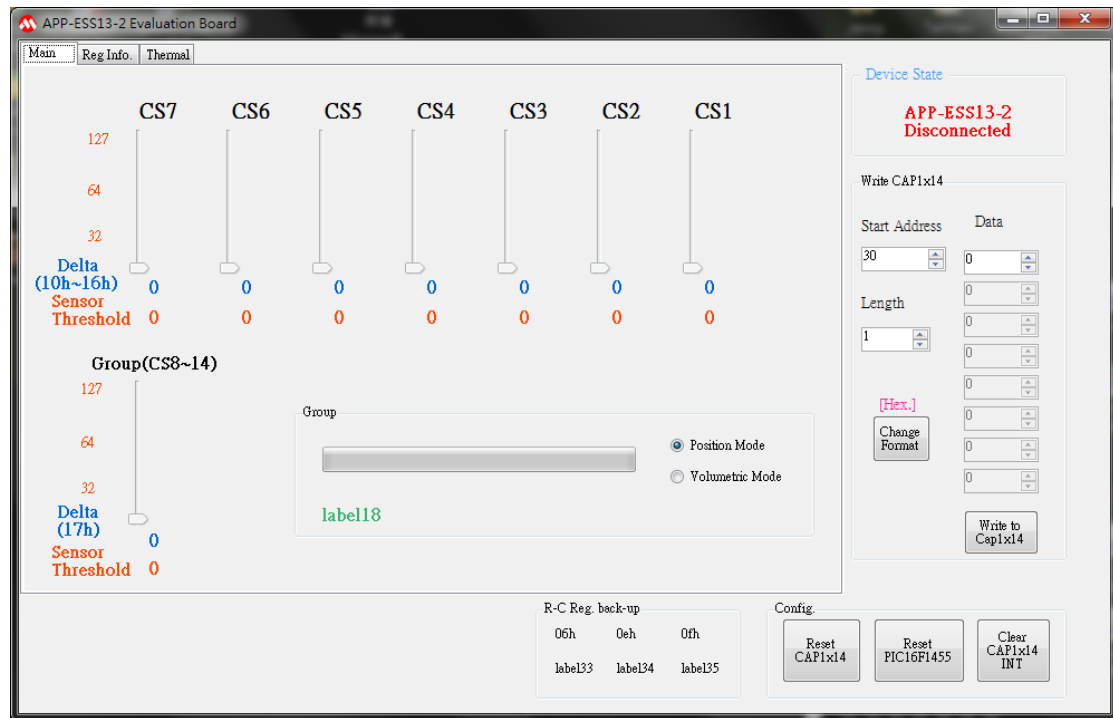


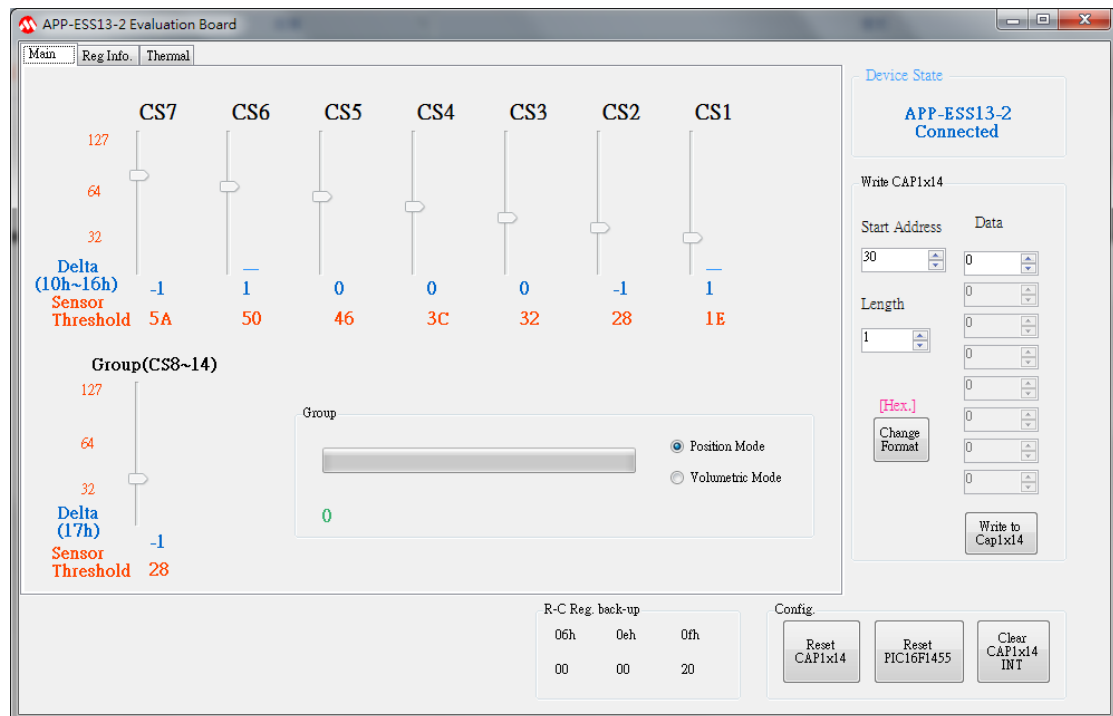
以下是 APP-ESS13-2 GUI 的簡易說明。

Note: 在連接 USB 前, 請先確認 EVB 上的 J1 “Touch PAD” Closed

1.在 APP-ESS13-2 EVB 未連接上 USB 時, Device State 會顯示 “APP-ESS13-2 Disconnected”

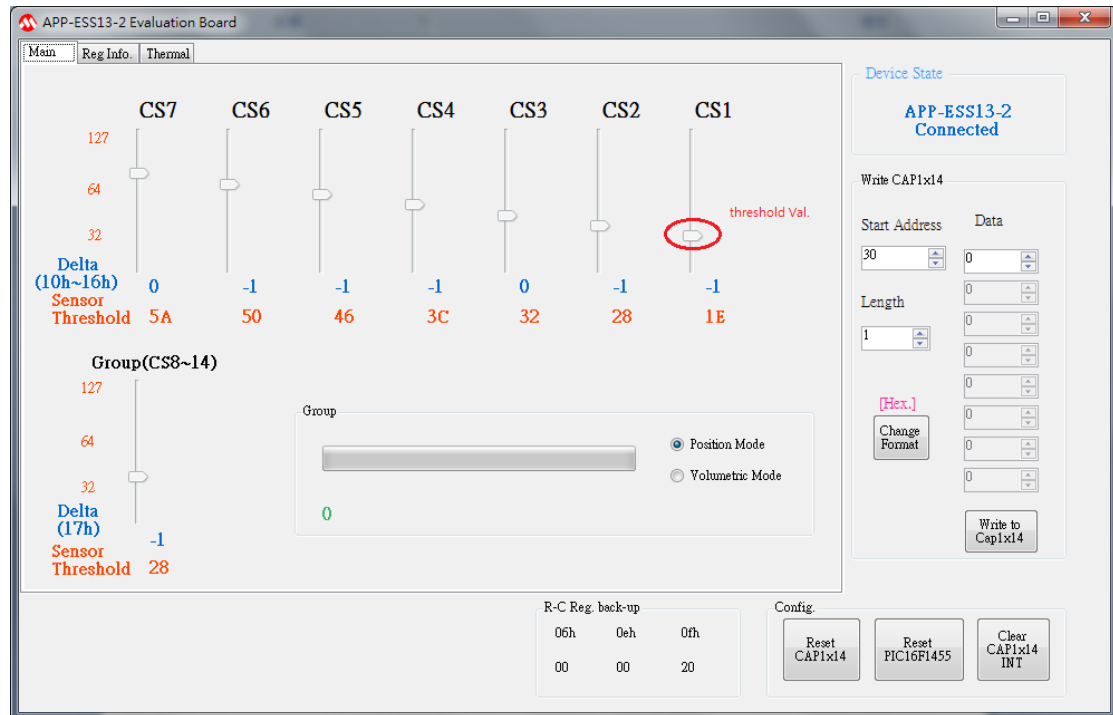


2.連接上 USB 後 Device State 將會顯示 “APP-ESS13-2 Connected”

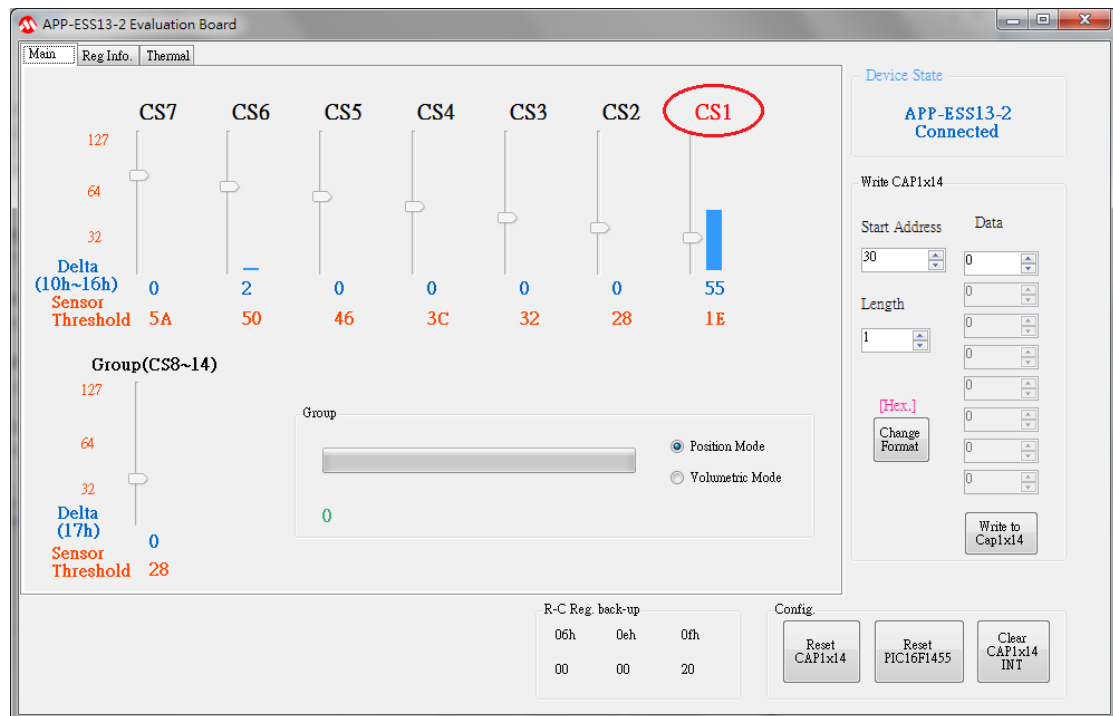


3.此 GUI 共有三個主要頁面

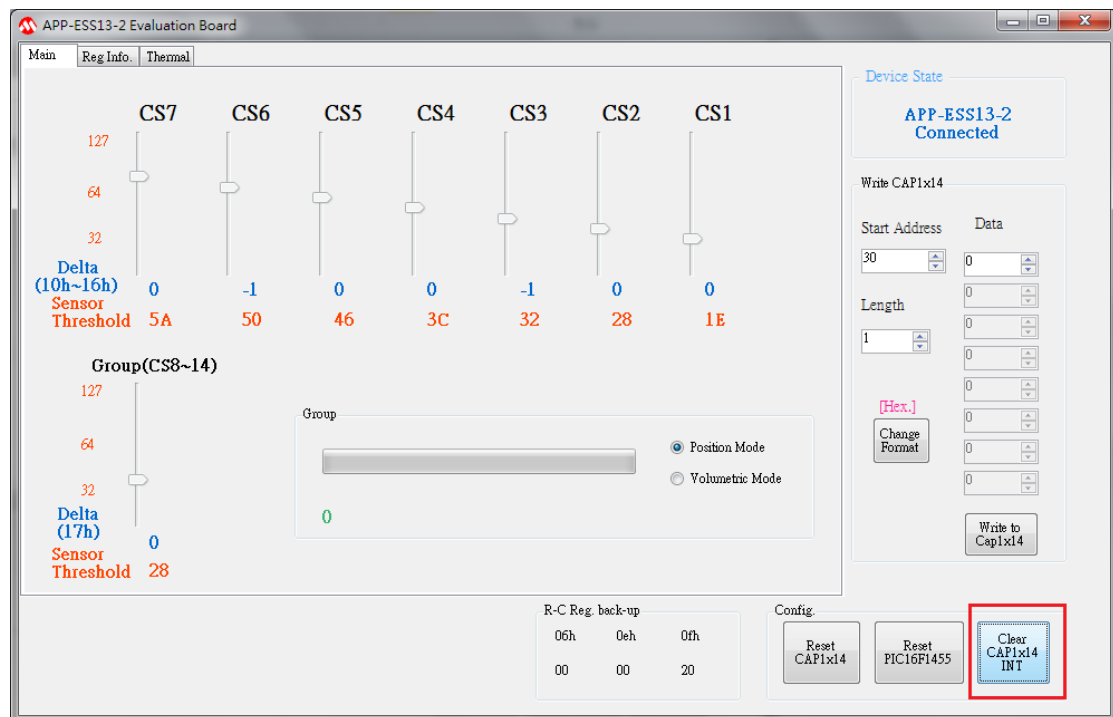
A. Main Page: 在此頁面中, 主要可以看到 CS1~CS7, 及 GROUP 的 Delta 與 Threshold Value, 並可透過 Write Register 來修改 Threshold Value, 用以調整每個 Button 的靈敏度.



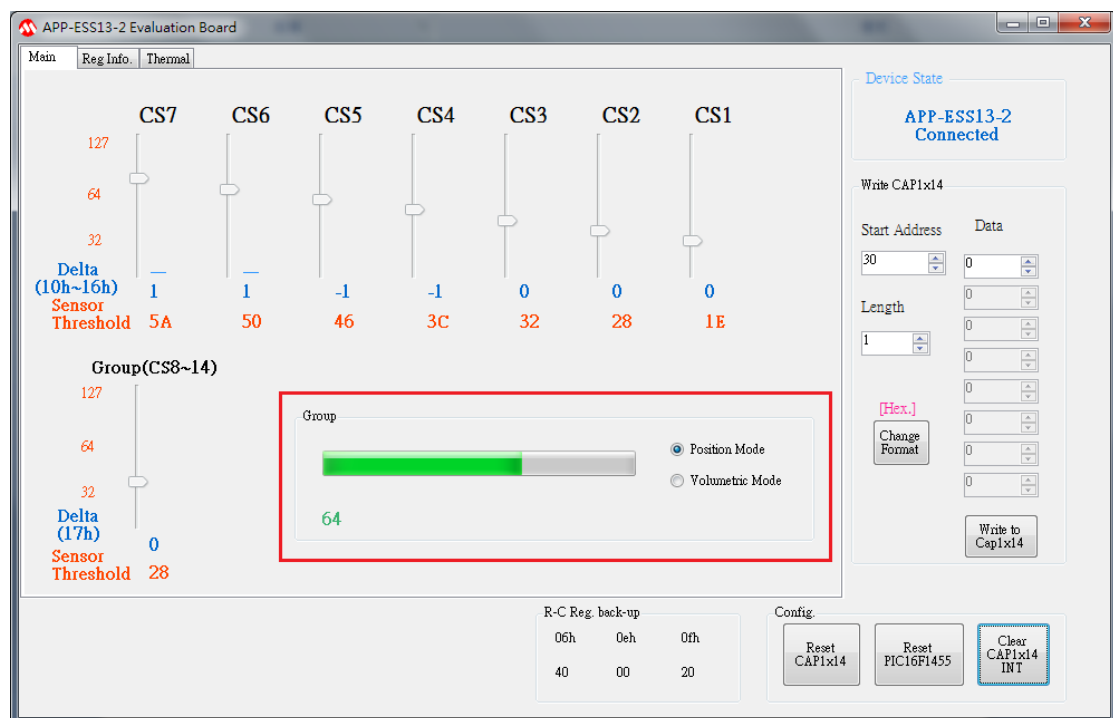
當 Button 的 Delta Value > Threshold Value 時, Button Status(Reg:0x03, 0x04)將會被設起,且畫面的 CSx 字體顏色會變成紅色



要清除 Button Status, 可透過 Write Reg.來清除, 或者是按下畫面右下角按鍵 "Clear CAP1x14 INT"



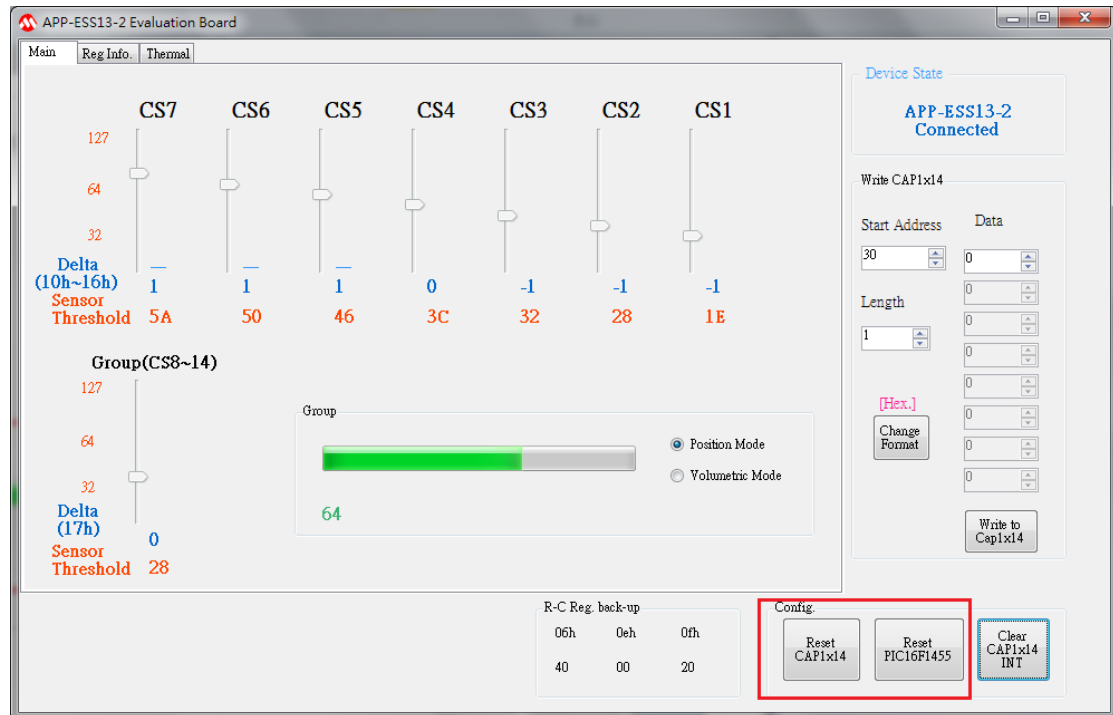
CS8~CS14 已預設成 GROUP(EVB 上方的 Slider Bar), GROUP 有兩種模式 Position Mode & Volumetric Mode.



在畫面中的右下方還有兩的 Reset 的功能按鍵

Reset CAP1x14: PIC16F1455 透過 Reset Pin 對 CAP1x14 進行 Reset(CAP1x14 所有的 Register 將回復到 Default Value.)

Reset PIC16F1455: PIC16F1455 software reset, CAP1x14 將回復成原先 F/W 的設定



B. Register Information Page:

在此頁面中，可讀到 CAP1x14 所有 Register 的 Value，且當滑鼠點 Register 時，畫面下方將顯示 Register Name, Default Value 等資訊

APP-ESS13-2 Evaluation Board

Main | Reg Info | Thermal

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	01	00	00	80	30	10	00	00	5D	01	00	00	00	00	00	00
10	00	00	00	FF	00	FF	FF	FF	00	01	FF	FE	FF	FF	03	3F
20	20	FF	A4	47	D4	FF	00	FF	00	00	0E	00	02	7F	7F	0B
30	1E	28	32	3C	46	50	5A	28	AA	AA	AA	AA	AA	0A	C5	40
40	00	7F	02	00	00	00	00	00	00	00	00	00	00	00	00	00
50	62	63	62	63	63	62	62	62	62	62	62	63	62	62	00	00
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	FF	00	FF	00	00	00	00	00	00	00	00	00	00	00	00	00
80	FF	68	3D	00	04	08	20	00	19	00	00	00	00	00	00	00
90	F0	F0	F0	F0	09	00	00	00	03	01	01	00	62	DF	62	AB
A0	00	00	00	00	00	00	04	34	29	52	1C	00	05	10	00	00
B0	00	BD	52	4D	4B	4C	5D	6E	5E	5B	50	46	49	57	5C	00
C0	29	00	04	00	12	00	10	05	05	00	04	01	00	00	00	00
D0	B1	90	98	08	00	00	00	00	00	00	00	00	00	00	00	00
E0	00	04	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	3A	5D	80

Register: 0x00 Def. Value: 0x00 R/W

Main Status Control

R-C Reg. back-up

06h	0eh	0fh
40	00	20

Config

Reset CAP1x14 Reset PIC16F1455 Clear CAP1x14 INT

Device State

APP-ESS13-2 Connected

Write CAP1x14

Start Address Data

0 1

Length

0 0

1 0

[Hex.]

Change Format

Write to Cap1x14

在畫面的右手邊 “Write CAP1x14”，可進行最多一次 8 個 bytes 連續 Address 資料的寫入

APP-ESS13-2 Evaluation Board

Main | Reg Info | Thermal

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	01	00	00	80	30	10	00	00	5D	01	00	00	00	00	00	00
10	00	FF	01	FF	FF	FF	00	00	00	00	FF	FF	FF	00	03	3F
20	20	FF	A4	47	D4	FF	00	FF	00	00	0E	00	02	7F	7F	0B
30	1E	28	32	3C	46	50	5A	28	AA	AA	AA	AA	AA	0A	C5	00
40	00	7F	02	00	00	00	00	00	00	00	00	00	00	00	00	00
50	62	63	62	63	63	62	62	62	62	62	62	63	62	62	00	00
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	FF	00	FF	00	00	00	00	00	00	00	00	00	00	00	00	00
80	FF	68	3D	00	04	08	20	00	19	00	00	00	00	00	00	00
90	F0	F0	F0	F0	09	00	00	00	03	01	01	00	62	34	62	CD
A0	00	00	00	00	00	00	04	34	29	52	1C	00	05	10	00	00
B0	00	BD	52	4D	4B	4C	5D	6E	5E	5B	50	46	49	57	5C	00
C0	29	00	04	00	12	00	10	05	05	00	04	01	00	00	00	00
D0	B1	90	98	08	00	00	00	00	00	00	00	00	00	00	00	00
E0	00	04	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	3A	5D	80

Register: 0x30 Def. Value: 0x40 R/W

Sensor 1 Threshold

R-C Reg. back-up

06h	0eh	0fh
40	00	20

Config

Reset CAP1x14 Reset PIC16F1455 Clear CAP1x14 INT

Device State

APP-ESS13-2 Connected

Write CAP1x14

Start Address Data

30 1E

Length

23 1f

5 54

24

[Hex.]

Change Format

Write to Cap1x14

由於此 GUI 是一直在 Access CAP1x14 所有 Register 的內容, 所以會有三個 R-C Reg.(06h,0eh,0fh : Read and Clear Register)的內容被 clear 掉, 所以在下方的方框中,保留 Reg. 06h, 0eh, 0fh 的上一次非 0 的 value.

The screenshot shows the 'Reg Info' tab of the APP-ESS13-2 Evaluation Board GUI. The 'Register' table is displayed with columns for Address (00 to 0F) and data values. The value at address 30 is highlighted in blue. Below the table, the 'R-C Reg. back-up' section is highlighted with a red box, showing values for 06h, 0eh, and 0fh. The 'Device State' panel on the right indicates 'APP-ESS13-2 Connected'. The 'Write CAP1x14' panel shows a start address of 30 and a length of 5. The 'Config' panel has buttons for 'Reset CAP1x14', 'Reset PIC16F1455', and 'Clear CAP1x14 INT'.

Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	01	00	00	80	30	10	00	00	5D	01	00	00	00	00	00	00
10	00	01	00	FF	00	00	00	00	01	00	01	00	00	FF	03	3F
20	20	FF	A4	47	D4	FF	00	FF	00	00	0E	00	02	7F	7F	0B
30	1E	28	32	3C	46	50	5A	28	AA	AA	AA	AA	AA	0A	C5	00
40	00	7F	02	00	00	00	00	00	00	00	00	00	00	00	00	00
50	62	63	62	63	63	62	62	62	62	62	62	63	62	62	00	00
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	FF	00	FF	00	00	00	00	00	00	00	00	00	00	00	00	00
80	FF	68	3D	00	04	08	20	00	19	00	00	00	00	00	00	00
90	F0	F0	F0	F0	09	00	00	00	03	01	01	00	62	D3	62	DB
A0	00	00	00	00	00	00	04	34	29	52	1C	00	05	10	00	00
B0	00	BD	52	4D	4B	4C	5D	6E	5E	5B	50	46	49	57	5C	00
C0	29	00	04	00	12	00	10	05	05	00	04	01	00	00	00	00
D0	B1	90	98	08	00	00	00	00	00	00	00	00	00	00	00	00
E0	00	04	00	00	00	00	00	00	00	00	00	00	00	00	00	00
F0	00	00	00	00	00	00	00	00	00	00	00	00	00	3A	5D	80

Register: 0x30 Def. Value: 0x40 R/W
Sensor 1 Threshold

R-C Reg. back-up
06h 0eh 0fh
40 00 20

Device State
APP-ESS13-2 Connected

Write CAP1x14
Start Address: 30 Data: 1E
Length: 23
5 1F
54
24
0
0
0
[Hex.]
Change Format
Write to Cap1x14

Config
Reset CAP1x14 Reset PIC16F1455 Clear CAP1x14 INT

C. Thermal Page.

此頁面將顯示 EMC1412 External Diode 的溫度

The screenshot shows the 'Thermal' tab of the APP-ESS13-2 Evaluation Board GUI. The 'EMC1412 Temperature Sensor (External Diode)' is displayed with a temperature of 26.250 °C. Below the temperature, there are two PWM duty indicators: 'PWM Duty =0%' and 'PWM Duty 50%'. A caution message is displayed: 'CAUTION: High temperature will around the Hot area.' The 'R-C Reg. back-up' section shows values for 06h, 0eh, and 0fh. The 'Device State' panel on the right indicates 'APP-ESS13-2 Connected'. The 'Write CAP1x14' panel shows a start address of 30 and a length of 5. The 'Config' panel has buttons for 'Reset CAP1x14', 'Reset PIC16F1455', and 'Clear CAP1x14 INT'.

EMC1412
Temperature Sensor (External Diode)

26.250 °C

PWM Duty =0% PWM Duty 50%

CAUTION:
High temperature will around the Hot area.

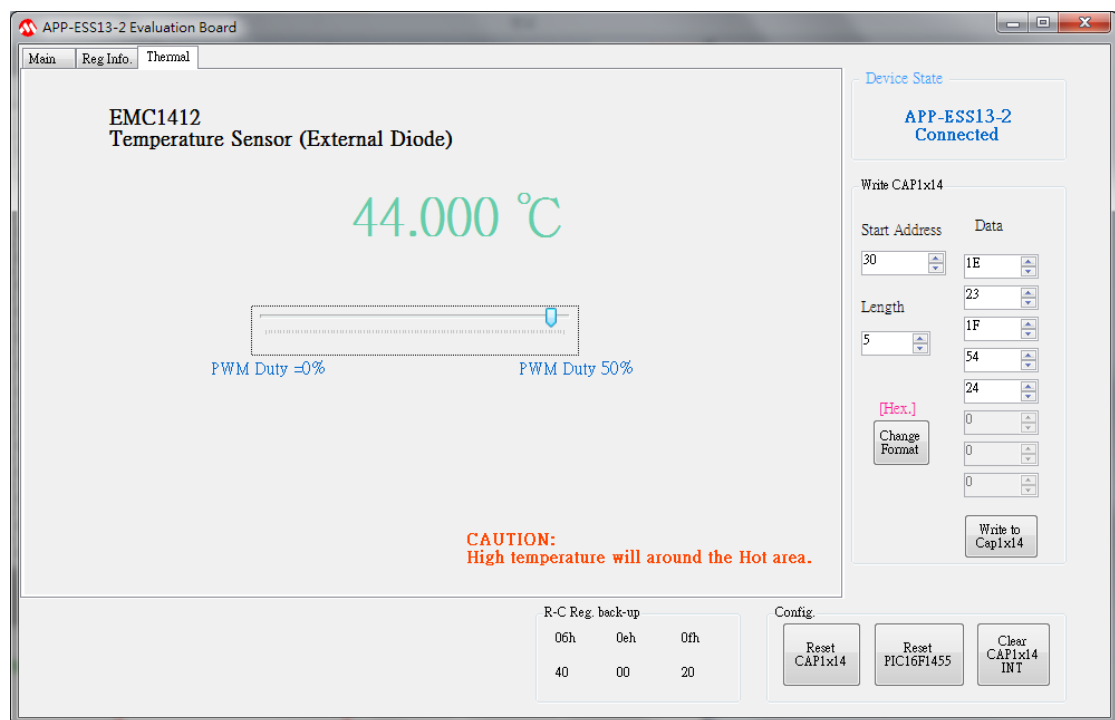
R-C Reg. back-up
06h 0eh 0fh
40 00 20

Device State
APP-ESS13-2 Connected

Write CAP1x14
Start Address: 30 Data: 1E
Length: 23
5 1F
54
24
0
0
0
[Hex.]
Change Format
Write to Cap1x14

Config
Reset CAP1x14 Reset PIC16F1455 Clear CAP1x14 INT

可利用滑鼠移動 TrackBar 來開啟 PWM 功能, 用來對 EVB 上的 R8,R9 加熱



Note: EVB 右上方的“HOT Caution”區域,將會產生高溫,小心勿觸碰.