PGA309EVM

Step-by-step example
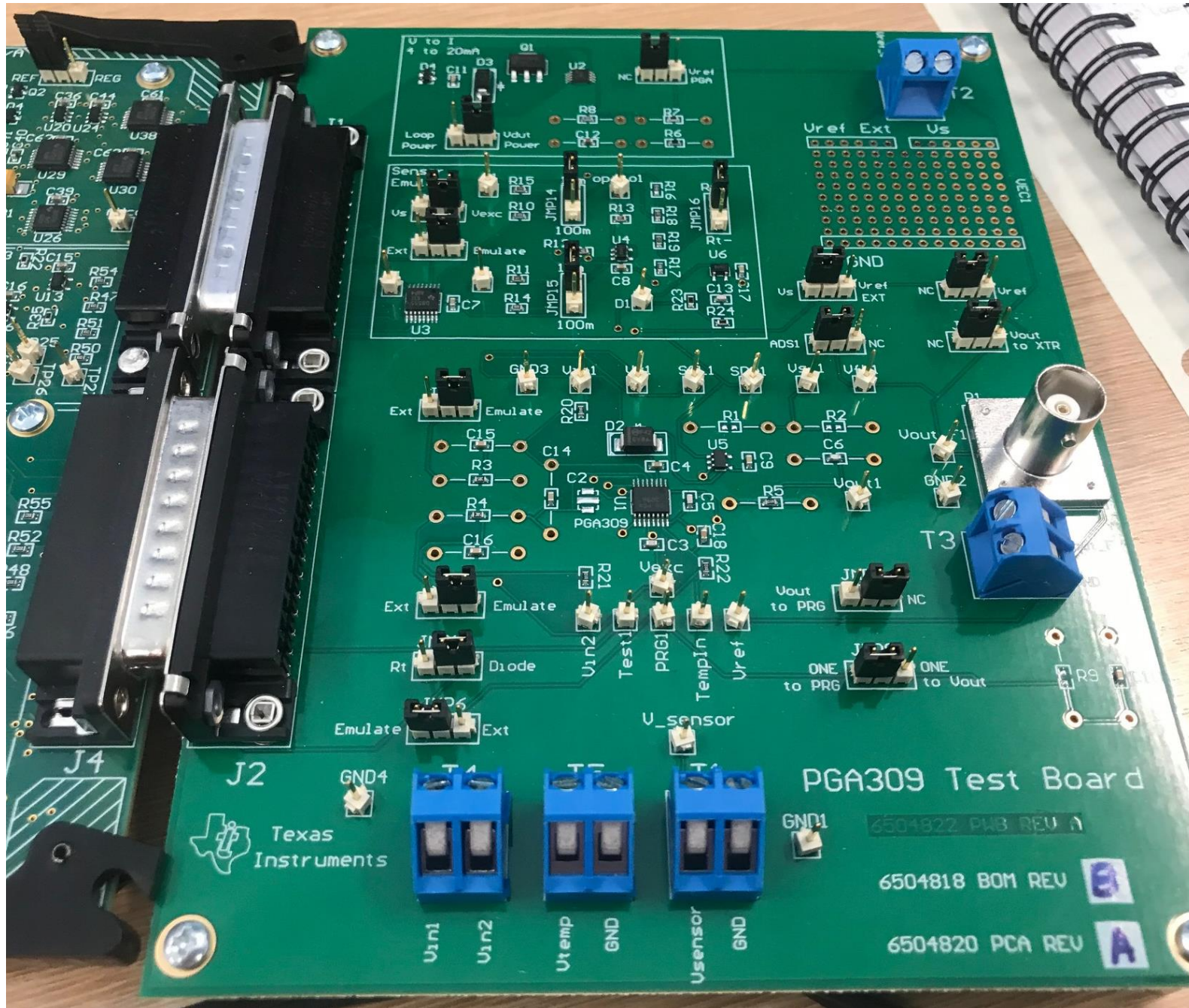
Art Kay

10-18-2023

TEXAS INSTRUMENTS

Set the jumpers on the test board.

JMP	Position
10	NC
11	Vdut Power
12	Vexc
17	Emulate
14	10m
15	10m
16	Rt+
2	Vs
1	NC
3	ADS1
9	NC
4	Emulate
5	Emulate
13	Diode
6	Emulate
7	NC
8	ONE to PRG

TEXAS INSTRUMENTS

Set the jumpers on the USB-DAQ
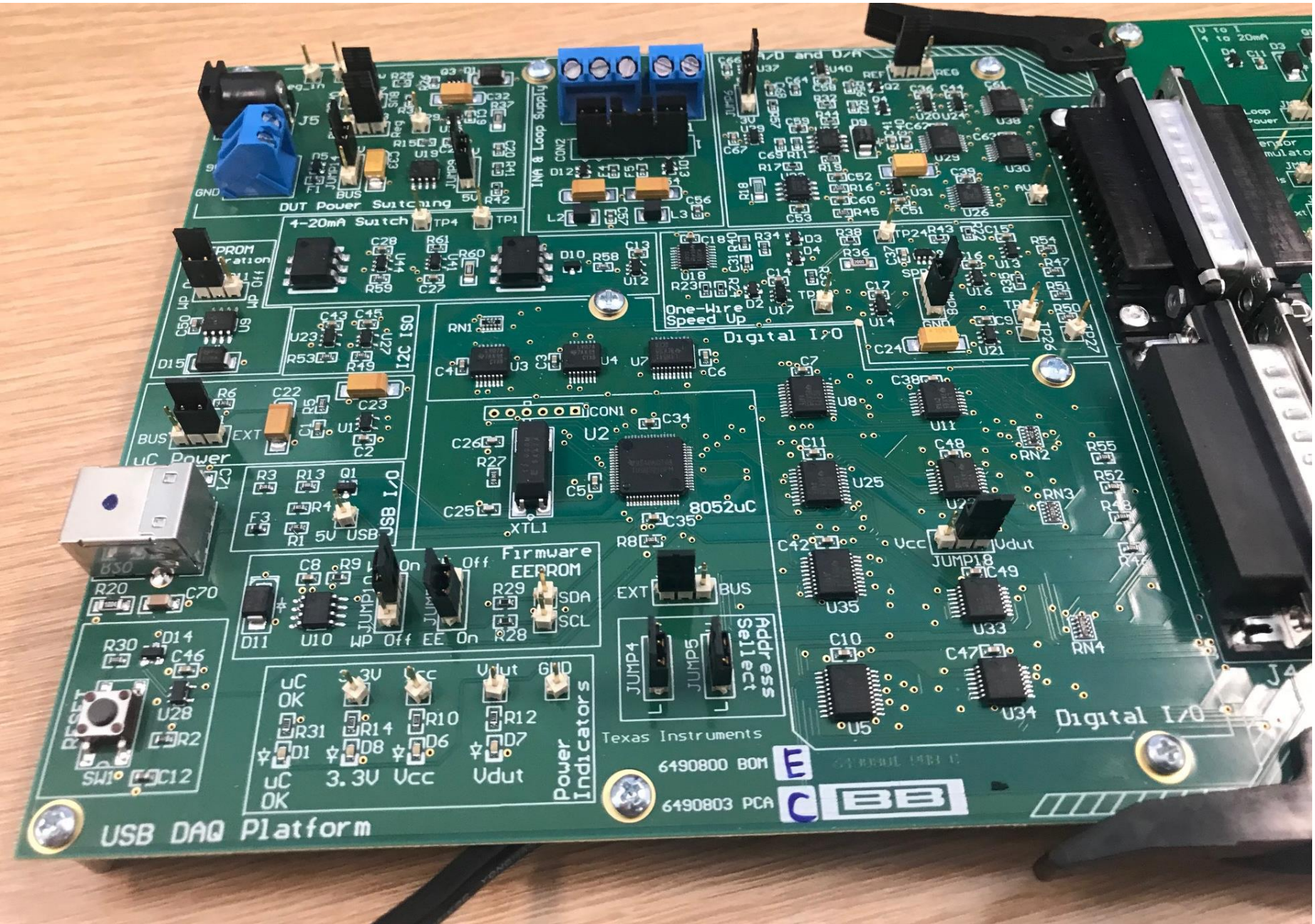
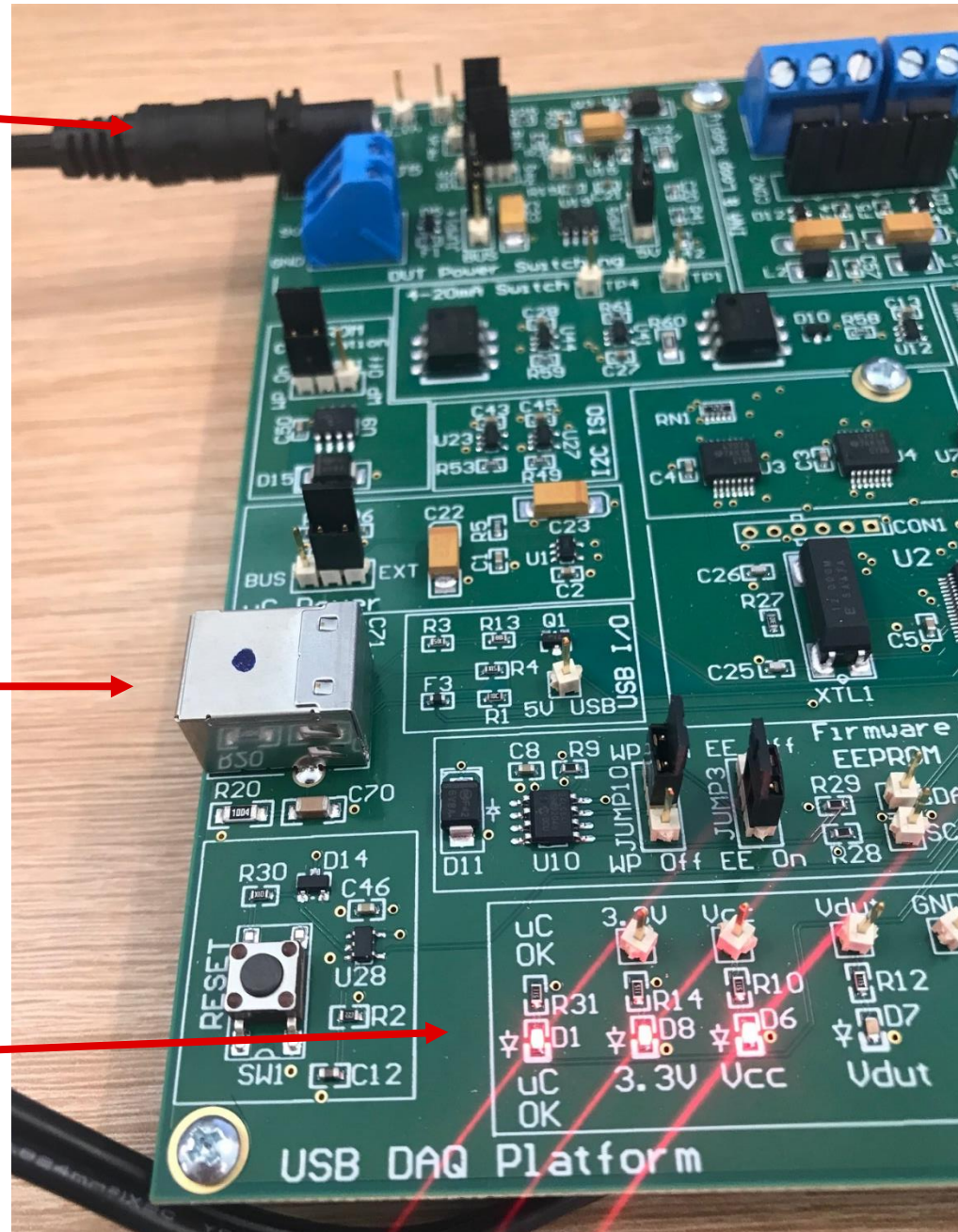| JMP	Position
17	BUS
13	Reg
14	9V
9	5V
11	WP On
6	5V
7	REF
1	EXT
8	GND
10	WP On
3	EE On
2	EXT
4	L
5	L
18	VDUT

TEXAS INSTRUMENTS

Connect Power (6V to 9V) then USB

1. Connect 6V to 9V DC power here
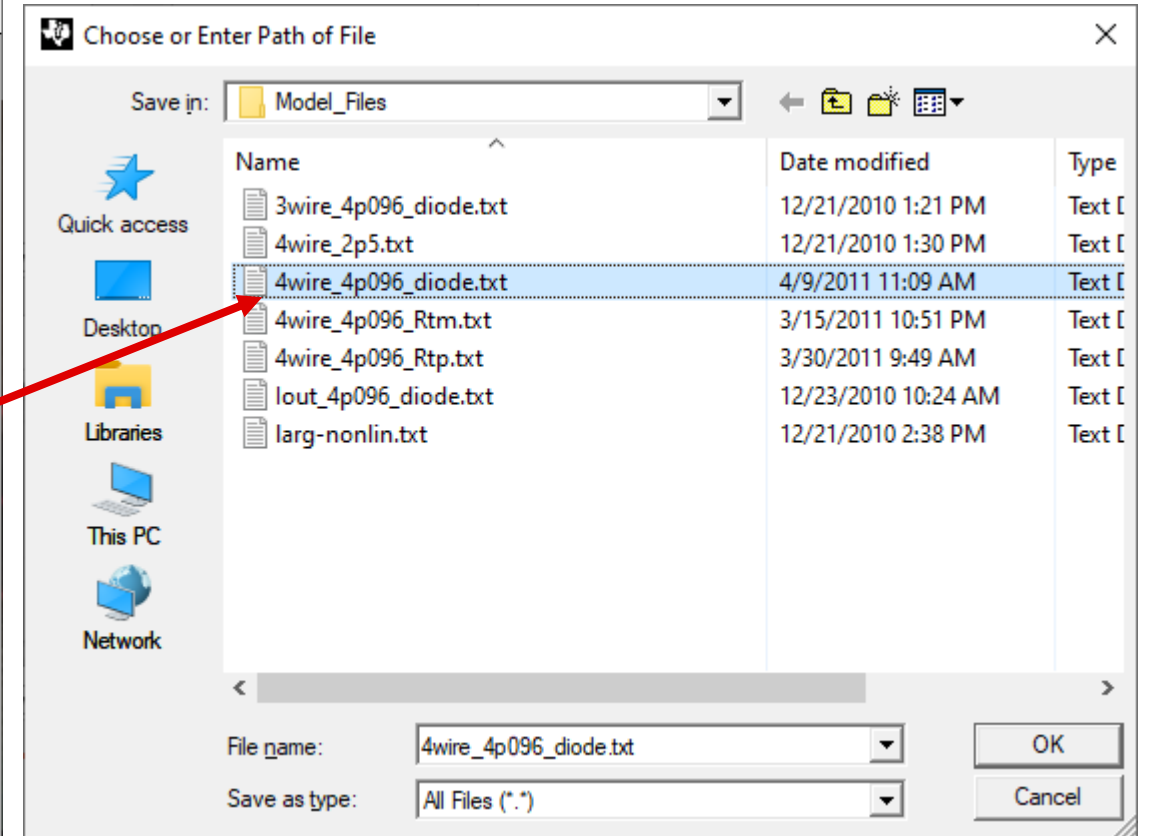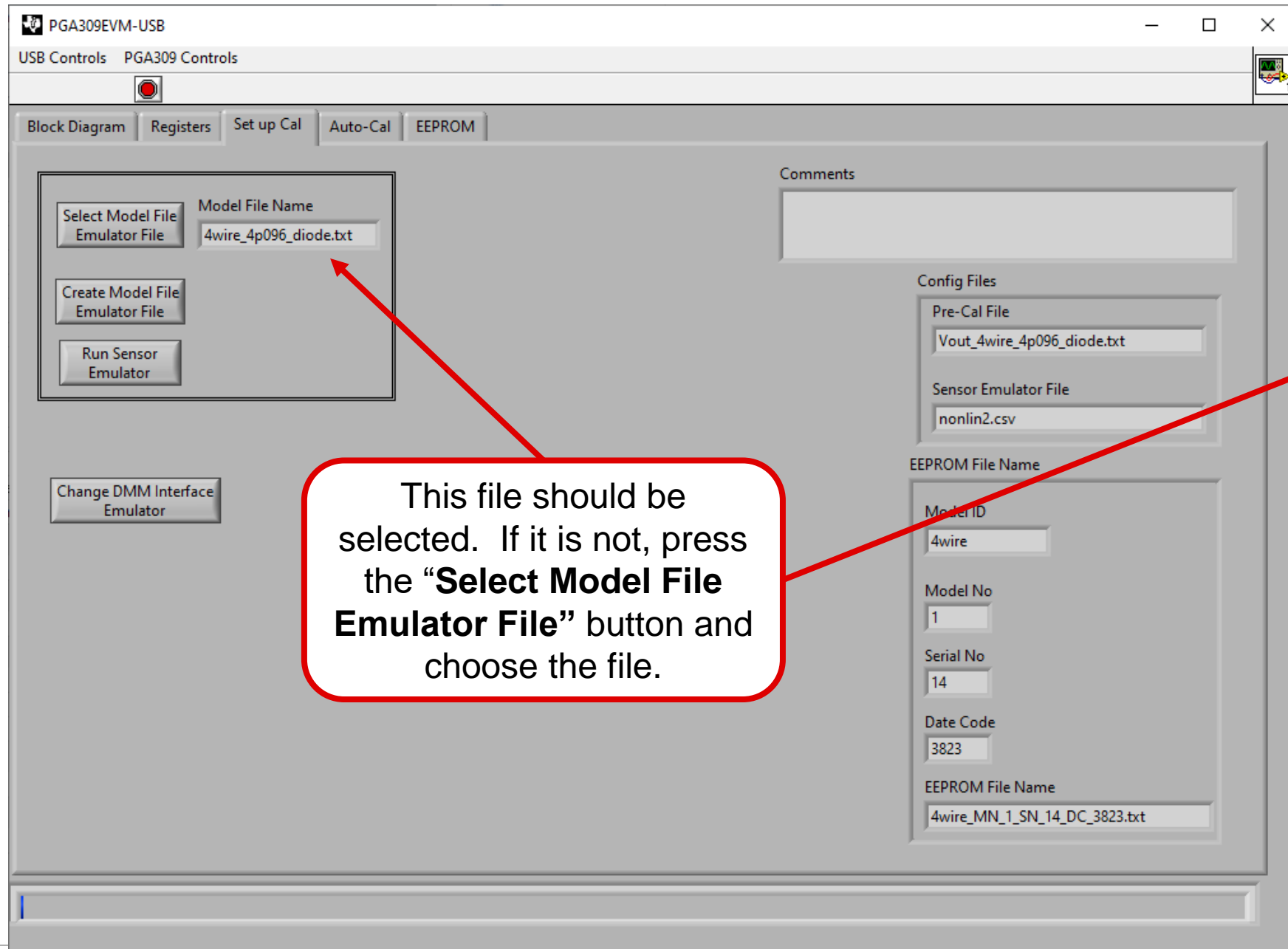
3. Connect USB here

2. LED should eliminate as shown.

Start Software

Should see a quick update on status bar and no error messages.

TEXAS INSTRUMENTS

Select the "4wire_4p096_diode.txt" if needed

This file should be selected. If it is not, press the "**Select Model File Emulator File**" button and choose the file.

TEXAS INSTRUMENTS

Run Auto-Cal

2. Press start.

1. Check "auto-continue" to speed up calibration.

3. Continue should start to blink. Press this to initiate calibration.

Calibration progress

1. Text describing the current step is shown here

2. Measured results will update here. The sensor emulator will automatically adjust the "sensor" output according to the current emulated temperature and pressure.
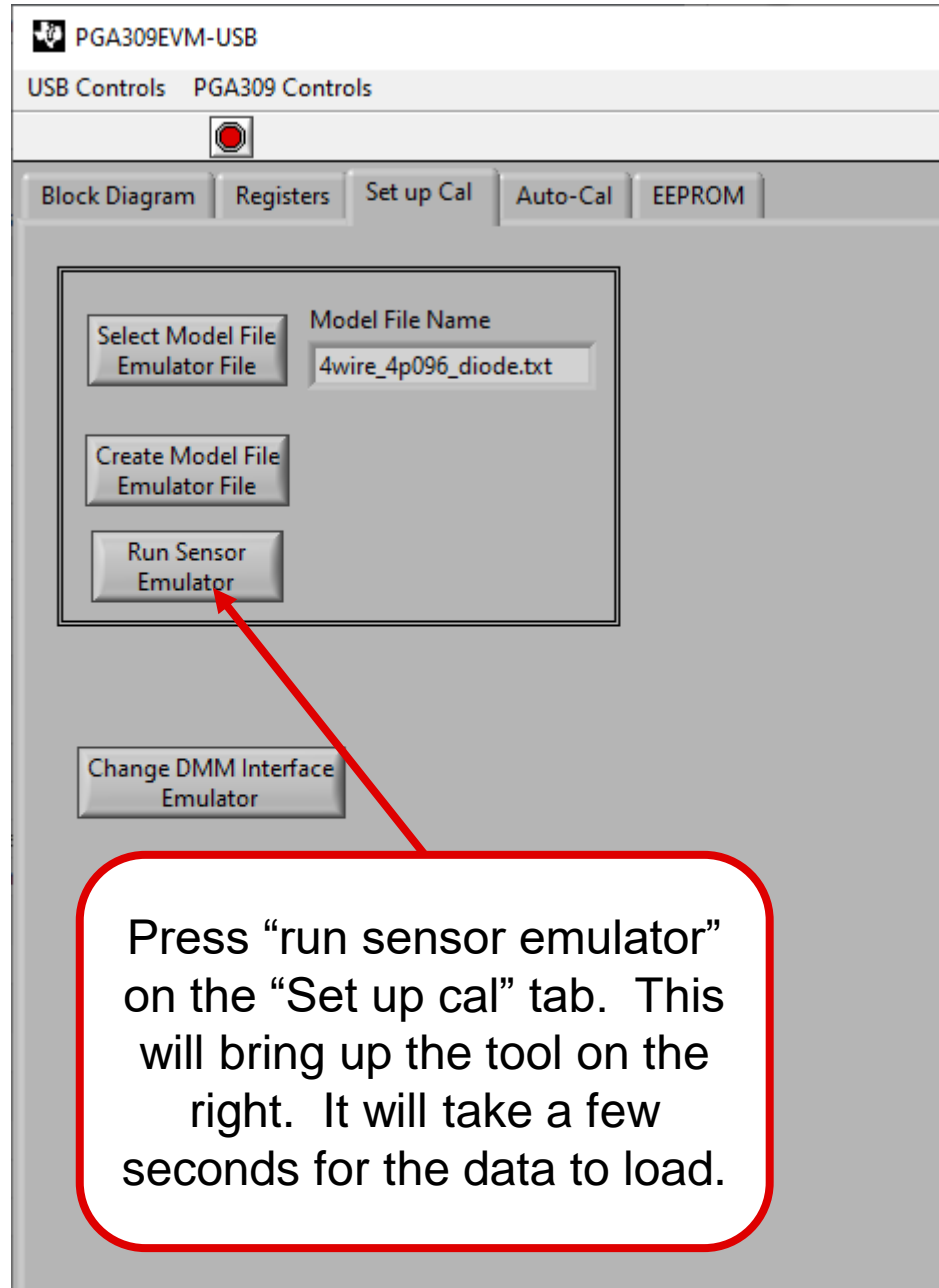
Calibration complete

1. Notice that the calibrated min and max output are approximately at the target of 0.5V to 4.5V. This indicates that the calibration worked and the hardware is functioning correctly

Sensor emulator for verification

Press "run sensor emulator" on the "Set up cal" tab. This will bring up the tool on the right. It will take a few seconds for the data to load.

TEXAS INSTRUMENTS

Sensor emulator for verification

2. The cursor position will adjust to show the current temperature and pressure conditions on the sensor curves.

1. Adjust the sliders to any temperature or pressure.

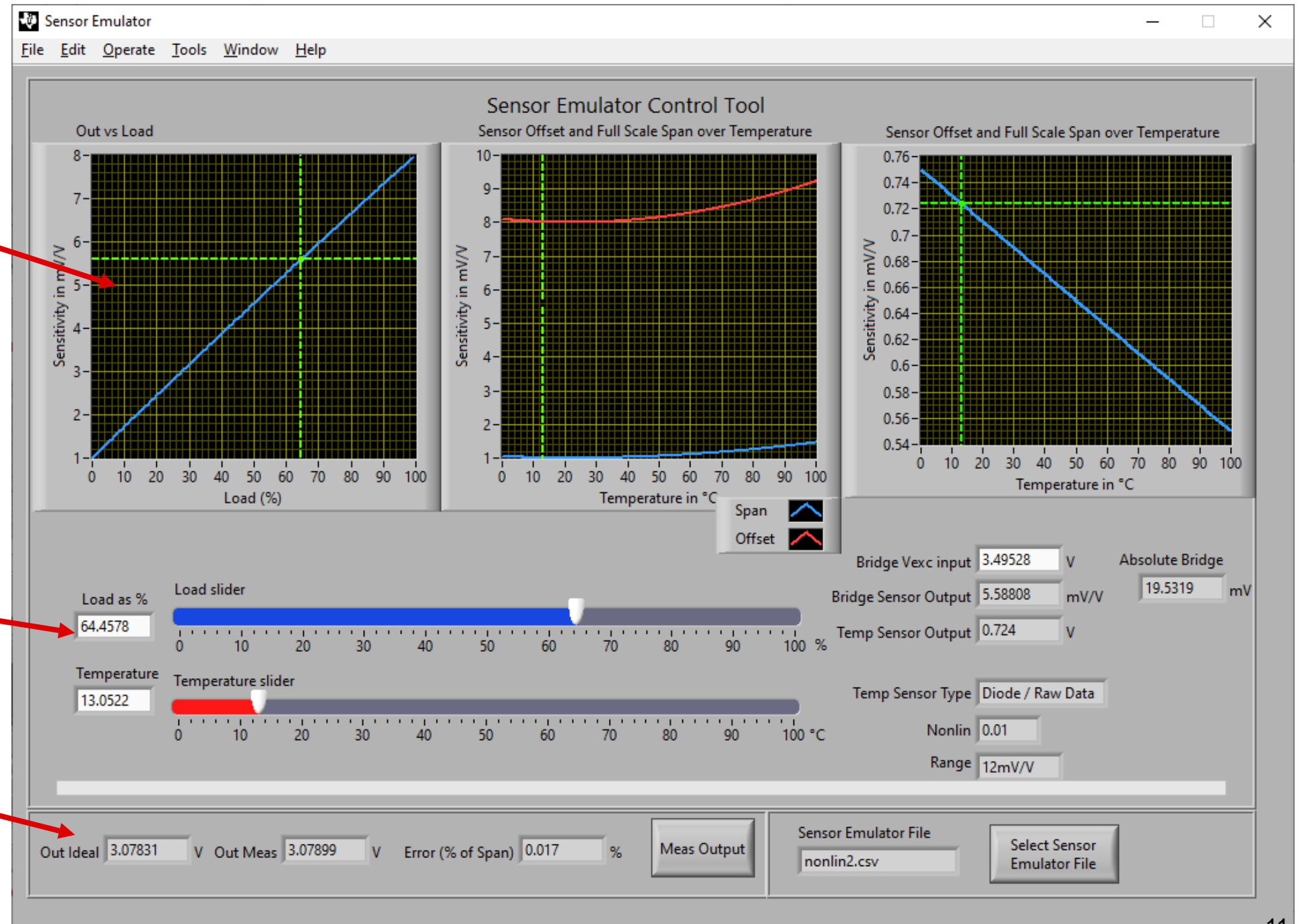3. The "ideal output" and "Out Meas" should be approximately equal. The Error should be less than 0.1%. In this case the error is 0.017% so it is working well.

TEXAS INSTRUMENTS

Changes for real world sensors

JMP	Position
10	NC
11	Vdut Power
12	Vexc
17	**Ext**
14	10m
15	10m
16	Rt+
2	Vs
1	NC
3	ADS1
9	NC
4	**Ext**
5	**Ext**
13	Diode
6	**Ext**
7	NC
8	ONE to PRG

1. Change jumpers 4, 5, 6 and 17 to Ext to use external sensors.

TEXAS INSTRUMENTS