# MT-8006B Data Diver

**User's Manual**
1st Edition, 2013

**Safety Information**

**Read First Before Use**

Table 1 describes the international electrical symbols used on the tester and in this manual.

**Table 1. International Electrical Symbols**

| | |
|---|---|
|  | Warning: Risk of personal injury. See explanations in the manual. Caution: Risk of damage or destruction to equipment or software. See explanations in the manual. |
|  | Warning: Risk of electric shock. |
|  | Please keep an eye on the status or function of the equipment while operating. |
|  | This equipment is not for connection to public communications networks, such as active telephone systems. |

 **Warning**

- Never use MT-8006B on circuits of more than 100V.
- Never use MT-8006B or test leads if they are damaged. Inspect the case and test leads for damage before use.
- Disconnect unused test leads and connectors from the MT-8006B when testing telephone circuits.
- Never open the case except to change the battery or the fuse; no user-serviceable parts are inside.
- Disconnect all test leads before replacing the battery.
- Use only 1.5V AAA batteries, properly installed in the case, to power MT-8006B.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

The following IEC symbols are used either on the Data Diver or throughout the manual:

 **See Manual for details**

 **Earth Ground**

**Conformité Européenne**

**Standard package:**

- MT-8006B * 1
- Headphone * 1
- Angled bed of nails * 1
- User Manual * 1

**DESCRIPTION**

MT-8006B Data Diver is a portable TEL test set used by installers, repair technicians and other authorized personnel for temporary communication and for servicing and installing analog voice telephones.

**Design Features**

The MT-8006B provides a wide range of features for working on analog voice lines, and, in addition, it is equipped with protection features to prevent the accidental disruption of data services. Never use MT-8006B on circuits of more than 100V.

**The following is a list of the MT-8006B features:**

- LCD display for dialing number, Caller ID, Clock and other information
- Indicator for determining the line service
- Headset & Angled bed of nails
- Smart power saving enables battery life up to 6 months
- 12 phone number memory for speed dialing, each memory up to 16 digits
- 16 dialing number memories each number up to 16 digits
- Support 2 dialing mode: Tone (DTMF) and pulse
- Up to 32 digits phone number memory for speed dialing key
- Pre-dialing and last number redial function
- PBX pause key, insert a PBX pause in stored numbers
- Telephone line polarity indicators
- Low battery indication
- Backlight function for easy reading even in dark areas
- RJ-11 port for changing test leads
- Ringer and voltage LED indication

## ⚠WARNING:

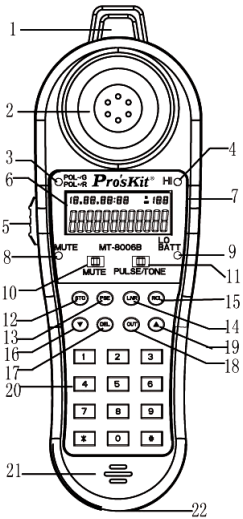
- The MT-8006B Data Diver is not designed to meet outside plant requirements. It is recommended that this product not be used outside during adverse and/or wet weather conditions.
- Legal requirements may exist regarding permission to connect equipment to a Telecom network operated by a public network operator.

## ⚠CAUTION:

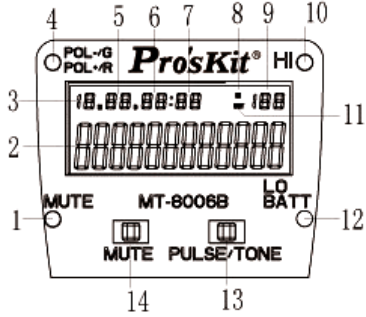
The operator of this instrument is advised that if the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.

**Physical Characteristics**

1. Phone strap hole
2. Speaker
3. Polarity indicator
4. Ringer and voltage LED indicator
5. Test mode switch
6. LCD Display
7. Headset Jack
8. Mute indicator
9. LO BATT indicator
10. Mute switch
11. Pulse/Tone switch
12. STO 13. PSE
14. LNR 15. RCL
16. ▼ 17. DEL
18. OUT 19. ▲
20. Number pad 0~9, *, #
21. Microphone 22. RJ-11 Jack

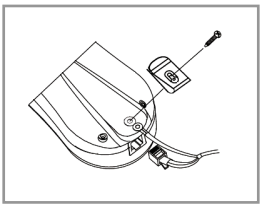


**LCD Display：**




1. Mute indicator
2. Year / Phone number
3. Month
4. Polarity indicator:
   - red light : The red clip of Angled bed of nails is connect to the + line
   - green light : The red clip of Angled bed of nails is connect to the - line
5. Date
6. Hour
7. Minute
8. Incoming call indicator
9. Sequence of the call in list
10. Voltage LED indicator
    - When incoming call and ringing, the “HI” LED will flash
    - When voltage detected, the “HI” LED will lights up
11. Dialing call indicator
12. LO BATT indicator
13. Pulse/Tone switch
14. Mute switch

**Line cord connection**



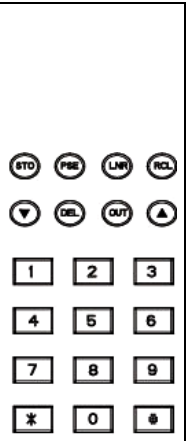
MT-8006B Data Diver is designed with a standard 6-position modular jack for quick connection of cord set. To place the cord set, simply remove the clip attachment screw, and put the terminal of strain relief over the boss behind the screw hole, then put the clip back and fasten the screw and plug the modular plug into the jack

**⚠Caution:**

In order to prolong the service lifetime of modular plug, please connect the strain relief terminal before plug into the modular jack

**Keys introduction**

| Key | Description | Function |
|---|---|---|
| STO | Set and Storage<br><br>Direction | Press STO key will enter the setting mode, there are 12 setting screen on MT-8006B. Please refer to Operation section. |
| ▲/▼ | key | Enter the incoming call list, scroll the numbers in call list and switch the setting screen. |
| RCL | Recall | To initial a phone call from stored phone number |
| DEL | Delete | Delete the number in list or erase the last digit from the input number |
| LNR | Last number redial | Make a phone call for last dialing number or per-dial number |
| PSE | Pause | Insert a PBX pause into the input number |
| OUT | Call out list | Enter the dialing out number list |
| ＊,#, 0~9 | Number keys | Standard Phone number keys |




**Test mode switch**

The test mode switch is a slide switch located on the left side of MT-8006B. Switch the test mode switch to the “Talk” position to make the Data Diver work as a telephone line tester. Switch the test mode switch to the “OFF” position for storage; switch the test mode switch to the “Mon” position to enable monitoring the line without disrupting it.

**Hand-free function**
The MT-8006B Data Diver comes with a headset and a phone strap necklace. Connecting them to the headset jack and phone strap hole will give the MT-8006B a hands-free talk function. Please find the phone strap hole and the 2.5 mm jack on the right upper corner of the MT-8006B Data Diver.

**OPERATION**
1. Remove the battery case lid and install 4pcs 1.5V AAA batteries in the battery compartment paying close attention to polarity of battery.
2. Parameter Setting
   With the MT-8006B in the OFF position; pressing the STO key will enter the setting mode. The "SET 1 DATE" shows on LCD. User can switch the setting item by pressing the▲/▼ key then press the STO key to enter the set item for detail setting. If user wants to change the setting press the ▲/▼ key again. When the correct setting appears press STO key to move to next setting. In the duration of setting press DEL will quit from the setting mode.

- **Date and time**
  If the "SET 1 DATE" is displayed on LCD, press STO key to enter the Date and time setting. The number of year will flash, press ▲/▼ key to adjust the value of year. Pressing the STO key again will move to the month setting. Use the same method to change the value of month then press STO to move to the date and time setting. When all the values of date and time are settle down then press STO key to move to "SET 2 ACODE".

- **Area code**
  When the "SET 2 ACODE" is show on LCD, press STO key to enter the area code setting item. LCD will show "ACODE-----". The first digit of area code will flash, press ▲/▼ key to change the value. Press STO key to move to the next digit. If all the digits are set, press STO key to enter "SET 3 FLASH".

- **Pause Duration**
  If the "SET 3 FLASH" is displayed on LCD, press STO key to

enter the Pause Duration setting. LCD will show “FLASH 3 110“. It means the default pause duration time is 110 ms, Change the value by ▲/▼ keys then press STO to move to the “SET 4 LCD”.

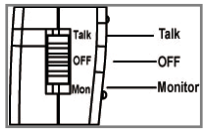
- **LCD light adjust**
  When the “SET 4 LCD” is displayed on LCD, press STO key to enter the LCD light adjust mode. There are 5 LCD light level can be selected. Press ▲/▼ key to change the level then press STO to jump to “SET 5 ALAR” or press DEL to quit.

⚠ **CAUTION:**
The “SET 5 ALAR” is not used by MT-8006B; we suggest users do not to change the value in “SET 5 ALAR” setting item. In this setting item press STO to jump to “SET 6 IPP” or press DEL to quit.

- **Dialing mode**
  If the “SET 6 IPP” is displayed on LCD, press STO key to enter the dial mode setting. The IPP ON/OFF will show on LCD, use ▲/▼ key to swap between them. If “IPP OFF” is selected, the dialing mode is tone; otherwise, the dialing mode is pulse.

3. Connect the angled bed of nails (or RJ11 plug) to the telecom line

● **Talk / OFF / Mon.** →Test mode switch：
The Data Diver has three basic modes of operation: Talk mode, OFF mode and Monitor mode. Before using the MT-8006B, please set the Data Diver to proper mode; otherwise, it will remain in the OFF mode. (Your Data Diver is set at the “OFF” position before your first use)




**Talk Mode:**
The “Talk” mode gives an off hook condition for dialing and talking as a common battery telephone. It is also available for memory dialing, last number dialing, caller dialing, redialing…etc.

**OFF Mode**

A. The “OFF” mode can be operated as either power off function or voltage inspection.
B. Before testing the line, please slide the switch to the “OFF” position to detect if any voltage exists. When “HI” LED lights up, please disconnect from the tested line to avoid any damage to the Data Diver
C. If the “HI” LED does not light up, then you can slide the switch to either “Talk” or “Mon” position for testing operation
D. If the “HI” LED flashes and the ringer is ringing, it means there is an incoming call, slide the switch to “Talk” mode, then it can be used as a common telephone.
E. For safety reason, please use the “OFF” mode to inspect the AC or DC voltage of unknown lines before testing

**Monitor mode**

The “Mon” position removes the transmitter from the circuit and the “Mute” LED will light up automatically. It provides a high impedance coupling to allow line monitoring without disrupting conversations or signaling. If there is any signal present, there will be sound coming from the speaker

⚠ **When the Data Diver is in either “Talk” or “Mon” mode, the battery will supply power to the memory operation and Mute LED until it is drained. Please make sure the switch is in “OFF” position when not in use.**

● **PULSE/TONE Switch**
Use PULSE/TONE switch to change the dialing mode between pulse and tone (DTMF) mode

● **STO** →Store a number：
MT-8006B is in the OFF position or Talk position,
Phone number + STO + N (N=0~9, ＊ , # )

● **RCL** →Recall (Dialing out a stored number)：
MT-8006B is on the Talk position,
RCL + N (N=0~9, *, # )

● **LNR** →Last Number Redial：

MT-8006B is on the Talk position,
If a call is not successful and you wish to redial the same number, just press the LNR button.
The last number redial function is available in either the Pulse or Tone Mode. The redial memory has a 32-digit capacity.
When checking the incoming or dialing record, press the LNR button, the number you are dialing will show on the LCD

● **PSE** →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.

● **DEL** →Delete：

In setting mode DEL key is used to quit setting mode. In pre-dial mode DEL key is used to delete the last digit. In call in/dialing out list, press DEL will delete a phone number and press DEL key for 4 seconds all the number in list will be erased.

● **MUTE**：

The mute switch turns the handset microphone and speakerphone microphone off for privacy in Talk mode. When turn the mute switch to left side, the “MUTE” LED lights up then the mute function is on, then turn to right side the “MUTE” LED will turns off and the mute function will also stop, and back to normal talk mode.

● **POL-/G**；**POL+/R** →Telephone line polarity test：

- Connect the telephone line to the Angled bed of nails.
- MT-8006B is on the Talk position
- If the LED is red light, the red Angled bed of nail is connected to the + line.
- If the LED is green light, the red Angled bed of nail is connected to the - line.

● **LO BATT：**
If the LO BATT LED lights, that means the user needs to change the battery for fear of losing data.

**Caution**
After the battery is removed, the memory of stored numbers will last for 15 seconds only. When changing the battery, please pay attention for the polarity of the battery. If the memory disappears, please follow the previous process as mentioned in this manual to store a number.

● **HI** →Line high voltage LED indication
1. Set the function switch to “OFF” position.
2. Connect the two test leads of the line to the angled bed of nails.
3. If the "HI" LED lights up; voltage over 70V was detected. Please don't connect the MT-8006B Data Diver to this line to avoid the Data Diver damaged.

**4. OFF mode operation**

● **Pick up call：**
When receiving a FSK or DTMF call, the Caller ID will display on LCD. The MT-8006B will also add the number to the incoming call list and give it a corresponding order in the list. If the call is from a FSK system, MT-8006B will update the month, date and time setting of system by the information provide by FSK signal. If the call is come from DTMF system, MT-8006B will show the system date and time. LCD will also displays the corresponding order of the receiving call in the incoming call list. If the number is not in the incoming call list, the LCD will indicate it is a new number.
When the ringer is ringing, slide the switch to “Talk” position as common telephone

● **Incoming call list checking and Dialing**
1. Press ▲ or ▼ to enter the incoming calling list.
2. Use the ▲ or ▼ key to view numbers in the Call ID list.
3. To make an auto speed scroll press the ▲ or ▼ key for 3

seconds.
4. Once the incoming number is reached, press LNR key.
**5.** Set the function to "Talk" mode, and press LNR key, it will automatically dial the number you reached

● **Dialing out list checking and dialing**
1. Press the OUT key to enter outgoing call list.
2. Use the OUT key or ▲key to view the number in dialing out list.
3. To make an auto speed scroll press the ▲ or ▼ key for 3 seconds.
4. Once the outgoing number is reached, press LNR key.
6. Set the function to "Talk" mode, and press LNR key, it will automatically dial the number you reached.

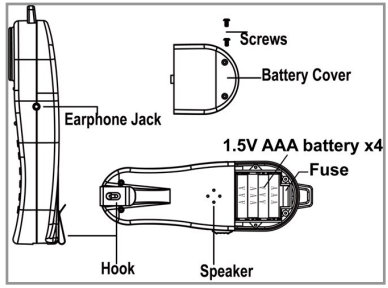
● **Pre-dial function**
As with a cell phone, user can input the phone number at on-hook status then press LNR to send out the number to make a phone call. It is easy to correct the wrong input in this mode.

**5. Talk mode operation**
●**Incoming call list checking and dialing**
1. Press ▲ or ▼ to enter the incoming calling list.
2. Use the ▲ or ▼ key to view numbers in the Call ID list.
3. To make a auto speed scroll press the ▲ or ▼ key for 3 seconds.
4. Once the incoming number is reached, press LNR key.

●**Dialing out list checking and dialing**
1. Press the OUT key to enter outgoing call list.
2. Use the OUT key or ▲key to view the number in dialing out list.
3. To make a auto speed scroll press the ▲ or ▼ key for 3 seconds.
4. Once the outgoing number is reached, press LNR key.

**Battery and fuse replacement**

If the Data Diver fails to operate properly, or stops working, replace the battery and retest. Do not use rechargeable batteries.




To replace the battery:

1. Disconnect the Data Diver from the line and place on a flat work surface with the battery cover up.
2. Use a Phillips screwdriver to remove the two screws from the battery compartment.
3. Remove the battery cover
4. Remove the old batteries and properly discard.
5. Insert 4pcs of 1.5V AAA batteries into the Data Diver and observe the proper polarity.
6. Place the battery cover back and fasten the two screws securely. Do not over tighten screw. Over tightening will strip the plastic.

**Fuse replacement**

If the Data Diver still stops working after a new battery is replaced, it may be caused by a blown fuse.

To replace the fuse:

1. Use a Phillips screwdriver to remove the two screws from the battery compartment.
2. Remove the battery cover
3. Remove the old fuse
4. Insert a same specification (ø5xL20mm, 250mA/250V) of fuse
5. Replace the battery cover, then fasten the two screws securely taking care not to over tighten,

⚠Caution：

Before the battery or fuse replacement, please set it in "OFF" mode position as power off and disconnect the Data Diver from the line. Remove the angled bed of nails, and stay away from any power source or other electric equipment to avoid any electric shock

**MAINTENANCE**

⚠**WARNING:**

- To avoid electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- Disconnect clips from any metallic connections before performing any maintenance.

If moisture should get inside the Data Diver, let the Data Diver dry at normal room temperature for 24 hours. DO NOT HEAT THE DATA DIVER. Moisture can provide a leakage path that may conduct hazardous voltages to you. DO NOT USE the Data Diver if wet.

Keypad Care
Daily use of your Data Diver results in various liquids, dirt, and other foreign material building up in your keypad. The keypad may be cleaned by using a soft toothbrush with soap and water.
Do not use a petroleum-based or chlorinated cleaning agent as it will harm the keypad. Let the Data Diver dry before using!

**Data Diver Trouble Shooting**:

1. The MT-8006B Data Diver 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.
2. If there is any crosstalk in application, generally it is the interference from the telecom line; please check if the angled bed of nail clips well connected to the telecom line.
3. If any abnormal situation is found while you are using the Prokit's Data Diver, 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.)
4. If the Data Diver still doesn't work after the first step of fix-up, please send back to Prokit's distributor for repairing

⚠Caution：

If the Data Diver connected to a line with voltage over 100V, the fuse will be blown, and it may also caused the IC protection function to start and lock the Data Diver. When it happens, please remove all batteries, and wait for 5-10 minutes until all power is dissipated, then place the batteries back and restart the Data Diver.

| Defect Situation | Possible Problem | Solution |
|---|---|---|
| Dead, Doesn't work | Blown fuse/IC protection locked | Change new fuse<br>Remove the batteries, wait for 5-10mins and restart the Data Diver |
| 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 | Low battery /the angled bed of nails are connected to the power source | Change new battery<br>Confirm if the angled bed of nails connected to the right telecom line |
| Can not hear the conversation on the Monitor status | The switch did not set to "Mon" position<br>Low battery | Set the switch to "M" position / Change a new battery |
| Crosstalk | Angled bed of nails are not connected firmly<br>The interference from the telecom line | Check if the Angled bed of nails are well connected |
| Memory of storing numbers doesn't work | Low battery | Change new battery |
| Polarity LED doesn't work | Low battery | Change new battery |
| HI (LED) doesn't work | Low battery | Change new battery |
| BATT(LED) doesn't work | Low battery | Change new battery |

## Specification

| | |
|---|---|
| ELECTRICAL | |
| Loop limit | 2 KΩ maximum at 48 Vdc<br>(nominal 20 mA minimum loop current) |
| DC resistance | |
| Talk Mode | 300Ω typical |
| Monitor impedance | >39kΩ nominal at 1 KHz |
| Rotary dial output | |
| Pulsing rate | 10pps+0.8pps |
| Percent break | 60/40%±2% |
| Inter digit interval | 1000 ms typical |
| Leakage during Break | >130 KΩ |
| DTMF output | |
| Tone frequency error | ±1.5% maximum |
| Tone level | -8±2dBm combined (typical) |
| High versus low tone | 4 dB maximum |
| Memory dialing | |
| Memory capacity | 12 memories |
| Digit capacity | 16 digits per memory |
| PBX pause duration | 1~3.6 seconds |
| Power source | 4pcs 1.5V AAA batteries (not included) |
| PHYSICAL（Hook included） | |
| Measurement | 218.5 ×69.5 × 49mm (8.6” × 2.7” × 1.9”) |
| Weight | 208g typical |