

CM-6010SD 操作說明

1. 特點:

- * 即時資料記錄儲存於 micro SD Card, 直接由 EXCEL 下載讀取, 無需額外軟體.
- * 內建時鐘, 即時資料記錄於 micro SD Card, 取樣時間從 2 到 7200 秒.
- * 量測功能:
 - ACA, DCA, ACV, DCV, Resistance, Diode, Continuity, Capacitance, Temp. (溫度測棒需另外購買)
- * ACA Range: 0 to 2000 ACA, 自動換檔功能
- * DCA Range: 0 to 2000 DCA, 自動換檔功能
- * ACV Range: 0 to 1000 ACV, 自動換檔功能
- * DCV Range: 0 to 1000 DCV, 自動換檔功能
- * Resistance Range: 0 to 60 M Ω , 自動換檔功能
- * Capacitance Range: 0 nF to 600 μ F, 自動換檔功能
- * Thermocouple Temp. sensor: Type K 溫度測量(-100.0 $^{\circ}$ C-199.9 $^{\circ}$ C, 200 $^{\circ}$ C-1300 $^{\circ}$ C), $^{\circ}$ C/ $^{\circ}$ F.
- * ACV, ACA 為真正有效值測量
- * 安全標準: CAT III 1000V, CAT IV 600V
- * DCA zero 按鍵
- * Hold, Peak(Max., Min. 測試值)
- * 鉤部最大開口為 57mm
- * ACV, DCV 輸入阻抗為 10M Ω
- * LCD 有背光功能
- * micro SD CARD 最大支援容量 32 GB
- * 電源 AA(UM-3)DC 1.5V X 2 電池(Alkaline type)或 DC 9V adapter
- * 電腦資料輸出, 可選購 USB Cable/USB-01 或 RS232 Cable/UPCB-02 及資料收集軟體 SW-U801-WIN, SW-E802
- * 選購 type K probe: TP-11

2. 規格

2-1. 一般規格:

Circuit	Custom single-chip microprocessor LSI circuit	
Display	LCD Size: 3.2 X 2.4" (60 X 44.4 mm) Dot Matrix backlit LCD (128 X 64 pixels)	
Measurements	DCV/ACV. DCA/ACA. Resistance/DIODE/Continuity Beeper. Capacitance. Frequency. Temperature.	
A/D counts no.	6000 counts.	
Voltage ranges	0.5 mV to 1000 V (DCV/ACV, Auto or Manu Range)	
Current ranges	0.5 ACA to 2000 ACA (DCA/ACA, Auto or Manu Range)	
Safety standard	IEC1010 CAT III 1000 V, CAT IV 600V	
ACV input impedance	10M ohms	
Clamp frequency response	40 Hz to 1 KHz	
Over-load protection	DCV/ACV	1000 DCV / 1000 ACV RMS
	DCA/ACA	2100 DCA/ACA with clamp probe
Over-range	* LCD display show " OL ". * The data save into the SD card will show " 9999 " or " 999 " (overleap the decimal point).	
Data Hold	Freezes displayed reading	
Data Recording	SD memory card	
Relative	To offset the measurement value	
Peak to Peak	DCV/ACV, DCA/ACA peak to peak measurement value	
DCA zero adj.	DCA zero adjustment	
Range selection	Auto range with manual range selecting	
Polarity	Automatic Switching, " - " indicates negative polarity.	
Sampling Time	Approx. 1 second	
Data logger	* Real time data logger, saved the data into SD memory card and down load the all the measured value with the time information (year/month/data/ hour/minute/second) down load to the Excel. * Sampling time for data logger : 2 seconds to 7200 seconds. * When the system detects micro SD format does not match with the Machine that will be mandatory for reformatting to ensure that data records can be normal * Data error no. :	

	≤ 0.1% no. of total saved data typically.
Data Output USB/RS232 *Computer interface	RS232 computer serial interface : * Connect the optional USB cable USB-01 will get the USB plug. * Connect the optional RS232 cable UPCB-02 will get the RS232 plug.
Operating Temperature	0 to 50°C (32 to 122°F).
Operating Humidity	80% Relative Humidity max.
Power Supply	* DC 1.5V, AA (UM-3) Battery X 2 PCs (Alkaline or heavy-duty battery). * AC to DC 9V power adapter.
Power	34 mA DC
Max. Conductor	Clamp can accommodate up to 2.2" (50 mm) diameter
Dimensions	11.0 X 4.2 X 1.9" (280 X 106 X 47mm) Clamp Jaw: 2.2" (57 mm)
Accessories Included	Instruction manual 1 PC Test Leads 1 Set (2pieces) Alligator clips 1 Set (2 pieces) Carrying case 1 PC Micro SD card(8 G)..... 1 PC AC to DC 9V adapter(Linear type,110V or 220V)..... 1 PC
Optional accessories	* Type K Temp. probe, TP-11. * USB cable, USB-01. * RS232 cable, UPCB-02. * Data Acquisition software, SW-U801-WIN.

2-2. 電氣規格:

DCV

Range	Resolution	Accuracy	
600 mV /6 V/60 V/600 V /1000 V	0.1 mV /0.001V /0.01V /0.1V/1 V	600 mV	±(0.8%+2d)
		6V to 1000V	±(0.8%+2d)
Peak to Peak			±(5%+30d)

* Input impedance : 10 MΩ

* Overload protection : ±1000 DCV, 1000 ACV

ACV(True RMS)

Range	Resolution	Accuracy	
600 mV /6 V/60 V/600 V /1000 V	0.1 mV /0.001V /0.01V /0.1V/1 V	±(1%+2d)	
		±(5%+30d)	
Peak to Peak			

* Input impedance : 10 MΩ

* Overload protection : ±1000 DCV, 1000 ACV

DCA, ACA(True RMS)

Range	Resolution	Accuracy	
0.5A to 2000A	0.1A/1 A	600A	$\pm(1\%+5d)$
		2000A	$\pm(1\%+8d)$
Peak to Peak			$\pm(5\%+30d)$

OHMS

Range	Resolution	Accuracy	
600Ω/6KΩ/60KΩ/ 600KΩ/6MΩ/60MΩ	0.1Ω/0.001KΩ/0.01KΩ/ 0.1KΩ/0.001MΩ/0.01MΩ	600Ω	$\pm(1\%+2d)$
		6KΩ to 6MΩ	$\pm(1.5\%+2d)$
		60MΩ	$\pm(3\%+2d)$

* Overload protection : ± 350 DCV, 350 ACV

DIODE

Range	Accuracy
2.7 VDC	$\pm(0.5\%+2d)$

Continuity Beeper

Beeper will sound if measured resistance less than 5 ohm

Capacitance

Range	Resolution	Accuracy
6 nF/60 nF/600 nF/6 uF/60 uF/600 uF	0.001nF/0.01nF/0.1 nF/ 0.001uF/0.01uF/0.1uF	$\pm(3\%+5d)$

* Test frequency : Auto frequency configuration

* Overload protection : ± 30 DCV, 30 ACV

* Remark : Discharge capacitor before testing

Frequency(ACV > 6.5V, ACA > 15A)

Range	Resolution	Accuracy
40Hz to 999.9Hz	0.1Hz	$\pm(0.5\%+2d)$

Type K Temperature

Range	Resolution	Accuracy
-100.0°C to 199.9°C	0.1°C	$\pm(1\%+1^\circ\text{C})$
200°C to 1300°C	1°C	$\pm(1\%+2^\circ\text{C})$
-148.0°F to 391.8°F	0.1°F	$\pm(1\%+1.8^\circ\text{F})$
392°F to 2372°F	1°F	$\pm(1\%+3.6^\circ\text{F})$

* Temp. probe : The temperature probe(TP-11) is the optional accessory.

3. 前面板說明

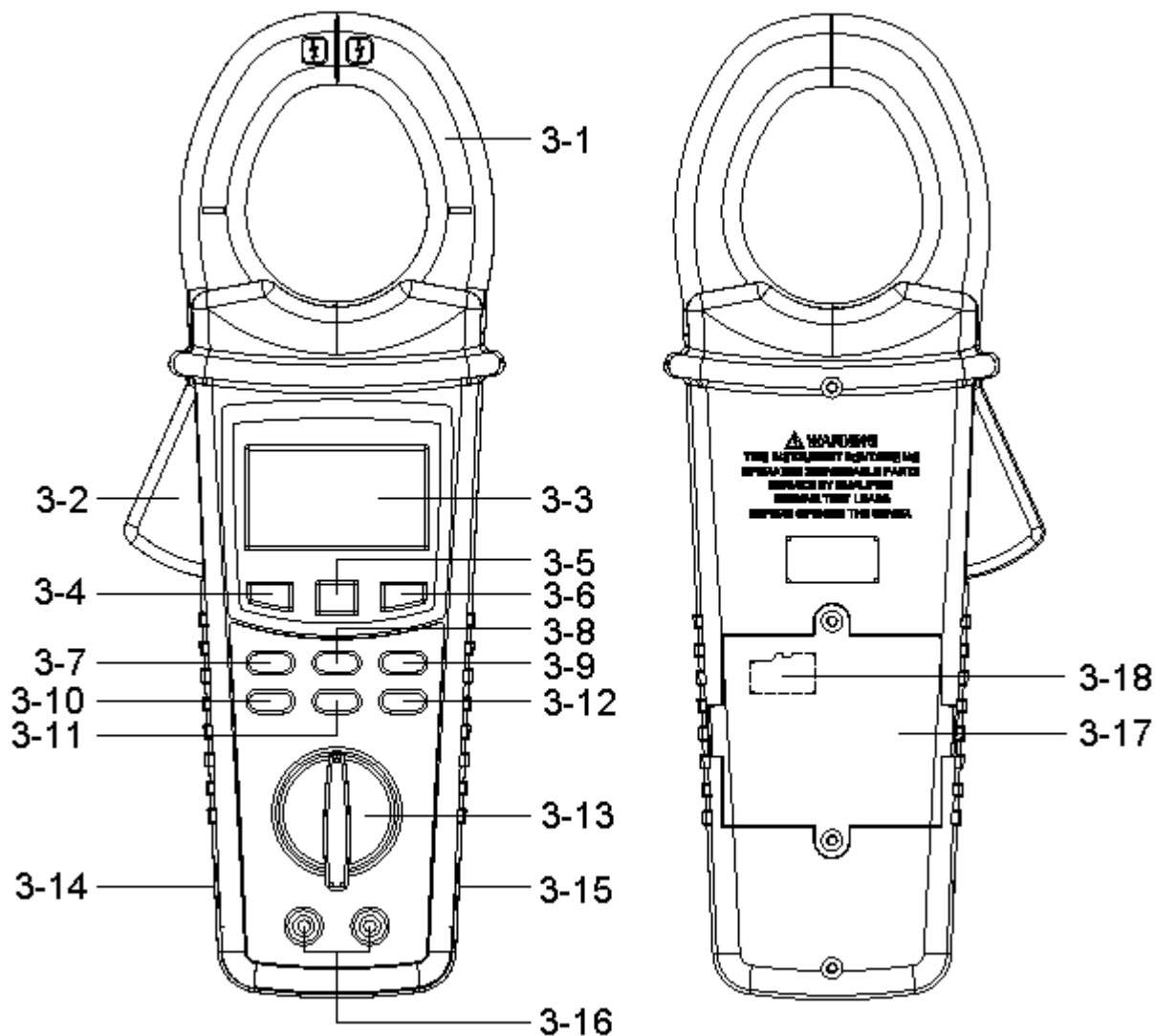
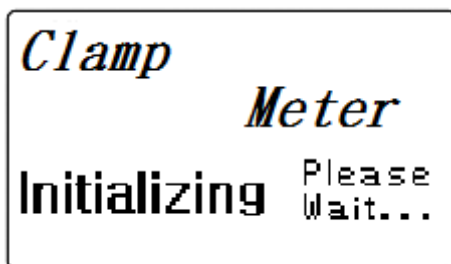


Fig.1

- 3-1 Current Sense Jaws
- 3-2 Trigger
- 3-3 Display
- 3-4 FUNC key button
- 3-5 HOLD key button
- 3-6 REC key button
- 3-7 SETUP(ENTER) key button
- 3-8 ▲ key button
- 3-9 EXIT(*) key button
- 3-10 ◀ key button
- 3-11 ▼ key button
- 3-12 ▶ key button
- 3-13 Function rotary switch
- 3-14 RS232 socket
- 3-15 DC 9V power adapter socket
- 3-16 Voltage input terminals
- 3-17 Battery Cover/Battery compartment
- 3-18 SD card socket

4. 測量準備

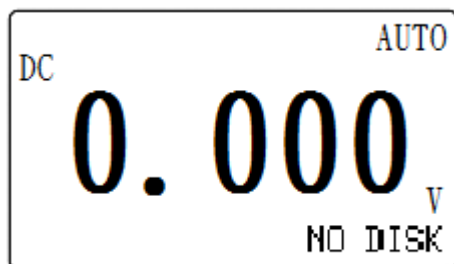
4-1. 開機初始畫面



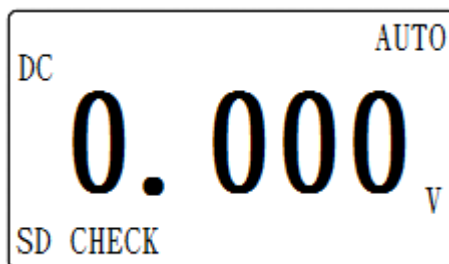
SCREEN 4-1

4-2. 進入測量畫面

SCREEN 4-2A



SCREEN 4-2B



- 1) 當右下角出現" NO DISK" 且呈現閃爍狀態時, 表示 SD CARD 尚未插入(如 SCREEN 4-2A)
- 2) 當插入 SD CARD 時畫面左下角將顯示為 "SD CHECK" (如 SCREEN 4-2B), 幾秒鐘後若消失, 表示 SD CARD 已讀取完成.

4-3. 按鍵概要說明

- 1) Function Rotary switch (3-13, Fig. 1):
量測功能選擇之轉盤開關
- 2) FUNC KEY (3-4, Fig. 1):
按此鍵將選擇功能畫面顯示
- 3) HOLD KEY (3-5, Fig. 1):
按此鍵將保留 LCD 目前顯示值
- 4) REC KEY (3-6, Fig. 1):
按此鍵將資料記錄於 SD CARD
- 5) SETUP(ENTER) KEY (3-7, Fig. 1):
按此鍵進入功能量測前的設定.
- 6) EXIT(*) KEY (3-9, Fig. 1):
按此鍵則離開設定畫面, 或在量測畫面時 LCD 之背光按鍵
- 7) ▲(DCA ZERO) KEY (3-8, Fig. 1):
按此鍵在設定功能中做向上移的作用.
- 8) ▼(RANGE) KEY (3-11, Fig. 1):
按此鍵在設定功能中做向下移的作用.
- 9) ◀ (REL.)KEY (3-10, Fig. 1):
按此鍵在設定功能中做向左移的作用.
- 10) ▶ (PEAK)KEY (3-12, Fig. 1):
按此鍵在設定功能中做向右移的作用.

4-4. SETUP(ENTER)KEY 說明:

4-4-1. 設定功能清單:

- * Folder Name: 設定目錄名稱至 SD CARD 上, 設定範圍在 CMA01 至 CMA10
- * File Name: 設定檔案名稱至 SD CARD 上, 設定範圍可到 50 檔案名稱
- * REC Date: 顯示已存在的檔案之記錄時間
- * Sampling Time: 設定取樣時間從 2 到 7200 秒
- * Delete File: 從 SD CARD 刪除已存在的檔案
- * SD Format: 格式化 SD CARD
- * Beep: 設定 Buzzer ON/OFF
- * AUTO POWER OFF: 設定電源自動關閉功能
- * Decimal: 進制設定美國或歐洲
- * Temp Unit: 溫度單位設定 °C/°F
- * START TIME: 資料記錄功能, 預定開始記錄時間設定
- * STOP TIME: 資料記錄功能, 預定結束記錄時間設定
- * Year: 年之設定
- * Month: 月之設定
- * Date: 日之設定
- * Hour: 小時之設定
- * Minute: 分鐘之設定
- * Second: 秒之設定

4-5. 量測前之設定功能說明

SCREEN 4-5A

```
Folder Name: CMA01
File Name: DCV01001.XLS
REC Date: NO FILE

Sampling Time:      2
Delete File:       0%
SD Format:         0%
Beep: ON          1/3
```

SCREEN 4-5B

```
AUTO POWER OFF: N
Decimal: USA (.)
Temp. Unit: °C
START TIME: 00:00
STOP TIME: 00:00

2/3
```

SCREEN 4-5C

```
Year/Month/Date
2016 08 06
Hour/Minute/Second
16 32 12

3/3
```

A. 按 SETUP(ENTER) KEY 進入設定功能畫面, 共 3 頁 (SCREEN 4-5A~SCREEN 4-5C).

B. 當進入設定功能畫面, 選項會呈現閃爍狀態

4-5-1. Folder Name: 設定目錄名稱於 SD

SCREEN 4-5-1

```
Folder Name: CMA01
File Name: DCV01001.XLS
REC Date: NO FILE

Sampling Time:      2
Delete File:       0%
SD Format:         0%
Beep: ON          1/3
```

A. Folder Name range: CMA01 to CMA10

B. 此時 Folder Name 會閃爍, 當按 ◀ or ▶ KEY 其 Folder 數字會閃爍. 按 ▲ or ▼ KEY 選擇 Folder 數字, 其數字由 "01 到 10" (如 SCREEN 4-5-1)

C. 按 ▲ or ▼ KEY > 2 SEC 則數字會快速變動

D. 按 ◀ or ▶ KEY 則回到 Folder Name 功能, 此時是閃爍狀態. 當按 ▼ KEY 時則進入下一個功能 (Folder Name→File Name)

4-5-2. File Name: 設定檔案名稱於 SD

SCREEN 4-5-2A

SCREEN 4-5-2B

```
Folder Name: CMA01
File Name: DCV01001.XLS
REC Date: NO FILE

Sampling Time:      2
Delete File:        0%
SD Format:          0%
Beep: ON           1/3
```

```
Folder Name: CMA01
File Name: DCV01001.XLS
REC Date: 2016/08/06
              11:00:05

Sampling Time:      2
Delete File:        0%
SD Format:          0%
Beep: ON           1/3
```

A. 當選擇新的檔案時, 在 REC Date 會顯示 "NO File" (如 SCREEN 4-5-2A).

B. 當選擇已存在的檔案時, 在 REC Date 會顯示記錄的日期與時間 (如 SCREEN 4-5-2B).

C. 當進入 File Name 選項時會閃爍, 按 ◀ or ▶ KEY 則進入 File 數字調整且會閃爍. 按 ▲ or ▼ KEY 選擇 File 數字, 其數字由 "001 到 050" (如 SCREEN 4-5-2B)

Remark: 按 ▲ or ▼ KEY > 2 SEC 則數字會快速變動

* DCV01001 : DCV means DCV measurement.

* ACV01001 : ACV means ACV measurement.

* OHM01001 : OHM means Resistor measurement.

* DIO01001 : DIO means Diode measurement.

* CON01001 : CON means Continuity measurement.

* CAP01001 : CAP means Capacitor measurement.

* DCA01001 : DCA means DCA measurement.

* ACA01001 : ACA means ACA measurement.

* TMP01001 : TMP means temperature measurement.

D. 按 ◀ or ▶ KEY 則回到 File Name 功能, 此時是閃爍狀態. 當按 ▼ KEY 時則進入下一個功能 (File Name→Sampling Time)

4-5-3. Sampling Time: 設定資料記錄取樣時間於 SD

SCREEN 4-5-3

```
Folder Name: CMA01
File Name: DCV01001.XLS
REC Date: NO FILE

Sampling Time:      2
Delete File:        0%
SD Format:          0%
Beep: ON           1/3
```

A. 當進入 Sampling Time 選項時且呈閃爍狀態.

B. 當按 ◀ or ▶ KEY 則進入數字調整功能且呈現閃爍狀態, 按 ▲ or ▼ KEY 則可進行調整.

Remark: 當按 ▲ or ▼ KEY > 2 Sec 時, 則數字會快速跳動.

C. 再按 ◀ or ▶ KEY 則回到 Sampling Time 功能, 此時是閃爍狀態. 當按 ▼ KEY 時則進入下一個功能 (Sampling Time→Delete File)

4-5-4. Delete File:刪除檔案於 SD

SCREEN 4-5-4A

```
Folder Name: CMA01
File Name:DCV01001.XLS
REC Date: 2016/08/06
          11:00:05
Sampling Time: 2
Delete File: 0%
SD Format: 0%
Beep: ON 1/3
```

SCREEN 4-5-4B

```
Folder Name: CMA01
File Name:DCV01001.XLS
REC Date: 2016/08/06
          11:00:05
Sampling Time: 2
Delete File: YorN %
SD Format: 0%
Beep: ON 1/3
```

- 當進入 Delete File 選項時,此時呈現閃爍狀態(如 SCREEN 4-5-4A).
- 當按◀ or ▶ KEY > 2 Sec 時會顯示" Y or N" 且" N" 呈現閃爍狀態(如 SCREEN 4-5-4B), 按▲ or ▼ KEY 選擇" Y" 再按 SETUP(ENTER) KEY 則進行 Delete 的動作(ex:DCV01001.XLS)同時會回到 SCREEN 4-5-4A 或選擇" N" 再按 SETUP(ENTER) KEY 則回到 SCREEN 4-5-4A
- 再按◀ or ▶ KEY 則回到 Delete File 選項且呈閃爍狀態. 當按▼ KEY 時則進入下一個功能>Delete File→SD Format)

4-5-5. SD Format:格式化功能於 SD CARD

SCREEN 4-5-5A

```
Folder Name: CMA01
File Name:DCV01001.XLS
REC Date: 2016/08/06
          11:00:05
Sampling Time: 2
Delete File: 0%
SD Format: 0%
Beep: ON 1/3
```

SCREEN 4-5-5B

```
Folder Name: CMA01
File Name:DCV01001.XLS
REC Date: 2016/08/06
          11:00:05
Sampling Time: 2
Delete File: 0%
SD Format: YorN %
Beep: ON 1/3
```

- 當進入 SD Format 選項時且呈閃爍狀態(如 SCREEN 4-5-5A).
- 當按◀ or ▶ KEY > 2 Sec 時會顯示" Y or N" 且" N" 呈現閃爍狀態(如 SCREEN 4-5-5B), 按▲ or ▼ KEY 選擇" Y" 再按 SETUP(ENTER) KEY 則進行 Format 的動作,執行完成後則回到 SCREEN 4-5-5A 或選擇" N" 再按 SETUP(ENTER) KEY 則回到 SCREEN 4-5-5A
- 再按◀ or ▶ KEY 則回到 SD Format 選項且呈閃爍狀態. 當按▼ KEY 時則進入下一個功能(SD Format→Beep)

4-5-6. Beep:Buzzer ON/OFF 控制設定

SCREEN 4-5-6

```
Folder Name: CMA01
File Name:DCV01001.XLS
REC Date: 2016/08/06
          11:00:05
Sampling Time: 2
Delete File: 0%
SD Format: 0%
Beep: ON 1/3
```

- 當進入 Beep 選項時且呈閃爍狀態(如 SCREEN 4-5-6).
- 當按◀ or ▶ KEY 則進入" ON" 功能且呈閃爍狀態,按一次▲ or ▼ KEY 則進入" OFF" 功能且呈現閃爍狀態
- 再按◀ or ▶ KEY 則回到 Beep 功能且呈閃爍狀態. 當按▼ KEY 時則進入下一個功能(Beep→AUTO POWER OFF)

4-5-7. AUTO POWER OFF: 電源自動關閉功能設定

SCREEN 4-5-7

```
AUTO POWER OFF: N  
Decimal: USA (.)  
Temp. Unit: °C  
START TIME: 00:00  
STOP TIME: 00:00  
  
2/3
```

- 當進入 AUTO POWER OFF 選項時且呈閃爍狀態(如 SCREEN 4-5-7). 而 AUTO POWER OFF 選擇啟動時則儀器將在 10 分鐘自動關機, 當轉動轉盤時則又進入開機狀態進行量測, 當接上 Adapter 時則自動取消 AUTO POWER OFF 功能.
- 當按 ◀ or ▶ KEY 則進入” N” 功能且呈閃爍狀態, 按一次 ▲ or ▼ KEY 則進入” Y” 功能且呈現閃爍狀態
- 再按 ◀ or ▶ KEY 則回到 AUTO POWER OFF 功能且呈閃爍狀態. 當按 ▼ KEY 時則進入下一個功能(AUTO POWER OFF→Decimal)

4-5-8. Decimal: 進制設定美國(.)或歐洲(,)

SCREEN 4-5-8

```
AUTO POWER OFF: N  
Decimal: USA (.)  
Temp. Unit: °C  
START TIME: 00:00  
STOP TIME: 00:00  
  
2/3
```

- 當進入 Decimal 選項時且呈閃爍狀態(如 SCREEN 4-5-8).
- 當按 ◀ or ▶ KEY 則進入” USA(.)” 功能且呈閃爍狀態, 按一次 ▲ or ▼ KEY 則進入” EURO(,)” 功能且呈現閃爍狀態
- 再按 ◀ or ▶ KEY 則回到 Decimal 功能且呈閃爍狀態. 當按 ▼ KEY 時則進入下一個功能 (Decimal→Temp Unit)

4-5-9. Temp Unit: 溫度單位設定

SCREEN 4-5-9A

```
AUTO POWER OFF: N  
Decimal: USA (.)  
Temp. Unit: °C  
START TIME: 00:00  
STOP TIME: 00:00  
  
2/3
```

SCREEN 4-5-9B

```
AUTO POWER OFF: N  
Decimal: USA (.)  
Temp. Unit: °F  
START TIME: 00:00  
STOP TIME: 00:00  
  
2/3
```

- 當進入 Temp Unit 選項時且呈閃爍狀態(如 SCREEN 4-5-9A).
- 當按 ◀ or ▶ KEY 則進入” °C” 選項且呈閃爍狀態(如 SCREEN 4-5-9A), 按一次 ▲ or ▼ KEY 則進入” °F” 功能且呈現閃爍狀態(如 SCREEN 4-5-9B)
- 再按 ◀ or ▶ KEY 則回到 Temp Unit 功能且呈閃爍狀態. 當按 ▼ KEY 時則進入下一個功能 (Temp Unit→START TIME)

4-5-10. START TIME/STOP TIME: 資料記錄功能, 預定開始及結束記錄時間設定

SCREEN 4-5-10A

SCREEN 4-5-10B

```
AUTO POWER OFF: N
Decimal: USA (.)
Temp. Unit: °C
START TIME: 00:00
STOP TIME: 00:00
2/3
```

```
AUTO POWER OFF: N
Decimal: USA (.)
Temp. Unit: °C
START TIME: 08:00
STOP TIME: 00:00
2/3
```

- A. 當進入 START TIME or STOP TIME 選項時且呈閃爍狀態(如 SCREEN 4-5-10A).
- B. 按一次 ◀ or ▶ KEY 則進入小時調整功能且呈現閃爍狀態(如 SCREEN 4-5-10B), 按 ▲ or ▼ KEY 則進行調整其範圍在(0~23). 再按一次 ◀ or ▶ KEY 則進入分鐘調整功能且呈現閃爍狀態, 按 ▲ or ▼ KEY 則可進行調整其範圍在(0~59). 再按一次 ◀ or ▶ KEY 則返回 START TIME or STOP TIME 選項且呈閃爍狀態.
Remark: 當按 ▲ or ▼ KEY > 2 Sec 時, 則數字會快速跳動.
- C. 再按 ◀ or ▶ KEY 則回到 START TIME or STOP TIME 選項且呈閃爍狀態. 當在 STOP TIME 選項狀態下按 ▼ KEY 時則進入下一個選項(STOP TIME→Year)
- * Remark: 當在 START TIME or STOP TIME 內容選項時, 按 ◀ or ▶ KEY > 5 Sec 則將該選項的設定快速清為零

4-5-11. Year/Month/Date/Hour/Minute/Second 設定

SCREEN 4-5-11

```
Year/Month/Date
2016 08 06
Hour/Minute/Second
16 32 12
3/3
```

- A. 當進入 Year 選項時且呈閃爍狀態(如 SCREEN 4-5-11).
- B. 當在 Year 選項時按一次 ◀ or ▶ KEY 則進入年份調整功能且呈現閃爍狀態, 按 ▲ or ▼ KEY 則進行調整. 再按 ◀ or ▶ KEY 則返回 Year 選項且呈閃爍狀態.
Remark: 當按 ▲ or ▼ KEY > 2 Sec 時, 則數字會快速跳動.
- C. 按 ▲ or ▼ KEY 則進行 (Year→Month)、(Month→Date)、(Date→Hour)、(Hour→Minute)、(Minute→Second) 等選項調整, 依照” B” 項做數字調整.
- D. 當在 Second 選項時按一次 ◀ or ▶ KEY 則進入 Second 調整功能且呈現閃爍狀態, 按 ▲ or ▼ KEY 則進行調整, 此時數字呈靜止狀態. 當按 SETUP/ENTER KEY 時則將設定值儲存且數字呈現閃爍狀態, 再按 ◀ or ▶ KEY 則返回 Second 選項且呈閃爍狀態.

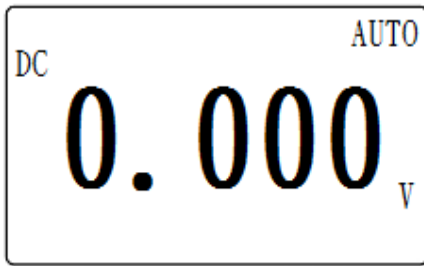
4-5-12 When all settings are completed, press EXIT(✱) KEY

5. 測量程序

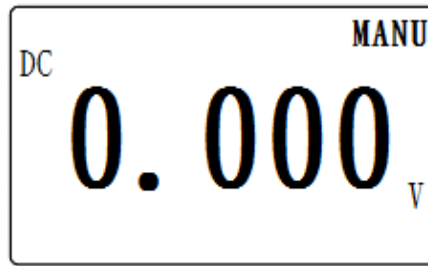
5-1. DCV、ACV 量測:

A. 圖示說明:

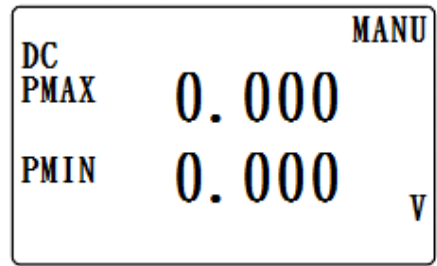
SCREEN 5-1A



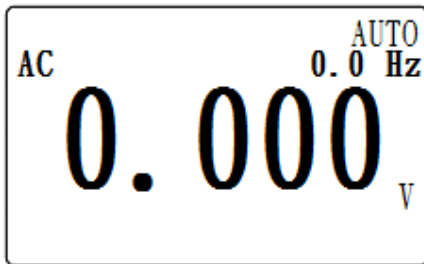
SCREEN 5-1B



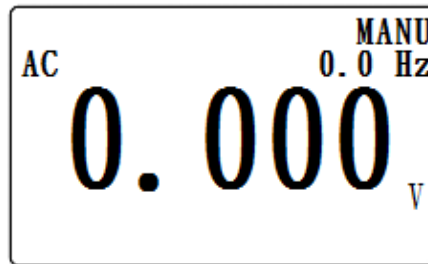
SCREEN 5-1C



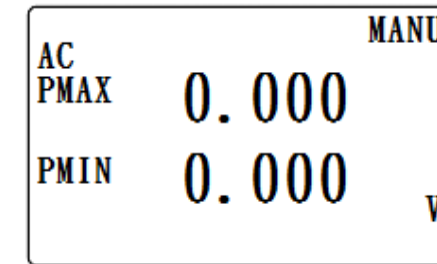
SCREEN 5-1D



SCREEN 5-1E



SCREEN 5-1F



B. 操作方式

B-1. 將旋轉開關(3-13, Fig. 1)轉到 V 位置

B-2. DCV 功能:

B-2-1. 將儀器的 V(紅棒)與 COM(黑棒) 連接至待測端+與-

B-2-2. 當連接完成後, 測試結果將顯示於 LCD 上(如 SCREEN 5-1A)

B-3. ACV 功能:

B-3-1. 將旋轉開關(3-13, Fig. 1)轉到 V 位置

B-3-2. 在 SCREEN 5-1A 畫面按 FUNC KEY(3-4, Fig. 1), 則顯示 SCREEN 5-1D 畫面

B-3-3. 將儀器的 V(紅棒)與 COM(黑棒) 連接至待測端 L 與 N

B-3-4. 當連接完成後, 測試結果將顯示於 LCD 上(如 SCREEN 5-1D)

B-4. Manual Range 功能:

B-4-1. 按▼(Range) KEY(3-11, Fig. 1) > 2 SEC., 則 AUTO Range 轉為 Manual Range (如 SCREEN 5-1B 或 SCREEN 5-1E)

B-4-2. 按▼(Range) KEY(3-11, Fig. 1) > 2 SEC., 則 Manual Range 轉為 AUTO Range (如 SCREEN 5-1A 或 SCREEN 5-1D)

B-5. PEAK 功能:

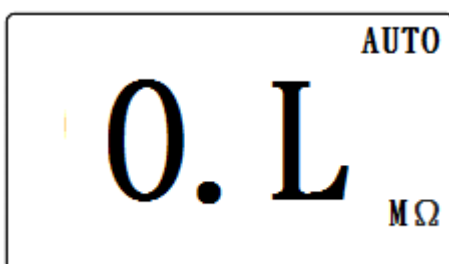
B-5-1. 當本機量測時確定檔位後, 再按▶(PEAK) KEY(3-12, Fig. 1) > 2 SEC., 當呈現 SCREEN 5-1C 或 SCREEN 5-1F 的畫面時, 表示已啟動 PEAK 功能

B-5-2. 在 SCREEN 5-1C 或 SCREEN 5-1F 畫面, 按▶(PEAK) KEY(3-12, Fig. 1) > 2 SEC., 則回到 SCREEN 5-1A 或 SCREEN 5-1D, 取消 PEAK 功能

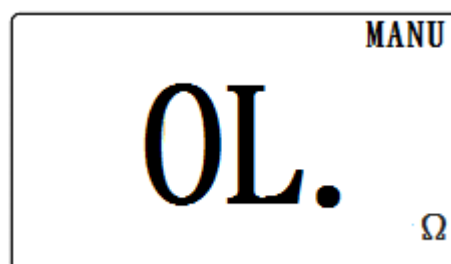
5-2. Ω 、Diode、Continuity 量測:

A. 圖示說明:

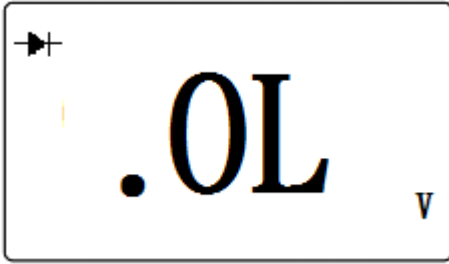
SCREEN 5-2A



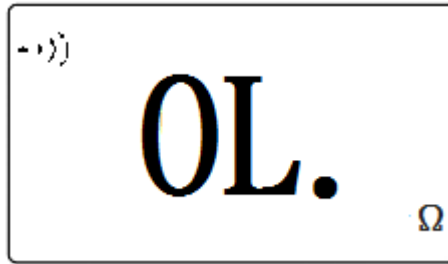
SCREEN 5-2B



SCREEN 5-2C



SCREEN 5-2D



B. 操作方式

B-1. 將旋轉開關(3-13, Fig. 1)轉到 $\Omega / \rightarrow + / \rightarrow)$ 位置

B-2. Ω 檔 (SCREEN 5-2A) 功能:

B-2-1. 將紅、黑測棒端子接至儀器的 Ω 與 COM, 同時將測試棒連接至待測端

B-2-2. 連接完成後, 測試結果將顯示於 LCD 上

B-2-3. 按 \blacktriangledown (Range) KEY (3-11, Fig. 1) > 2 SEC., 則 AUTO Range 轉為 Manual Range

(如 SCREEN 5-2B), 再按 Range KEY (3-11, Fig. 1) > 2 SEC., 則回到 SCREEN 5-2A

B-3. $\rightarrow +$ 檔 (SCREEN 5-2C) 功能:

B-3-1. 按 FUNC KEY (3-14, Fig. 1) 將功能由 (SCREEN 5-2A) 切至 (SCREEN 5-2C) 功能

B-3-2. 將紅、黑測棒端子接至儀器的 Ω 與 COM, 同時將測試棒連接至待測端+與-

B-3-3. 連接完成後, 測試結果將顯示於 LCD 上

B-4. $\rightarrow)$ 檔 (SCREEN 5-2D) 功能:

B-4-1. 按 FUNC KEY (3-14, Fig. 1) 將功能由 (SCREEN 5-2C) 切至 (SCREEN 5-2D) 功能

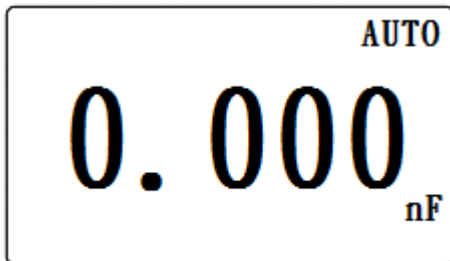
B-4-2. 將紅、黑測棒端子接至儀器的 Ω 與 COM, 同時也將測試棒連接至待測端

B-4-3. 連接完成後, 測試結果將顯示於 LCD 上, 當測量值約 5Ω 以下時 Buzzer 會響

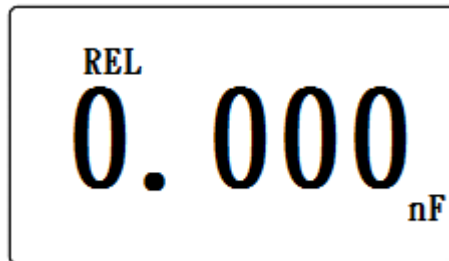
5-3. Capacitance 量測:

A. 圖示說明:

SCREEN 5-3A



SCREEN 5-3B



B. 操作方式

B-1. 將旋轉開關(3-13, Fig. 1)轉到 $\rightarrow +$ 位置

B-2. $\rightarrow +$ 功能 (SCREEN 5-3A):

B-2-1. 當量測低電容值時, 接上測棒後按 \blacktriangleleft (REL.) KEY (3-10, Fig. 1) > 2 SEC. 將殘值扣除使 LCD 顯示為零 (SCREEN 5-3B), 再接上待測物

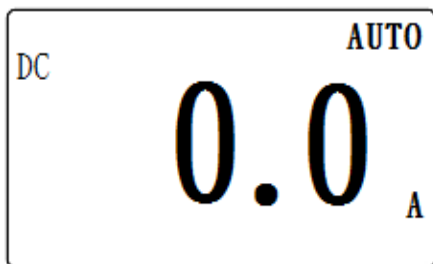
B-2-2. 當量測大電容值時, 將紅、黑測棒端子接至儀器的 $\rightarrow +$ 與 COM, 同時將測試棒連接至待測端

B-2-3. 連接完成後, 測試結果將顯示於 LCD 上

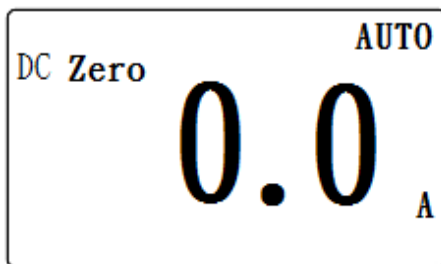
5-4. DCA、ACA 量測:

A. 圖示說明:

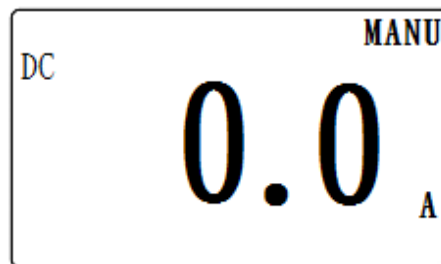
SCREEN 5-4A



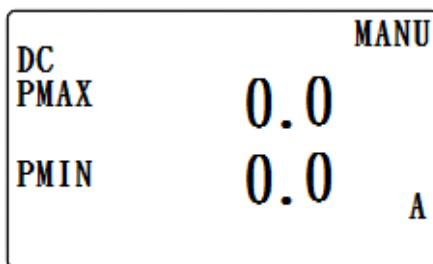
SCREEN 5-4B



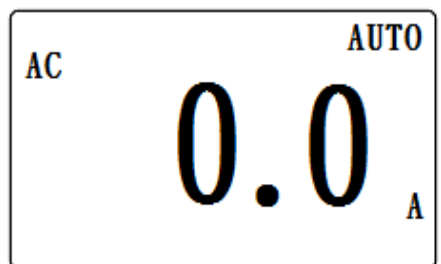
SCREEN 5-4C



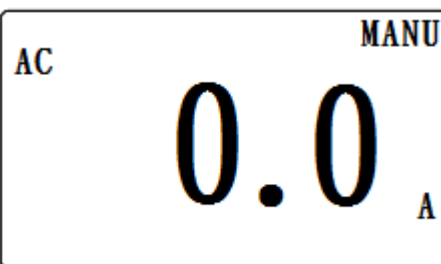
SCREEN 5-4D



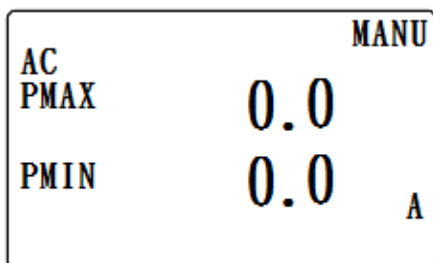
SCREEN 5-4E



SCREEN 5-4F



SCREEN 5-4G



B. 操作方式

B-1. 將旋轉開關(3-13, Fig. 1)轉到 A 位置

B-2. DCA 功能(如 SCREEN 5-4A):

B-2-1. 按▲(DCA ZERO) KEY(3-8, Fig. 1) > 2 SEC. 將 LCD 殘值歸零(如 SCREEN 5-4B)

B-2-2. 將鉤部鉤至待測物如(3-1, Fig. 1), 測試結果將顯示於 LCD 上(如 SCREEN 5-4B)

B-3. ACA 功能(如 SCREEN 5-4E):

B-3-1. 將旋轉開關(3-13, Fig. 1)轉到 A 位置

B-3-2. 在 SCREEN 5-4A 畫面按 FUNC KEY, 則顯示 SCREEN 5-4D 畫面

B-3-3. 將鉤部鉤至待測物如(3-1, Fig. 1), 測試結果將顯示於 LCD 上(如 SCREEN 5-4E)

B-4. Manual Range 功能:

B-4-1. 按▼(RANGE) KEY(3-11, Fig. 1) > 2 SEC., 則 AUTO Range 轉為 Manual Range (如 SCREEN 5-4C 或 SCREEN 5-4F)

B-4-2. 按▼(RANGE) KEY(3-11, Fig. 1) > 2 SEC., 則 Manual Range 轉為 AUTO Range (如 SCREEN 5-4A 或 SCREEN 5-4E)

B-5. PEAK 功能:

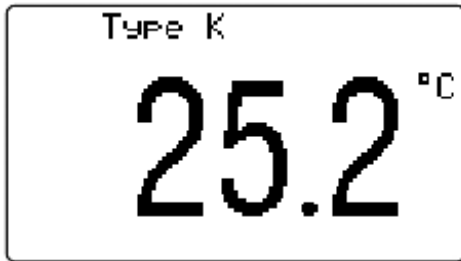
B-5-1. 當本機量測時確定檔位後, 再按▶(PEAK) KEY(3-12, Fig. 1) > 2 SEC., 當呈現 SCREEN 5-4D 或 SCREEN 5-4G 的畫面時, 表示已啟動 PEAK 功能

B-5-2. 在 SCREEN 5-4D 或 SCREEN 5-4G 畫面, 按 PEAK KEY(3-12, Fig. 1) > 2 SEC., 則回到 SCREEN 5-4A 或 SCREEN 5-4E, 取消 PEAK 功能

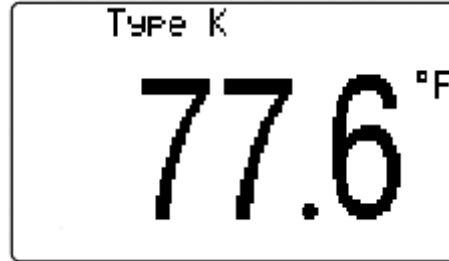
5-5. 溫度量測

A. 圖示說明:

SCREEN 5-5A



SCREEN 5-5B



B. 操作方式

B-1. 將轉盤(3-13, Fig. 1)切至 Temp 位置

B-2. 接上 Type K Sensor, 則顯示 SCREEN 5-5A 畫面

B-3. °C/°F 切換, 請參考 4-5-9. 其 °F 顯示畫面如 SCREEN 5-5B

5-6. 資料記錄功能

A. 當 START TIME 及 STOP TIME 皆設為 00:00 時(如 SCREEN 5-6A), 按 REC KEY(3-6, Fig. 1)一次則開始做資料記錄, 超過 30000 筆時會自動新增檔案名稱, 再按 REC KEY(3-6, Fig. 1)一次則解除資料記錄功能.

B. START TIME 或 STOP TIME, 其中一項不是 00:00 時(如 SCREEN 5-6B), 按 REC KEY(3-6, Fig. 1)一次則 LCD 左下角會顯示 REC 符號(如 SCREEN 5-6E), 直到即時時間到達 START TIME(08:00)時則開始做資料記錄, 當即時時間到達 STOP TIME(00:00)時則自動停止記錄, 每天重覆此設定動作. 當再按一次 REC KEY(3-6, Fig. 1)則解除資料記錄功能

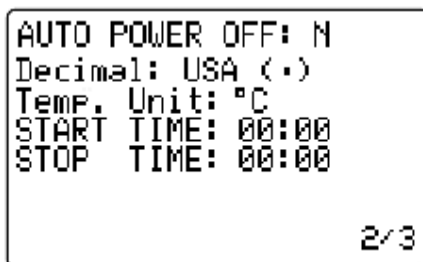
C. 當 REC KEY(3-6, Fig. 1) > 2 Sec 時在第一輪不管 START TIME 設於何時, 會開始做資料記錄(如 SCREEN 5-6D), 直到即時時間到達 STOP TIME(00:00)時則自動停止記錄. 在第二輪以後則會依據 START TIME 及 STOP TIME 的時間設定來做資料記錄, 當再按一次 REC KEY(3-6, Fig. 1) > 2 Sec 則解除此資料記錄功能

Remark:

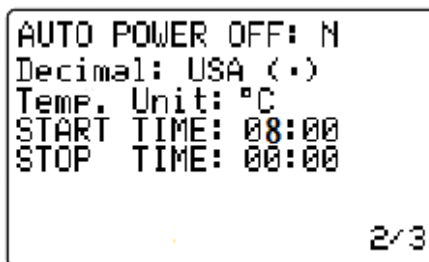
*當左下角出現 "ChangeSD"(如 SCREEN 5-6F), 表示 SD CARD 空間已滿或 SD CARD 本身存在一些問題

*當按 REC KEY(3-6, Fig. 1)左下角若出現 " NO DISK "(如 SCREEN 5-6G), 表示未插 SD CARD. 若要解除" NO DISK ", 則再按 REC KEY(3-6, Fig. 1)一次即可.

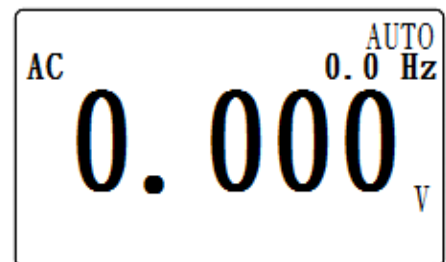
SCREEN 5-6A



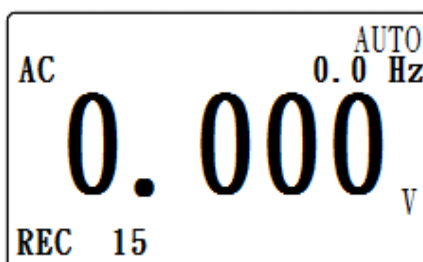
SCREEN 5-6B



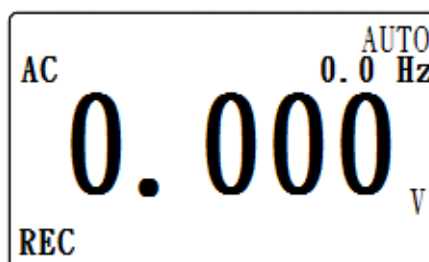
SCREEN 5-6C



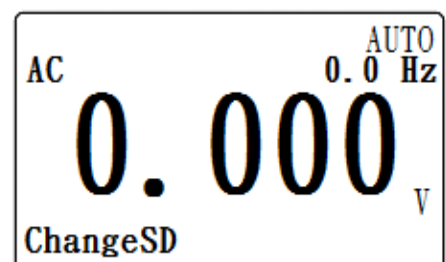
SCREEN 5-6D



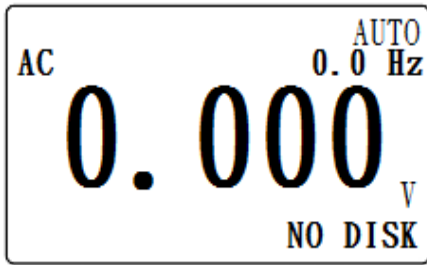
SCREEN 5-6E



SCREEN 5-6F



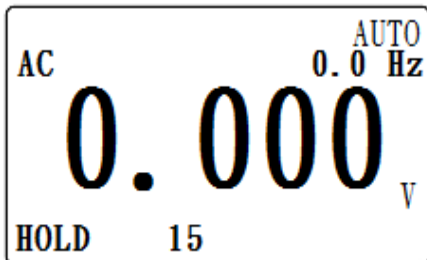
SCREEN 5-6G



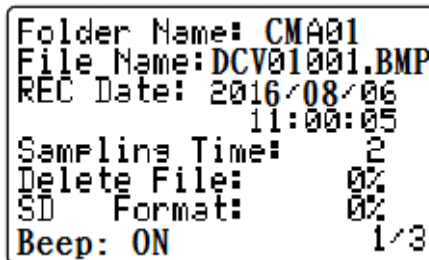
5-7. 硬式拷貝功能

- A. 按 HOLD KEY(3-5, Fig. 1) 一次, 再按 REC KEY(3-6, Fig. 1) 一次, 將 LCD 所顯示的畫面做複製 (如 SCREEN 5-7A)
- B. 目錄名稱依據 Folder Name 的設定, 如 WTA01 自動改成 BMP01, 檔案名稱依據 File Name 的設定如 ACV01001.XLS 自動改成 ACV01001.BMP 於 SD CARD 上, 最大檔案記錄為 50 筆. (如 SCREEN 5-7B) 檔案名稱依據請參考 4-5-2
- C. 再按 HOLD KEY(3-5, Fig. 1) 一次則解除此功能(如 SCREEN 5-7C)

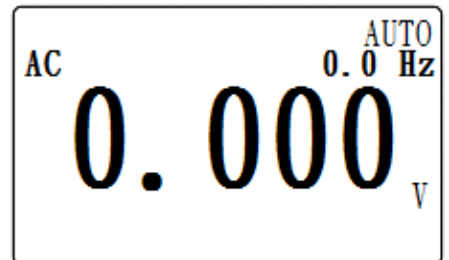
SCREEN 5-7A



SCREEN 5-7B



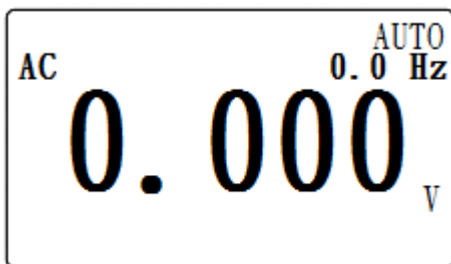
SCREEN 5-7C



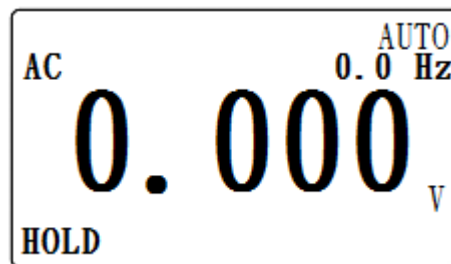
5-8. 資料保留功能

- A. 在量測中按 HOLD KEY(3-5, Fig. 1) 一次則顯示值保留在 LCD 上, 而 LCD 左下角換會顯示 HOLD 符號(如 SCREEN 5-8B).
- B. 再按 HOLD KEY(3-5, Fig. 1) 一次則解除此功能(如 SCREEN 5-8A)

SCREEN 5-8A



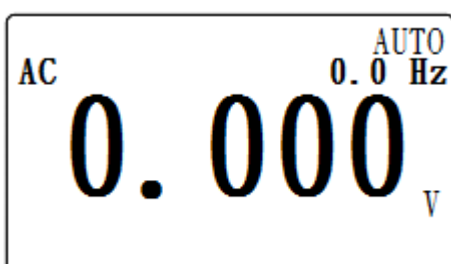
SCREEN 5-8B



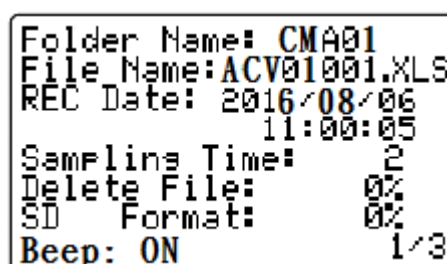
5-9. EXIT(*) KEY

- A. 在量測模式(如 SCREEN 5-9A)按 EXIT(*) KEY(3-9, Fig. 1)代表控制 LCD 背光 ON/OFF
- B. 在設定模式(如 SCREEN 5-9B)按 EXIT(*) KEY(3-9, Fig. 1), EXIT KEY 則代表離開設定模式.

SCREEN 5-9A



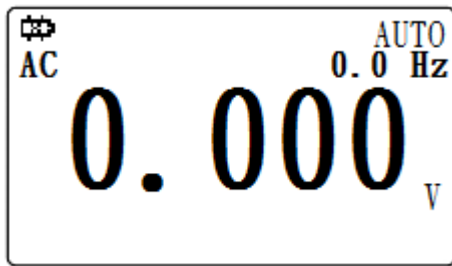
SCREEN 5-9B



5-10. LOWBAT 顯示

在 LCD 左上角顯示 LOWBAT 符號(如 SCREEN 5-10A)

SCREEN 5-10A



6. 從 Micro SD Card 儲存的資料下載到電腦(EXCEL 軟體)

7. POWER SUPPLY from DC ADAPTER

8. 電池更換

8-1. 當 LCD 顯示  符號, 則需更換電池.

8-2. 打開電池蓋(3-17, Fig. 1), 將儀器電池拿出.

8-3. 更換新電池(DC 1.5V, AA/UM3 電池 X 2)及重新將電池蓋蓋上

*安裝電池時需注意極性

8-4. 確定電池蓋是否固定

9. RS232 PC 串列輸出

10. 選配附件

11. 專利

12. THE ADDRESS OF AFTER SERVICE CENTER