



Thank you for your purchase of Pro'sKit MT-7028 Network Toner & Probe Kit. The Toner and Probe set is used to quickly trace and identify cables or wires within a group and also check the operation of telephone lines. With proper use and care, this instrument will provide many years of reliable service.

SPECIFICATIONS

MT-7028 Transmitter specifications	
Tone frequency	1kHz
Max. distance of transmission	3km
Max. distance of cable map	300m
Max. working current	≤ 65mA
Tone mode	Hi/Low two-note tone
Cable test socket	Test socket : for RJ45(8 pin)/RJ11(6 pin) cable map test. RJ45 SCAN socket : for RJ45 locating individual wire pairs RJ11 SCAN socket: for RJ11 locating individual wire pairs
Test Cable types	RJ45 Lan cable Cat 5 · 5e · 6(UTP/ STP) · RJ11/12 Telephone cable Cat 3 (6P/2C/4C/6C)
Scan Cable types	RJ45 Lan cable Cat 5 · 5e · 6(UTP) · RJ11/12 Telephone cable Cat 3 (6P/2C/4C/6C)
Function selection	5 Push button switch (POWER · SCAN · TEST · Ω · POL)
Continuity test	1 LED (≤300Ω), Coaxial cable & normal solid/Stranded wire by alligator clips patch cord.
Max. signal voltage	10Vp-p
Cable map indication	8 LEDs, Fast/Slow dual speed
Shielded indication	1 LED
Phone line polarity indication	1 Dual color LED
Live telecommunication equipment test and router test	Yes
Voltage protection	DC 48V
Auto power off	1 hour
Low battery display	6.5V (Power LED flashes)
Battery type	DC 9.0V (NEDA 1604/ 6F22 DC9V x1pcs)
Dimension (LxWxD)	138x80x35 mm
Weight	140g
MT-7028 Receiver specifications	
Frequency	1kHz
The Max. working current	≤ 90mA
Compatible connectors	RJ45(8 pin)/RJ11(6 pin)
Function selection	4 Position mode switch (LED · NCV · OFF · SCAN)
Earphone jack	1
Signal status indication	1 LED & Buzzer
Cable map indication	8 LEDs
Shielded indication	1 LED
NCV indication	1 LED (AC90~1000V · ≥50mm · ≤100mm)
LED illumination	1 LED
Power indication	1 LED
Battery type	DC 9.0V (NEDA 1604/ 6F22 DC9V x1pcs)
Dimension (LxWxD)	203x50x32 mm
Weight	100g

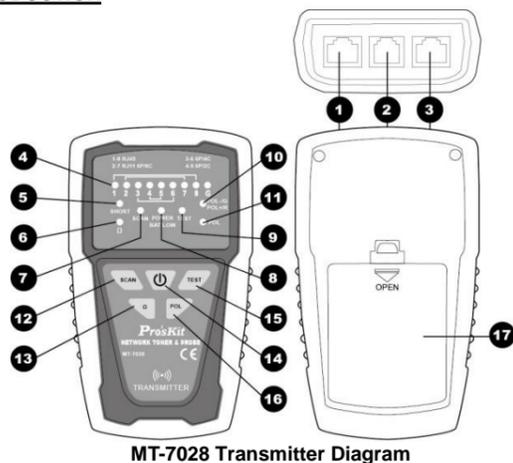
Warning

- Never use the Transmitter or Receiver on circuits of more than DC 48V.
- Never use the Transmitter, Receiver, or test leads if they are damaged. Inspect the cases and test leads for damage before use.
- Disconnect unused test leads and connectors from the Transmitter when testing telephone circuits.
- Never open the case except to change the battery or the fuse; no user-serviceable parts are inside.
- Turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.
- Use only a 9V battery, properly installed in the case, to operate the Transmitter and Receiver.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Caution

- Avoid touching the Receiver tip to patch panel connections and using the tip to dig into cable bundles. Doing so regularly may damage the Receiver tip over time.
- To avoid unreliable test results, replace the battery as soon as the low battery indication appears.

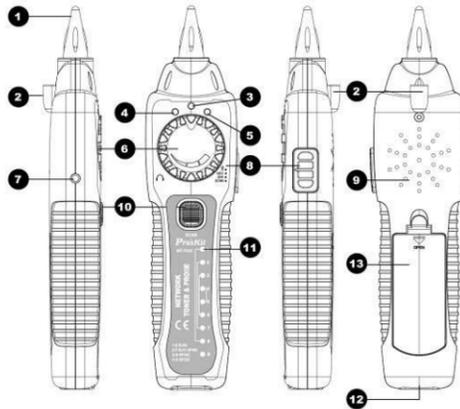
INTRODUCTION



MT-7028 Transmitter Diagram

- Test socket
- RJ11(6 pin) Scan connectors
- RJ45 Scan connectors
- 「1-8 · G」 Cable map & Shielded indication
- 「SHORT」 Continuity test indication
- 「Ω」 Continuity function indicator
- 「SCAN」 Locating and Isolating cables function indicator
- 「POWER/BAT LOW」 Power ON/OFF & Battery low indicator
- 「TEST」 Cable map & Shielded function indicator
- 「POL-/G · POL+/R」 Phone line polarity indication
- 「POL」 Phone line polarity function indicator
- 「SCAN」 Isolating cables function push button
- 「Ω」 Continuity function push button
- 「POWER」 Power ON/OFF push button

- 「TEST」 Cable map & Shielded function push button
- 「POL」 Phone line polarity function push button
- Battery cover



MT-7028 Receiver Diagram

- Probe
- LED illumination
- Power ON/OFF indicator
- NCV indicator
- Signal status indicator
- Volume control
- Earphone jack Φ3.5mm
- Function selection
- Speaker
- 「SCAN」 Locating and Isolating cables function push button
- 「1-8 · G」 Cable map & Shielded indication
- RJ45(8 pin)/RJ11(6/4/2 pin) Compatible connectors
- Battery cover

OPERATION

1. Locating and Isolating Cables :

Using MT-7028 Networking Tone & Probe kit to locate and isolate cables using the 1KHz analog, also trace twisted wires (UTP, Cat 5, Cat 5e, Cat 6) and telephone line. Use with a patch cord for RJ45 / RJ11. Coaxial cable, general cable and various wiring boards can be tested by using with alligator clip cable.

MT-7028 Transmitter provides two 1 KHz analog toning modes, Hi/Low two-note tone, for location and isolating cables. Both toning signals are available at all connectors on the Transmitter.

2. Locating Individual Wire Pairs with the MT-7028 Analog Function

To locate cables, do the following steps :

- Connect the black alligator clip of the Transmitter to the ground, and then connect the red clip to a jack or punch-down block
- When push 「POWER」, the indicator of "POWER/ BAT LOW" will light up and turn on the power. Push 「SCAN」 button for cable tracing. When the RED indicator flickers, the low-tone cable tracing is working. Push 「SCAN」 button again to feature the high-tone cable tracing, the RED indicator will flicker faster. Push 「SCAN」 button again, the RED indicator will stop and standby for next operation.
- Place the receiver function switch at "scan" or "LED", and push 「SCAN」 on receiver to operate cable tracing function. The tracing sound will be output from speaker. When put on earphone, there will be no sound from speaker, but from the earphone.
- Use the Receiver to find the general location of the tone at a cable rack, patch panel, or behind a wall. In locating mode, the Receiver's signal status indicator LED will light up, the LED brightness depends on signal strength, if the indicator does not light up, there is no signal.
- Adjust the volume control on the receiver to locate the wire pairs from 10cm to 30cm.

3. Isolating Cables

To isolate the tone source in the cable bundle or at the patch panel, do the steps as described in the previous section of "Locating Cables".

- Strip the cable's shield to a length of between 30 to 45 centimeters and divide the wires into two parts. Do the wire separation to isolate the cables to verify the signal of each part. If the beeper gets louder and LED lights up, you have located the position you are looking for.
- Adjust the volume control from high low to locate the wire that more difficult to be identified. Narrowing the length from 30 to 10 centimeters will help to more accurately identify the wire pairs.
- Repeat the steps of 6 and 7 to isolate the bundled cables.

4. Cable Map Testing :

- Connect the MT-7028 Transmitter or Receiver to RJ45/ RJ11 jacks.
- Push 「POWER」, the indicator of "POWER/ BAT LOW" will light up and turn on the power. Push 「SCAN」 on MT-7028 transmitter for cable mapping and shielded function indication. When the green LED indicator flickers slowly, the slow speed scan is working. Push the 「SCAN」 button again, the green LED indicator flickers faster and the fast speed scan will be operated. Push the 「SCAN」 button again; the product will be standby for next operation.
- Different connectors generate different LED and sound indications
 - RJ45(8P/8C) LED indication :** MT-7028 Transmitter (from 1-8 seconds in sequence) is synchronized with the MT-7028 Receiver cable map.
 - RJ11(6P/6C, 6P/4C, 6P/2C) LED indication :** MT-7028 Transmitter cable map, 6P/6C each second from 2 to 7 in sequence, 6P/4C each second from 3 to 6 in sequence, 6P/2C each second from 4 to 5 in sequence is synchronized with the MT-7028 Receiver cable map. If it encounters an empty line, the indication will cease.
- You can use the MT-7028 Transmitter and Receiver to validate the cable map on RJ11 and RJ45 connectors. The cable map function finds the most common wiring status on twisted pair cabling: good, shorts, opens, and crossed pairs
 - Good wiring:** Each LED that corresponding to an active pin flashes briefly and in a stairway order.
 - Shorts:** If two LEDs turn on for 1 second at the same time, those two pins are shorted together. If more than 2 wires are shorted together, the LEDs for the shorted pins indicate opens.
 - Opens:** If an LED flashes briefly, then no LEDs turn on, that pin is open.
 - Crossed pairs:** If one LED flashes briefly, then another LED lights for one second, the wire for the first LED is crossed pairs to the pin for the second LED.
- Each LED corresponds to an active pin flashes briefly, it should light for about 1 second. The brief flash shows which LED is next in the sequence.

5. Live telecommunication equipment and router test:

Caution !

The feature can only be used for testing cable continuity and opens, cannot be used for cross over and short.

- Connect MT-7028 transmitter and working router by RJ45 cable map test socket.

- Push 「POWER」 button to turn on the power, "POWER/ BAT LOW" indicator will light up. Push 「SCAN」 button on transmitter to feature cable map function. When the TEST indication green LED flickers slowly, the slow cable mapping is working and the red cable map LED starts scanning. Push 「SCAN」 button again, the TEST indication green LED twinkles fast, the fast cable mapping is working and the cable map LED starts scanning. Push the button again, the TEST green LED light will be off and the product will be standby for next operation.

When the "1~8, G" LED indicator on MT-7028 transmitter lighted one by one, the cable (1~8, G) is good. If any of LED indicators is not lighted, the cable is damaged.

6.Coaxial Cable & Continuity Test:

DANGER :

Before testing, please be sure the power of receiver is OFF.

To validate cable shield during cable map tests, do the following as:

- Connect the Transmitter to the circuit. Connect the test leads to the coaxial cable to be tested.
- Push 「POWER」 button to turn on the power, "POWER/ BAT LOW" indicator will light up. Push 「SCAN」 button on transmitter for short/ open function, the green LED indicator lights up and the short/ open testing is working. Push 「SCAN」 again, the green LED lights off and the product is standby for next operation.
- When "SHORT" red LED indicator lights up, the cable is connected. (the resistance of cable is less than 300Ω). If the indicator is off, the cable is short or resistance of the cable is over 300Ω .

7.Validating Telephone Service and Polarity :

Please follow the following steps to check the polarity of telephone lines:

- Connect the Transmitter to the circuit. Connect the test leads to the telephone punch-down blocks, RJ11, and RJ45 jacks.
- Push 「POWER」 button to turn on the power, "POWER/ BAT LOW" indicator will light up. Then push 「SCAN」 to operate the polarity indication feature and the LED indicator will light up. Push the button again to get the product back to standby status.
- 「POL-/G · POL+/R」 LED indicator is dual color (Red/ Green). The LED indicator of the Transmitter indicates the status as below:
 - Red light :** Red test lead at positive (+) polarity : Black test lead at negative (-) polarity.
 - Green light :** Red test lead at negative (-) polarity : Black test lead at positive (+) polarity.
 - No Light :** Non service or line fault.

8.NCV (Non-Contact Voltage) Testing :

Caution

The feature can be used before locating, isolating, cable mapping to identify if the tested cable is with AC voltage. It can not only help to ensure the safety of user and avoid possible electric shock or personal injury, but also protect the product from being damaged by AC power.

- Turn the switch to "NCV", the function is started when the power indicator is on.
- When doing the NCV testing, place the probe of MT-7028 receiver to the tested cable, the NCV indicator twinkles fast and the buzzer sounds, which means the tested object has AC 90~1000V. If there is no response of indicator and no buzzer sounds, it means the tested object has AC power less than 90V or there is no AC power on it.

9.Maintenance & Trouble Shooting :

Warning

Turn off the Transmitter or Receiver and disconnect all test leads before replacing the battery.

Caution

To avoid damaging the case, do not use solvents or abrasive cleansers. Clean the case with a soft cloth dampened with water or a mild soap solution.

10. Trouble Shooting

Possible Problems	Trouble Shooting
	Shortage of battery power: Check the battery on both Transmitter and Receiver. If the battery voltage is less than 6.5V, please replace with a new battery.
The signal from Transmitter can not be detected by Receiver	Make sure the switch position on receiver is "SCAN" or "LED". The SCAN function will not work if the switch is at another position. Shielded STP cable. Device damaged: please return the product to the place you purchased for maintenance.
No signal received from Transmitter on Live telecommunication device testing	There might be conflict between the signal from telephone office and the signal from Transmitter. Please turn off the telephone exchange device.
Incorrect cable mapping result	LED indicator broken: please return the product to the place you purchased for maintenance. Improper connection of networking or telephone cables: please reconnect the cables to RJ45/ RJ11 compatible connectors.
NCV not work	Switch at SCAN position, and push "SCAN" button. If the indicator does not light up, please replace with a new battery
Others	Device damaged: please return the product to the place you purchased for maintenance.

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