based on a multi-point calibration from zero to full-scale, applying the systematic sensitivity correction factor. For more information, see the product datasheet [1].

1.3 Connection guide

The software supports connecting to sensors located in a custom setup. The sensors do not have any communications interface. Therefore, the software will only display the sensor analog output, along with the status of the overcurrent detection (OCD) and fault pins (FLT).

Figure 3 shows the sensor pinout. Only one side of the package has active pins:

Pin no.	Function
1-8	NC
9	WOC1
10	WOC2
11	FLT
12	OCD
13	THR
14	AOUT
15	GND
16	VDD

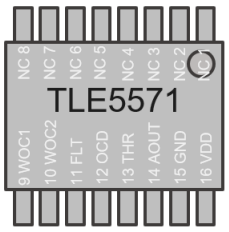

Figure 3 XENSIV™ TLE5571 sensor pinout diagram

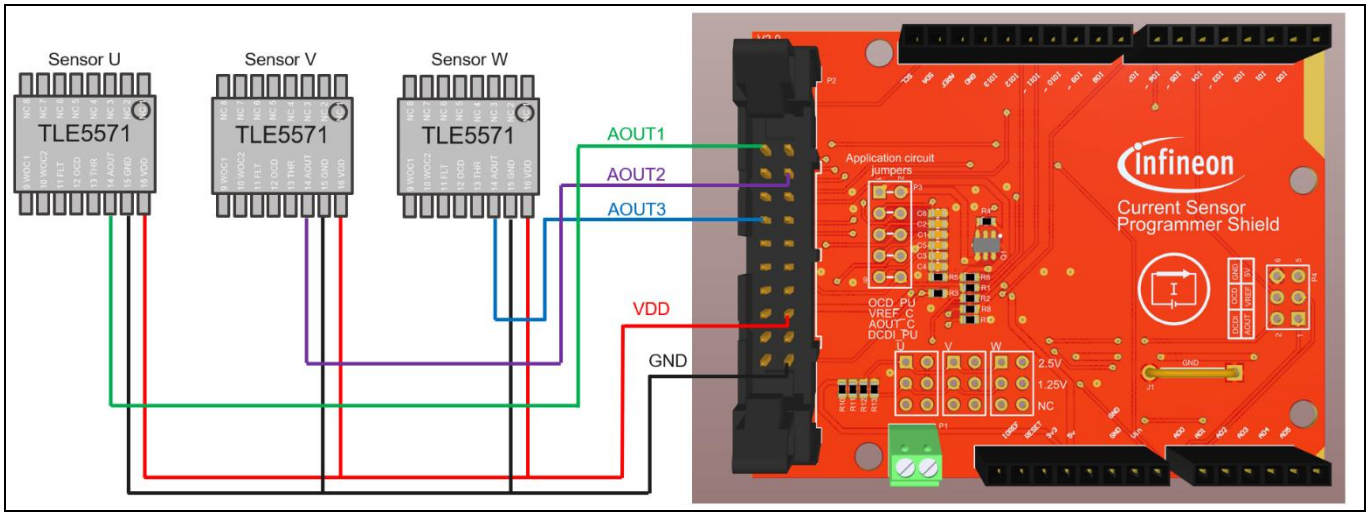

Figure 4 XENSIV™ TLE5571 three sensors connection

The full application circuit can be found in the XENSIV™ TLE5571 sensor datasheet:

- On sensor AOUT pin: 330 pF (C_{AOUT}) to GND and 33 kΩ to VDD (R_{PU_AOUT})
- On sensor OCD pin: 200 pF (C_{OCD}) and 1 kΩ to VDD (R_{PU_OCD})
- On sensor FLT pin: 200 pF (C_{FLT}) and 1 kΩ to VDD (R_{PU_FLT})
- On sensor THR pin: RC low-pass filter – 1 kΩ (R_{THR}) and 20 µF (C_{THR})

Additionally, RC low-pass filters can be added to AOUT, OCD, and FLT pins.

1.4 Connector details

Connector X1 is described in **Error! Reference source not found.** and may be used for debugging, probing, or connecting additional hardware.

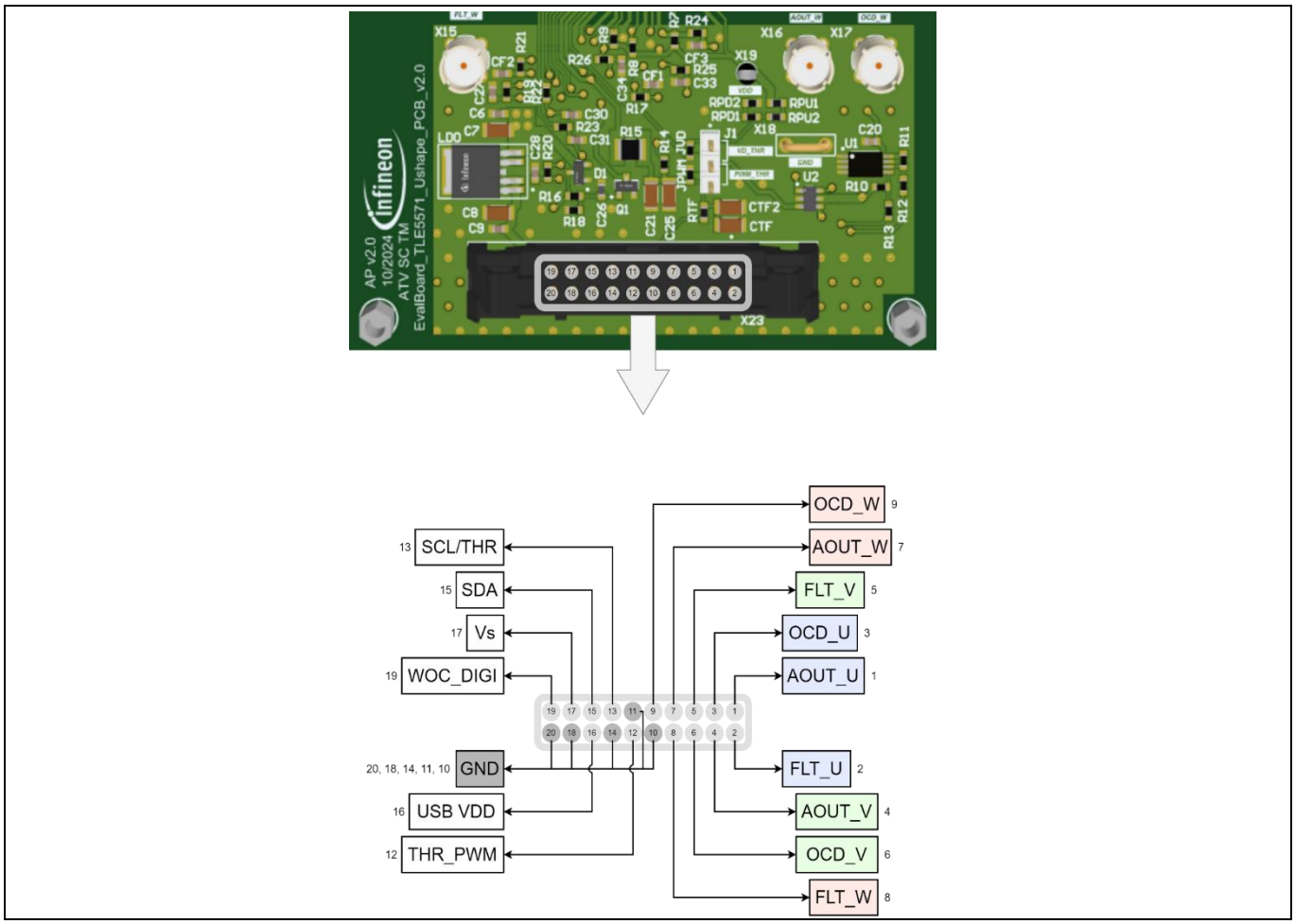

Figure 5 XENSIV™ TLE5571 U-shape evaluation board connector pinout

The board image is cropped, and only the section containing the connector is shown. The connector is compatible with the Current Sensor Programmer Shield. Each sensor has AOUT, OCD, and FLT pins. The external EEPROM uses the SCL and SDA pins. To use the I^2C pins, the multiplexer must be set to the corresponding position; therefore, WOC_DIGI must be high. Otherwise, the SCL/THR pin can be used to send a PWM signal to control the OCD threshold voltage. The board also includes a jumper that allows either the filtered PWM signal or a constant voltage equal to 80% of the VDD to be used as the OCD threshold voltage.

2 Evaluation software

The XENSIV™ TLE4978 Current Sensor Evaluation App assists in the swift evaluation of the sensors from the XENSIV™ TLE557x family. The software allows live current readout and software calibration.

2.1 Requirements

The XENSIV™ TLx557x evaluation software was developed and tested using the following PC configuration:

- **Operating system:** Windows 10 64-bit or Windows 11 64-bit (Windows 7 is also supported)
- **RAM:** 8 GB (maximum RAM usage is estimated to be approximately 150 MB when data logging is enabled)
- **Storage:** 512 GB (minimum required for installation: 250 MB, including dependencies)
- **CPU:** 3.00 GHz, 4 cores (low-performance CPUs may experience performance issues)

2.2 Software download

Infineon offers the graphical user interface software via the Infineon Developer Center or via the Infineon Developer Center Launcher. You can filter the tool list by searching for “Current Sensor” or “TLx557x”. The tool list will display the XENSIV™ TLx557x Current Sensor Evaluation App, as shown in Figure 6.

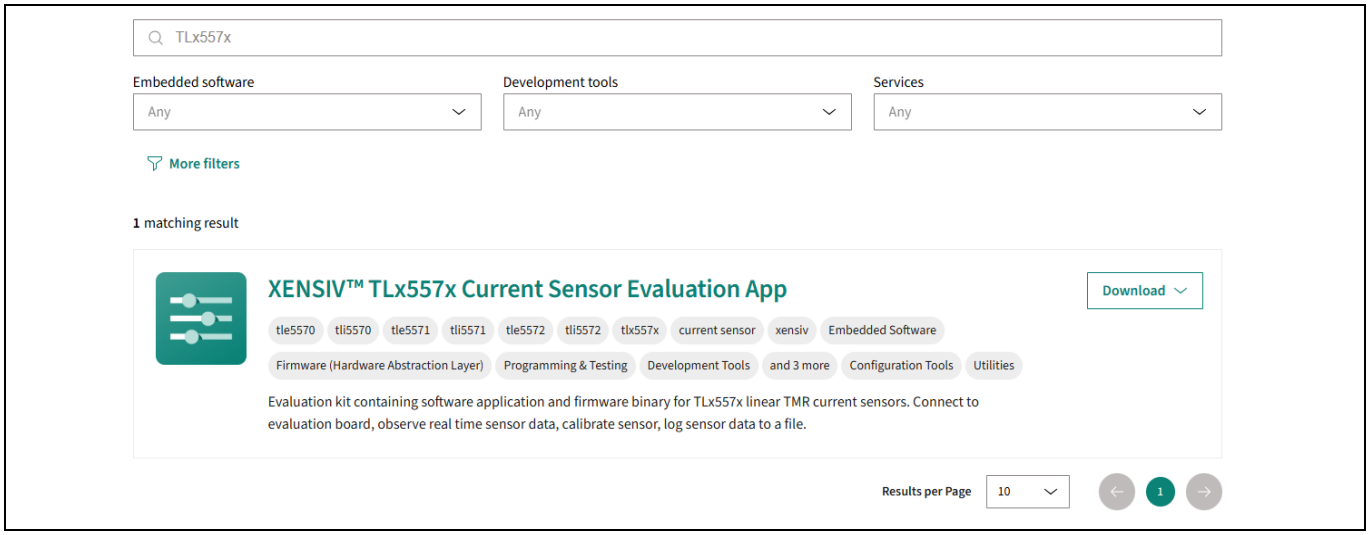

Figure 6 XENSIV™ TLx557x Current Sensor Evaluation App

It is highly recommended to install the Infineon Developer Center Launcher before installing the above-mentioned application.

Note that the XENSIV™ TLx557x Current Sensor Evaluation App can only be downloaded by users registered with a myInfineon account.

2.3 Software installation

1. Double-click the XENSIV™ TLx557x Current Sensor Evaluation App installer to begin the installation

Note: Ensure that you have administrator rights to install the software

The installer file contains the following elements:

- Binaries or compiled objects needed for running the graphical user interface

- SEGGER J-Link driver for establishing serial port communication with the onboard debugger
- .NET Framework 4.8 online installer (required only on older versions of Windows where it is not already installed). Installation requires a stable internet connection

2. Read and accept the License Agreement, and then click **Next**

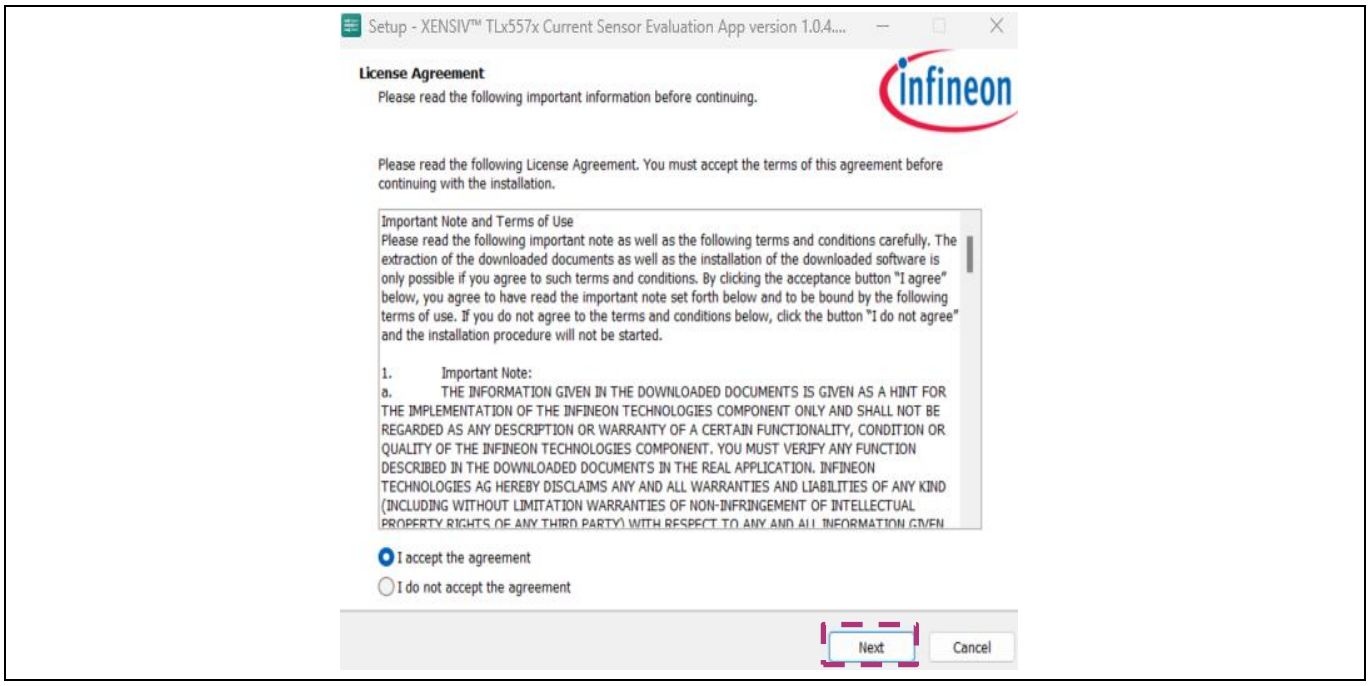

Figure 7 Accept the License Agreement

3. Select the installation type and click **Install** to begin the installation. It is recommended to use the **Quick Installation (Recommended)** option

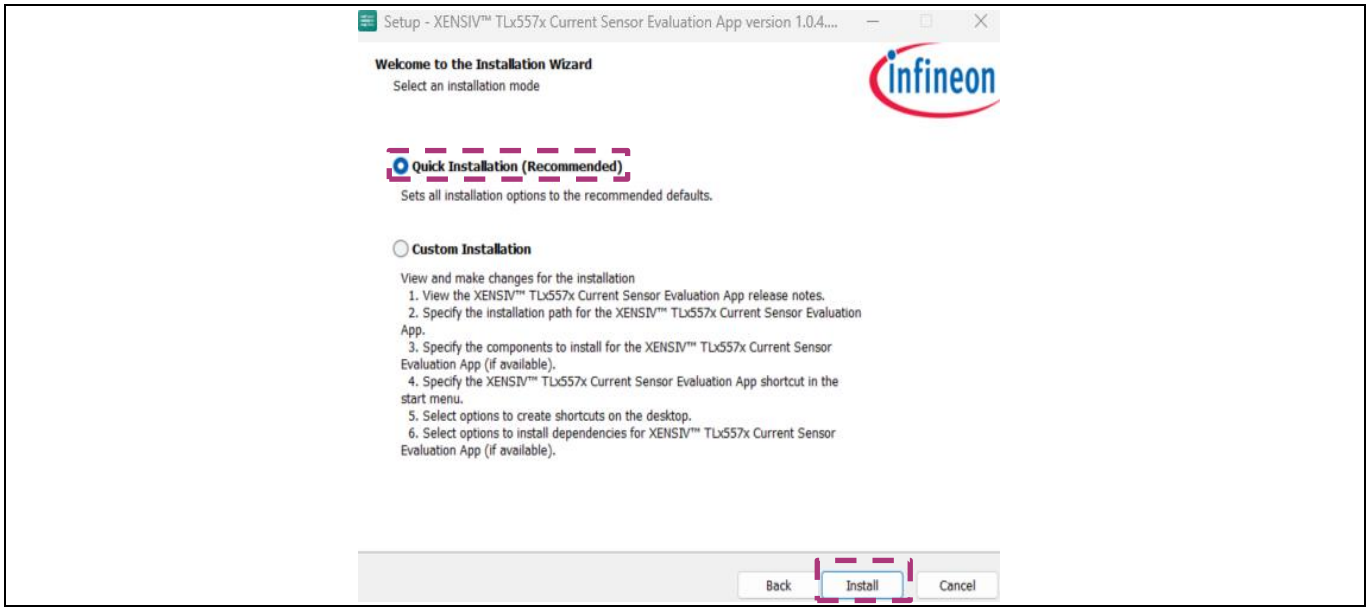

Figure 8 Quick installation

4. After the binaries have been copied to the installation folder, a prompt appears to install the SEGGER J-Link driver. Click **Next** to complete the installation

If the SEGGER J-Link driver is already installed, this step can be skipped. Note that without the J-Link driver, the USB connection between the PC and the XENSIV™ TLE5571 evaluation board cannot be established

Figure 9 SEGGER J-Link driver installation

5. After the SEGGER J-Link driver has been installed, a prompt appears to install .NET Framework 4.8. Click **Continue** or **Close**, depending on whether the dependency is already installed

Note: This version of .NET Framework is preinstalled on Windows 10 version 1903 and later releases. If it is already installed, a corresponding notification is displayed. Otherwise, the installation will proceed automatically, provided that an active Internet connection is available

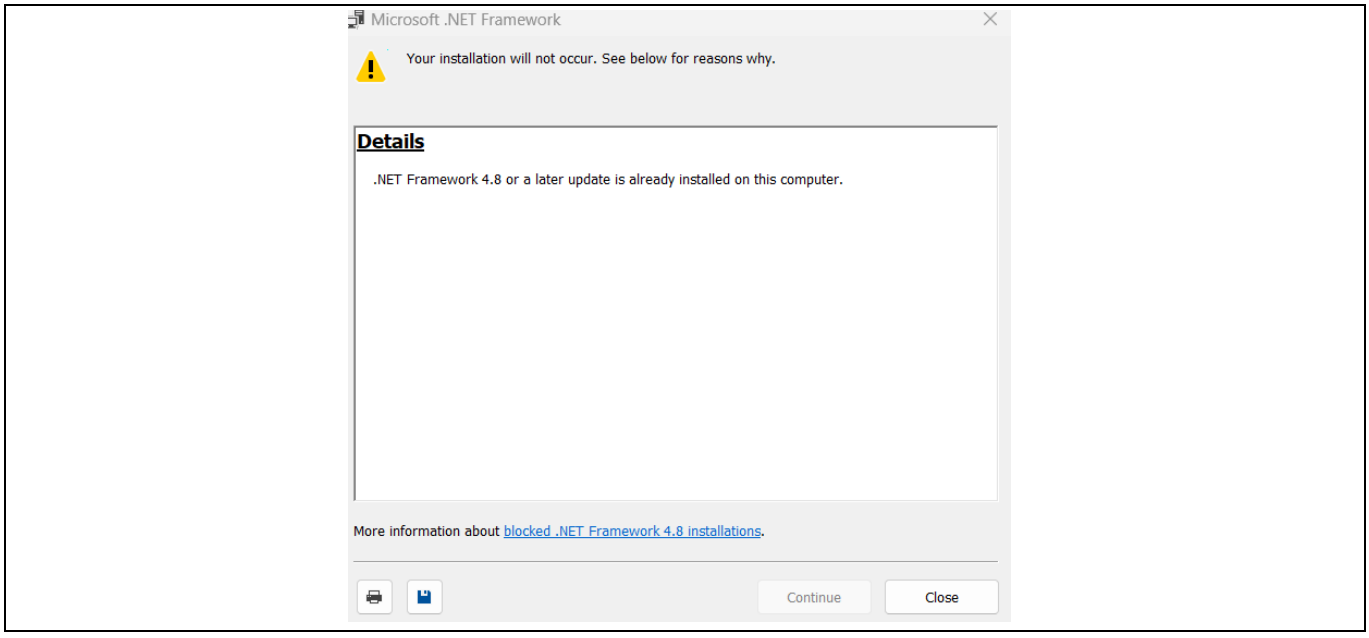

Figure 10 .NET Framework 4.8 installation

6. Click **Finish** to exit the setup. A notification is displayed after all installer processes are complete, and a shortcut is created on the desktop by default. You can choose to launch the application after the installation

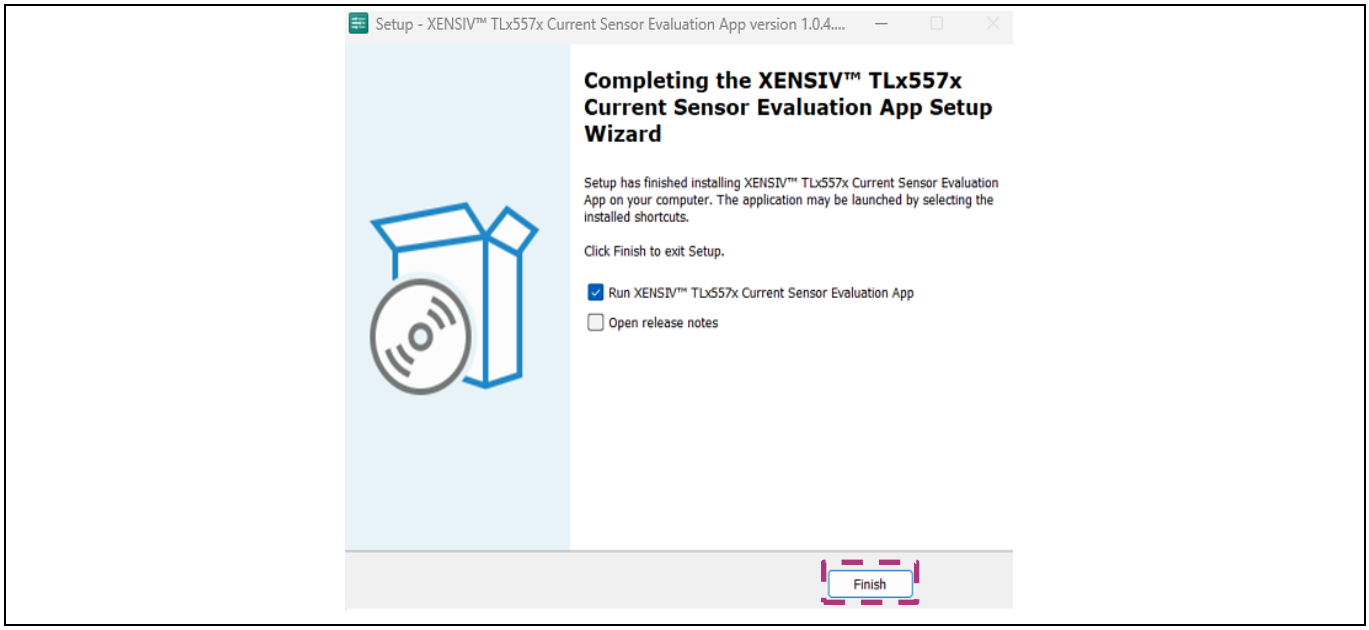

Figure 11 Installation complete

2.4 Uninstalling the software

To uninstall the software package, go to **Start** → **Add or remove programs** and search for the **XENSIV™ TLx557x Current Sensor Evaluation App**. Click the ellipsis (three-dot) menu and select **Uninstall** to remove the software from the PC.

Figure 12 Software removal

The uninstaller deletes all installation files from the system, except:

- SEGGER J-Link driver, which can be uninstalled separately if required
- .NET Framework 4.8 dependencies, which in most cases are part of the operating

3 Using the evaluation software

This section describes the features of XENSIV™ TLx557x Current Sensor Evaluation App and their usage in correlation with the XENSIV™ TLE5571 U-shape evaluation board. Ensure that the evaluation board is attached to the current sensor programmer shield and XMC1100 Boot Kit board via the ribbon cable.

3.1 Startup screen and connecting to the programmer

Figure 13 depicts the default screen of the XENSIV™ TLx557x Current Sensor Evaluation App after startup.

The software scans all USB ports and identifies any connected device matching the XENSIV™ TLx557x evaluation board signature. If a match is found, the software displays the detected device, as shown in Figure 13. Selecting the device establishes a connection between the software and the board.

If the firmware is outdated, the software automatically flashes the correct firmware version to the target microcontroller. Otherwise, the connection is established using the firmware version already installed on the selected board.

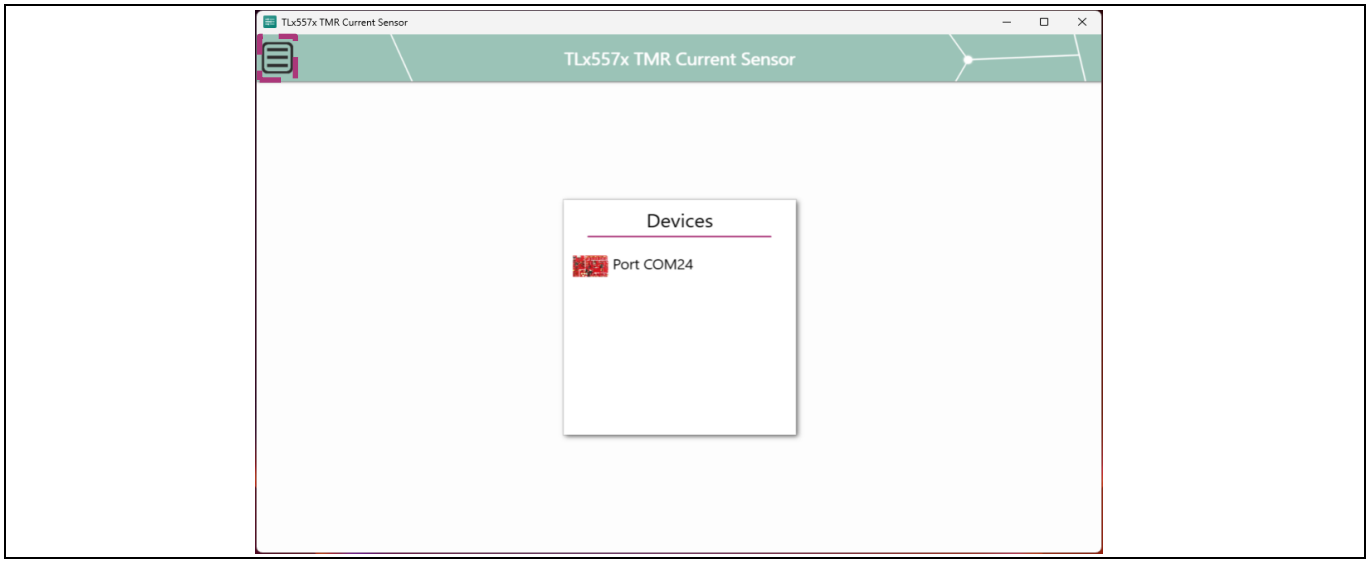

Figure 13 Software usage: Startup screen

Note: The firmware can be flashed forcefully by going to Settings (menu button in the top left corner) and checking "Always update firmware (irrespective of current version)".

3.2 Initialization wizard

If the external EEPROM on the Evaluation Board has been programmed with the correct configuration, the software displays the main menu. Otherwise, an initialization wizard is displayed, allowing selection from a predefined list of supported configurations, as shown in Figure 14.

This software supports multiple sensors from the XENSIV™ TLx557x family. For initializing the XENSIV™ TLE5571 U-shape evaluation board, select the following options from the respective drop-down lists:

- Sensor: TLx5571
- Voltage: 5 V
- Full-scale range: S4

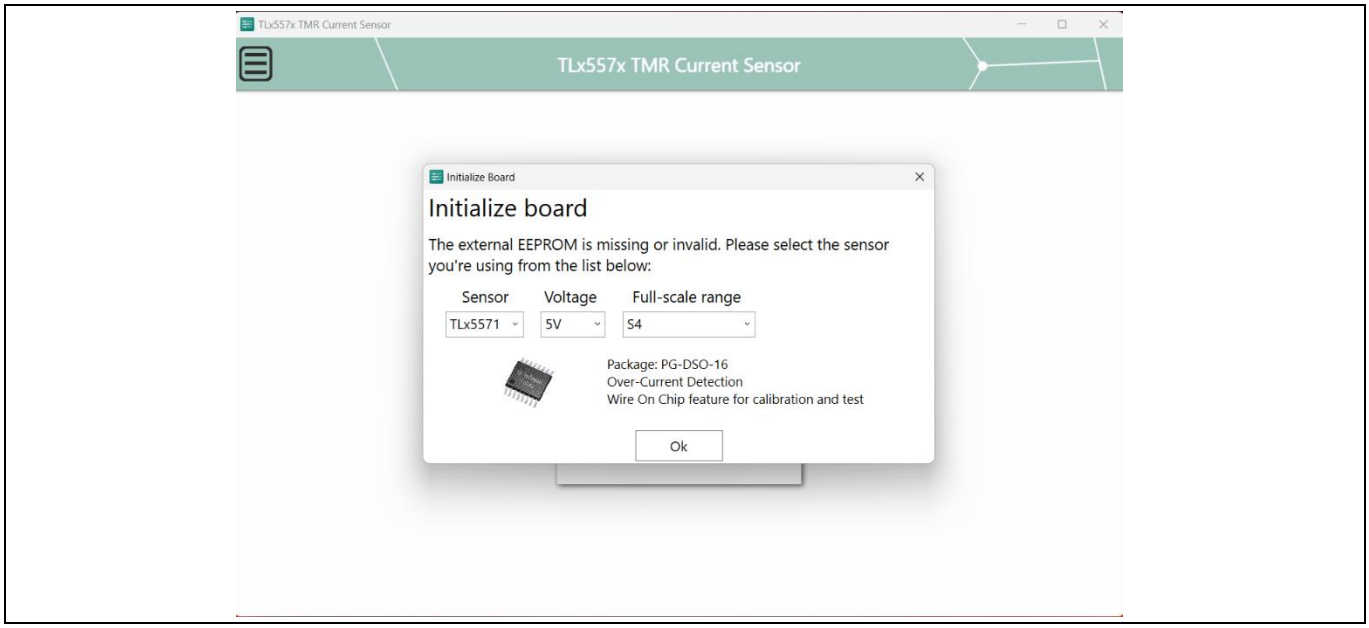

Figure 14 Initialization wizard

Since the sensor does not have any communication interface, the software cannot detect whether the evaluation board is connected. Ensure that the board is properly connected to the shield and the microcontroller.

3.3 Main window and scenarios

Once the board is connected, the GUI updates, as shown in Figure 15. The GUI is divided into two sections:

- **Sensor controls:** Located on the left side of the window. This panel allows you to disconnect from the board or control the sensor. If a scenario is selected, different buttons and controls are displayed accordingly
- **Main section:** Located on the right side of the window. This panel allows you to select and interact with different scenarios. This panel is not intended for direct interaction with the sensor

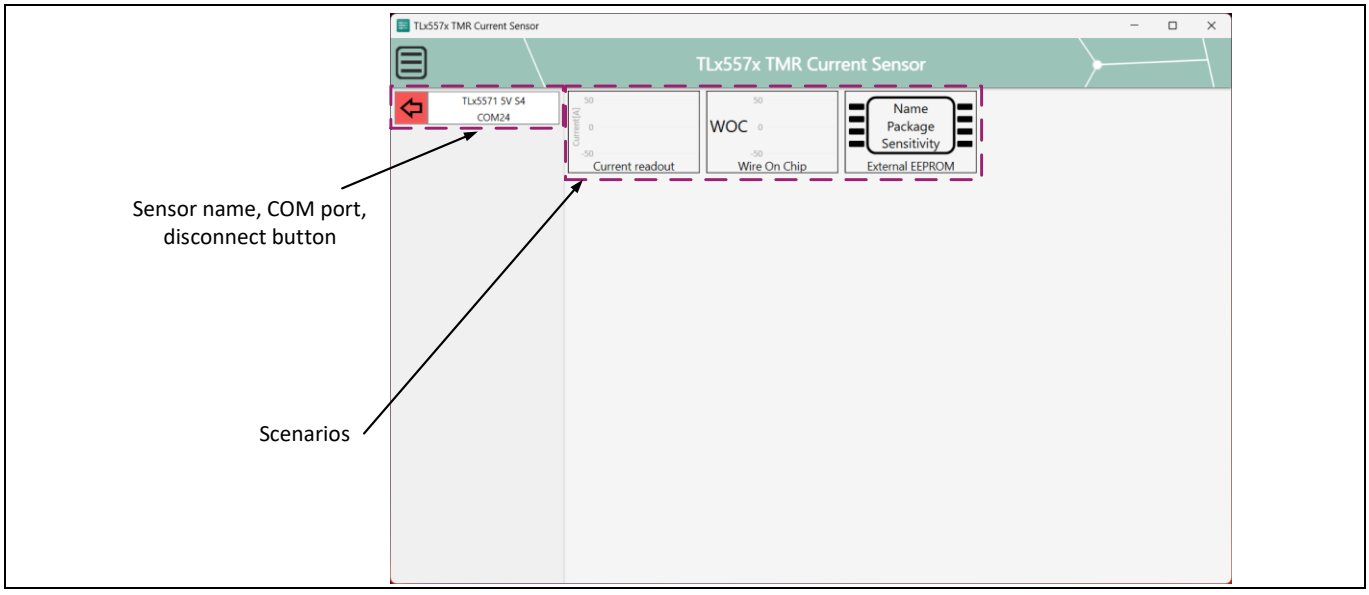

Figure 15 Main screen

3.3.1 Current readout

The main function of the sensor is current readout. In the software, the measured current is displayed on a chart along with the status of overcurrent detection (OCD). The overcurrent detection (OCD) and fault (FLT) statuses are displayed in the panel on the right:

- **If the circle is green:** The pin is inactive, at its default status (HIGH for both OCD and FLT)
- **If the circle is red:** The pin is active (OCD or FLT is LOW)
- **If the circle has no color:** Readout is off

The controls panel (left) allows you to start or stop the readout and change the averaging window. The XMC™ Boot Kit ADC is configured for a sampling rate of 21.5 kHz. In the software, you can choose how many samples are averaged before the readout is sent to the software.

Example

If the averaging window is 128 samples wide, a value is sent to the software at a frequency of 21,500 / 128 ≈ 167 samples per second (ADC sample rate is 21.5 kHz). The firmware can send a maximum of 1000 samples per second.

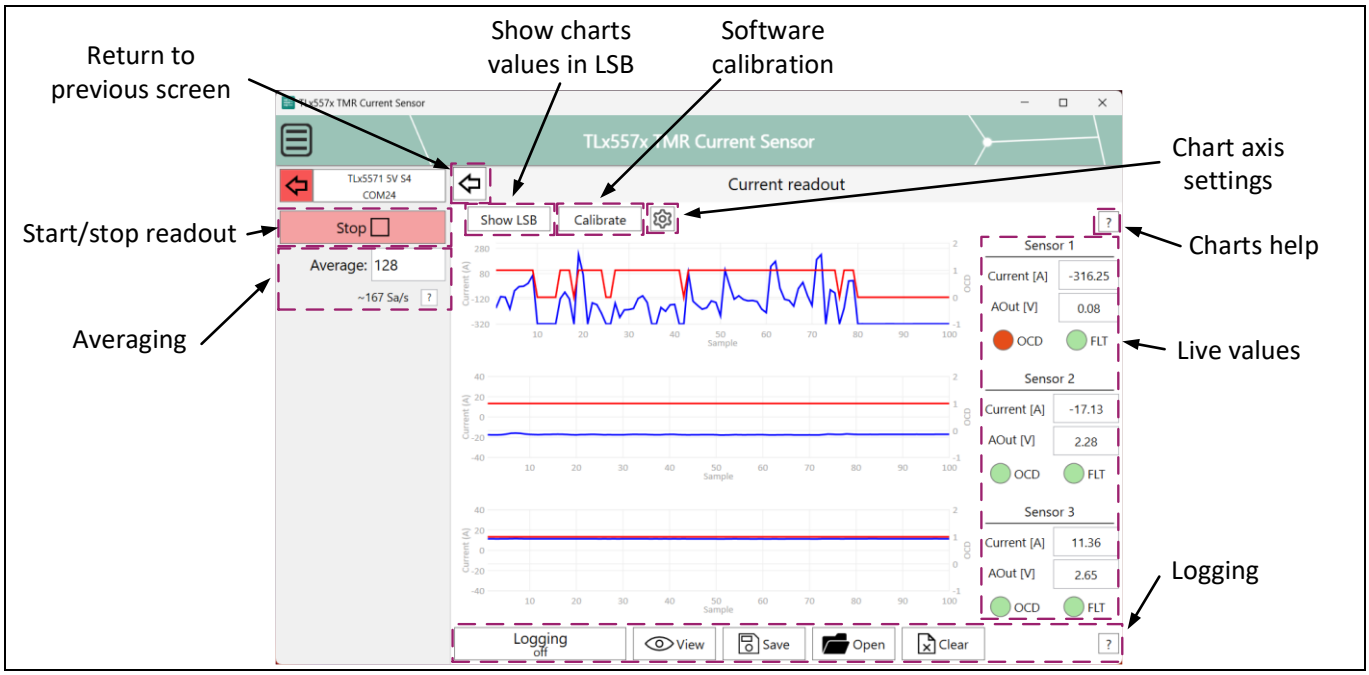

Figure 16 Current readout

You can switch the chart units between LSB and amperes (A). This setting changes not only the chart units but also the live values on the right:

- **Current value (A):** always in amperes (A)
- **AOUT:** voltage of sensor analog output, displayed either in LSB or volts (V)

The chart shows the value of the current in the selected unit of measurement, along with the status of the overcurrent detection (OCD) pin. The fault status (FLT) is not shown in the chart since it does not change that often, and it can be seen in logging. The chart automatically scales to higher current values. The settings button allows changing the chart limits to custom ones. Sensor readings are enabled by default when you enter the scenario.

3.3.2 Sensor data logging

The logging feature is useful when you need to capture an event, along with some samples before and after the event. Logging can be enabled by clicking the first button labeled **Logging**. When logging is enabled, the status text below the button changes from off to on, and the color of the button changes to red. Click the button again to disable logging.

Other buttons in the logging panel are:

- **View:** Opens a new window where the logged points are displayed
- **Save:** Saves the logged points to disk
- **Open:** Shows the logged points from a previously saved file
- **Clear:** Empties the logged points list

Data logging is supported in the current readout and wire on chip (WOC) scenarios. Each scenario has its own logging file format. Click the **Open** button in the logging panel from either scenario, and then select the desired logging file type.

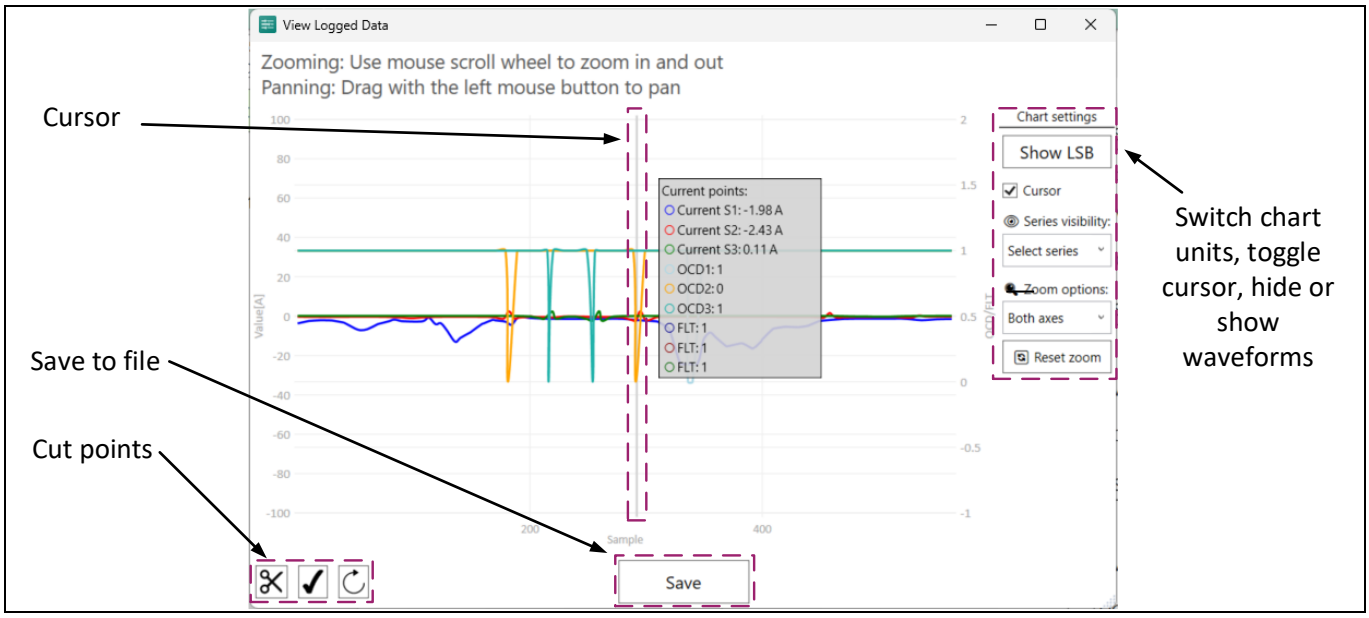

Figure 17 Logging window

The logging file contains values for current (amperes and LSB), OCD and FLT. The software saves the logging files in comma-separated values (*.csv*) format. There is no limit on how many points can be logged. Data logging is initially performed using a temporary file, so memory usage does not increase while logging is in progress.

Figure 17 shows the logging window, where logged data points can be viewed and edited. The buttons in the lower-right panel allow you to remove a selected range of the points, save changes temporarily, or reload the previously saved dataset. To permanently apply the changes, click the **Save** button.

The panel on the right allows you to change the following parameters of the chart:

- **Show LSB/Show A:** Switch between LSB and amperes (A)
- **Cursor checkbox:** Enable or disable the chart cursor. Disabling the cursor also hides the current points popup
- **Series visibility:** Shows or hides certain waveforms

- **Zoom options:** Allows zoom only on the vertical or horizontal axes
- **Reset zoom:** Zoom to fit the whole chart and pan to the center

After clicking the **Save** button, you can enter a comment that will be added to the header of the file. The file is saved in *.csv* format with the following structure:

- **Header section:** Contains the timestamp, sensor name, logging mode (current or wire on chip), and the user comment
- **Data section:** Each logged line consists of a data bundle containing the index, computed current, OCD and ZCD status, current in LSB format

3.3.3 Software calibration

The GUI supports single-point software calibration for the sensors by calculating or adjusting the gain and offset. This feature will not change anything in the sensor. The parameters will be saved to the external EEPROM on the board.

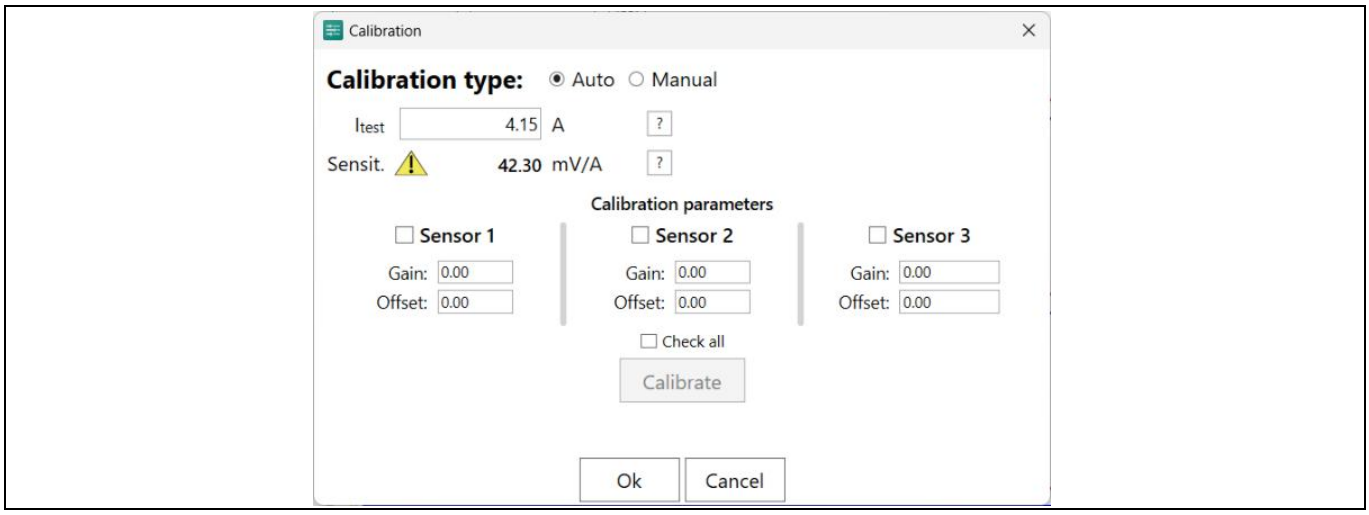

Figure 18 Software automatic calibration

The software supports two calibration procedures:

1. **Automatic calibration:** Input the test current and select the sensors for calibration. You can select multiple sensors at once. Ensure that the current source is connected to all the selected sensors. The target sensitivity will be shown based on the selected board configuration (Figure 18). Click the **Calibrate** button to start the calibration process: Turn on the current source at the selected test current, then turn it off. In background, the software will sample data from the sensors and calculate the offset and gain accordingly. The datasheet assumes a multi-point calibration with best-fit up to full-scale. For the moment, the software only supports single-point calibration
2. **Manual calibration:** You can adjust the gain and offset manually. The calibration window (Figure 19) can be moved to the side while watching the charts in the main window. With the current source turned off, set the offset to the value shown next to the charts, so the new value will be close to zero. Then, turn on the current source and adjust the gain until the value shown next to the charts is correct.

It is not required to calibrate using both procedures. One calibration is sufficient.

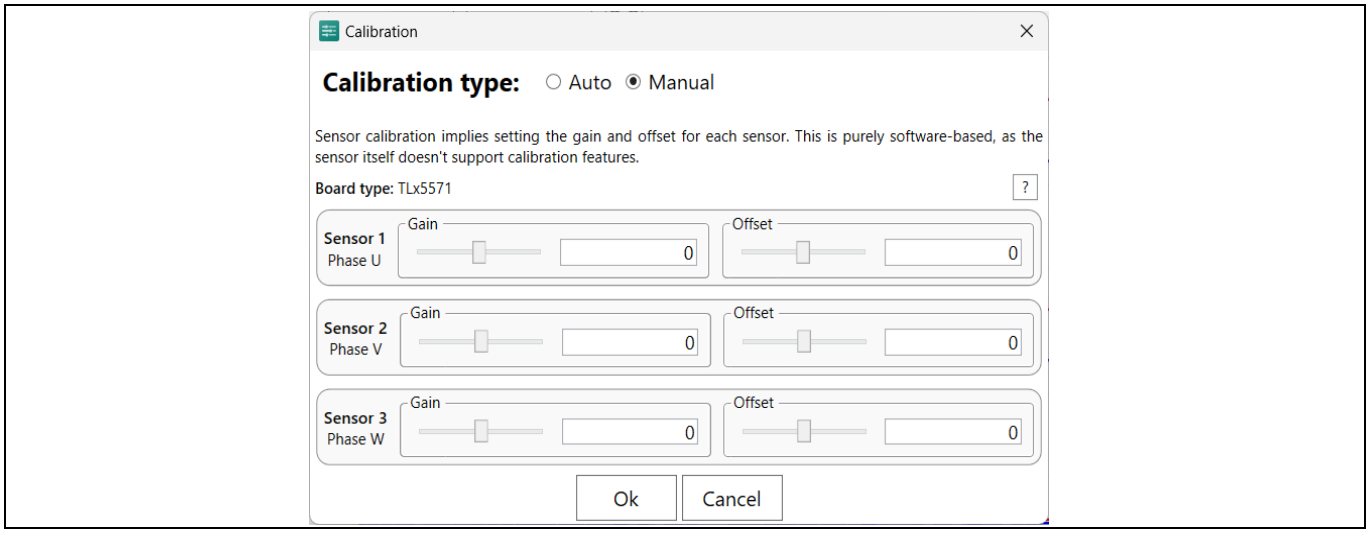

Figure 19 Software manual calibration

After either of the two calibration procedures are completed, click the **Ok** button to close the window and save the new parameters to the external EEPROM or to a file if the board does not have an external EEPROM. Otherwise, click **Cancel** to restore the previous calibration parameters.

3.3.4 Wire on chip

The wire on chip scenario allows testing of the wire on chip (WOC) feature on the board. Triggering this feature activates a transistor on the evaluation board, allowing a capacitor to discharge and causing current flow through a wire inside the chip. Meanwhile, the microcontroller samples the data and stores it in memory (up to 1024 samples), then sends it to the software for further analysis.

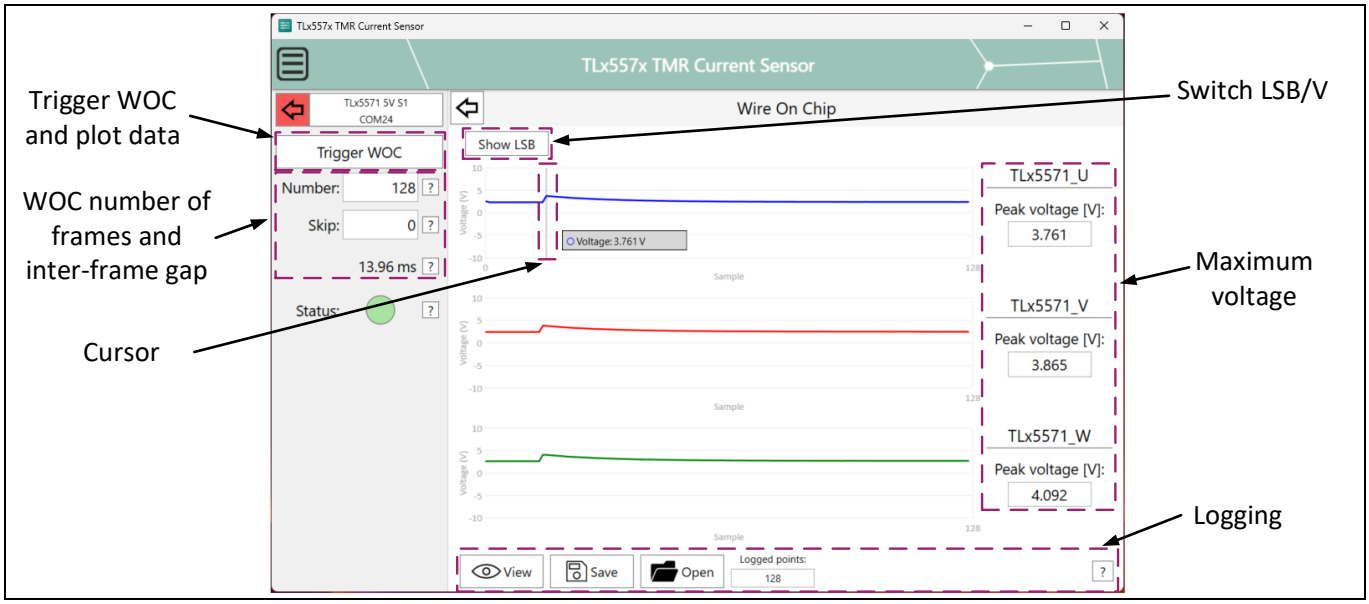

Figure 20 Wire on chip

You can control the following WOC parameters related to the WOC feature from the panel on the left:

- **Number:** How many ADC cycles to sample for
- **Skip:** After each ADC sample, the microcontroller can wait for a few cycles

Currently, the software only allows a wire on chip (WOC) sampling window of less than 500 ms. The sensor datasheet mentions a limit of 1 ms of consecutive WOC time and a limit of 20 hours of WOC time over the lifetime of the sensor.

The voltage detected by the sensors during WOC differs from one board to another due to tolerances in the capacitors and resistors, and due to differences in the sensing structures. The WOC pins from the sensors are connected in series. Due to the parasitic resistances in the PCB traces, the maximum voltage for each sensor is different.

The WOC feature can be used as a test to see if the sensor is alive in a system. When the current flowing through the current rail is guaranteed to be zero (at power-up), WOC can be triggered and the microcontroller can sample AOUT for a spike. If a voltage spike is detected, the sensor is working correctly.

After the WOC frames have been received by the software, the software places them on the charts. You can view the points by hovering the cursor over the charts. Alternatively, you can click the **View** button to open a logging window with all the series on the same chart (Figure 21).

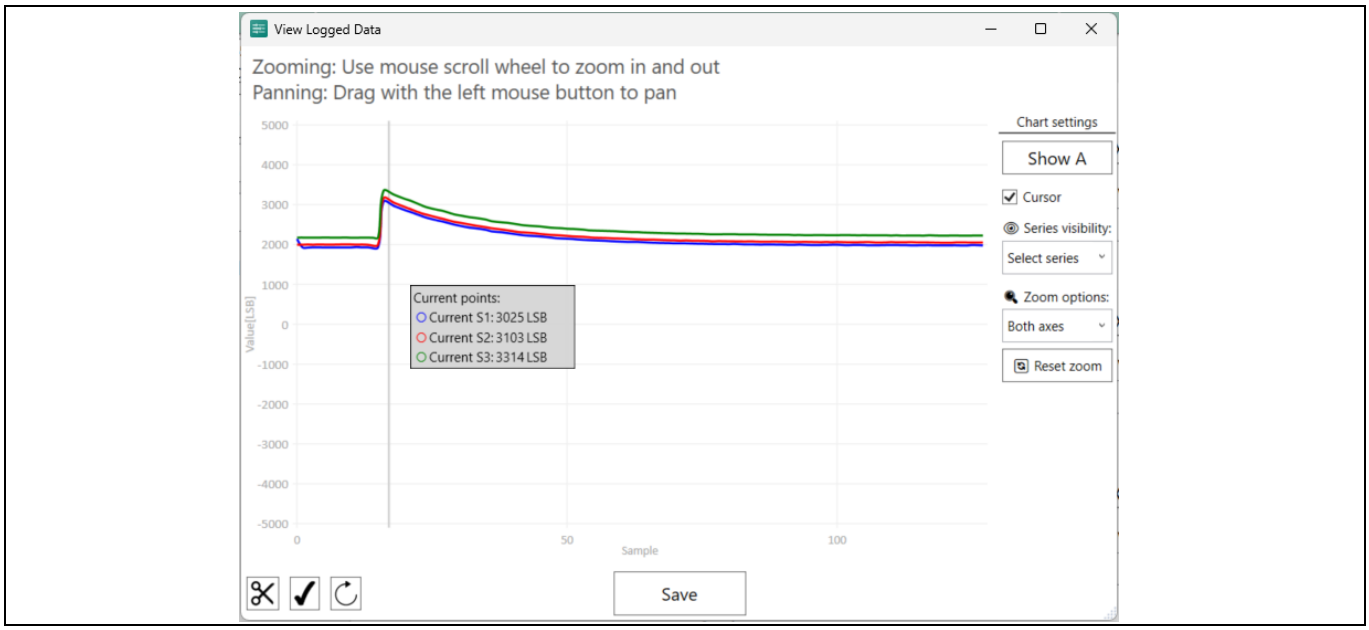

Figure 21 Software usage: Wire on chip logging

In this window, the same controls can be used to manipulate the points as in the logging feature from current readout (Section 3.3.2).

3.3.5 External EEPROM

The XENSIV™ TLE5571 U-shape evaluation board also contains an external I²C EEPROM used to store the sensor name, voltage, range, package, calibration parameters, and the date and time of programming (Figure 22). If the external EEPROM is not present, this scenario is not available. The scenario does not provide any controls in the left panel. Since the external EEPROM is read-only, its contents cannot be modified.

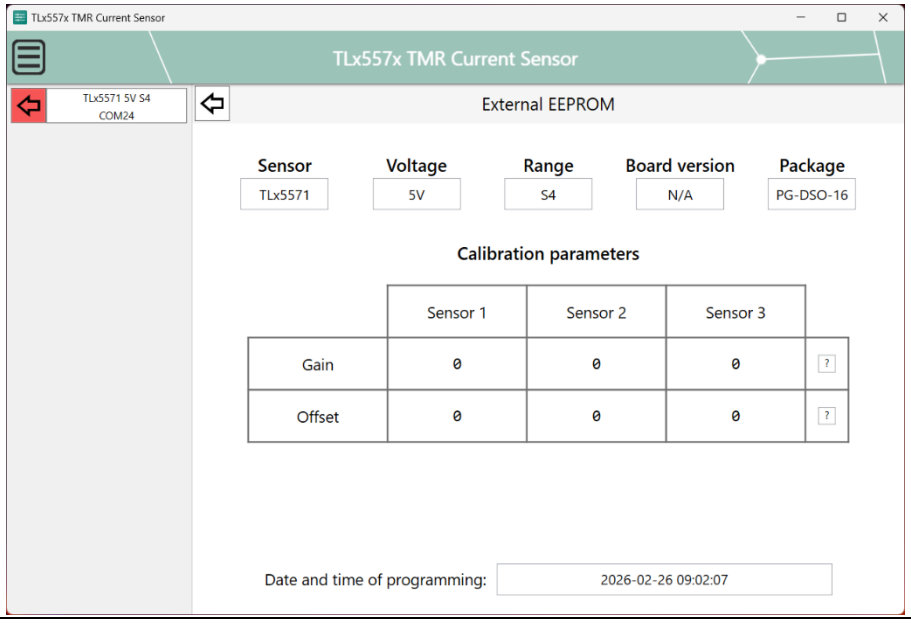

Figure 22 External EEPROM

If the board has no external EEPROM, the calibration parameters will be saved to a file and loaded automatically by the software.

4 Troubleshooting

Problem

The SEGGER J-Link driver is not installed correctly. If the device is not recognized properly in Device Manager (for example, if it appears as “BULK interface”), the driver is not installed.

The issue may occur if the software was installed without admin rights or if an error occurred during the installation process.

Symptoms

The software shows one of the following error messages:

- “Flashing finished successfully but expected FW is still different from actual FW”
- “J-Link driver missing or inaccessible”
- “Firmware version mismatch after flashing”
- “Firmware failed to answer after flashing”

Solution

Install the latest version of SEGGER J-Link from the SEGGER website. Run the installer with admin rights. Ensure to select **Install legacy USB Driver for J-Link** when prompted (Figure 23). If the checkbox is missing (older J-Link versions), the driver will automatically be installed.

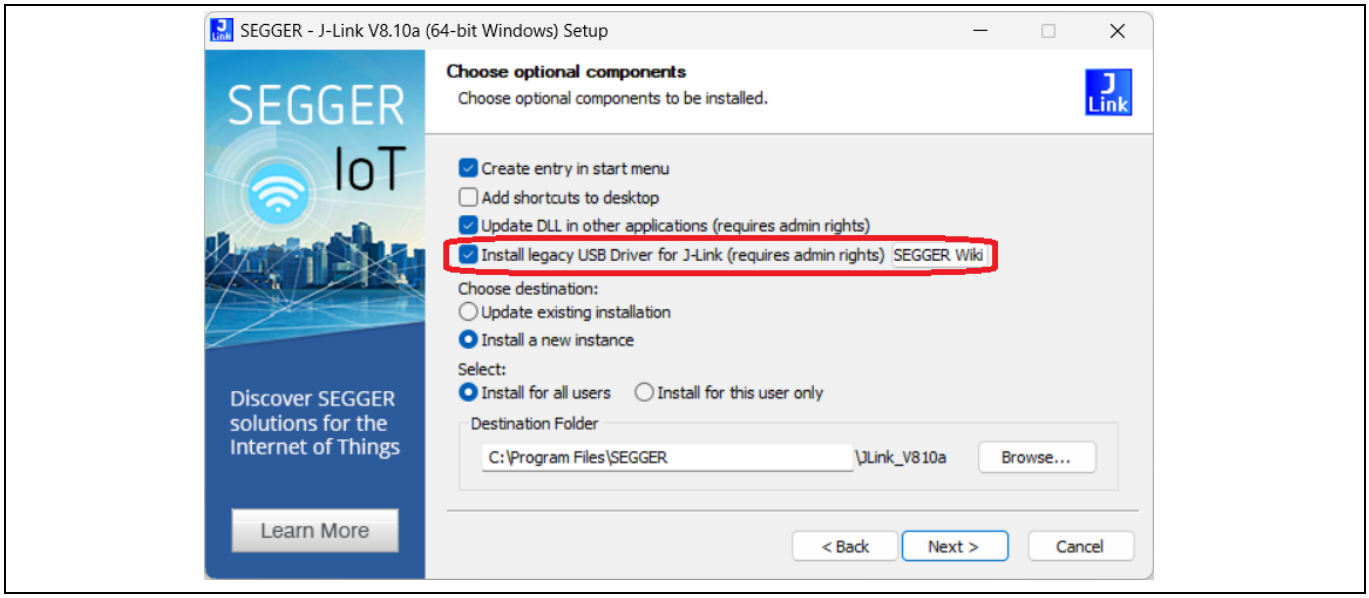

Figure 23 J-Link installation

5 Hardware design

This section describes the latest hardware design version of XENSIV™ TLE5571 U-shape evaluation board, version V2.0 (EvalBoard_TLE5571_Ushape_PCB_v2.0).

The hardware is composed of the following main blocks:

- **Application circuit:** Consisting of the following components:
  - Three XENSIV™ TLE5571 sensors, powered by a low-dropout regulator (LDO)
  - RC filter for overcurrent detection threshold (THR pin)
  - Low-pass filter on the analog output (AOUT), overcurrent detection (OCD) and fault (FLT) pins
  - Transistor for wire on chip (WOC) stimulation (startup test)
- **Power supply:** The TLS850D0TE V50 LDO supplies a steady 5 V to the sensor. The input voltage comes directly from the USB. For 3.3 V variants, TLS850B0TE V33 is used
- **External EEPROM:** The M24C02-WDW6TP I^2C EEPROM stores board information, enabling the software to identify the board type without requiring user input. Calibration parameters are also be stored in the external EEPROM
- **Multiplexer:** The TS5A3159QDBVRQ1 analog switch is used to switch function of the AD1 pin between SCL for external EEPROM and PWM voltage for OCD threshold voltage
- **Current sensor programmer shield:** Used to connect the XENSIV™ TLE5571 evaluation board to the XMC1100 Boot Kit. It also contains jumpers that can be used to connect the sensor without the other components on the evaluation board. An additional PMOS transistor can be used to control sensor power, if required
- **Target microcontroller:** The main microcontroller is an XMC1100 in a TSSOP38 package with 64 KB of flash memory. This device performs ADC sampling of the sensor analog output and forwards the acquired data to USB via debugger
- **Onboard debugger:** The XMC1100 Boot Kit board features a debugger implemented via an XMC4200 microcontroller. This auxiliary microcontroller features debug probe firmware delivered by SEGGER J-Link. This debugger is used for flashing the target microcontroller and for establishing serial communication via USB

5.1 Schematics

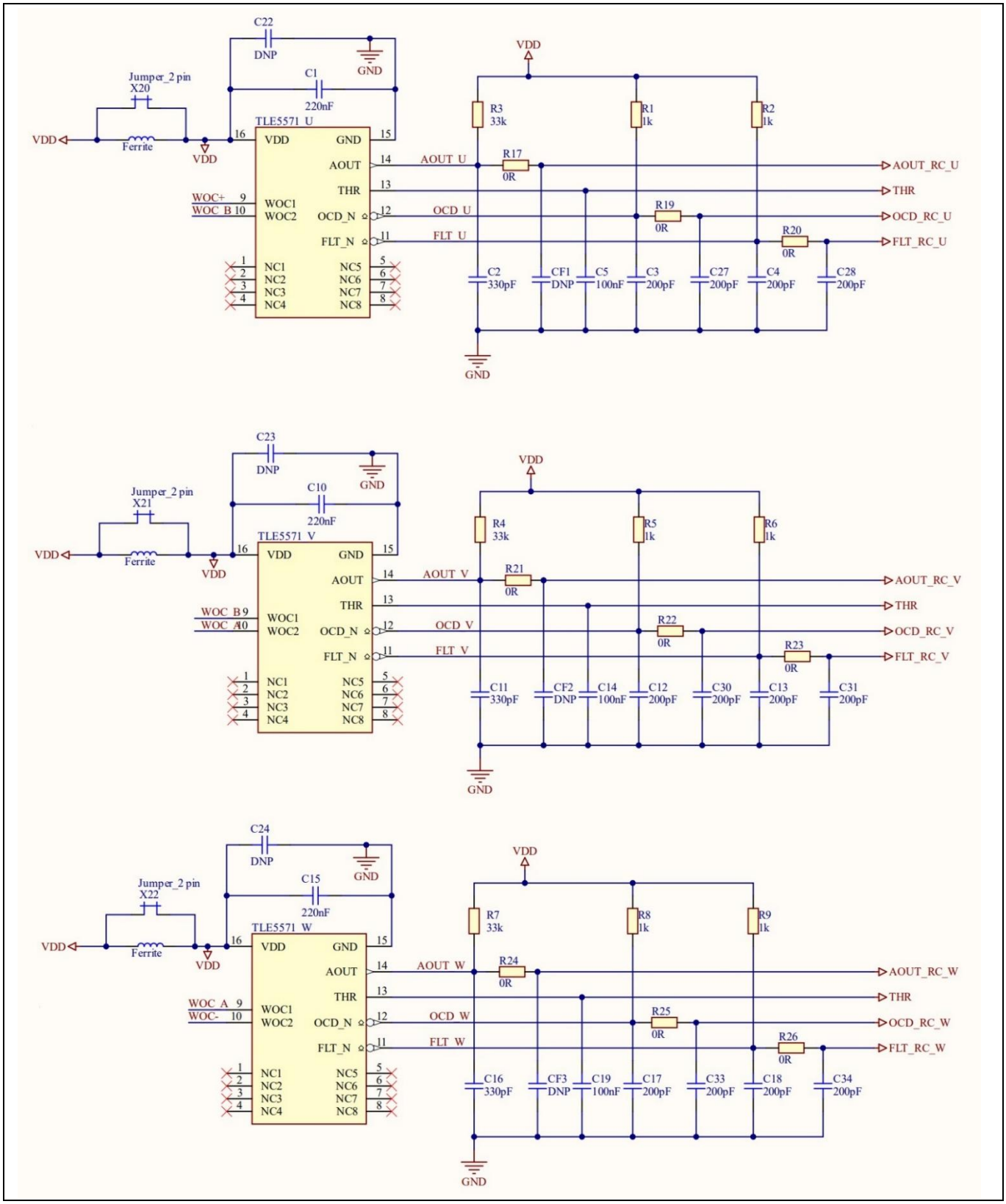

Figure 24 Application circuit

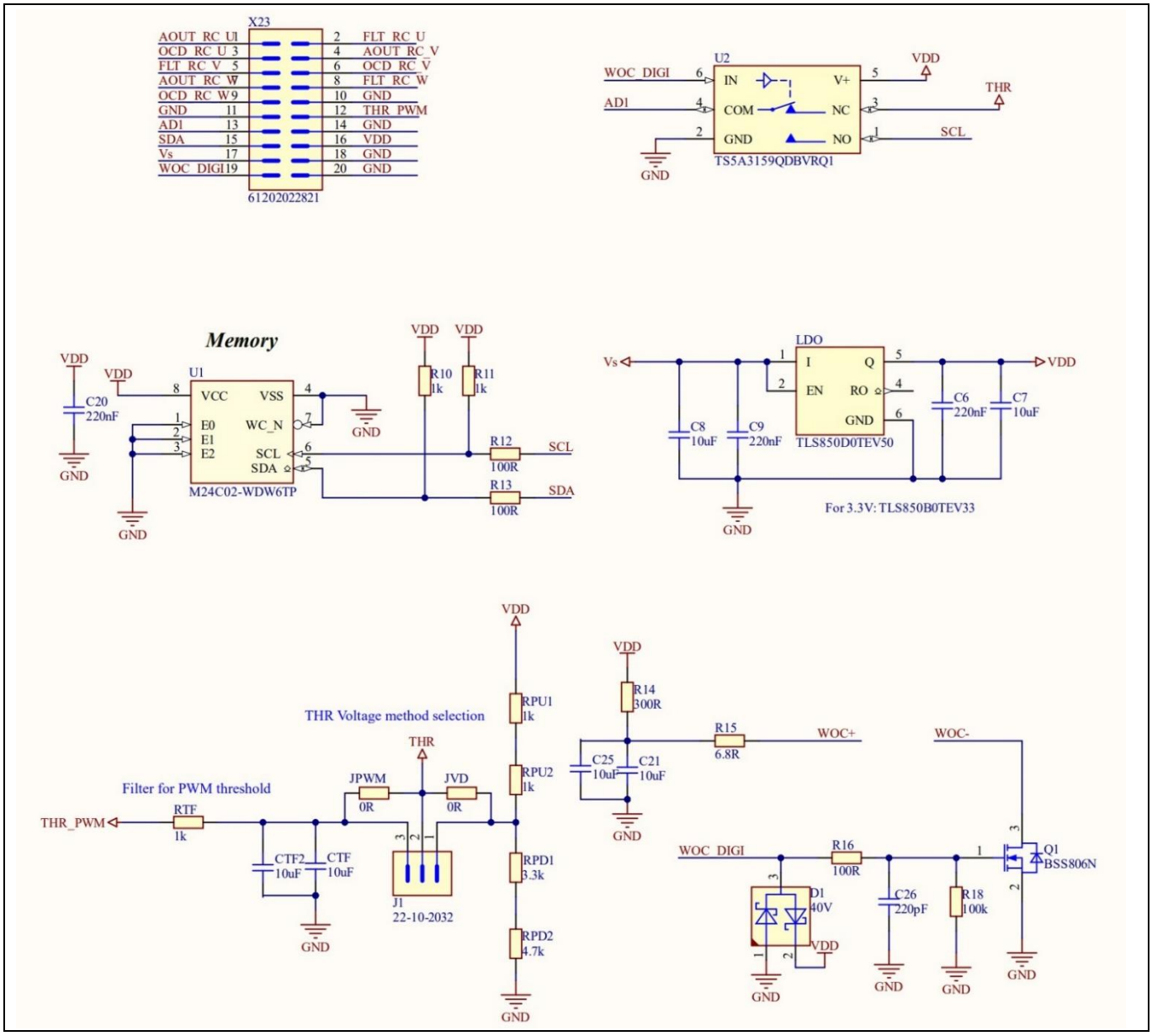

Figure 25 Additional blocks

5.2 PCB layout

The design shown in Section 5.1 is physically implemented in the PCB technology using a standard process with the following characteristics:

- PCB material: FR4
- PCB thickness: 1.6 mm ±10%
- Copper: four layers, 70 µm thickness for the two outer layers, 140 µm thickness for the two inner layers

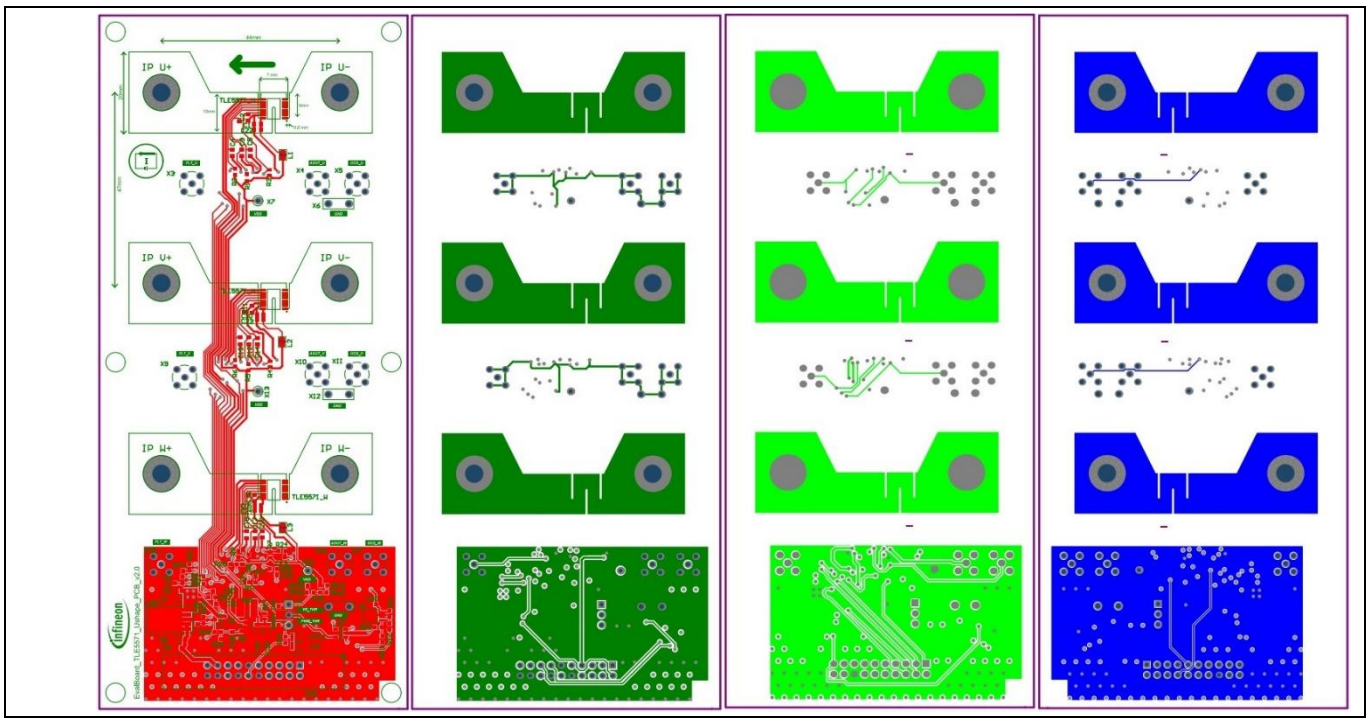

Figure 26 XENSIV™ TLE5571 evaluation board PCB layout

5.3 Bill of materials

Table 2 Bill of materials

Quantity	Reference designator	Value	Manufacturer	Part number
6	C1, C6, C9, C10, C15, C20	220 nF	Murata, Würth Elektronik	GCM188R71E224KA55, GRM188R61E224KA88, 885012206073
3	C2, C11, C16	330 pF	Murata	GCM1885G2A331JA16
12	C3, C4, C12, C13, C17, C18, C27, C28, C30, C31, C33, C34	200 pF	Murata	GCM1885G2A201FA16
3	C5, C14, C19	100 µF	Kemet	C0603C104K5RACAUTO
6	C7, C8, C21, C25, CTF, CTF2	10 µF	TDK Corporation	C3216X8L1E106K160AC
2	CF2, CF3	22 nF	Murata	GCM188R71E223KA37
1	J1	22-10-2032	Molex	22-10-2032

Quantity	Reference designator	Value	Manufacturer	Part number
1	LDO	TLS850D0TEV50	Infineon Technologies	TLS850D0TEV50
6	MP1, MP2, MP3, MP4, MP5, MP6	18 H 2006	Büerklin	18 H 2006
1	Q1	BSS806N	Infineon Technologies	BSS806N
11	R1, R2, R5, R6, R8, R9, R10, R11, RPU1, RPU2, RTF	1 KΩ	Yageo, KOA Speer Electronics Inc.	AC0603JR-071KL, RC0603FR-071KL, RN73H1JTTD1001B10
3	R3, R4, R7	33 KΩ	Vishay	CRCW060333K0FK
3	R12, R13, R16	100 R	Yageo	RC0603FR-07100RL
1	R14	300 R	Vishay	CRCW0603300RFK
1	R15	6.8 R	Vishay	CRCW12106R80FK
9	R17, R19, R20, R21, R22, R23, R24, R25, R26	0 R	Yageo	AC0603JR-070RL
1	R18	100 K	Yageo	RC0603FR-07100KL
1	RPD1	3.3 K	Yageo	RC0603FR-073K3L
1	RPD2	4.7 K	Panasonic	ERA3AEB472V
3	TLE5571_U, TLE5571_V, TLE5571_W	TLE5571 S4	Infineon Technologies	TLE5571-AE06O5-I-S0001
1	U1	M24C02-WDW6TP	STMicroelectronics	M24C02-WDW6TP
1	U2	TS5A3159QDBVRQ1	Texas Instruments	TS5A3159QDBVRQ1
9	X3, X4, X5, X9, X10, X11, X15, X16, X17	PK106-4	Teledyne LeCroy	PK106-4
3	X6, X12, X18	D3080-05	Harwin	D3080-05
3	X7, X13, X19	5001	Keystone Electronics Corp.	5001
3	X20, X21, X22	Jumper_2 pin	Infineon Technologies	Jumper_2 pin
1	X23	61202022821	Würth Elektronik	61202022821

6 Related resources

- XENSIV™ current sensor family webpage
- XENSIV™ current sensors developer community

References

[1] Infineon Technologies AG: *XENSIV™ TLE5571 current sensor datasheet;* Available soon

Glossary

ADC
analog-to-digital converter (ADC)

AOUT
analog output (AOUT)

FLT
fault (FLT)

GUI
graphical user interface (GUI)

LDO
low-dropout regulator (LDO)

OCD
overcurrent detection (OCD)

PCB
printed circuit board (PCB)

SCL
serial clock (SCL)

SDA
serial data (SDA)

UART
universal asynchronous receiver-transmitter (UART)

USB
universal serial bus (USB)

WOC
wire on chip (WOC)

Revision history

Document revision	Date	Description of changes
1.00	2026-07-08	Initial release

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Customer shall not touch the Evaluation Board during operation and keep a safe distance.

Customer shall not touch the Evaluation Board after disconnecting the power supply, several components may still store electrical voltage and can discharge through physical contact. Several parts, like heat sinks and transformers, may still be very hot. Allow the components to cool before touching or servicing.

The electrical installation must be completed in accordance with the appropriate safety requirements.