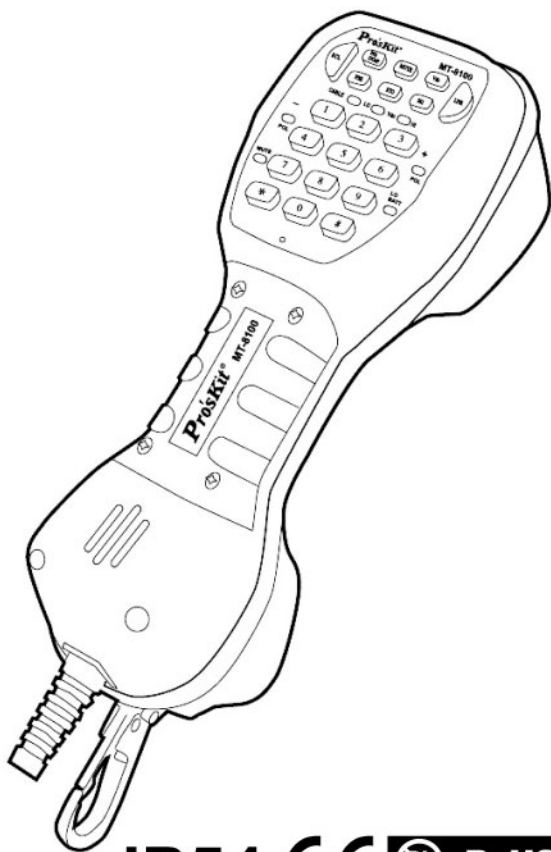


# Pro'sKit®

## MT-8100 BUTT SET User's Manual



**IP54** **CE** 

2<sup>nd</sup> Edition: 2009

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Thank you for purchasing the MT-8100 BUTT SET. Before using the MT-8100 for the first time, please read the following instructions.

**Warning:**

The MT-8100 Butt Set is a professional telecom tool, especially designed for checking telecom lines. It is not allowed to be used under the power source AC100~125V 50/60Hz or AC200~250V 50/60Hz; otherwise, it may cause the danger of electric shock or product damage. Therefore, we recommend the user before using the MT-8100, and uncertain of the line voltage, set the test set to Vdc mode and verify the line before using.

**Packing List**

Before you begin installing your unit, please make sure that the following materials have been shipped:

- Butt set tester
- Line cord with Angled Bed of Nails and RJ-11 plug
- User's Manual
- Replacement fuse x 2

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

## **Introduction**

Pro'sKit MT-8100 Butt Set comes with all the functions you need to be more productive in the field, It was approved by IEC/EN 60529 IP54 for waterproof and dustproof test, and features the latest improvements to drop protection reliability.

MT-8100 is a smart operation unit used by installer, repair technicians and other authorized personnel to test copper wire voice subscriber lines. It is easy to use, features Line voltage test, continuity test, two-way hands-free amplified speakerphone, speed dialing, low battery indicator and a rugged locking belt clip.

## **Features**

1. Complied with IP54 Dustproof & Waterproof tests
2. Drop Protection
3. CE approved
4. High impedance monitor
5. Outer-lead voltage LED indicators
6. On/off checking feature checks out if telecom line is connected well.
7. Continuous polarity LED indicators.
8. Speakerphone for convenient hands-free two-way conversation
9. Tone and pulse operation
10. Store up to twelve 16-digit numbers in repeat dialer (speed dialing), plus extra number store in M1 button.
11. Last number redial feature.
12. PBX pause button.
13. Mute switch
14. Electronic switch controls the volume of the speakerphone/monitor.
15. Automatic shut-off feature turns off speaker after five minutes of inactivity
16. Battery low-voltage LED indicators
17. Audible electronic ringer
18. Relocatable steel locking belt clip
19. Angled Bed of Nails allows it stab into the cable, and the auxiliary RJ-11 Modular plug can be inserted directly into telecom jack.

## Physical Characteristics

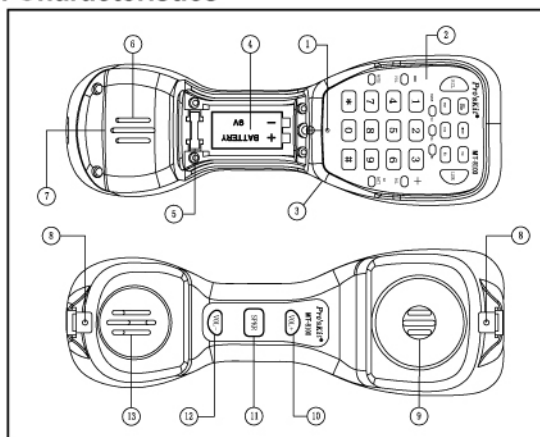


Fig.1 Physical Characteristics

1. Speakerphone microphone
2. Keypad
3. Talk/Vdc/Monitor Switch
4. Battery Compartment (9V battery)
5. Fuse (in battery compartment)
6. Speakerphone/Monitor amplified speaker
7. Line cord strain relief
8. Optional Belt Hook location (2 places)
9. Handset receiver
10. Increase volume button
11. Handset/Speakerphone button
12. Reduce volume button
13. Handset Microphone

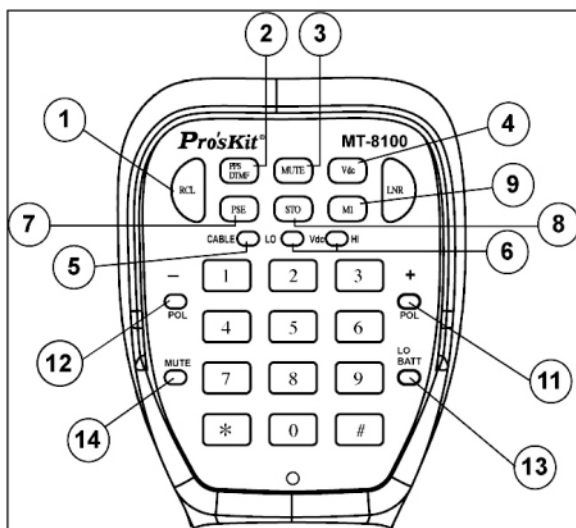


Fig.2 MT-8100 Keypad and Overlay

**Keypad control and indicators:**

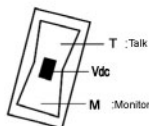
- 1. RCL : Recall button
- 2. PPS/DTMF : Tone/Pulse switch.
- 3. MUTE : Mute button, when pressing the mute button, the mute LED will light up red
- 4. Vdc : Vdc button, check if the line is connected well and test, test the voltage of the outer-lead
- 5. CABLE : Telecom line connecting-check LED, if the line is connected well, the LED lights up red
- 6. Vdc(HI/LO) : Voltage level LED indicator (please see the DC voltage-indication list)
- 7. PSE : PBX pause button
- 8. STO : Store button is used for storing speed dialing numbers
- 9. M1 : Speed dialing button when the test set is on without press any other key
- 10. LNR : Last number redial button redials the number most recently dialed
- 11. POL + : Positive polarity LED indicator
- 12. POL - : Negative polarity LED indicator
- 13. LO BATT : Battery low-voltage LED
- 14. MUTE : Mute LED to indicate if the mute function is on or not

## Operation



### Before Operation

1. Remove the battery case lid and install 9V battery in the battery compartment paying close attention to polarity of battery.
2. Connect the Angled bed of nails (or RJ11 plug) to the telecom line



### Talk/Vdc/Monitor switch

The test set has three basic modes of operation: Talk mode, Vdc mode and Monitor mode.

The T (talk) position gives an off hook condition for dialing and talking as a common battery telephone. The Vdc position inspects the rings when it has incoming call and measured voltage level (your test set is set at the "Vdc" position before your first use)

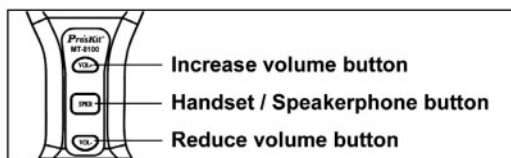
The M (monitor) position removes the transmitter from the circuit. It provides a high impedance coupling to allow line monitoring without disrupting conversations or signaling.



There is no complete power off mode with this butt set. The major function of "Vdc" mode is for AC/DC power testing. The mute LED will light up if the Mute button is touched in the Vdc mode and the battery will supply power to operate the LED until it is drained. Please make sure the Mute button is off before storing the unit to avoid unnecessary battery drain.

### Speaker and Speakerphone Microphone

The speaker and speakerphone microphone are located on the keypad side of the test set. The speaker draws more current than any other circuit in the test set. The battery lasts longer if the speaker is used in moderation



### **Audio Controls Keys**

The control keys (VOL + / SPKR/ VOL -) are located on the inside handle of the test set between the handset receiver and the handset microphone. These controls let the operator switch between the handset and speakerphone. The SPKR button turns the test set speaker on and off. When the SPKR turns on the Speakerphone, this mode is intended for two-way, hands-free conversation. The VOL+ and VOL- keys control the active receiver's sound level.

### **Tone/Pulse button**

The PPS/DTMF button works as a Tone/Pulse switch. The PPS/DTMF button enables different dial modes. Pressing this button toggles between Pulse and Tone modes. It is convenient to use in different areas by different dialing. For example: when it is in tone dialing, press the PPS/DTMF key change the dialing mode to pulse dialing. Pressing the key again will switch back to tone dialing.

### **Speed Dialing Numbers Storing**

The STO button is used to store numbers in memory. There are 12 memory locations (keys 0 through 9, \* and #), with each capable of storing up to 16 digits.

To store a number:

1. Set the function button to "T" position.
2. Dial the number to be stored
3. Press STO button
4. Press the key for the desired memory location.

The number will be stored at the appointed location after the upper four steps.

### **Dialing using Recall key**

The RCL key is used to recall a number stored in memory. After receiving a dial tone, press RCL and the key for the memory location.

The number will be automatically dialed.

To dial the stored number

1. Set the function button to "T" position
2. Press RCL button
3. Press the key for the memory location (keys 0 through 9, \*and #)

Additional M1 key store the number in same process but can be speed dialing by press M1 only when the butt set tester is on, then the number will be automatically dialed

### Last Number Redial

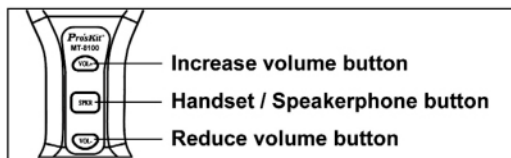
The LNR key redials the number most recently dialed. When redials the last number but the line is busy, switch the Talk mode to off position first as hands up then switch back to Talk mode again, then press the LNR key, it will automatically redials the last number dialed.

### Pause

There are some cases where it may be necessary to insert a pause between digits of a stored number, such as when accessing a trunk through a PBX that requires a 9 to get out. To store a number with a pause, simply press the PSE button at the point where the pause is required. For example to store 9-555-1212. The PSE button inserts a 4 second pause.

### Operating the Test Set in Monitor Mode

Set the function switch to "M" position and then press the SPKR button to open the monitor function. If there is any signal the amplified speaker will make a signal sound and if there is not any signal the amplified will make a slight circuit noise. During monitor please ensure the circuit connect test is shut off, otherwise, it will bring some telecom line crosstalk and cause low sound. To control the volume level, press VOL+ to increase volume and press VOL- for volume reduced.





**Mute function**

The mute button turns the handset microphone and speakerphone microphone off for privacy in Talk mode.

**Polarity Identification**

The polarity LEDs automatically illuminate to show line polarity. For example, the right red POL+ LED will light when you connect the red test lead to ring (positive) side of the line and the black test lead is connected to the tip (negative) side of the line. The left red POL- LED will light if the test leads are reversed.

**Telecom Line Continuity test**

Checking the telecom line

If you want to know if the telecom line is connected well, you can do the following:

1. Connect the two sides of the telecom line to the angled bed of nails
2. Set the function switch to "Vdc" position.
3. Press Vdc button.

If the CABLE LED lights, it means this telecom line is OK. If the CABLE LED does not light that means the telecom line is not OK.

**Battery**

Battery low-voltage LED indication

If the LO BATT LED lights, that means the user needs to change the battery for fear of losing the data or form an error estimate.

**Line voltage test**

Outer-lead high voltage LED indication

1. Set the function switch to "Vdc" position.
2. Connect the two outer-leads to the angled bed of nails.
3. Press Vdc button to measure the voltage and indicate the LO/HI voltage level by different color of lights.

If both LED not lights up, it means the tested voltage under DC24V.

Please see the following list:

Range of the voltage test

DC voltage-indication list		
LED(LO)	green	Higher than 24V
	Red and green two color	Higher than 100V
LED(HI)	green	Higher than 150V
	Red and green two color	Higher than 200V

**Caution:**

1. The range of the voltage test must be lower than 250V and the function switch must be set to "Vdc" position; otherwise the fuse may be damaged.
2. AC line voltage can be converted into DC simulated voltage by inside transformer.
3. To extend battery life, the speaker will automatically shut off after approximately five minutes if there has not been a signal greater than -30 dB in that period. Any signal greater than -30 dB resets the timer and keeps the speaker turned on.

## Butt Set Trouble Shooting

- 1.If there is any crosstalk in application, generally it is the interference from the telecom line, please press the VOL - to reduce the interference; or check if the angled bed of nail clips well connected to the telecom line.
- 2.If any abnormal situation is found while you are using the Prokit's Butt Set, Please test the other telecom line in the different area to identify the possible defective situation referring to the trouble shooting list below. (Attention! Please never have the angled bed of nail clips connected to the power source for safety reason.)
- 3.If the Butt Set still doesn't work after the first step of fix-up, please send back to Prokit's distributor for repairing

Defect Situation	Possible Problem	Solution
Dead, Doesn't work	Blown fuse	Change new fuse
No tone	Angled bed of nails are not well connected	Check if Angled bed of nails are well connected to telecom line
Speakerphone doesn't work	MUTE button was pressed and MUTE LED indicator lights up	Press the MUTE button and check if the MUTE LED is off
Short rings only	<ol style="list-style-type: none"> <li>1. Low battery</li> <li>2. the angled bed of nails are connected to the power source</li> </ol>	<ol style="list-style-type: none"> <li>1. Change new battery</li> <li>2. Confirm if the angled bed of nails connected to the right telecom line</li> </ol>
Can not hear the conversations on the Monitor status	<ol style="list-style-type: none"> <li>1. The switch did not set to "M" position</li> <li>2. The SPKR button is off</li> <li>3. Low battery</li> </ol>	<ol style="list-style-type: none"> <li>1. Set the switch to "M" position</li> <li>2. Press the VOL+ button to increase volume</li> <li>3. Change a new battery</li> </ol>
Crosstalk	<ol style="list-style-type: none"> <li>1. Angled bed of nails are not connected firmly</li> <li>2. The interference from the telecom line</li> </ol>	<ol style="list-style-type: none"> <li>1. Check if the Angled bed of nails are well connected</li> <li>2. Press the VOL-button to reduce the interference</li> </ol>
Memory of storing numbers doesn't work	Low battery	Change new battery
Polarity LED doesn't work	Low battery	Change new battery
CABLE LED doesn't work	Low battery	Change new battery
LO HI(LED) doesn't work	Low battery	Change new battery
BATT(LED) doesn't work	Low battery	Change new battery

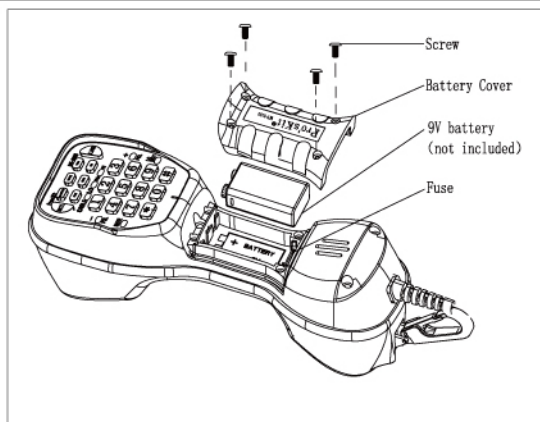


Fig.3 Fuse and battery replacement

## Replacing the Battery

If the test set fails to operate properly, or stops working, replace the battery and retest. A 9V alkaline battery must be installed for the test set to operate. Do not use rechargeable batteries.

To replace the 9V battery:

1. Disconnect the test set from the line and place on a flat work surface with the battery cover up.
2. Use a Phillips screwdriver to remove the four screws from the battery compartment.
3. Remove the battery cover
4. Remove the old battery and properly discard.
5. Insert a new 9V battery into the test set and observe the proper polarity.
6. Place the battery cover back and fasten the four screws securely.



### Caution

After the battery is removed, the memory of storing numbers will last for 10 second only. If the memory is disappeared, please follow the previous process as mentioned in this manual to store a number.

## Fuse replacement

If the test set still stops working after a new battery replaced, it may be caused by a blown fuse.

To replace the fuse:

1. Use a Phillips screwdriver to remove the four screws from the battery compartment.
2. Remove the battery cover
3. Remove the battery
4. Remove the old fuse
5. Insert a same specification ( $\varnothing 5 \times L 20 \text{mm}$ , 250mA/250V) of fuse
6. Place the battery and battery cover back, then fasten the four screws securely.



### Caution:

After the battery is removed, the memory of storing numbers will last for 10 seconds only.

## Maintenance

1. Disconnect clips from any metallic connections before performing any maintenance.
2. If the test set fails to operate properly, first replace the battery and retest before sending the test set in for repair. (see Battery Replacement).
3. Do not use chlorinated solvents on the test set.



For quality reasons, we reserve the right to change product specification or correct the content of this operation manual without notice.

## Specification

<b>ELECTRICAL</b>	
Loop limit	2 K $\Omega$ maximum at 48 Vdc (nominal 20 mA minimum loop current)
<b>DC resistance</b>	
Talk Mode	300 $\Omega$ typical
Monitor impedance	39k $\Omega$ nominal at 1 KHz
<b>Rotary dial output</b>	
Pulsing rate	10pps+0.8pps
Percent break	61% $\pm$ 2%
Interdigit interval	1000 ms typical
Leakage during Break	>50 K $\Omega$
<b>DTMF output</b>	
Tone frequency error	$\pm$ 1.2% maximum
Tone level	-8 $\pm$ 2dBm combined (typical)
High versus low tone Difference	4 dB maximum
<b>Memory dialing</b>	
Memory capacity	13 memories including M1, last number redialing
Digit capacity	16 digits per memory
PBX pause duration	4 seconds
Line Voltage Test	5 Phase AC/DC voltage indication (under 24 V · 24~100V · 101~150V · 151~200V · more than 200V)
Monitor amplifier power source	9V transistor; provides 25 hours continuous use, typical
Automatic power shut off	After 5 min. of no audio signal
Speaker phone levels	Electronic adjustable
Power source	battery (9V) 6F22 (not included)
<b>PHYSICAL</b>	
Measurement	230 × 82 × 89mm (9-1/16" × 3-15/64" × 3-1/2")
Weight	635g typical
Water Resistance	Complied with IEC/EN 60529 IP54 Dustproof & Waterproof tests
Cord Sets	Angled bed of nails and RJ11 plug
<b>ENVIRONMENTAL</b>	
Temperature	Operating : 0 to 50°C / Storage : -10 to 60°C
Altitude	To 10,000 feet (3,000M) max
Relative humidity	5 To 95%
<b>CERTIFICATE</b>	
	IP54, CE approved

感謝您購買 Pro'kits MT-8100 專業電話查線器，這是一台提供給專業電信人員所使用的電話查線器，使用前請參閱操作說明如下



警告：

MT-8100 是一台特別為檢查電話線路所設計的專業通訊查線器，它不被允許在 AC90~260V 50/60Hz 電壓下使用，否則將可能觸電或造成產品損壞的危險，因此我們建議使用者在操作 MT-8100 電話查線器前，若無法確認線路型態，先使用機器側邊“Vdc”檔位及操作面板上“Vdc”功能確認線路是否為電話線路或者是電壓線路，再開始操作使用本機器。

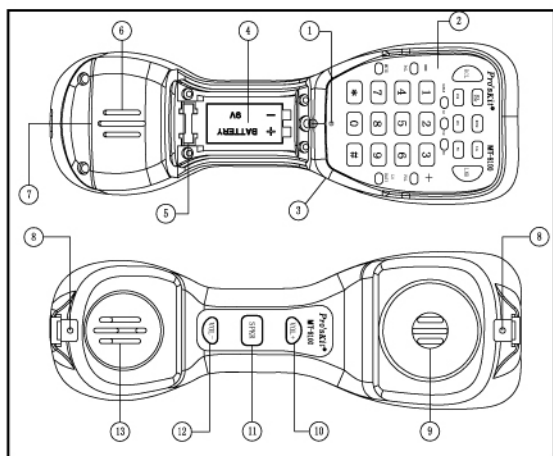
#### 包裝明細

1. MT-8100 主機 一台。
2. 電信專用測試線一組，含電信專用夾頭及 RJ11 電信接頭。
3. 操作說明書一本
4. 備用保險絲 2 個

**MT-8100 專業電話查線器功能特點：**

1. 通過IEC/EN60529 國際外殼機構保護等級IP 54 防水、防塵測試。
2. 具拋落保護的堅固外殼。
3. 通過CE安規認證。
4. 高阻抗監聽電路，監聽中不易產生雜訊。
5. 外線電壓測試，能迅速以LED燈號顯示當前外線工作電壓範圍。
6. 電話線通斷檢測，能迅速檢測出電話線的通斷。
7. 線路極性LED顯示，方便檢修時辨識線路極性。
8. 免持/手持雙向通話功能，查修使用方便。
9. 音頻/脈衝撥號，適合各國不同交換機。
10. 12組儲存記憶撥號（0~9, #, \*），每組記憶可達16位數，另搭配一組記憶儲存快速撥號鍵M1，不需提取記憶位置即可撥出記憶號碼。
11. 最後一組號碼重撥功能，最多可撥32位數。
12. PBX暫停功能，可用於自動總機電話選項或撥打分機號碼。
13. 靜音控制開關，可切換關閉發話及正常通話。
14. 無段電子音量控制。
15. 自動關機功能（監聽狀態）。
16. 低電壓指示燈。
17. 悅耳的鈴聲。
18. 堅固耐用可拆卸的大型掛鉤。
19. 搭配電信專用測試線，具電信專用夾頭可直接刺穿電纜線皮，更配備有RJ11電信水晶頭，可直接插入電話線孔中工作測試。

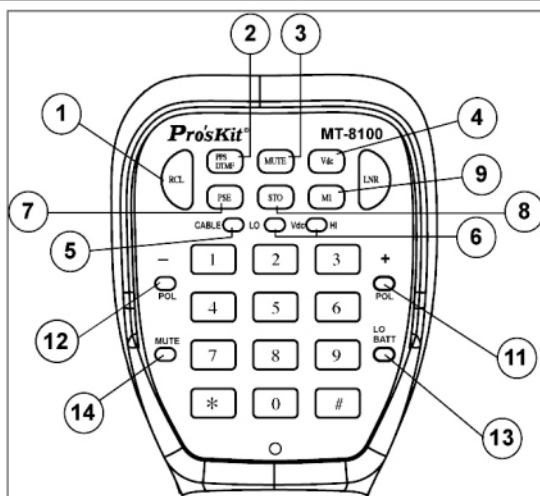




圖一. 產品功能鍵說明

**MT-8100 專業通訊查線器各部位位置說明:**

1. 免持麥克風。
2. 操作功能面板。
3. 通話/ 關機/ 監聽 (T / Vdc / M) 檔位開關鍵。
4. 9V (6F22) 電池槽。
5. 250V/250mA 保險管座。
6. 免持監控喇叭。
7. 電信專用線/夾頭及 RJ11 電信專用插頭出線孔。
8. 大型掛鉤 (可拆卸上下移位)。
9. 手提受話器喇叭。
10. 音量調整 VOL+ 鍵 (放大音量)
11. 手持/免持 (SPKR) 轉換開關。
12. 音量調整 VOL- 鍵 (降低音量)
13. 手提麥克風及鈴聲出聲孔。



圖二. 操作面板介紹

## 操作面板功能簡介：

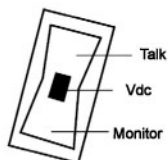
1. RCL : 取出鍵，取出儲存記憶號碼
2. PPS/DTMF : 音頻/脈衝撥號方式切換鍵
3. MUTE : 靜音開關，功能開關位於“T”檔時可關閉免持/手提麥克風聲音
4. Vdc HI/LO : 外線電壓測試鍵，檔位於“Vdc”時測量外線電壓並以燈號顯示所量測之電壓值範圍，以判斷線路型態
5. CABLE : 快速測試線路通 / 斷路指示燈
6. Vdc LO : 測試線路電壓指示燈。(AC/DC 24~150V，指示燈狀態請參閱 AC/DC 電壓指示表)
- Vdc HI : 測試線路電壓指示燈。(AC/DC 150V 以上，指示燈狀態請參閱 AC/DC 電壓指示表)
7. PSE : PBX 暫停功能鍵，用於自動總機電話選項或撥打分機號碼
8. STO : 號碼儲存鍵，STO+ (0~9, #, \*, M1) 可將號碼儲存在相對應位置上
9. M1 : 速撥鍵，開機檔位於“T”檔 (電話接通狀態) 按下“M1”可直接撥出儲存號碼
10. LNR : 重撥鍵，開機檔位於“T”檔 (電話接通狀態) 按下“LNR”可撥出最後一次撥出號碼
11. POL + : 線路極性正極指示燈
12. POL - : 線路極性負極指示燈
13. LO BATT : 電池低電壓指示燈
14. MUTE : 靜音開關指示燈

## 操作使用說明：



注意：

1. 使用前請確認 9V (6F22) 電池是否裝入電池槽且正/負極性位置正確。
2. 使用前請確認 RJ11 電信接頭或電信專用夾頭是否已經插入孔位或夾上線路兩端。



## 通話/ 關機/ 監聽(T / Vdc / M)→功能選擇開關：

使用本話機前需選擇其工作模式，撥動話機側邊的功能開關按鍵（如圖），選擇在合適的檔位上。（話機出廠前均設置為 Vdc 關機狀態）

## T (Talk) 檔 →電話機功能狀態檔位：

您可以使用“T”檔完整使用本話機，例如：受/送話，儲存電話，記憶撥號，末碼重播等，詳細說明請參考操作說明書。

## Vdc 檔 →有三項功能：

- A. 您可以使用“Vdc”檔來關閉T (Talk) 及M (監聽) 檔的狀態。
- B. 您可以使用“Vdc”檔來測試來電響鈴，鈴聲響起後按“T”檔可接起電話。
- C. 建議您使用“Vdc”檔來檢測未知的外線交直流電壓。

## M (監聽) →監聽功能檔位：

您可以使用“M”檔來操作監聽功能，監聽功能需搭配 SPKR 鍵擴音一起使用。

監聽狀態下如果信號太弱 ( $\leq 30\text{dB}$ ) 或無訊號，約 5 分鐘監控會自動關機，要再使用監聽功能需重新啓動（將功能開關撥回“Vdc”檔再撥回“M”檔）。

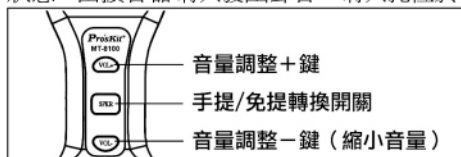


靜音鍵 (Mute) 於Talk/Vdc/M 模式按下會持續發亮，這是因為電池需要支援電力給記憶體，當使用後要存放時，請注意Mute燈是否已經熄滅，避免不必要的電力消耗。

**SPKR** →擴音器及麥克風：

功能開關撥於“T”檔（電話接通狀態）按下 **SPKR** 鍵進入擴音免持受/送話狀態，送話時收音麥克風位於按鍵下方小孔，受話時由擴音器喇叭發出聲音，喇叭孔位於電池蓋下方。

功能開關撥於“M”檔（電話監聽狀態）按下 **SPKR** 鍵進入擴音免持監聽狀態，由擴音器喇叭發出聲音，喇叭孔位於電池蓋下方，監聽功能麥克風不收音。

**VOL+/-** →音量大小控制鍵：

功能開關位於“T”檔（電話接通狀態）手提/免持狀態下可使用 **VOL+/-** 調整受話器音量大小。

功能開關位於“M”檔（電話監聽狀態）免持狀態下可使用 **VOL+/-** 調整受話器音量大小。

**PPS / DTMF** →音頻/脈衝撥號選擇鍵：

機器上設有一個音頻/脈衝撥號切換按鍵，在不同地區可以使用不同的撥號方式。

**STO** →記憶儲存撥號鍵：

- 您可儲存 12 組電話號碼（每組最多 16 數字位元）到數字（0~9）及符號（#,\*）。
- 功能開關於“T”檔（電話接通狀態），按電話號碼後+“STO”儲存鍵+所放置的位置（0~9,#,\*），則號碼會儲存至所設位置。
- 您還可以儲存一組常撥電話號碼到“M1”鍵，按電話號碼後+“STO”儲存鍵+所放置的位置（M1），開機後不需經過“RCL”鍵提取，直接按“M1”便可撥出儲存號碼。

**RCL** →記憶儲存撥號提取鍵：

您可以使用“RCL”鍵來提取儲存號碼，功能開關於“T”檔（電話接通狀態），按“RCL”+所放置的位置（0~9,#,\*）則可自動撥出號碼。另您所儲存於“M1”的常撥電話號碼不需經由“RCL”鍵來提取撥號，開機且於通話狀態下直接按“M1”則可自動撥出號碼。

**LNR →末碼重撥鍵：**

您可以使用“LNR”鍵來重撥最後一次撥出號碼，功能開關於“T”檔（電話接通狀態），按“LNR”鍵自動撥出最後一次撥出號碼。

**PSE →暫停功能鍵：**

爲了滿足小型交換機（PBX）的需要，您可以使用“PSE”鍵來插入暫停功能（暫停時間約爲 4 秒），例如：您要撥打電話號碼 1234567 經總機系統再轉分機 000，功能開關於“T”檔（電話接通狀態）撥 1234567 後+“PSE”鍵再按 000 則直接撥出號碼並進入分機號。

**MUTE →靜音開關鍵：**

您可以使用“MUTE”鍵暫時關閉送話（按下燈亮），再按一下“MUTE”鍵恢復正常通話（燈滅）。

**POL + / - →線路極性判別燈：**

當您在查修電話線而無法判別兩根線的正、負極性，可使用本機的極性判別燈號“POL + / -”確認所夾的線路是否極性正確，例如：將本機的電信專用夾頭分別夾到電話線上（本機處於通話手提狀態），面板右手邊 POL + 燈亮表示所夾線路極性正確，反之當所夾線路極性錯誤時面板左手邊 POL - 燈亮，需重新換邊夾上線路再測試。

**CABLE →電話線路導通/斷開檢測燈：**

當您在查修電話線路時懷疑線路已經斷路，可使用本機“CABLE”燈號來判斷電話線路是否斷路，例如：將本機的電信專用夾頭分別夾到一條電話線兩端，並將功能開關設於“M”檔（監聽檔位），按下面板上“Vdc”按鍵，這時“CABLE”燈亮代表這條線是導通的，不亮則代表線已斷路。（被測線不可帶電，否則會誤判）

**LO BATT →電池低電壓指示燈：**

當您發現面板上“LO BATT”燈亮起時，代表電池低於可供工作電壓，此時請盡快更換電池，必免誤判測試數據或儲存資料遺失。

注意：本機儲存記憶功能只能維持 10 秒鐘，更換電池時請注意電池極性不要裝反，若記憶消失，請依說明書之各項操作重新輸入。

**Vdc HI / LO** →外線電壓測試 LED 指示燈：

本機可測試外線線路電壓值，將功能開關設於“Vdc”檔，再將電信專用夾頭夾到線路兩端，按下面板“Vdc”按鍵，指示燈不亮代表所測量的線路電壓低於 24V，而 LO (LED)，HI (LED) 指示燈亮不同顏色，請參閱以下電壓指示表：

AC/DC 電壓指示表		
LED (LO)	綠色 LED 燈	24V 以上
	紅綠雙色 LED 燈	100V 以上
LED (HI)	綠色 LED 燈	150V 以上
	紅綠雙色 LED 燈	200V 以上



注意：

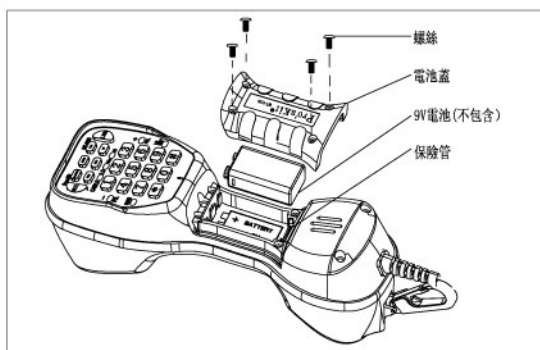
1. 外線高壓測試時所測電壓需  $\leq 250V$  且在“Vdc”檔位上，否則將會燒壞保險管。
2. 本機量測外線 AC 電壓後是經由機器內部電壓轉換成 Vdc LED 燈號顯示。

## 簡易故障排除方法：

本話機操作時如有雜音現象，一般為電信線路中含有雜訊所致，請將音量適當關小即可降低雜訊，或檢查電信專用夾頭所夾線路是否為電信訊號線，接觸是否良好。

當您發現本話機有不正常現象時，請先使用不同局域的電信局線路重新測試，並判斷故障原因（請參照下列簡易故障排除方法），如果還是無法排除故障，請送回原來購買的 Proskit 經銷商處維修。

故障現象	可能原因	解決方法
死機，不通電	保險管燒斷	更換同型號保險管
電話機測試無聲音	線路連接不正確或不牢靠	檢查電信專用夾與被测電話局線是否接好 (必須為電信電話線)
麥克風不能發話	已開啓閉音功能 (MUTE)	關閉閉音功能 (MUTE)
斷鈴	1. 電池電量不足 2. 夾到 AC 電源上	1. 更換同型號電池 2. 確定線路是否為電信訊號線
監控無聲音	1. 監控功能或擴音功能無開啓 2. 音量調整過小 3. 電池電量不足	1. 開啓監控功能及擴音功能 2. 調整音量大小開關 3. 更換同型號電池
雜音	1. 線路連接不牢靠 2. 線路本身電路雜音	1. 檢查電信專用夾是否與電信局線接觸良好 2. 調整較小的音量
記憶失效	電池沒電	更換同型號新電池
極性判別 POL +/－ LED 燈不亮	電池沒電	更換同型號新電池
CABLE LED 燈不亮	電池沒電	更換同型號新電池
VDC LO/HI(LED)燈不亮	電池沒電	更換同型號新電池
LO BATT(LED)燈不亮	電池沒電	更換同型號新電池



圖三.電池及保險絲更換圖解

### 更換電池及保險絲：

1. 當您的話機 LO BATT LED 燈亮或部分功能有失效的現象，可能是電池電量不足，請更換同型號新電池。
2. 當您的話機有死機或不通電的現象時，代表話機的保險管可能已被燒毀，請檢查保險管是否良好。



### 注意：

1. 在更換電池時，話機須處於非工作狀態下並遠離電源等其他電器設備，避免發生觸電危險。
2. 在更換電池時請注意電池的極性不要裝反。
3. 在更換電池及保險管時請注意時間，因儲存記憶功能只能維持 10 秒鐘，若記憶消失，請依說明書之各項操作，重新輸入。
4. 建議您選用特性較佳的 9V (6F22) 電池。

### 更換電池及保險絲操作說明：

1. 請用 + 字型螺絲起子取下電池蓋的 4 顆螺絲(請注意螺絲起子頭型尺寸，避免滑牙)。
2. 拿起電池蓋(因本機具有良好的防潑水功能，電池蓋會較緊)。
3. 取下舊電池換上新電池(請注意電池正負極性)。
4. 更換保險管時需先取下電池，再將舊保險管取下換上新保險管，裝回電池。  
(請更換相同規格保險管  $\phi$  5x20mm 250V/250mA )。
5. 裝回電池蓋並鎖上 4 顆螺絲。



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