



ASEK-21 EXTERNAL SUPPLY TRIGGERED PROGRAMMING UNLOCKING MULTIPLE DEVICES SIMULTANEOUSLY

Current Sensors System Engineering
Allegro MicroSystems

INTRODUCTION

External Supply Triggered programming is a method for the ASEK programmer where it will monitor a system's power supply until it has turned on, after which the programmer will unlock up to four devices simultaneously. This allows the end user to communicate with devices that share VCC supplies, without requiring multiple power-up cycles to calibrate each device. The document covers required hardware connection, required software, and the usage of the GUI to setup External Supply Triggered programming for the ASEK-21.

before using the GUI download and read the following documentation from the software center:

- ASEK-21 quick guide: describes the ASEK-21 connections and setup
- ASEK-21 design guide: describes the ASEK-21 function, pinout, and related programming examples.

Obtain the latest programmer GUI from the software center, use the process outlined in the quick guide document above.

HARDWARE CONNECTION:

The ASEK-21 daughterboard has test points for each port allowing simultaneous programming of at least four devices. For proper operation, reference the jumper placement and connection diagram in Figure 1.

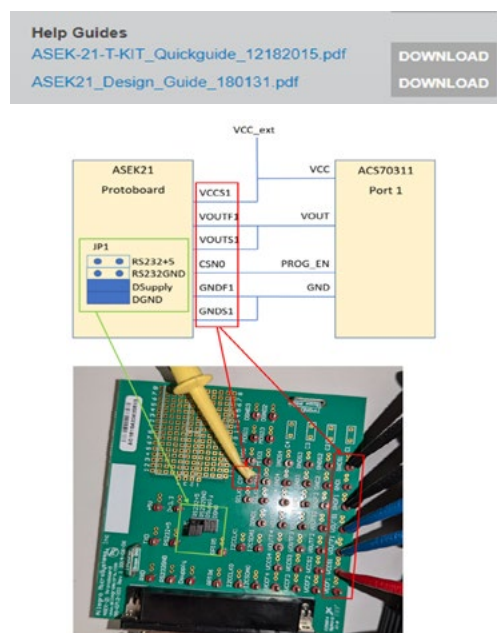


Figure 1: Example connection Port 1 of ASEK-21 daughterboard

When connecting to other ports, a similar connections diagram can be found under the GUI help panel. Refer to Figure 2.

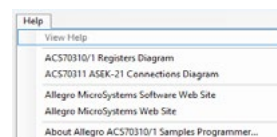


Figure 2: GUI help menu location for additional connections diagrams. Use when additional ports are needed.

GETTING STARTED

The programming mode should be set to PROG_EN by default. Verify the settings highlighted in red and labeled 1 in Figure 3.

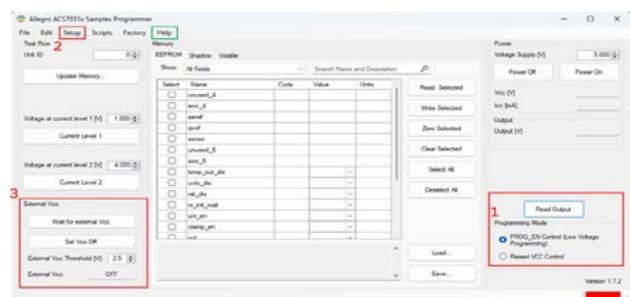


Figure 3: ACS7031x Samples programmer GUI main panel

1. Navigate into the setup menu and select “Communication Setup”. This opens a new panel where the user selects the COM Port for the ASEK-21. Refer to Figure 4 showing the “Communication Setup” dialogue window. Once selected, the status will show as active, and the ASEK-21 device port select panel will appear next to the green COM port indicator on the GUI (Figure 5). If port select panel does not appear, continue to device setup.

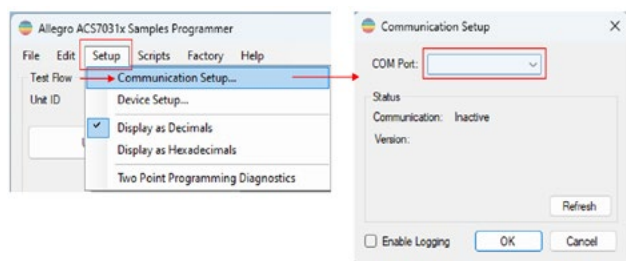


Figure 4: Communication Setup and COM port selection

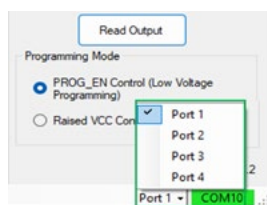


Figure 5: Port selection becomes available once successful connection to ASEK-21 is established.

2. Navigate into the setup menu and select “Device Setup” (Figure 6). A new panel opens, as shown in figure 7. Select the ASEK-21 tab and verify that the settings in the panel are set as follows:

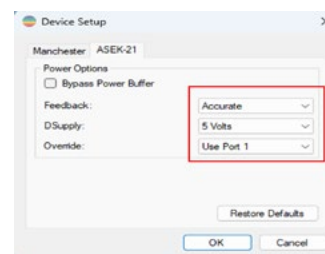


Figure 6: Device Setup panel defining Manchester communication levels

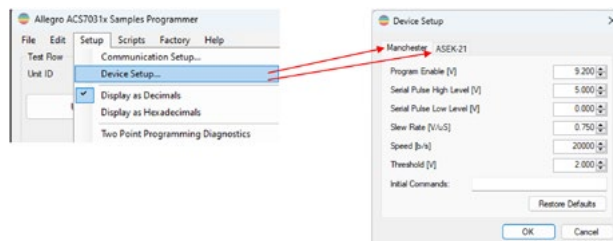


Figure 7: Device Setup panel defining ASEK-21 power options

3. Return to the main GUI External VCC options (Figure 8) and verify the threshold is set to 4.0 V. When all devices are properly connected to the hardware, the user can click “Wait for external VCC”. Devices will unlock simultaneously once rising edge is observed on this pin.

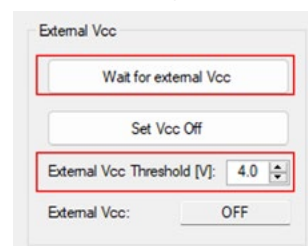


Figure 8: External V_{CC} control panel

Note: It is critical that the external V_{CC} level is off before user clicks “Wait for external VCC”.

NORMAL OPERATION

Once external V_{CC} level is triggered, an unlock signal is sent to each device, followed by a read confirm of selected port (Figure 9).



Figure 9: Oscilloscope capture showing Manchester unlock and read confirm following external V_{CC} trigger level.

Read/Write Memory Interface

To select which device to communicate with, navigate to the port select panel at the bottom right of the main GUI, shown in Figure 5. Once selected, the typical Read and Write operation of the programmer can be used as shown in Figure 10.

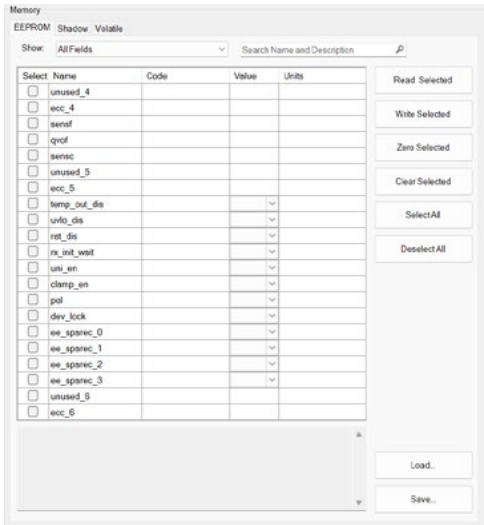


Figure 10: GUI memory control panel

Revision History

Number	Date	Description
–	May 21, 2025	Initial release

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