

ASEK-21 Evaluation Kit User Guide

The ASEK-21-T-KIT as described below is for the purpose of programming customer modules that contain multiple Allegro devices.

ASEK-21-T-KIT BILL OF MATERIALS

- ASEK-21 Main Board (Part #: 85-0712)
- ASEK-21 Calibration Board (Part #: 85-0712-100)
- ASEK-21 Daughter Board (Part #: 85-0712-103)
- ASEK-21 Cable (Part #: 85-0712-301)
- USB A male to B male 3-foot cable (Part#: 3021001-03)
- ASEK-21 Power Supply (Part #: EMMA050400-P5P-IC)

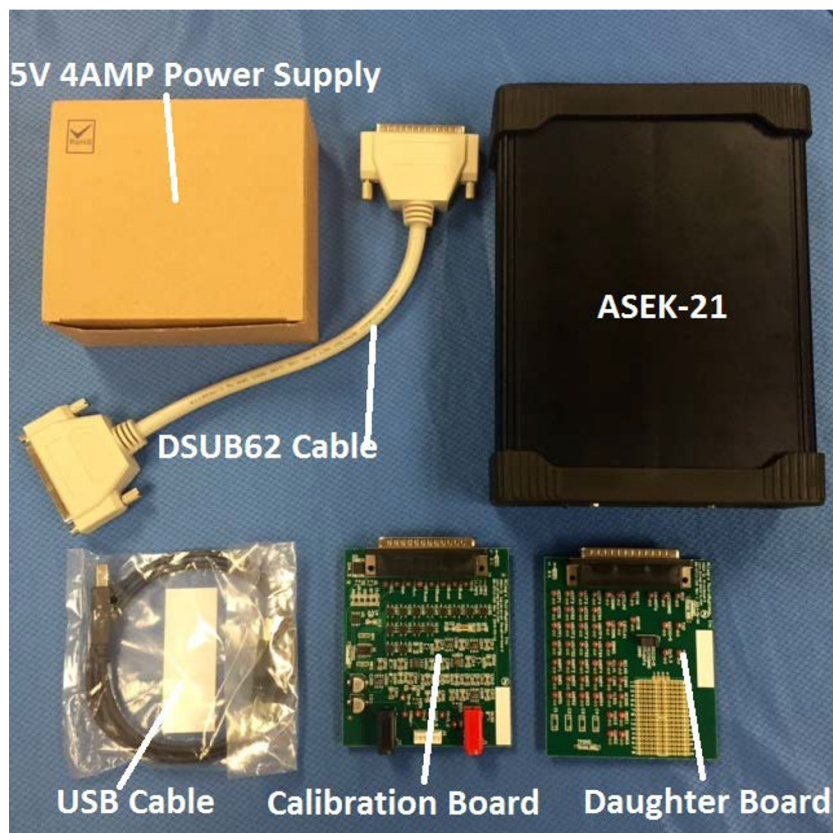


Figure 1: Complete ASEK-21 Kit

Instructions for Configuring ASEK-21-T-KIT for Device Programming

1. Connect one end of the USB cable to a personal computer.
2. Connect the other end of the USB cable to the USB port on the ASEK-21.
3. Connect the DSUB62 cable to ASEK-21 and the other end to J4 connector on the ASEK-21 daughter board (85-0712-103).
4. Connect the DC power supply/cable to the 5 V port on the ASEK-21.
5. Plug in the DC power supply to a 110 V / 220 AC 60 / 50 Hz outlet with the proper adapter.
6. Complete setup is shown in Figure 2.

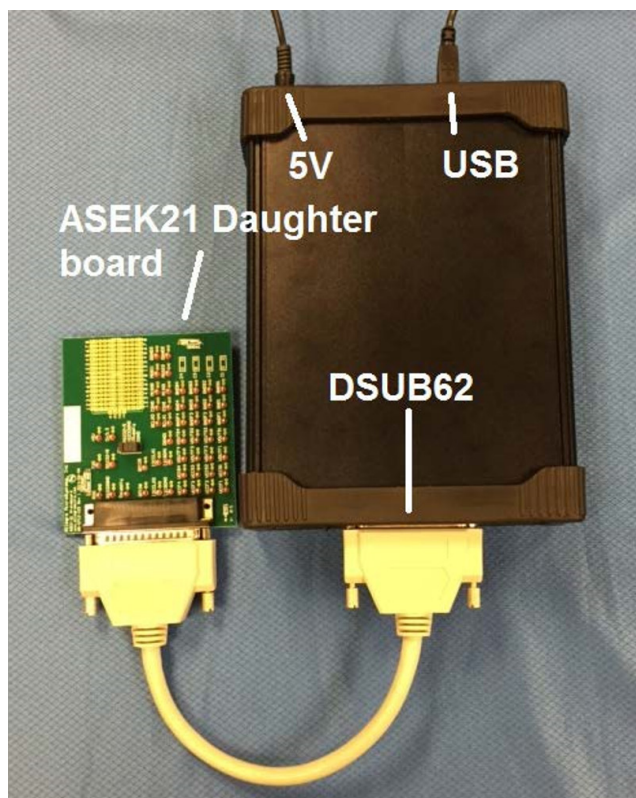


Figure 2: Assembled ASEK-21

It is advised to remove all four jumpers shown in the image below and place them on one side of the pins for safe storage. Jumpers may be necessary in very specific applications (RS232, sensor modules without I2C pull-up resistors).

The ASEK-21 daughter board supports multiple communication protocols. Figure 3 below shows test points for analog, I²C, and SPI communications.

Jumpers

i2C Digital Pins

Prototyping Area

SPI Digital Pins

Analog Test Points w/ Kelvin Contacts

Refer to Table 1 through Table 4 below for daughter board pin names and brief descriptions of their functions. Refer to Table 5 for information regarding jumpers.

Pin Name	Description	Provided/Driven by
MOSI0	Master out, Slave in 0	ASEK-21
MISO0	Master in, Slave out 0	Sensor Module
SCLK0	SPI Clock 0	ASEK-21
CSN0	Chip Select 0	ASEK-21
MOSI1	Master out, Slave in 1	ASEK-21
MISO1	Master in, Slave out 1	Sensor Module
SCLK1	SPI Clock 1	ASEK-21
CSN1	Chip Select 1	ASEK-21

Pin Name	Description	Provided/Driven by
I2CSDA0	I2C Data Channel 0	ASEK-21/Sensor Module
I2CCLK0	I2C Clock Channel 0	ASEK-21
I2CSDA1	I2C Data Channel 1	ASEK-21/Sensor Module
I2CCLK1	I2C Clock Channel 1	ASEK-21

Table 3: Analog Channels 1 through 4 on ASEK-21 daughter board. Note: Analog testing requires the connection of kelvin contacts either on the daughter board or at the sensor module.

Signal	Description	Provided/Driven by
VCC_F_S1	VCC Force Sensor 1	ASEK-21
VCC_S_S1	VCC Sense Sensor 1	Sensor Module
VOUT_F_S1	VOUT Force Sensor 1	ASEK-21
VOUT_S_S1	VOUT Sense Sensor 1	Sensor Module
GND_F_S1	Ground Force Sensor 1	ASEK-21
GND_S_S1	Ground Sense Sensor 1	Sensor Module
VCC_F_S2	VCC Force Sensor 2	ASEK-21
VCC_S_S2	VCC Sense Sensor 2	Sensor Module
VOUT_F_S2	VOUT Force Sensor 2	ASEK-21
VOUT_S_S2	VOUT Sense Sensor 2	Sensor Module
GND_F_S2	Ground Force Sensor 2	ASEK-21
GND_S_S2	Ground Sense Sensor 2	Sensor Module
VCC_F_S3	VCC Force Sensor 3	ASEK-21
VCC_S_S3	VCC Sense Sensor 3	Sensor Module
VOUT_F_S3	VOUT Force Sensor 3	ASEK-21
VOUT_S_S3	VOUT Sense Sensor 3	Sensor Module
GND_F_S3	Ground Force Sensor 3	ASEK-21
GND_S_S3	Ground Sense Sensor 3	Sensor Module
VCC_F_S4	VCC Force Sensor 4	ASEK-21
VCC_S_S4	VCC Sense Sensor 4	Sensor Module
VOUT_F_S4	VOUT Force Sensor 4	ASEK-21
VOUT_S_S4	VOUT Sense Sensor 4	Sensor Module
GND_F_S4	Ground Force Sensor 4	ASEK-21
GND_S_S4	Ground Sense Sensor 4	Sensor Module

Table 4: Other pins on ASEK21 daughter board. See notes below regarding limits.

Signal	Description	Provided/Driven by
Dsupply ^[1]	Digital Power Supply	Sensor Module
D + 3.3 V ^[2]	Digital +3.3 V Test Point	Sensor Module
+5 V	5 V Test Point	ASEK-21
GPIO5	GPIO 5	ASEK-21
GPIO6	GPIO 6	ASEK-21
RS232 + 5 V ^[3]	RS232 +5 V	RS232
RS232GND ^[3]	RS232 Ground	RS232
TXD	RS232 Transmit	RS232
RXD	RS232 Receive	RS232
DGND	Digital Ground	Sensor Module
DGND	Digital Ground	Sensor Module
TPGND	Scope Ground Bar	ASEK-21

^[1] Dsupply

- Do not supply negative voltages.
- Do not supply voltage exceeding +5.5 V.
- Do not apply voltage if providing digital voltage (+2.7 V, +3.3 V or +5 V) to module with ASEK-21.
- Voltages applied to Dsupply should be in reference to DGND.

^[2] D + 3.3 V

- Do not supply negative voltages.
- Do not supply voltages exceeding +5.5 V.
- Voltages applied to D + 3.3 V should be in reference to DGND.

^[3] RS232 + 5 V / GND

- Do not supply negative voltages.
- Do not supply voltages outside of +3.3 to +5.5 V.
- Voltages applied to D + 3.3 V should be in reference to DGND.

Table 5: Jumpers on ASEK-21 daughter board

Jumper	Function
RS232+5	Required to enable RS232
RES232GND	Required to enable RS232
Dsupply	Will connect module Dsupply to ASEK-21 Dsupply
DGND	Will connect module DGND to ASEK-21 GND

SETTING UP USB CONNECTION

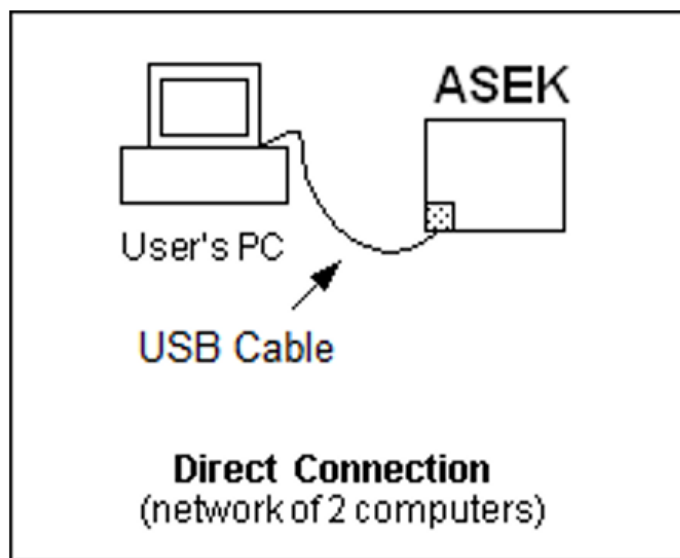


Figure 4: Options for Connecting ASEK to PC

Windows will treat ASEK-21 as a serial com port. The first time ASEK-21 is connected to the computer windows will look for and install the necessary drivers. The exact port number can be found using the device manager under “Ports.” See Table 5.

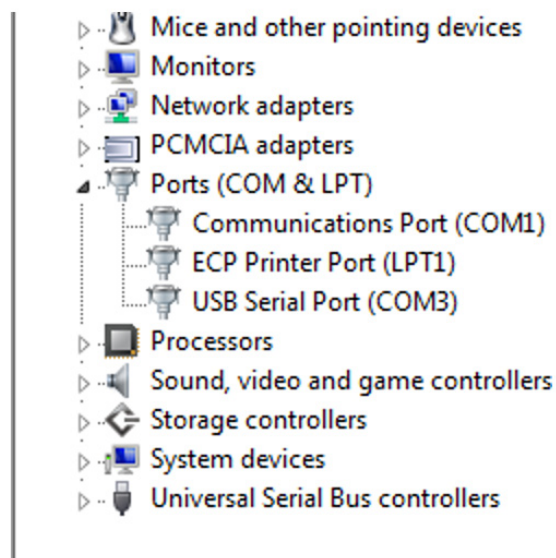


Figure 5: Screenshot from Windows device manager showing ASEK-21 as a USB Serial Port (COM3)

PROGRAMMING SOFTWARE FOR ASEK-21-T-KIT

1. Register at Allegro’s software portal in order to download the ASEK-21 programming software:
<https://registration.allegromicro.com/login>.

Revision History

Number	Date	Description
–	July 8, 2015	Initial release
1	May 6, 2024	Updated document template and minor editorial updates

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