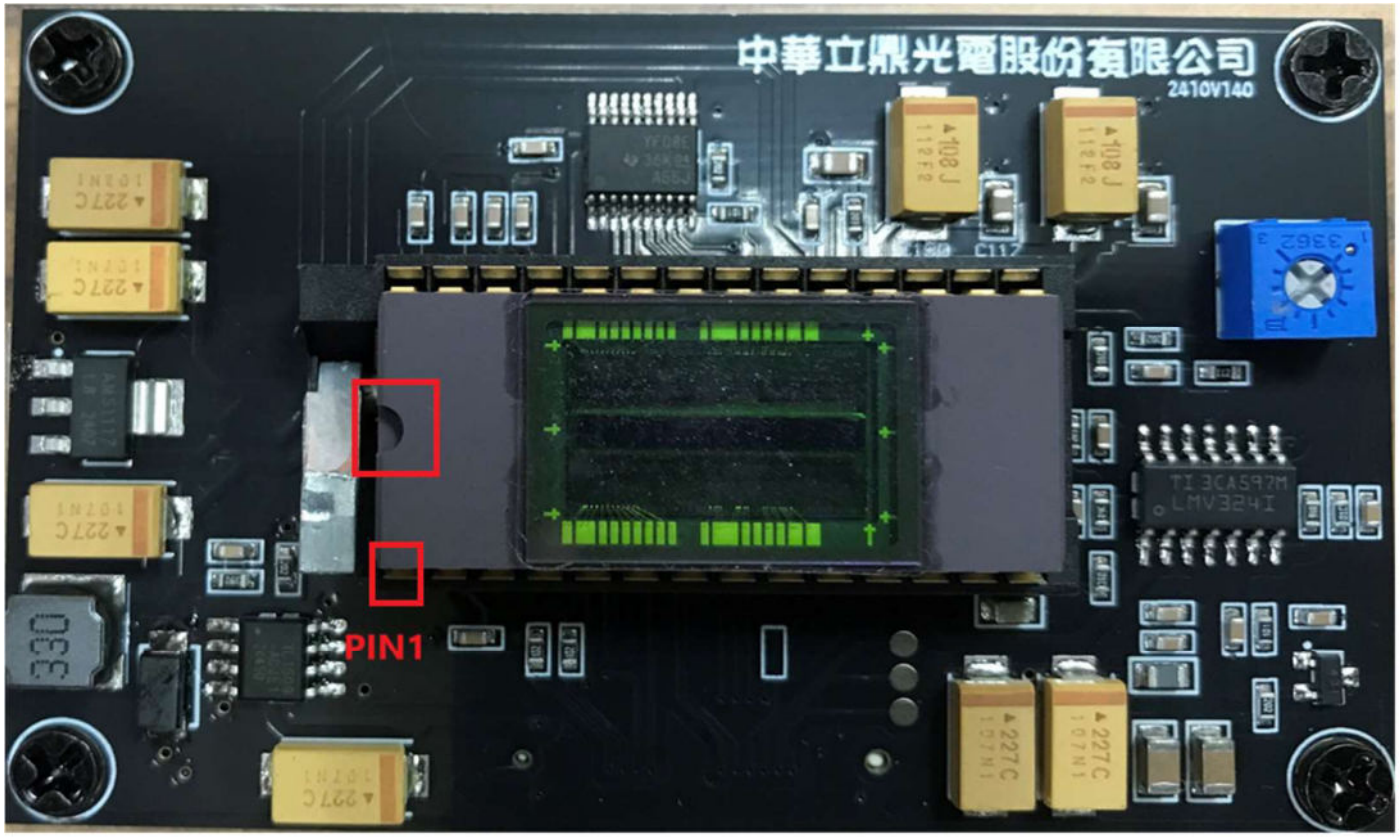
Driving Circuit for InGaAs Linear Image Sensor **LIM1024/512 Series** Operation Guide V1.0

INTRODUCTIONS

PICTURE



LIM1024/512 Series

APPLICATIONS

1. Shortwave Scanning Imaging
2. Process Monitoring
3. Semiconductor Inspection
4. LIDAR Sensing

FEATURES

1. Plug & Play
2. USB 3.1 Gen 1 Interface
3. Built-in 14-bit A/D Converter
4. One Port for 512x1, Two Ports for 1024x1
5. Integrate Time, Gain, Port, and Pixel Rate Adjusted.

SELECTION GUIDE

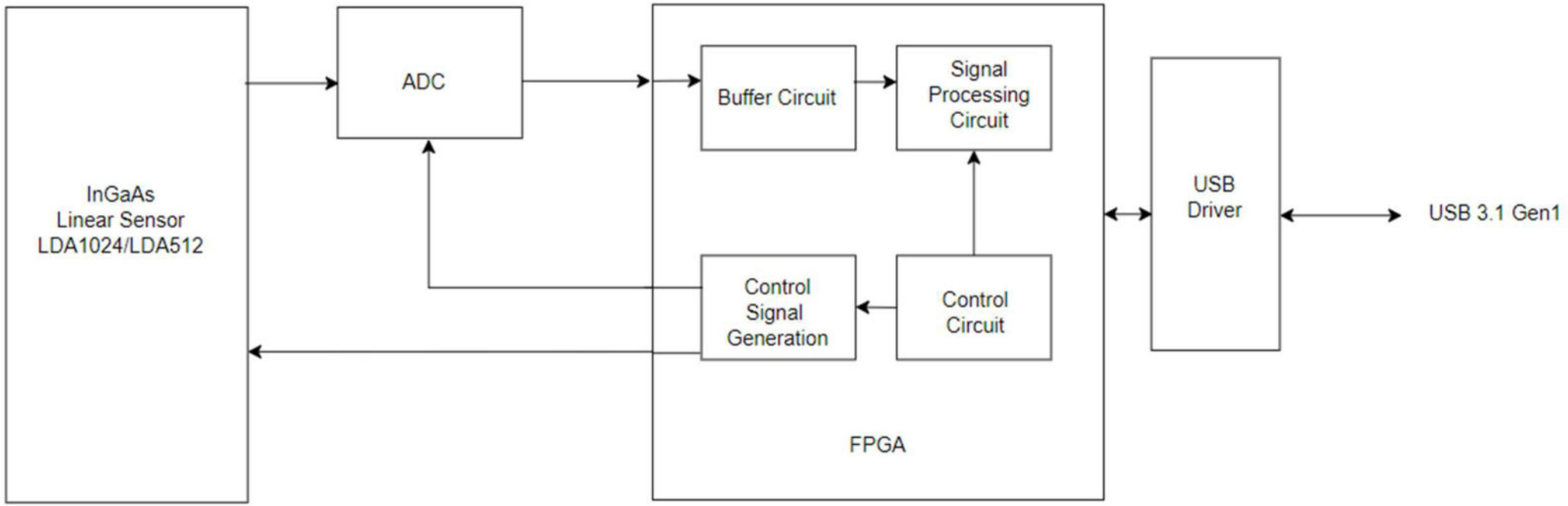
InGaAs Linear Image Sensor (built-in)						
LIS Series	LDA mode	Pixel Pitch (um)	Pixel Size(um)	Spectrum	Package	
LIM1024_S-17-T1	LDA1024P12.5S-17-T1	12.5	12.5 x 12.5	0.9-1.7	Kovar	1 stage TEC
LIM1024_S-17-C	LDA1024P12.5S-17-C	12.5	12.5 x 12.5	0.9-1.7	Ceramic	uncooled
LIM512_S-17-T1	LDA512P25S-17-T1	25	25 x 25	0.9-1.7	Kovar	1 stage TEC
LIM512_S-17-C	LDA512P25S-17-C	25	25 x 25	0.9-1.7	Ceramic	uncooled
LIM1024_M-17-T1	LDA1024P12.5M-17-T1	12.5	12.5 x 250	0.9-1.7	Kovar	1 stage TEC
LIM1024_M-17-C	LDA1024P12.5M-17-C	12.5	12.5 x 250	0.9-1.7	Ceramic	uncooled
LIM512_M-17-T1	LDA512P25M-17-T1	25	25 x 250	0.9-1.7	Kovar	1 stage TEC
LIM512_M-17-C	LDA512P25M-17-C	25	25 x 250	0.9-1.7	Ceramic	uncooled
LIM1024_L-17-T1	LDA1024P12.5L-17-T1	12.5	12.5 x 500	0.9-1.7	Kovar	1 stage TEC
LIM1024_L-17-C	LDA1024P12.5L-17-C	12.5	12.5 x 500	0.9-1.7	Ceramic	uncooled
LIM512_L-17-T1	LDA512P25L-17-T1	25	25 x 500	0.9-1.7	Kovar	1 stage TEC
LIM512_L-17-C	LDA512P25L-17-C	25	25 x 500	0.9-1.7	Ceramic	uncooled

S: Square Pixel
M: 250um Pixel Height
L: 500um Pixel Height

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Operating frequency	MC		1	20	33	MHz
Line rate	Lr			40k	60k	fps
Noise	Nread	Cint=120fF		0.002		V
Conversion gain		Cint=6.4fF Cint=16fF Cint=30fF Cint=120fF Cint=2.1pF		25 10 5.3 1.3 0.076		uV/e-
Supply voltage	Vs	USB Supply	5			V
Operating temperature	Topr	No dew condensation	0		40	°C
Storage temperature	Tstg	No dew condensation	-20		70	°C
A/D resolution		-	14			bit
Interface		-	USB 3.1 Gen 1			-
Port switch		-	One port for 512x1, Two ports for 1024x1			-

BLOCK DIAGRAM



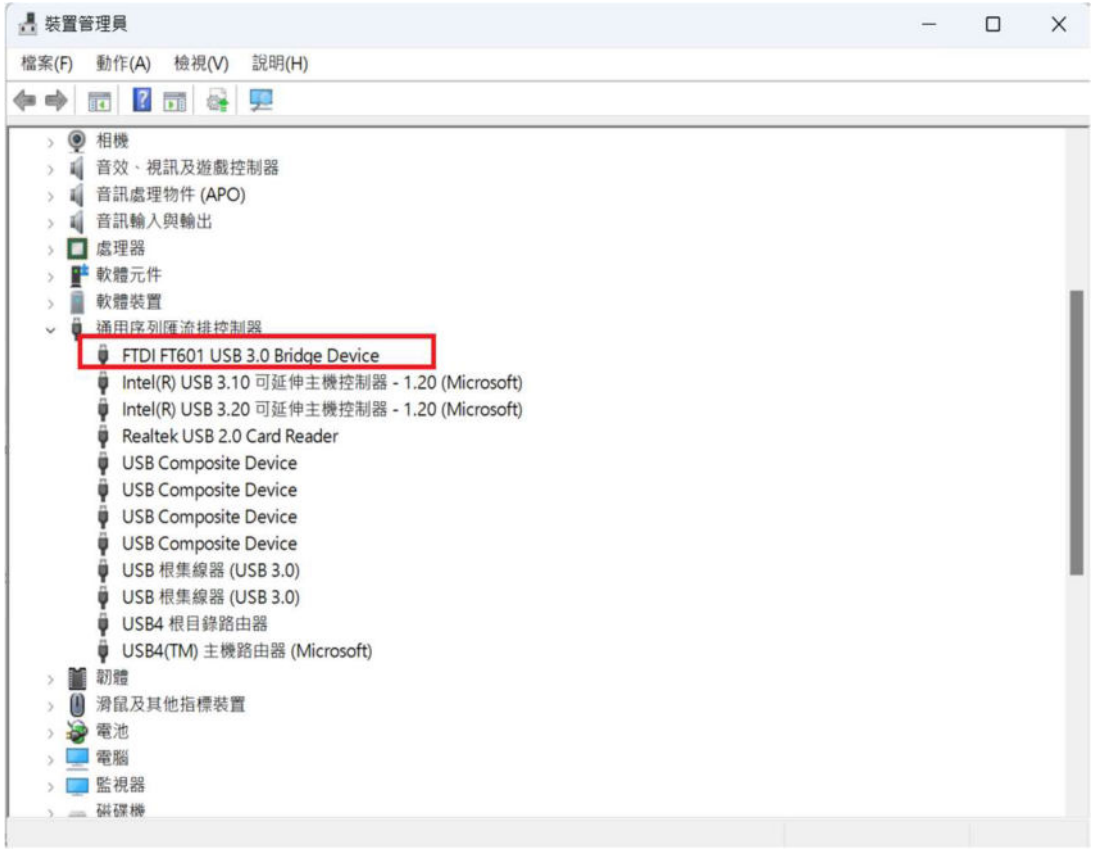
OPERATION MANUAL

Operation Procedure_1

1. Plug the USB into the computer USB3.0 port. The other end is connected to driving circuit board.

Operation Procedure_2

2. The driver will be automatically download and installed when connected to the computer (Required Internet).



Operation Procedure_3

3. Open the software CamGUI.

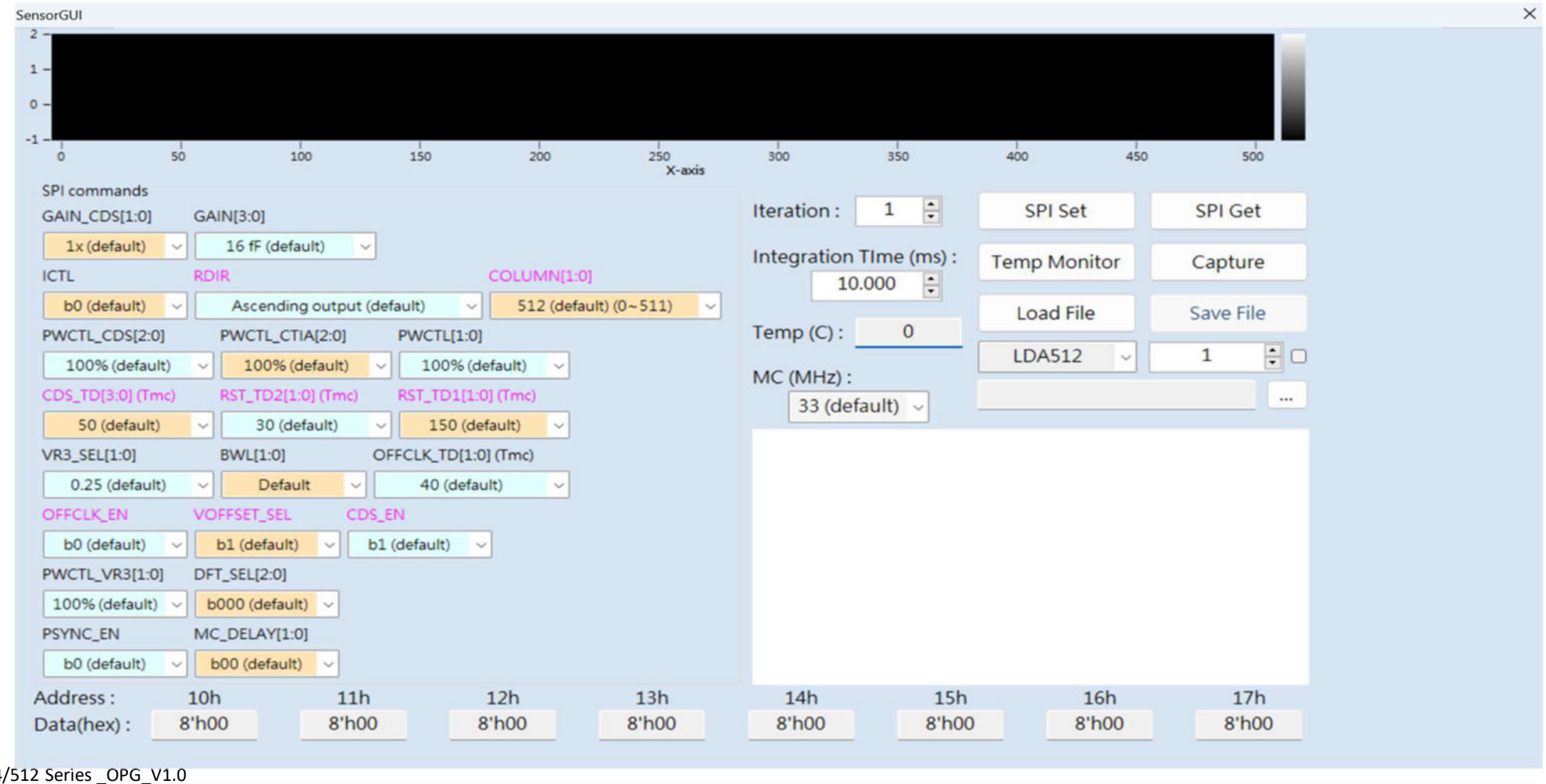
(If driving circuit board is not connected, it will appear.

“Connection failed”)

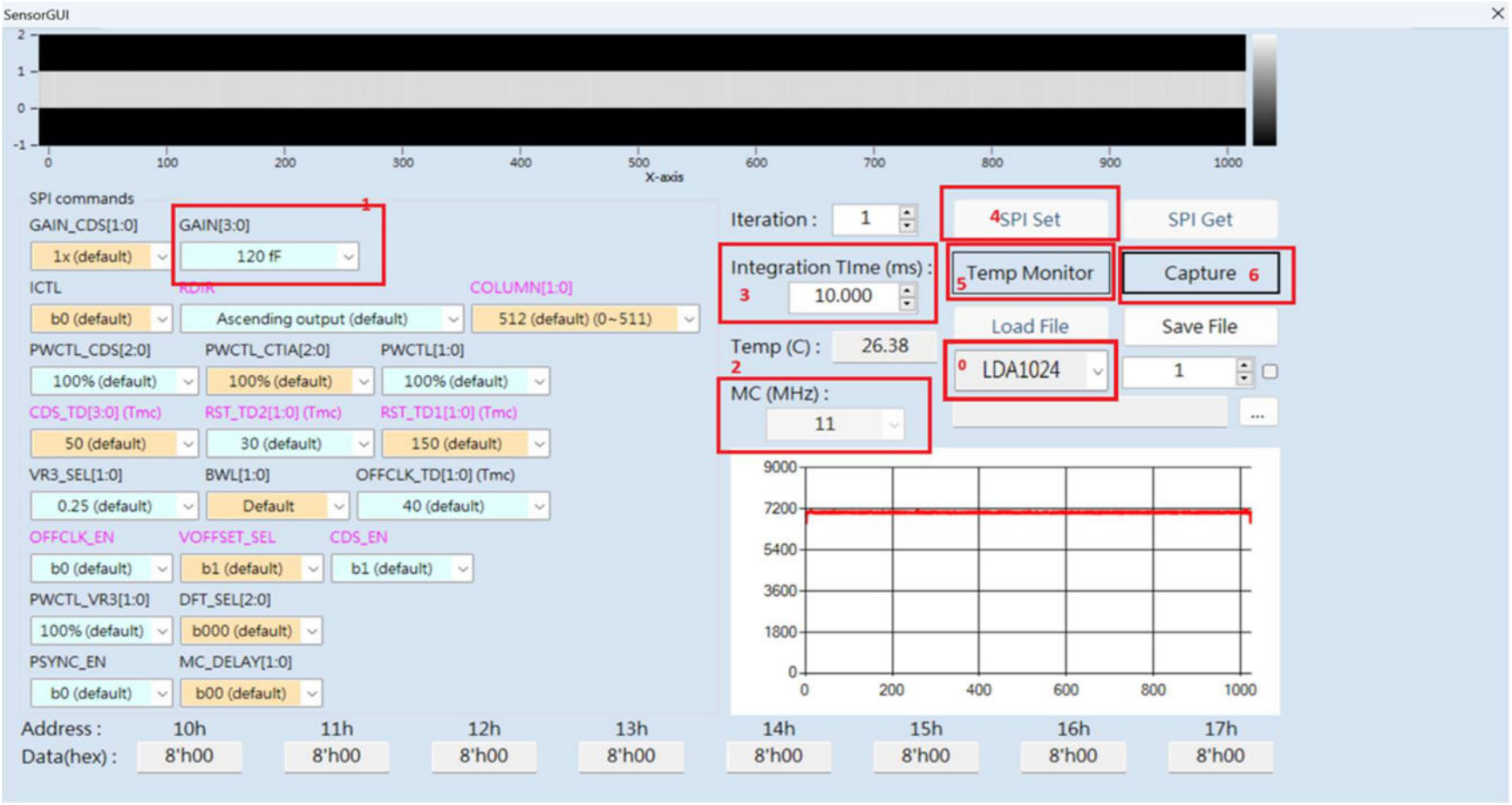
名稱	修改日期	類型	大小
camGUI.exe	2024/8/2 上午 11:37	應用程式	55 KB
camGUI.exe.config	2024/3/25 下午 02:30	CONFIG 檔案	1 KB
camGUI.pdb	2024/8/2 上午 11:37	Program Debug Da...	68 KB
FTD3XX.dll	2016/9/15 上午 10:10	應用程式擴充	184 KB
FTD3XX_NET.dll	2016/9/22 下午 12:11	應用程式擴充	38 KB

Operation Procedure_4

4. If the connection is successful, the GUI can be opened successfully.



Common Operations_1



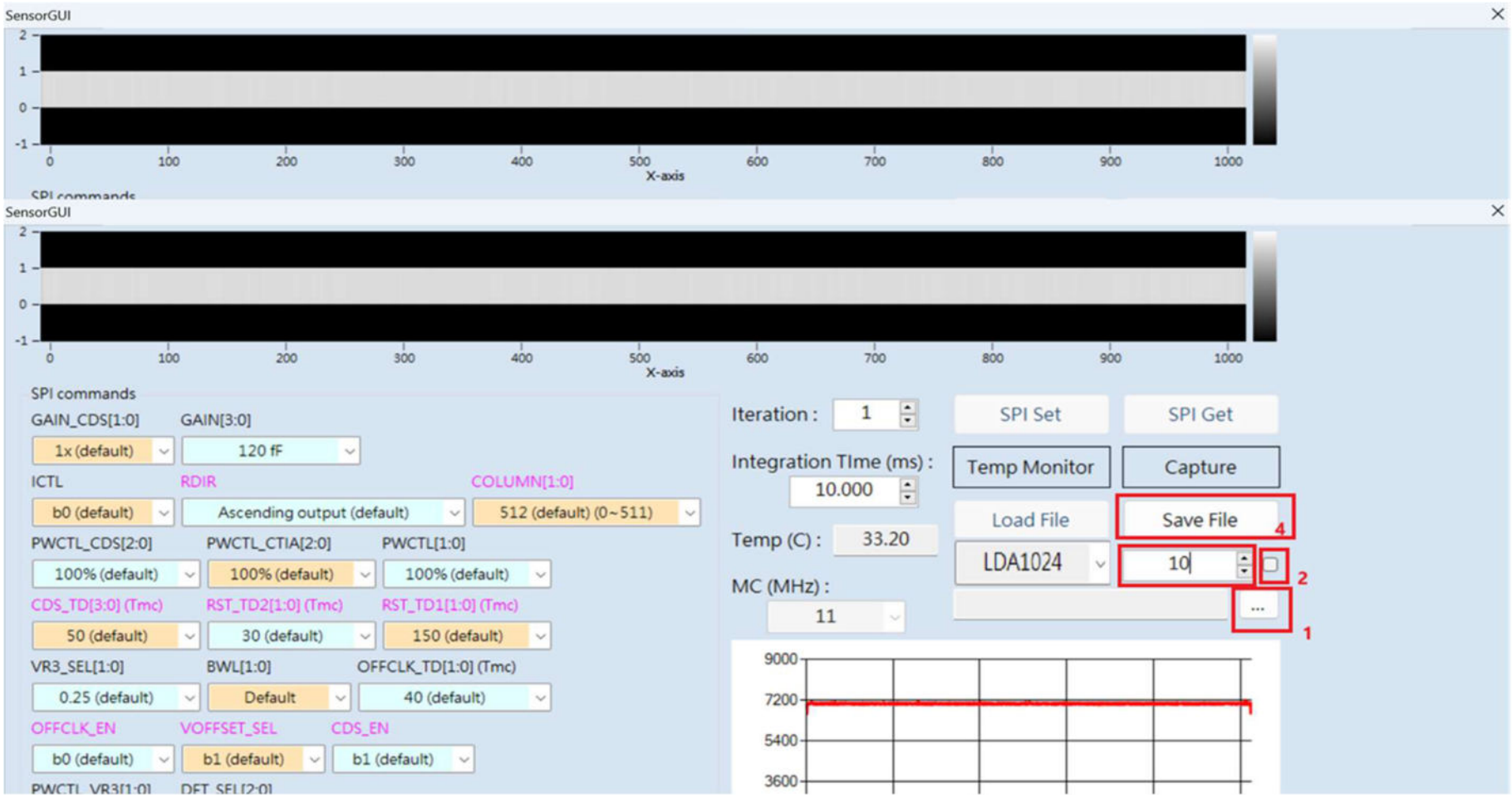
Common Operations_2

The following is an introduction to common function operations:

0. Set ”Sensor type”
1. Set ”Gain”
2. Set “MC” frequency (Pixel rate)
3. Set “Integration Time”
4. Press “SPI SET” (To write register)
5. Press “Temp Monitor” (Indicated the current sensor temperature)
6. Press “Capture” (To start imaging)

If you need to reset register, please turn off imaging first, then re-SPI SET to write register

Archive Operations_1

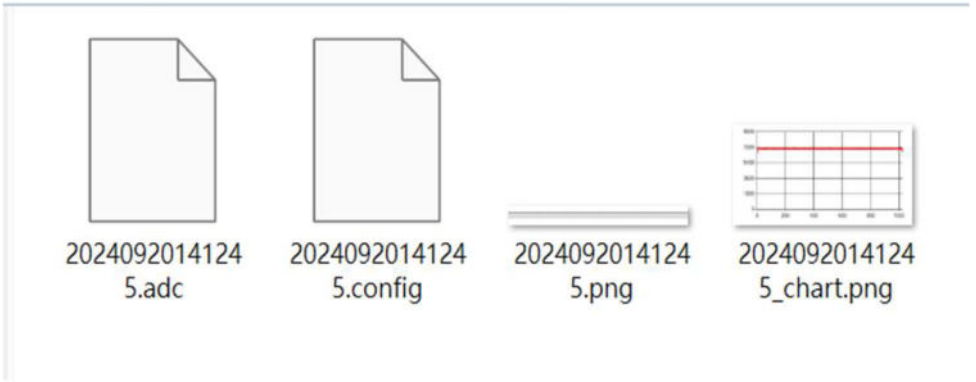


Archive Operations_2

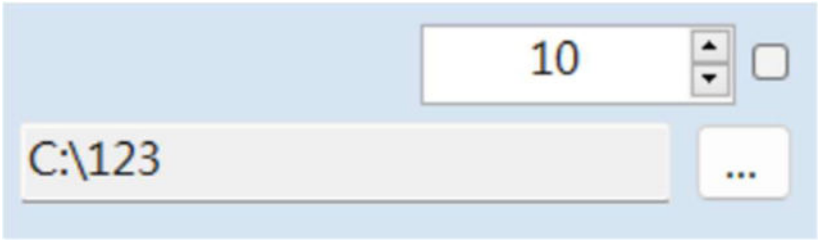
1. Set the archive path
2. Set whether to save the graphics screen.
If there is a check mark, save it.
If there is no check mark, the graphics screen will not be saved.
3.Set how many frames values need to be stored
4. Press SAVE to save to the specified path

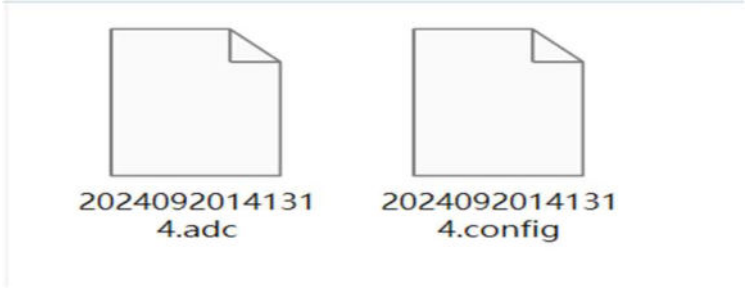
Archive Operations_3

Checked: to save graphics screen

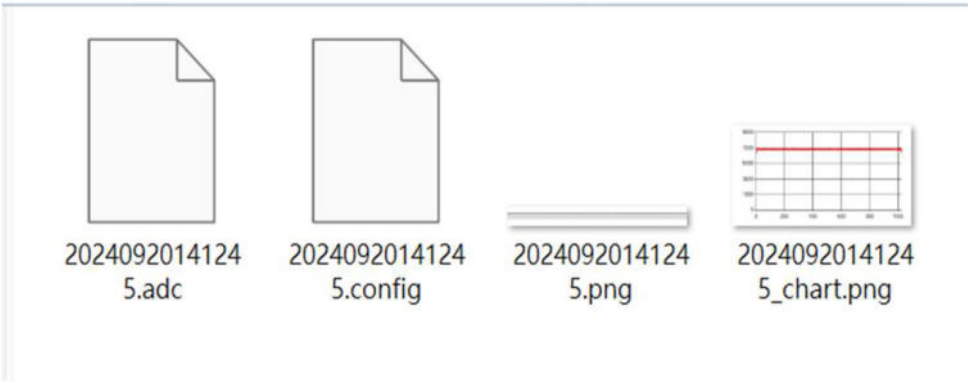


Unchecked : Do not save the graphics screen





Archive Operations_4

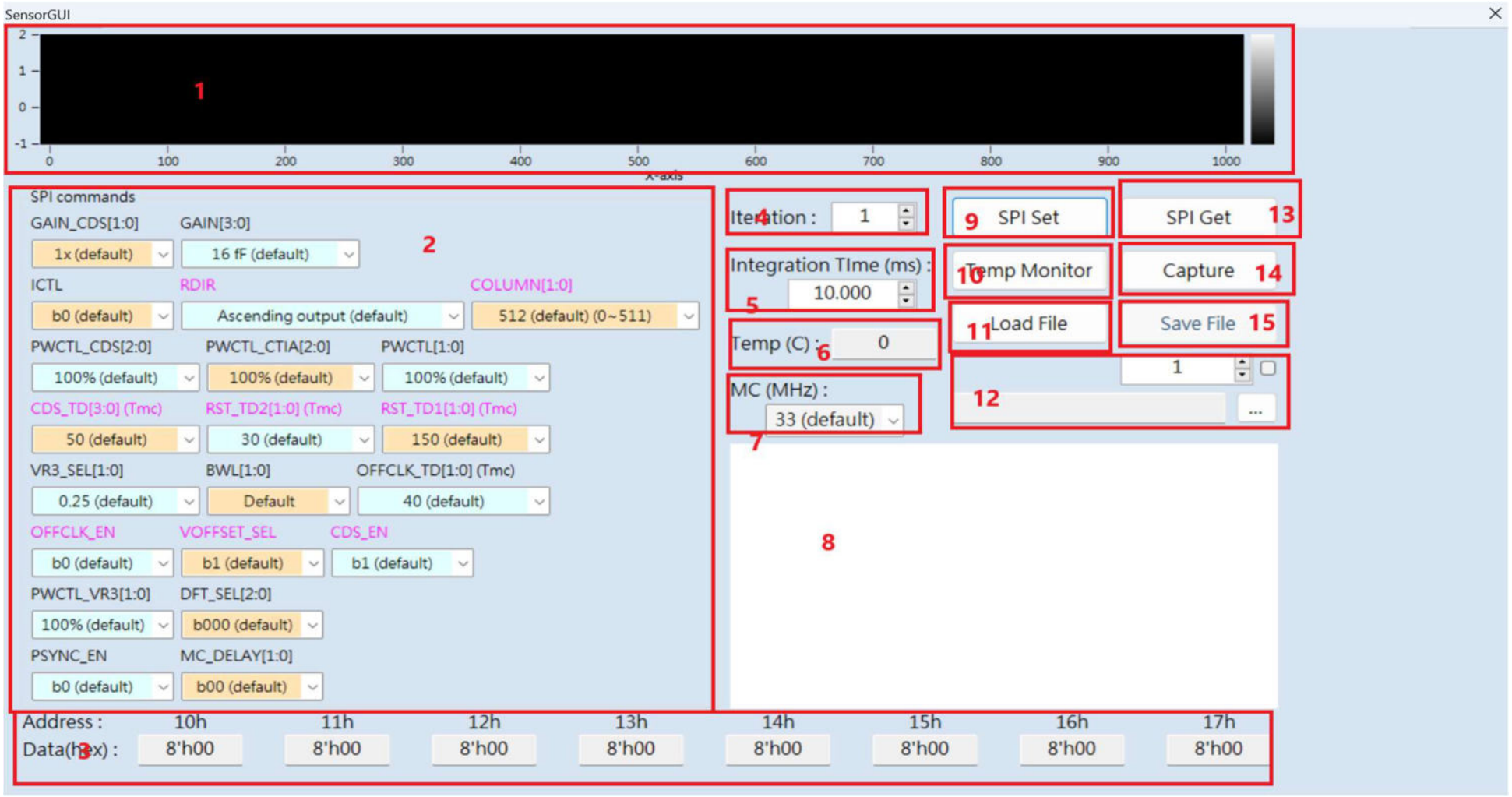


File extension description:

1. *.adc: Measured ADC value divided by TAB
2. *.config: Current register settings
3. *.Png: Measured pictures and waveforms

**ADC conversion voltage method
V=ADC*0.000292**

Block Diagram Function_1



Block Diagram Functions_2

1. Imaging area: Display pixel status
2. SPI COMMAND: The register value that can be adjusted using SPI SET
3. ADDRESS DATA: Using SPI GET to read back the current temporary register value
4. Average several times
5. Integration Time: 5us~5s
6. Temp: current temperature
7. MC: Set frequency
8. Current IC waveform
9. SPI GET: Read back the current register value

Block Diagram Functions_3

10. Temp Monitor: Press to get the current temperature
11. Load File: Read historical waveforms
12. Set Sensor type, set the current file path and set how many frames values need to be stored
13. SPI GET: Read back the current register value
14. Capture: Start imaging
15. Save File: Save file

REVISION HISTORY

DATE	REVISION	SUMMARY
2024/10/31	1.0	• Initial release

If you have any questions please do not hesitate to contact us:

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