A17802/3 and ASEK-36 Evaluation Tools Quick Start Guide

DESCRIPTION

Allegro provides tools to assist in the evaluation of its sensor products. This document provides information to establish the interface between the supported tools and the A17802, A17803-M or A17803-S (A17802/3) angle sensor. Simple instructions are included to help users begin to use the hardware and software support tools

EVALUATION TOOLS

- Programmer:
  - ASEK-36 is the evaluation programmer that provides the interface between the sensor and software for essential communication and evaluation.

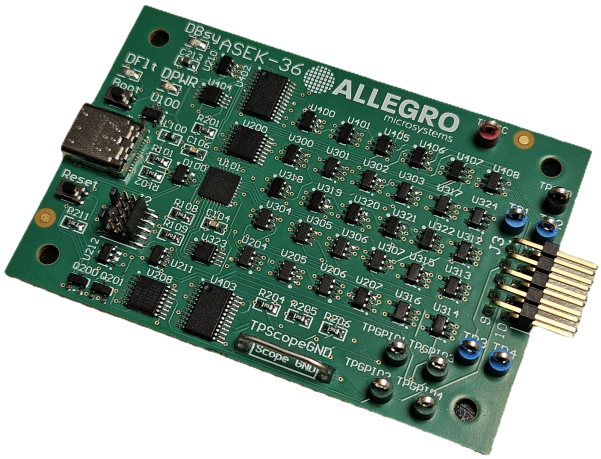


Figure 1: ASEK-36

- Sensor:
  - ASEK-36-SMT-17802/3M/3S is the A17802/3 evaluation board designed to demonstrate the performance of Allegro's high-speed inductive position sensor IC. The system uses an LC tank oscillator (TX) and electromagnetic induction to provide high-accuracy, absolute angular position data via a differential Sine/Cosine interface for the A17802 and digital-output protocols for the A17803.

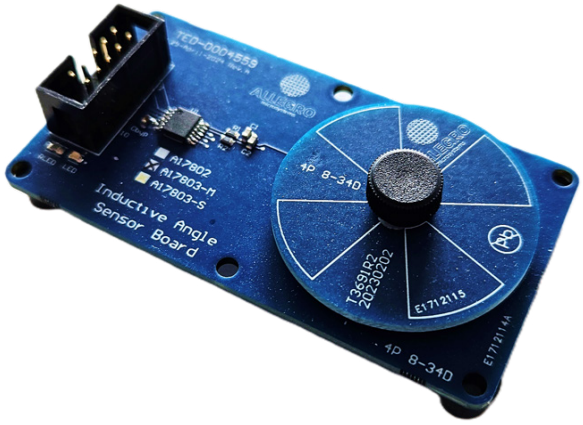


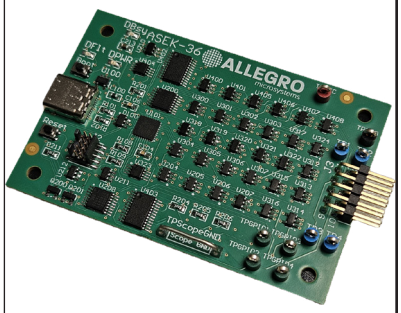
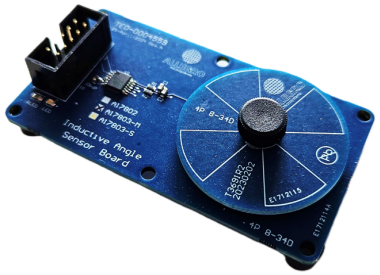
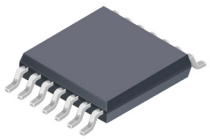
Figure 2: ASEK-36-SMT-17802/3M/3S

- Application:
  - A17802/3 Allegro Application Samples Programmer (AASP) application (available for download from the Allegro Software Portal [1]; registration is required) is the software that interfaces with the ASEK-36, ASEK-36 interface board, and A17802/3 sensor. This software includes an application programming interface (API) and supporting dynamic link libraries (DLLs). The software is designed to operate on a PC with the Windows operating system.

Figure 3: A17802/3 Allegro Application Samples Programmer (AASP)

[1] See https://registration.allegromicro.com/. Additional instructions that detail how to find and identify product software and documentation is available at https://www.allegromicro.com/~/media/files/Demo-Boards/User-Manuals/Customer-Portal-User-Guide.pdf

MATERIALS AND EQUIPMENT

Part Number	Included Materials and Resources	Image
ASEK-36	Included materials: • ASEK-36 programmer • USB 2.0 cable: USB-A male to USB-C male • IDC ribbon cable, 10-conductor cable Resources: • ASEK-36 web page: □ https://www.allegromicro.com/en/ASEK-36 • ASEK-36 firmware update web page: □ https://registration.allegromicro.com/#/parts/ASEK-36	
ASEK-36-SMT-17802/3M/3S	Resources: • ASEK-36-SMT-17802 web page: □ https://www.allegromicro.com/en/design-support/programmer/asek-36/asek-36-SMT-17802 • ASEK-36-SMT-17803-M/S web pages: □ https://www.allegromicro.com/en/design-support/programmer/asek-36/asek-36-SMT-17803M □ https://www.allegromicro.com/en/design-support/programmer/asek-36/asek-36-SMT-17803S	
A17802/3 Allegro Application Samples Programmer (AASP)	Available for download from the Allegro Software Portal [1]: • Software application for selected Allegro sensor: □ A17802 Samples Programmer AASP for ASEK-36 □ A17803-M/S Samples Programmer AASP for ASEK-36 • User manual for selected Allegro sensor • Supporting DLLs	
Samples: • A17802PLEATR • A17803PLEATR-M • A17803PLEATR-S	Available by request on the product web page: • A17802 web page: □ https://www.allegromicro.com/en/products/sense/inductive-position-sensors/motor-position-sensors/a17802 • A17803-M/S web page: □ https://www.allegromicro.com/en/products/sense/inductive-position-sensors/motor-position-sensors/a17803	

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GETTING STARTED WITH HARDWARE

1. Connect the USB-C data cable between a computer and the ASEK-36. The ASEK-36 power LED (green) illuminates to indicate it is in the power-on state.
2. Connect one end of the 10-conductor insulation displacement connector (IDC) ribbon cable to the ASEK-36 primary header.

   IMPORTANT: Ensure that the polarizing key of the ribbon cable connector faces upward (see Figure 5).

   A. Connect the other end of the ribbon cable to the J1 header of the A17802/3 sensor board. (see Figure 6).

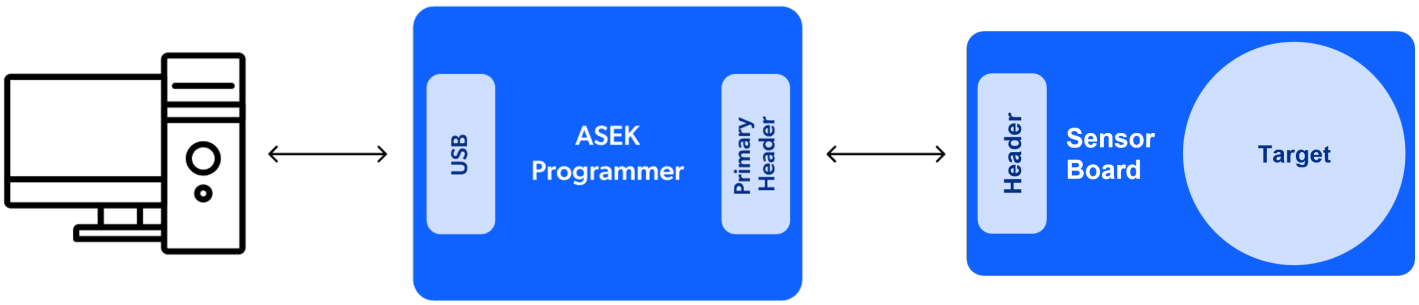

Figure 4: Connection Flow Chart

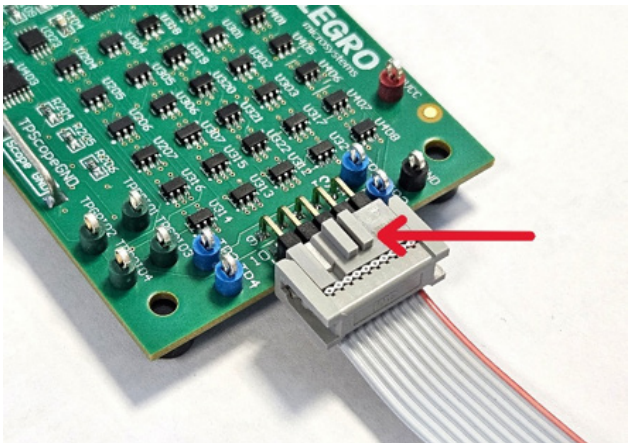

Figure 5: Polarizing Key Position of Ribbon Cable Connector

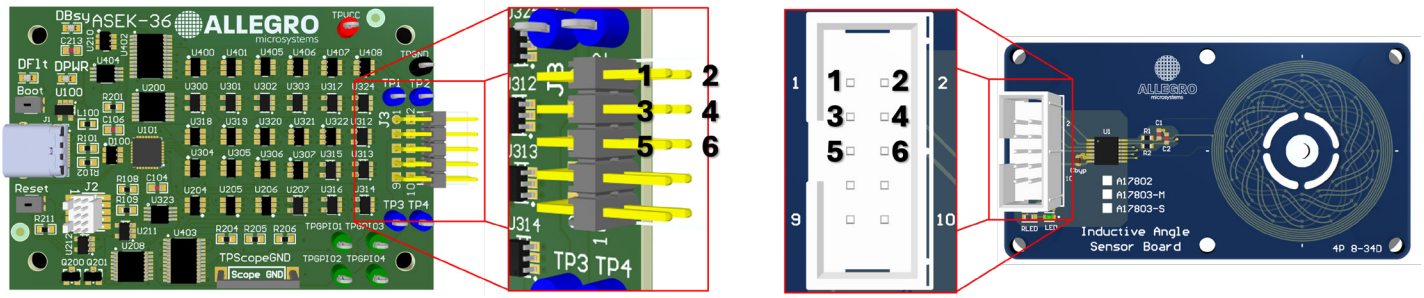

Figure 6: Board Connectors and Pinouts

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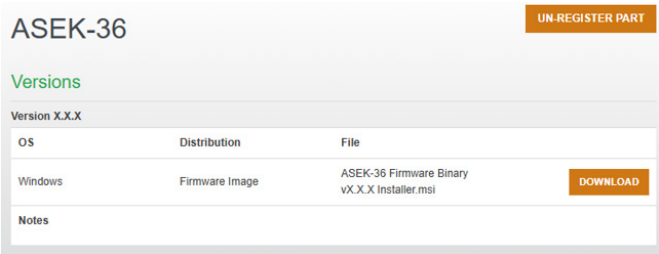
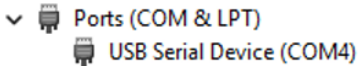
ASEK-36 FIRMWARE UPDATE

To properly communicate with the GUI, the ASEK-36 might require an update to the latest firmware as follows:

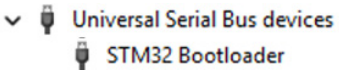
1. Log-in to the Allegro Customer Portal [2] (at https://registration.allegromicro.com; registration is required), navigate to the ASEK-36 page at https://registration.allegromicro.com/#/parts/ASEK-36, and download the latest firmware binary file.



2. Navigate to the STMicroelectronics website at st.com and download and install the STM32CubeProgrammer software. [3] (Disclaimer: Use of third-party software is subject to its terms and conditions; Allegro declines all related liability and responsibility)
3. Connect the USB-C data cable between a personal computer and the ASEK-36. In the Device Manager, in the list of ports, the ASEK-36 should appear as a USB serial device.



4. On the ASEK-36 board, press and hold the BOOT button, then press and release the RESET button, then release the BOOT button. In the Device Manager, in the list of universal serial bus devices, the ASEK-36 should appear as an STM32 bootloader.



5. Run the STM32CubeProgrammer software.
6. On the right panel, in the dropdown menu, select USB, then click the Connect button (see Figure 7).
7. Click the Open File tab and browse to the firmware binary file (see Figure 7).
8. Click the Download button and wait for the download to complete (see Figure 7).
9. Close the STM32CubeProgrammer software and unplug the USB cable. This power-cycles the ASEK-36 and completes the firmware update.

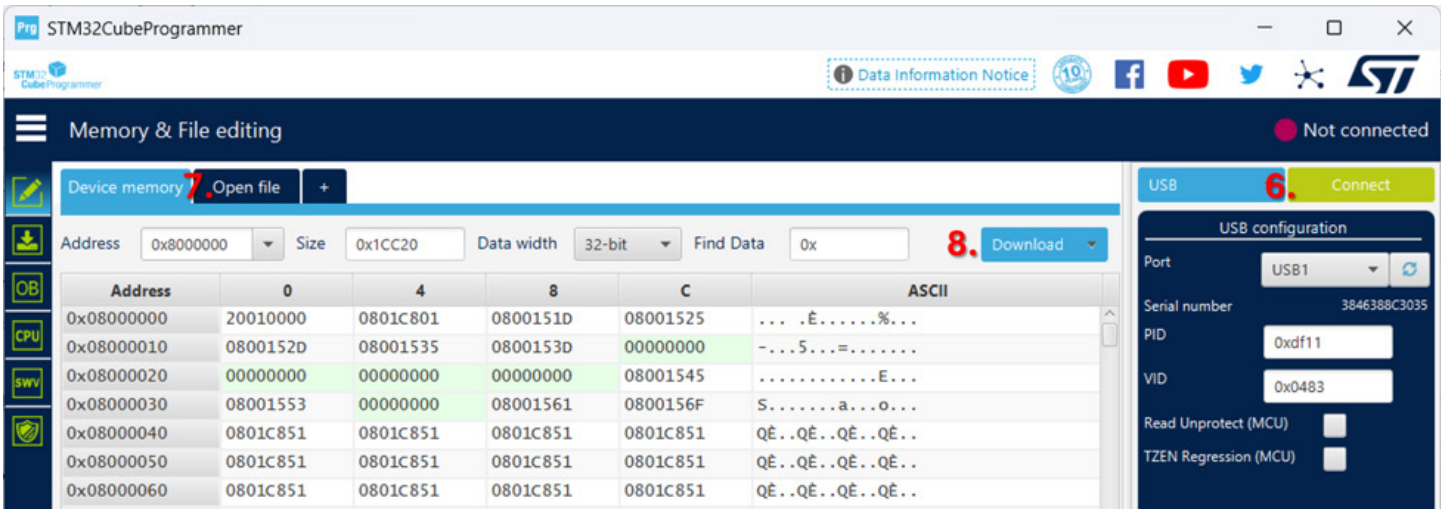


Figure 7: STM32CubeProgrammer Software GUI

[2] See https://registration.allegromicro.com/. Additional instructions that detail how to find and identify product software and documentation is available at https://www.allegromicro.com/~/media/files/Demo-Boards/User-Manuals/Customer-Portal-User-Guide.pdf

[3] See https://www.st.com/en/development-tools/stm32cubeprog.html

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GETTING STARTED WITH SOFTWARE

Download and install the latest version of the Allegro ASEK software available from the Allegro Software Portal [1].

1. Open the ASEK software graphical user interface (GUI) and verify communication between the ASEK-36 and the PC as follows:
   A. In the GUI, navigate to Setup > Communication Setup.
   B. Select the USB port and verify communication is shown as “Active”.
   C. Check the communications indicator; a green highlight indicates good communication, as shown in Figure 8.
2. Navigate to the Device Setup menu to select the proper communication protocol:
   A. Manchester for A17802 or A17803-M (recommended speed: 2 kb/s).
   B. SPI for A17802 or A17803-S (recommended speed: 0.2 MHz).
3. Power the sensor by either:
   A. Click the "Power On" button in the sidebar. The button will turn green, indicating V_{CC} = +5 V is applied to the sensor.
   B. Click the "Power On + Enable Comms" button: in addition to setting $V_{CC,}$ it sends Access codes to enable device memory access.

   In both cases, the green LED of the sensor board illuminates to indicate it is in the powered-on state.

Figure 8:Steps for Proper Use of ASEK Software

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ADDITIONAL RESOURCES

For automated A17802/3 evaluation and script-based control, Allegro also provides MATLAB and Python support packages:

- MATLAB: For use of the optimized MATLAB library and AASP_1780x class, see the Allegro application note Programming the A17802 or A17803 with MATLAB and A17802-3 Programming Board (AN296317). [4]
- Python: For use of an open-source integration environment, refer to the Python-based scripts available on the Allegro Software Portal [1] .

[4] https://www.allegromicro.com/-/media/files/application-notes/an296317-a17802-3-prog-w-matlab-and-prog-board.pdf?sc_lang=en

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Revision History

Number	Date	Description
–	September 17, 2026	Initial release and publication to the Allegro website

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