

megawin ADC Studio User Manual

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1. Preface

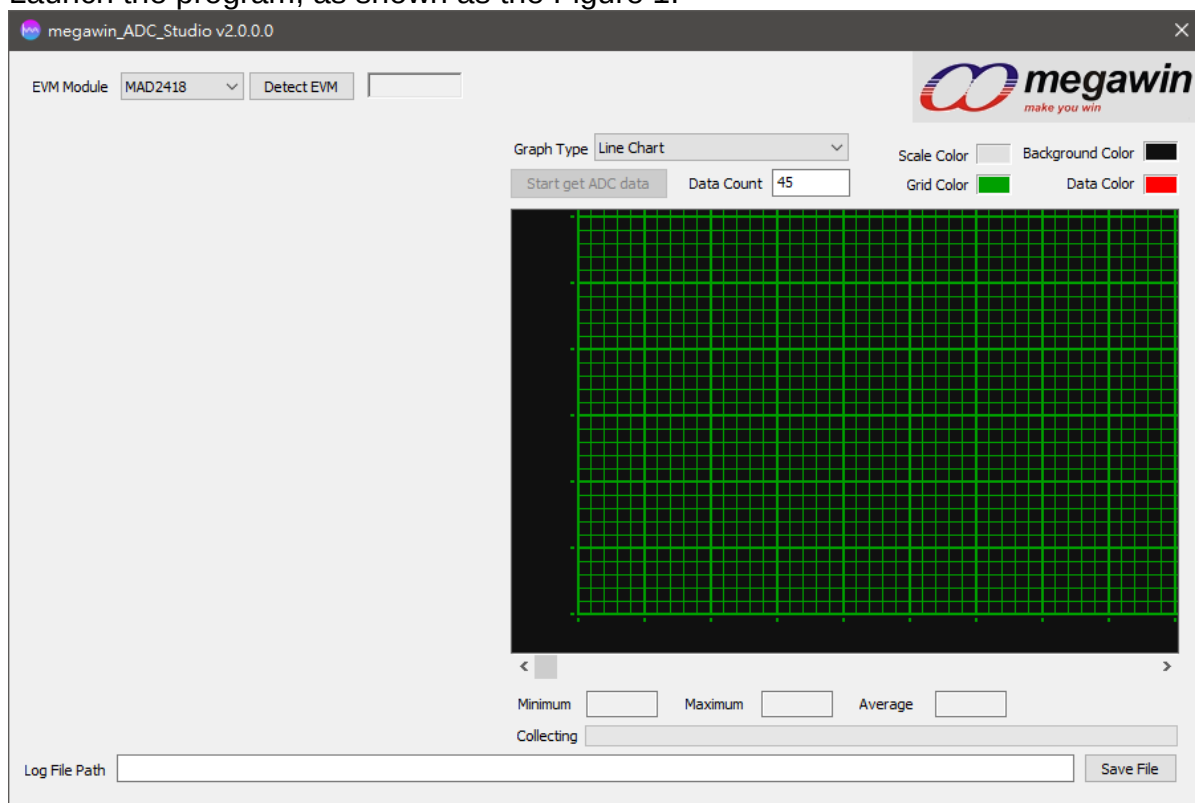
1.1. Purpose of document

Describes how to operate the software to control the MAD2418.

1.2. Glossary of terms and abbreviations

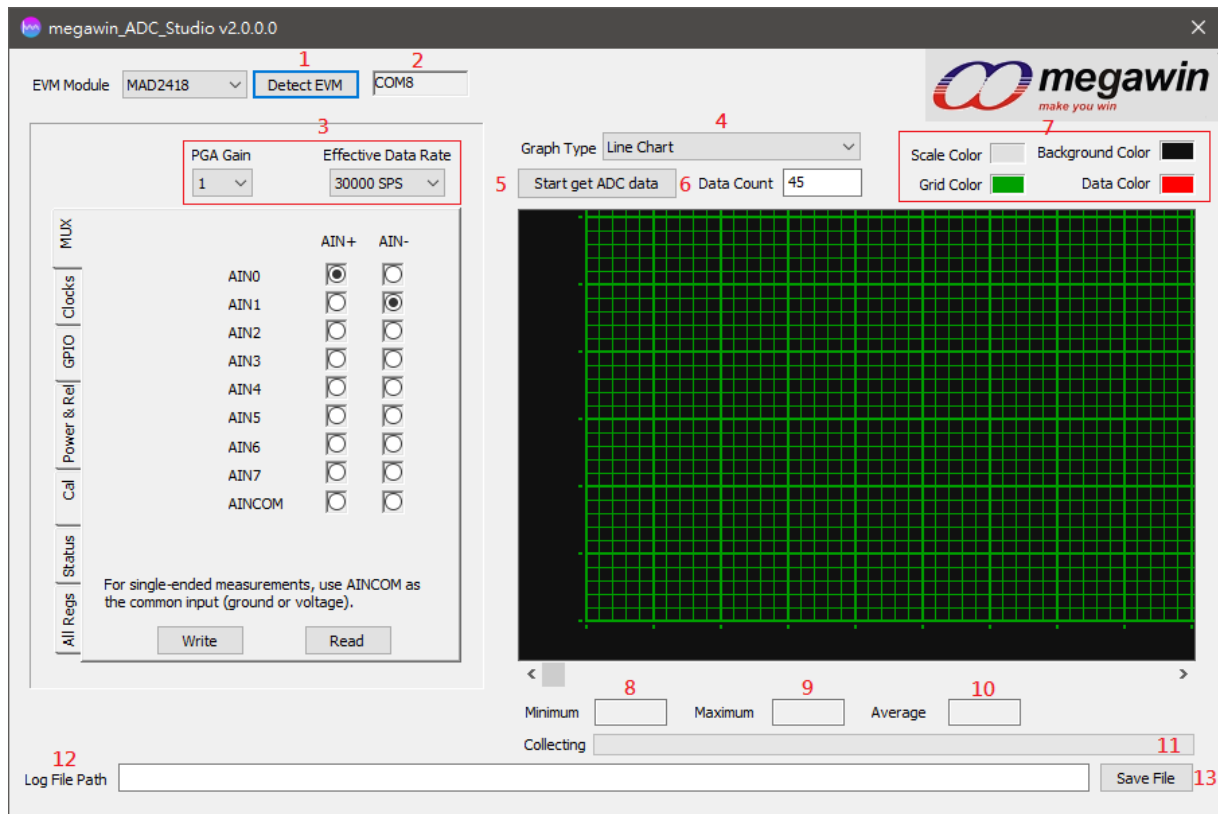
2. Interface introduction for MAD2418

2.1. Launch the program, as shown as the Figure 1.



(Figure 1)

- 2.2. Select MAD2418 in EVM Module then click “Detect EVM”(1 as shown as Figure 2). megawin ADC studio will find the proper com port and show the com port number as shown as 2 in Figure 2.



(Figure 2)

- 2.3. The left side of megawin ADC Studio has setting tabs for Mux channels, Cal. Reg..., as shown 3 in Figure2, user can set PGA Gain, Effective , and Data Rate. Can click "Write" or "Read" to write or read setting.
- 2.4. The right side of megawin ADC studio:
 Graph Type : Select the graph type to show raw data (as shown 4 in Figure 2)
 Start get ADC data : Start to get date from ADC (as shown 5 in Figure 2).
 Data Count : the counts for ADC data, the default is 45(as shown 6 in Figure 2).
 Scale Color 、 Background Color 、 Grid Color and Line chart Color : User can set the color for display (as shown 7 in Figure 2).
 Minimum : The minimum value of ADC data, decimal. (as shown 8 in Figure 2) ◦
 Maximum : The maximum value of ADC data, decimal. (as shown 9 in Figure 2) ◦
 Average : The average value of ADC data, decimal. (as shown 10 in Figure 2) ◦
 Collecting : The process status of getting ADC data. (as shown 11 in Figure 2) ◦
- 2.5. The bottom side of megawin ADC studio.
 Log File Path : The path of log file and user can save file for ADC data in log file. (as shown 12 in Figure 2) ◦
- 2.6. Save File : megawin ADC studio will plot graph after getting ADC data. It will save file as CSV and binary file format as two files after click "Save File" (as shown 13 in Figure 2).

2.7. MUX tab: Set the channel to ADC pin to AIN+ and AIN-. AIN+ and AIN- cannot set to the same channel.

The screenshot shows the MUX configuration window. On the left is a vertical sidebar with tabs: All Regs, Status, Cal, Power & Rel, GPIO, Clocks, and MUX (which is active). The main area has a table with columns AIN+ and AIN- and rows for AIN0 through AIN7 and AINCOM. AIN0 is selected in the AIN+ column, and AIN1 is selected in the AIN- column. Below the table, a text box says: "For single-ended measurements, use AINCOM as the common input (ground or voltage)." At the bottom are "Write" and "Read" buttons.

	AIN+	AIN-
AIN0	☒	☐
AIN1	☐	☒
AIN2	☐	☐
AIN3	☐	☐
AIN4	☐	☐
AIN5	☐	☐
AIN6	☐	☐
AIN7	☐	☐
AINCOM	☐	☐

For single-ended measurements, use AINCOM as the common input (ground or voltage).

Write Read

(Figure 3)

2.8. Clocks tab : set the clock out rate

The screenshot displays the 'Clocks' tab within a software interface. On the left, a vertical sidebar contains several tabs: 'All Regs', 'Status', 'Cal', 'Power & Rel', 'GPIO', 'Clocks', and 'MUX'. The 'Clocks' tab is currently selected. The main area of the window contains four configuration fields: 'Clock In' with a text box showing '7.680000MHz', 'Clock Source' with a dropdown menu showing 'Crystal', 'Clock Out Rate' with a dropdown menu showing 'Off', and 'Clock Out' with a text box showing '0.000000MHz'. At the bottom of the main area, there are two buttons labeled 'Write' and 'Read'.

(Figure 4)

2.9. GPIO tab : Set I/O mode of D0~ D3. They can be read level as input or set High/Low level as output.

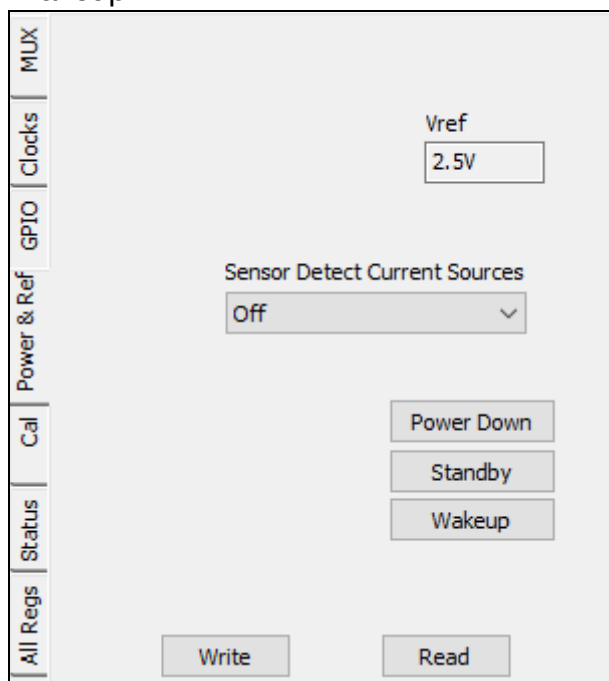
	Output	I/O Mode		
		Output	Input	
D3	L	☐	☒	L
D2	L	☐	☒	L
D1	L	☐	☒	L
D0	L	☒	☐	L

Write

Read

(Figure 5)

2.10. Power & Rel tab : Set Sensor Detect Current Sources 、 Power Down 、 Standby and Wakeup ◦



(Figure 6)

2.11. Cal tab : The readback value of offset and gain are not the same as the last time reading. Please refer the details in the datasheet. Although, it is calibration tab but PGA gain and Effective Data cannot be set as the Red block in Figure 7.

The screenshot shows the 'Cal' tab in the Megawin ADC Studio. At the top, 'PGA Gain' is set to 1 and 'Effective Data Rate' is set to 30000 SPS, both enclosed in a red rectangular box. Below this, the 'Self Calibration' is set to 'ON'. The 'Individual calibration activities' section contains four buttons: 'Self offset' (highlighted with a blue border), 'Self gain', 'System offset', and 'System gain'. The 'Manual commands' section has 'Set' and 'Read' buttons. At the bottom, there are two columns of registers: 'Offset Register' and 'Gain Register'. The 'To program/After Cal' row shows empty input fields for both. The 'Current/Before Cal' row shows the values 'FFFBB7' for the Offset Register and '20544B' for the Gain Register.

(Figure 7)

2.12. Status tab : Show ID and enable Buffer

The screenshot shows the 'Status' tab of the megawin ADC Studio. On the left is a vertical sidebar with tabs: 'All Regs', 'Status' (selected), 'Cal', 'Power & Rel', 'GPIO', 'Clocks', and 'MUX'. The main area contains three settings: 'ID' with a text box containing '03', 'ORDER' with two radio buttons 'MSB First' (selected) and 'LSB First', and 'BUFEN' with a checkbox 'Enable' and the text 'Analog Input Bufer'. At the bottom are 'Write' and 'Read' buttons.

MUX	ID	03
Clocks	ORDER	☒ MSB First ☐ LSB First
GPIO	BUFEN	☐ Enable Analog Input Bufer
Power & Rel		
Cal		
Status		
All Regs		
Write Read		

(Figure 8)

2.13. All Regs tab : The setting of all registers can be access in this tab.

“Sync” button can copy the value of Read to Write.

	Write	Read
STATUS	00	30
MUX	00	01
ADCON	00	20
DRATE	00	F0
IO	00	E1
OFC0	00	B7
OFC1	00	FB
OFC2	00	FF
FSC0	00	4B
FSC1	00	54
FSC2	00	20

Write Read Sync

(Figure 9)

3. Simple example for MAD2418 operation

3.1. Configure Input and Output. Select MUX. Currently, the EVM2418 only supports AIN+ as AIN1 and AIN- as AIN0. Due to software limitations, AIN+ and AIN- cannot be set to the same channel simultaneously. To configure this:

First, set AIN+ to AIN2.

Set AIN- to AIN0.

Change AIN+ back to AIN1.

Click Write.

3.2. Set data counts for ADC data. The default is 45 counts.

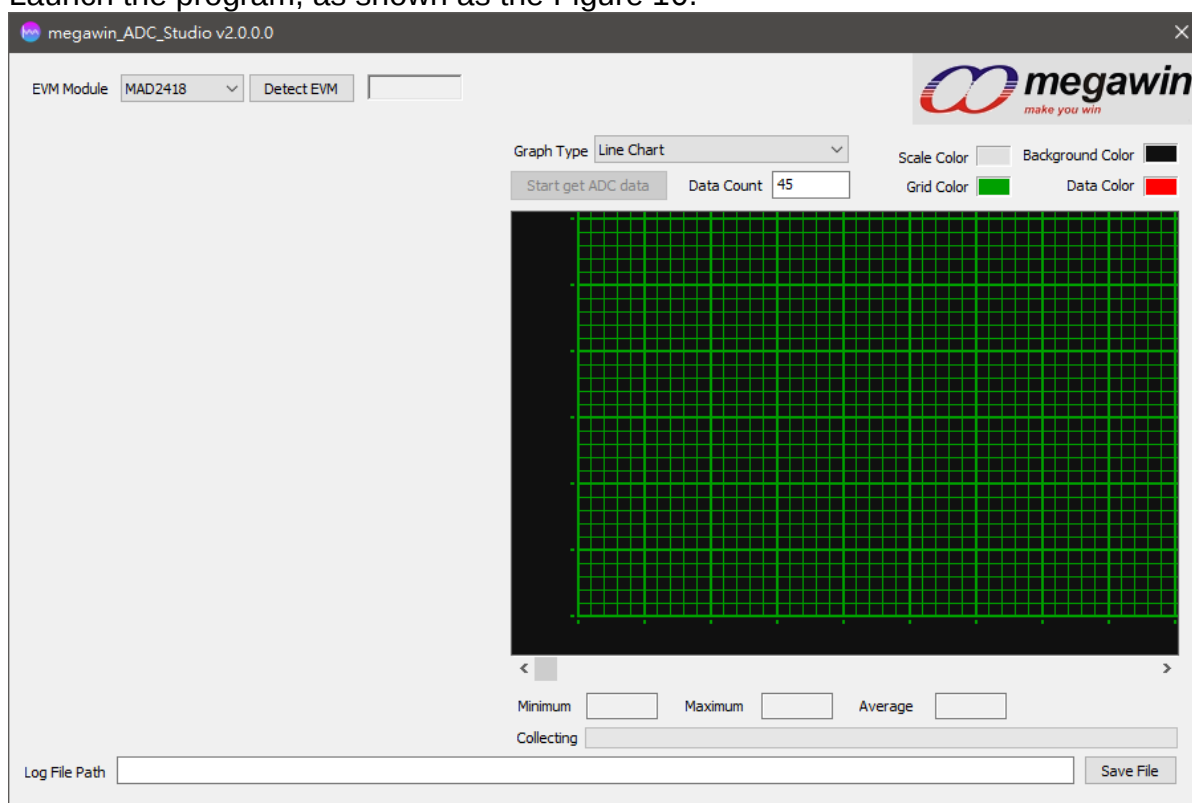
3.3. Please click "Save file" if user need to save ADC data.

3.4. Can change the color for graph curves by colored boxes.

3.5. Click "Start Get ADC data" to get ADC data. Please use scrollbar if the data counts are over 45.

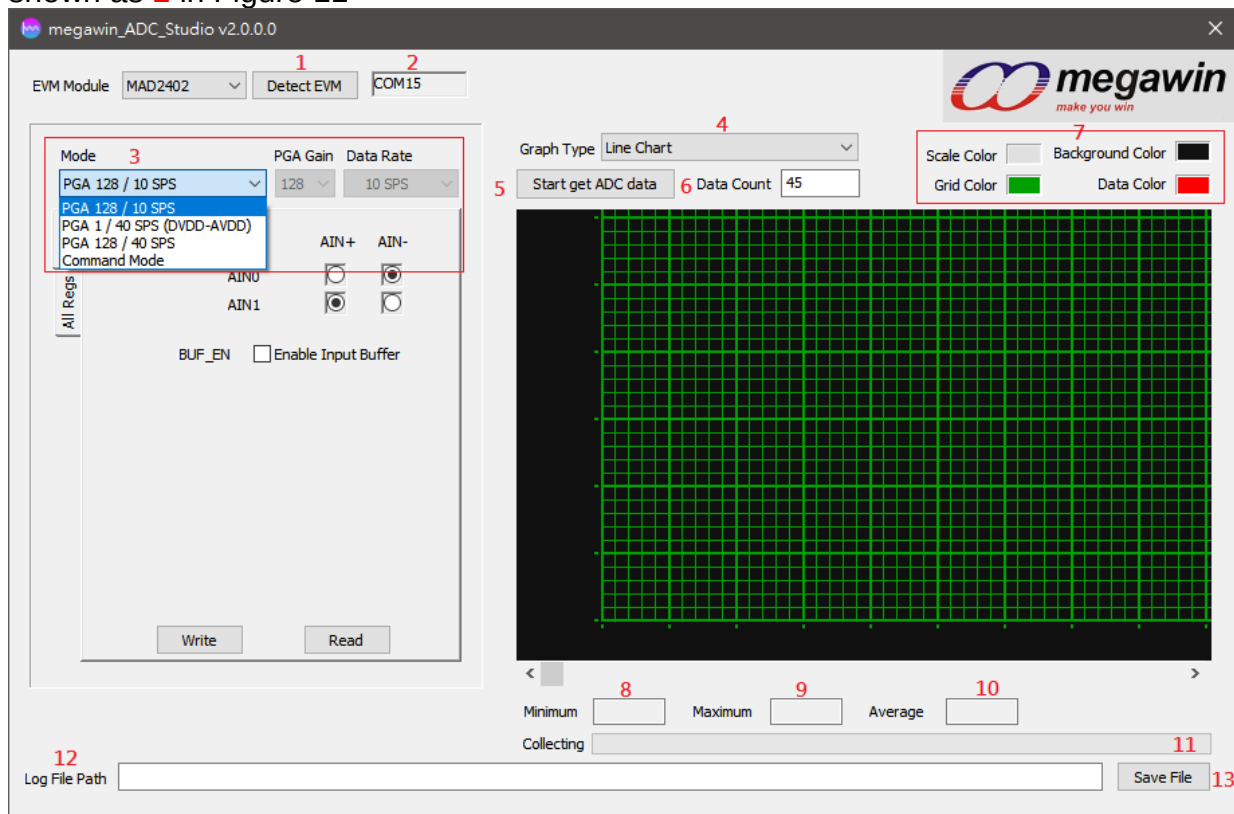
4. Interface introduction for MAD2402

4.1. Launch the program, as shown as the Figure 10.



(Figure 10)

- 4.2. Select MAD2402 in EVM Module then click “Detect EVM”(1 as shown as Figure 11). megawin ADC studio will find the proper com port and show the com port number as shown as 2 in Figure 11



(Figure 11)

- 4.3. The left side of megawin ADC Studio has setting tabs for Mux channels and Power (reference voltage) as shown 3 in Figure11. In user mode, user can read or set PGA Gain, and Data Rate. And they are accessible only in user mode.
- 4.4. The right side of megawin ADC studio:
- Graph Type : Select the graph type to show raw data (as shown 4 in Figure 11)
 - Start get ADC data : Start to get date from ADC (as shown 5 in Figure 11).
 - Data Count : the counts for ADC data, the default is 45(as shown 6 in Figure 11).
 - Scale Color 、 Background Color 、 Grid Color and Line chart Color : User can set the color for display (as shown 7 in Figure 11).
 - Minimum : The minimum value of ADC data, decimal. (as shown 8 in Figure 2) ◦
 - Maximum : The maximum value of ADC data, decimal. (as shown 9 in Figure 2) ◦
 - Average : The average value of ADC data, decimal. (as shown 10 in Figure 2) ◦
 - Collecting : The process status of getting ADC data. (as shown 11 in Figure 2) ◦
- 4.5. The bottom side of megawin ADC studio.
- Log File Path : The path of log file and user can save file for ADC data in log file. (as shown 12 in Figure 11) ◦
- 4.6. Save File : megawin ADC studio will plot graph after getting ADC data. It will save file as CSV and binary file format as two files after click “Save File” (as shown 13 in Figure 11).

4.7. MUX tab: Set the channel to ADC pin to AIN+ and AIN-. **AIN+ and AIN- cannot set to the same channel.**

The screenshot shows the MUX configuration window. On the left is a sidebar with 'MUX' and 'All Regs' tabs. The main area has two columns of radio buttons under the headers 'AIN+' and 'AIN-'. Under 'AIN+', the 'AIN0' radio button is selected. Under 'AIN-', the 'AIN1' radio button is selected. Below these is a checkbox labeled 'BUF_EN' with the text 'Enable Input Buffer' next to it. At the bottom of the window are two buttons: 'Write' and 'Read'.

(Figure 12)

4.8. All Regs tab : The setting of all registers can be access in this tab.
“Sync” button can copy the value of Read to Write.

	Write	Read	
STA	27	27	
MUX	10	10	
CR0	40	40	
CR1	70	70	
CR2	30	30	
CR3	00	00	Sync

Write Read

(Figure 13)

5. Simple example for MAD2402 operation

- 5.1. Configure Input and Output. Select MUX. In EVM2402, AIN+ and AIN- cannot be set to the same channel simultaneously. Then Click Write to set configuration..
- 5.2. Set data counts for ADC data. The default is 45 counts.
- 5.3. Please click "Save file" if user need to save ADC data.
- 5.4. Can change the color for graph curves by colored boxes.
- 5.5. Click "Start Get ADC data" to get ADC data. Please use scrollbar if the data counts are over 45.

6. Revision history

Version	Description	Date
v1.00	Initial	2026/04/09
v1.01	Modify 2.11	2026/04/30
v2.00	Add supporting for MAD2402	2026/08/27