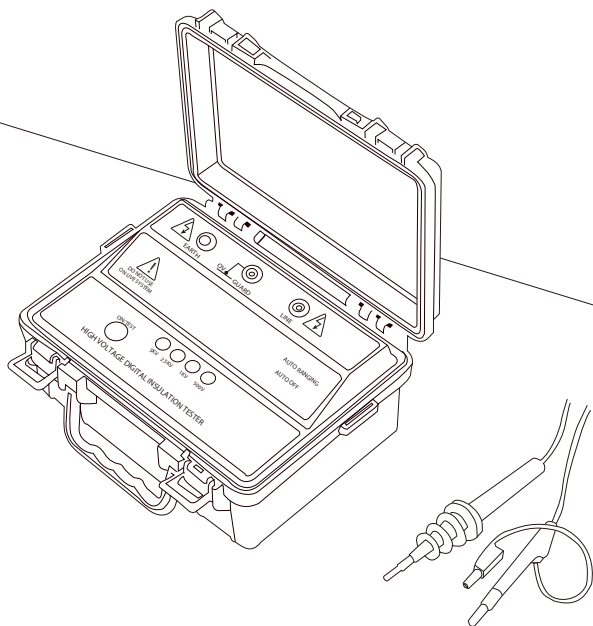


高壓絕緣測試器 8PK-4103IN

操作說明書



Pro'sKit®

• 安全注意須知：

1. 本表須由受過絕緣測量訓練的人員使用。
2. 操作人員應按照程序進行，以免機體和人員受損。
3. 被測物不能有電源存在，測試之前，應檢查表體、測試線有無破損或不良狀況，否則將導致危險。
4. 測試進行中，不可接觸表體或測試棒的金屬部份。

• 工作環境範圍：

1. 室內室外均可使用
2. 絕緣等級：CAT. III
3. 污染等級：第二級
4. 高度在海拔2000公尺以下
5. 最大相對濕度：80 %
6. 工作溫度：0°C~40°C

• 國際電器符號：



電錶全部受雙層絕緣或補強絕緣保護



警告!!電擊危險



小心!使用前請參考說明書

- 供電機維護、工業設備、PC板、電纜、變壓器、配電盤、發電機.....等之高壓絕緣測試之用。

• 特點：

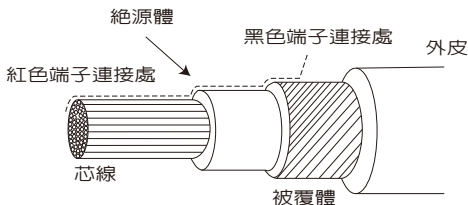
1. 使用寬廣型液晶顯示器(LCD)
2. 具有四檔量測電壓 0.5kV、1kV、2.5kV、5kV
3. 自動換檔，並且顯示出動作指示
4. 具有類比刻劃顯示電壓高低
5. 具有量測計時功能
6. 通過歐洲安全規範檢驗，獲貼"CE"標示
7. 具多種量測電壓選擇
8. 超柔軟測試棒，保證不斷線
9. 利用微處理器(Microprocessor)控制系統
10. 內置式大型積體電路保護裝置，有效降低表面泄漏電流引起的誤差
11. 具有450VAC以上電壓自動偵測及警告設計
12. 交流電壓警告裝置
13. 自動關機
14. 低功率損耗，省電
15. 自動斷電省電模式
16. 具限流功能
17. 有蜂鳴器發聲作用
18. 使用直流電池驅動
19. 數位式校正，不需可變電阻調整
20. 電池能量不足警告指示
21. 大型耐衝擊攜帶箱

• 規格：

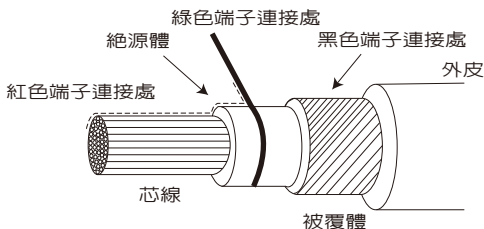
技術規格	4103 IN	高電壓色碼標記測試線	YES
量測電壓輸出(DCV)	500V	色碼標記鱷魚夾	YES
	1000V	測試前從450VAC自動探測	YES
	2500V	自動斷電省電模式	YES
	5000V	消弧電路/閃光保護	YES
絕緣電阻最高測量範圍(@500V)	30GΩ	電流限制/功率限制	YES
絕緣電阻最高測量範圍(@1000V)	60GΩ	自我放電測試器/指示器	YES
絕緣電阻最高測量範圍(@2500V)	150GΩ	超低耗電量	YES
絕緣電阻最高測量範圍(@5000V)	300GΩ	自動停止檢測計時器	YES
準確度	± 5%	自動停止檢測計時器	YES
輸出功率限制	1W	自動停止檢測	YES
隨意墊圈密封	YES	自動開關探測器	YES
電路與外殼間絕緣電阻：2000MΩ/2000V	YES	超靈敏度警報裝置/智能發聲	YES
安全規範 IEC1010,CatIII, EN50081, EN50082	YES	一機多電壓	YES
操作環境：-15°C~+55°C, 90%最大相對濕度	YES	微處理器技術水平	YES
電源：AA 1.5V電池×8	YES	數位校正(無電位差計)	YES
被鑑定的工廠校正	YES	長間隔校正(EEPROM)	YES
操作手冊	YES	CMOS微處理器	YES

• 接線方式：

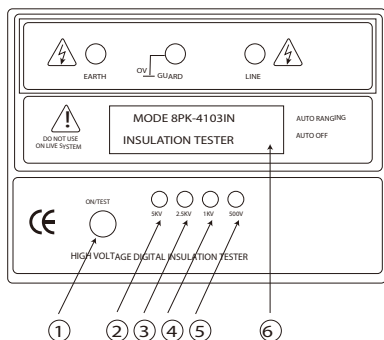
如果測試線未搭接綠色接地端子(GUARD)，被測體表面會造成漏電電流產生，量測所得數值將不穩定，造成誤差，如下圖：



如果測試線有搭接綠色接地端子(GUARD)，被測體表面不致有漏電電流產生，可以量測精確的數值，如下圖：



• 儀表面板圖示：



① 開始與停止測試按鈕

② 5kV選擇按鈕

③ 2.5kV選擇按鈕

④ 1kV選擇按鈕

⑤ 500V選擇按鈕

⑥ 液晶顯示器(LCD)

• 量測方法：

1. 綠色接地線插入紅色測試線所附的綠色插座內，然後按照測線顏色，前端插入表體相同顏色的極插座內。(紅色-LINE 綠色-GUARD 黑色-EARTH)

2. 測試線按照上蓋內面圖示，連接被測物

3. 按下ON/TEST鍵，顯示

Select. Test 5KV
2.5KV,1KV,or 500V

字樣

4. 進行選擇所需要的量測電壓，如按下500V鍵，顯示

500V 30000MΩ 字樣
Selected

5. 字樣暫停時間很短，接著顯示

Connect Leads.....
Testing for Live

字樣

6. 按下ON/TEST進行測試

(1)如果出現

LIVE WARNING
CIRCUIT LIVE!!!

,表現出現異狀必須進行檢

查有無ACV電源或修理

(2)如果表體正常，則會進行測試，出現

R=1253.0MΩ 85.2s
0—HOLD +500V

,則可讀取數值，測試進行中，蜂鳴器會Bi-Bi-Bi叫

- 如ON/TEST按鍵按下未持續超過3秒，約12秒後自動停止測試；如持續超過3秒，測試時間可達99.9秒

7. 停止測試時，顯示

R=1253.0MΩ85.2s
0 →HOLD ←500V

8. 如果未再進行測試，約5分鐘蜂鳴器Bi一長聲之後，即自動關機

9. 需要再進行測試，重新按照3-7動作進行

• 電池更換：

1. 時機：當顯示器上出現"Replace Battery"字樣，即顯示電力不足，需要更換電池

2. 方法：

(1) 取下所有測試線

(2) 打開底部電池蓋，換入1.5V電池8顆，並注意極性

(3) 重新蓋上電池蓋、鎖住

1.Safety Precautions

Electricity can cause severe injuries even with low voltages or currents. Therefore it is extremely important that you read the following information before using your digital insulation tester.

- 1.1 This instrument must only be used and operated by a competent trained person and in strict accordance with the instructions. We will not accept liability for any damage or injury caused by misuse or non compliance with instructions and safety procedures.
- 1.2 This instrument must not be used on live circuits. Ensure all circuits are de-energized before testing. See paragraph 1.8 for details of built-in warning features should your digital insulation tester be connected to a live system.
- 1.3 Never open your digital insulation tester except for battery replacement. (See Battery Replacement section.)
- 1.4 Always inspect your digital insulation tester and test leads before use for any sign of abnormality or damage. If any abnormal conditions exist (i.e. broken test leads, cracked case, faulty display, etc .) do not attempt to take any measurement or use the tester. Return your digital insulation tester to us or your nearest distributor for service.
- 1.5 Never replace the protective fuse with anything other than the specified or approved equivalent.

- 1.6 Your digital insulation tester has been designed with your safety in mind. However, no design can completely protect against incorrect use. Electrical circuits can be dangerous and/or lethal when a lack of caution or poor safety practice is used. Use caution in the presence of voltage above 24V as this poses a shock hazard.
- 1.7 Pay attention to cautions and warnings which will inform you of potentially dangerous procedures.
- 1.8 Your digital insulation tester has a live circuit warning beeper. If it is connected to a live circuit, a rapid pulsating beep will be heard. DO NOT proceed to test and immediately disconnect the instrument from the circuit. In addition your tester will display the warning message.
- 1.9 Rated environmental conditions :
- 1.9.1 Indoor use.
 - 1.9.2 Pollution Degree 2.
 - 1.9.3 Altitude up to 2000 meters.
 - 1.9.4 Relative Humidity 80% Max.
 - 1.9.5 Ambient Temperature 0~40C.

2.0 Observe the international electrical symbols listed below.



Meter is protected throughout by double insulation or reinforced insulation.



Warning! Risk of electric shock.



Caution! Refer to this manual before using the meter.



Direct current.

2.Models

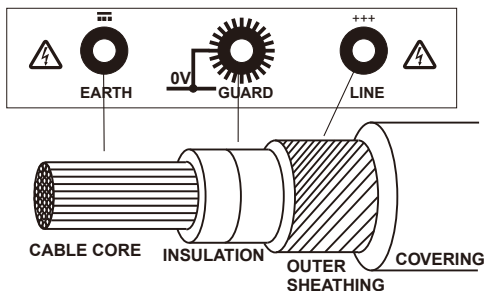
2.1 8PK-4103 IN

- Four voltages (500V, 1KV, 2.5KV and 5KV)
- Auto-ranging and menu-driven
- A bar-graph which displays the voltage decay during the discharge of the tested circuit and the voltage stressing the insulation while the test is in progress.
- A timer which shows the elapsed time when the test was "ON" and also shows the total time of the test.
- Displays a voltage warning and sound when AC or DC is present before injecting the test voltage.
- A buzz will intermittently sound when high voltage is generated and continues until the circuit is fully discharged.

3. Features

- 2 Lines x 16 Characters large L.C.D.
- Four insulation test voltage.
 - (1)500V DC - 25G
 - (2)1000V DC - 50G
 - (3)2500V DC - 125G
 - (4)5000V DC - 250G
- Insulation resistance auto-ranging on all ranges.
- ENER-SAVE TM .
- Bar-graph indicates test voltage-rise and decay can be observed during tests.
- Warning and display of external voltage presence.
- Over load protection.
- Low battery indicator.
- Measure insulation time test.
- Very low battery consumption.
- Smart microprocessor controlled.
- Two years factory warranty.
- Better than 5% accuracy.
- Auto-off.
- Compact and lightweight.

4. Connections



5. Specifications

Test Voltage	500V DC	1kV DC	2.5kV DC	5kV DC
Measuring	25G Ω	50G Ω	125G Ω	250G Ω
Range	Auto Ranging			
Accuracy	5% $\pm$ 2 Digits			
Power	8 x 1.5V Alkaline Battery			

6. Instrument Layout

1- On switch.

Test button switch.

ENER-SAVE TM function switch.

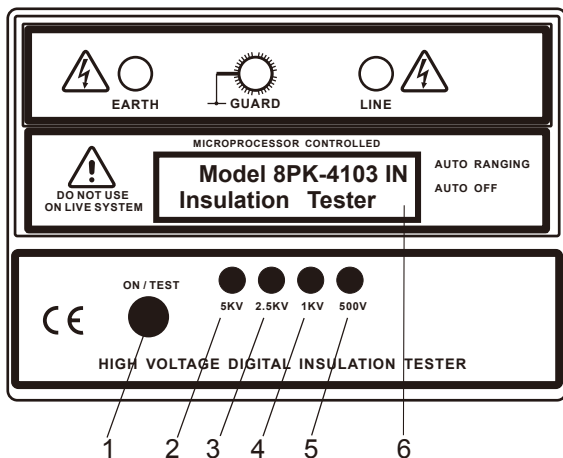
2- 5000V test selection button.

3- 2500V test selection button.

4- 1000V test selection button.

5- 500V test selection button.

6- ENER-SAVE TM Intelligent L.C.D.



7. Functions

7.1 Power-On

To switch the instrument on, press the "ON" button (1). The L.C.D. will display the Model. Then follow interactive instructions on L.C.D.

7.2 Auto-Off.

The Auto-off is annunciated by a one-second beep.

The Auto-off timer is automatically enabled.

LIVE WARNING MESSAGE / BEEPER

To clear Live Warning Message / Beeper
Remove leads from circuit under test and push
"TEST" button until display clears.

- 7.3 Insulation resistance measurement @ 5kV DC: To select 5kV DC test voltage, press 5kV button (2)
- 7.4 Insulation resistance measurement @ 2.5kV DC: To select 2.5kV DC test voltage, press 2.5kV button (3)
- 7.5 Insulation resistance measurement @ 1kV DC: To select 1kV DC test voltage, press 1kV button (4)
- 7.6 Insulation resistance measurement @ 500V DC: To select 500V DC test voltage, press 500V button (5)
- 7.7 ENER-SEVETM Mode.
- Saves battery life by automatically turning the instrument to low consumption (reducing the test duration).
 - Default mode.
 - Enabled when pressing the TEST button (1) for less than 3 seconds.
 - Disabled when pressing the TEST button (1) for more than 3 seconds.
 - When disabled, the instrument operates in continuous mode.

7.8 Voltage Output Bar-Graph.

The bar-graph displays the voltage present on the leads. It also displays the voltage charging a cable or capacitive system under test and displays the decay during the automatic capacitive discharge of the system under test.

7.9 Auto-Low Resistance Detect.

While in insulation test mode and if the L.C.D. displays "LOW M", stop the test immediately. This could mean that the insulation has a breakdown, thus, you are now trying to inject a very high voltage on a short circuit.

7.10 Timer

The duration of the test is shown on the L.C.D. This is particularly useful to verify that insulation does not break down within a certain time.

7.11 STOP Test.

To stop the test in progress, press the TEST button (1). The test will immediately stop and the instrument will enable the ENER-SAVETM mode automatically.

7.12 Auto-Stop.

Should the operator leave the instrument in the test mode with the ENER-SAVETM disabled, the instrument will automatically stop the test after a duration of 99.9 seconds. (Auto-off still applies.)

7.13 Auto Live / Voltage Warning.

Should the leads be placed onto a live system before starting the test, a warning beeper will be automatically activated and, the instrument will display "Live Warning Circuit Live" message. Allow the instrument to discharge the circuit (in the case of capacitive system) or make sure that the circuit under test is not live.

7.14 Auto-Discharge.

At auto-stop or test completion, the instrument automatically discharges the system under insulation test so that the dangerous high voltage is discharged. The auto-discharge can be observed on the L.C.D. so that the operator only removes the leads when the discharge is completed. During discharge, a beep occurs so that the user waits for the complete discharge of the system under test. This is indicated by a one-second long beep accompanied by the "HOLD" message on the display. DO NOT REMOVE LEADS UNTIL THE HOLD MESSAGE APPEARS ON THE DISPLAY.

7.15 "Replace Battery" Warning Indicator.

If the battery energy is detected to be too low, the instrument will display the "Replace Battery" warning and automatically shut-down. The instrument cannot operate properly with a low battery. Use only Alkaline batteries.

8. Preparation for Measurement

Before testing always check the following:

- At power "ON", read the display to make sure the "Replace Battery" message is not displayed.
- There is no visual damage to the instrument or test leads.
- Test Leads continuity:
Using an ohm-meter, check the resistance/continuity of the leads.

9. Battery Replacement

- The digital insulation tester's battery is situated under the tester.
- The ENER-SAVETM display will indicate when the batteries need to be replaced.
- Disconnect the test leads from the instrument, remove the battery cover and the batteries.
- Replace with eight Alkaline 1.5V R6 or L6 batteries, taking care to observe correct polarity.
- Replace battery holder and the battery cover.

10. Calibration & Servicing

Both calibration and servicing are performed at our facilities.

Contact our company or your nearest distributor about calibration certificate and servicing. Before returning the instrument, ensure that the leads have been checked for continuity and signs of damage and the batteries are in good condition.

11. Insulation Resistance Testing with 8PK-4103 IN

Warning : Insulation test should be conducted on circuits that are de-energized. Ensure circuits are not live before commencing testing.

8PK- 4103 IN

Turn instrument "ON" by pressing the "ON" button.
The L.C.D. display will advance to the following screen.

Select Test 5KV
2.5KV, 1KV, or 500V

Select insulation test voltage, for example, 500V.
The following screen will confirm your selection.

500V 25G
Selected

Follow the interactive screen.

Connect Leads,.....
Testing for Live.

If the system you are trying to test is not voltage free, the beep will sound. The following warning screen will appear. Remove your leads immediately.

LIVE WARNING ...
Circuit Live !!!

If the system is not live, the test will start and the following screen will appear, indicating the test duration and other factors.

R=1253.0M 85.2s
0 —  — 500V

If either the operator or the instrument stops the test, the latest result will remain on the L.C.D. The instrument switches off after 45 to 60 sec.

R=1253.0M 85.2s
0 HOLD 500V

12. Cleaning & Storage

WARNING

To avoid electrical shock or damage to the meter, do not get water inside the case.

Periodically wipe the case with a damp cloth and detergent. Do not use abrasives or solvents.

Distributed by:



高壓絕緣測試器

Pro'sKit® 商品保證書

產品型號：

購買日期： 年 月 日

保證說明：

- 1 本卡若無購買日期及經銷商認章者，不生效力。
- 2 免費服務年限為壹年，萬一產品發生瑕疵，可憑本保證卡，享有自購買日起壹年免費服務。
- 3 本保證書無法補發，敬請妥為保存。

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