weberTOOLS

ELECTRICAL SYSTEM TESTER

WT-417



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MADE IN P.R.C.
Batch Number:10000803

SAFETY RULES

General safety rules



- Always keep this user manual with the machine.
- Before using this product, read all the operational instructions in this manual. Failure to follow them may result in electric shock and irritation to skin and eyes.



- Each user is responsible for installing and using the equipment according to this user manual. The supplier is not responsible for damage caused by improper use and operation.
- This equipment must only be operated by trained and qualified personnel. Do not operate it under the influence of drugs, alcohol, or medication.



- This machine is developed for specific applications. The supplier points out that any modification and/or use for any unintended purposes is strictly prohibited.
- The supplier assumes no express or implied warranties or liabilities for personal injury or property damage caused by improper use, misuse, or failure to follow safety instructions.
- This equipment is intended for use by professionals only. Improper use by non-professionals may result in injury or damage to the tools or workpieces.



- Keep out of reach of children.



- When operating, ensure nearby personnel or animals maintain a safe distance. Avoid working in rain, water, or damp environments. Keep the work area well-ventilated, dry, clean, and bright.

Handling



- Used/damaged equipment must not be disposed of in household waste but must be disposed of in an environmentally friendly manner. Use designated electrical equipment collection points.

Electrical safety rules



- Do not twist or severely bend the power cable, as this may damage the internal wiring. If the power cable shows any signs of damage, do not use the device. Damaged cables pose a risk of electrical injury. Keep the power cable away from heat sources, oil sources, sharp edges, and moving parts. Damaged power cables must be replaced by the manufacturer, their technicians, or similarly qualified personnel to prevent hazardous situations or injury.

Equipment safety rules



- Never leave the equipment unattended when it is powered on. Always disconnect the power cable and ensure the device is turned off when it is not being used for its intended purpose!



- When pressing the tool's power switch, the battery current and voltage may be directly conducted to the ground or certain circuits, potentially causing sparks. Therefore, do not use the tool near flammable materials, such as gasoline or its vapors.
- Do not attempt to repair the equipment yourself.
- Before connecting the device to power, check that the battery voltage matches the value specified on the nameplate. Mismatched voltage can cause serious hazards and damage the device.



- It is essential to protect the equipment from rainwater, moisture, mechanical damage, overload, and rough handling.

Application



- Before use, check the power cord, connection cables for any damage. If any damage is found, do not operate the device.
- Use the equipment only in compliance with all safety instructions, technical documents, and vehicle manufacturer specifications.
- If replacement accessories are needed, use only brand new and unopened products.

Personnel protection safety rules



- Protective gear may be worn when using this product.
- Place chocks under the wheels and do not test the vehicle while it is unattended.



- Exercise caution around the distributor cap, ignition wires, and spark plugs when working near the ignition coil. These components generate high voltage when the engine is running and can be dangerous.
- Shift the transmission into 'Park' (automatic transmission) or 'Neutral' (manual transmission), and make sure to engage the handbrake.
- Do not connect or disconnect any test equipment while the ignition switch is on or the engine is running.
- Always ensure you have a stable footing to safely control equipment in case of emergencies.

Any other use is considered beyond the intended purpose of the equipment and is prohibited.

CAUTIONS

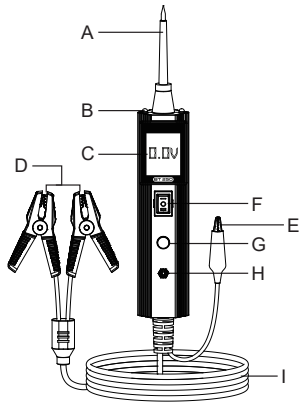
Warning

⚠ Before using the instrument, please read this manual carefully for proper operation.

- Always perform automotive testing in a safe environment.
- Wear safety eye protection that meets ANSI standards.
- Keep clothing, hair, hands, tools, test equipment, etc. away from all moving or hot engine parts.
- Operate the vehicle in a well ventilated work area: Exhaust gases are poisonous.
- Put blocks in front of the drive wheels and never leave the vehicle unattended while running tests.
- Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create dangerously high voltages when the engine is running.
- Put the transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.
- Keep a fire extinguisher suitable for gasoline / chemical / electrical fires nearby.
- Don't connect or disconnect any test equipment while the ignition is on or the engine is running.
- Keep the tool dry, clean, free from oil / water or grease. Use a mild detergent on a clean cloth to clean the outside of the test tool, when necessary.
- When the power switch in the tool is depressed battery current/voltage is conducted directly to the tip which may cause sparks when contacting ground or certain circuits. Therefore the tool should NOT be used around flammables such as gasoline or its vapors. The spark of an energized tool could ignite these vapors. Use the same caution as you would when using an arc welder.

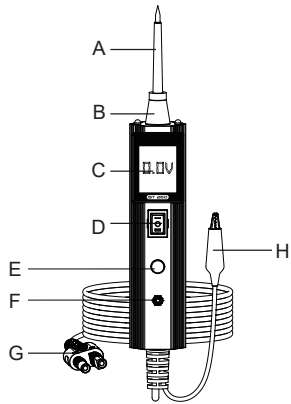
USING THE TEST TOOL

BT250 Tool description



A	**Probe Tip**	Contacts the circuit or component to be tested.
B	**Head Lights**	Illuminates dark work areas or work areas at night.
C	**LCD Display**	Indicates test results.
D	**Clamps**	
E	**Auxiliary Ground Clamps**	Assists test as a ground lead.
F	**Power Switch**	Allows you to conduct a positive or negative battery current to the tip for activating and testing the function of electrical components.
G	**Mode Button**	Selects the work mode: AC voltage, DC voltage, resistance, tone.
H	**Sound / Radiator**	When the audio tone is turned on, a beep will be heard.
I	**Power Cable**	

BT260 Tool description



A	**Probe Tip**	Contacts the circuit or component to be tested.
B	**Head Lights**	Illuminates dark work areas or work areas at night.
C	**LCD Display**	Indicates test results.
D	**Power Switch**	Allows you to conduct a positive or negative battery current to the tip for activating and testing the function of electrical components.
E	**Mode Button**	Selects the work mode: AC voltage, DC voltage, resistance, tone.
F	**Sound / Radiator**	When the audio tone is turned on, a beep will be heard.
G	**Adaptor**	Connects to the battery.
H	**Auxiliary Ground Clamps**	Assists test as a ground lead.

Specifications

Display	**TFT color display (160x128dpi)**
Operating Temperature	**0~60°C (32~140°F)**
Storage Temperature	**-40~70°C (-40~185°F)**
External Power	**12.0 or 24.0V power provided via vehicle battery**
Length	**126mm (4.96")**
Width	**46.5mm (1.83")**
Height	**35mm (1.38")**
NW	**0.105kg (0.23lb)**
GW	**0.726kg(1.6lb)**

General description

The tool is the best electrical tester for reducing diagnostic time in all 6 to 30 volt vehicle electrical systems. After a simple hook-up of the tool to the vehicle's battery, you can:

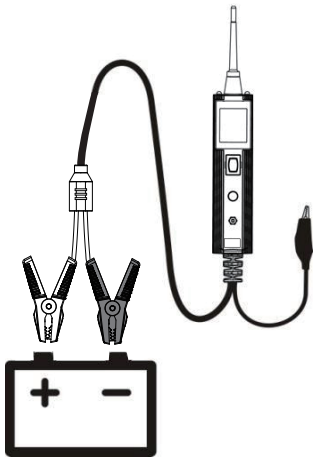
- Determine at a glance if a circuit is positive, negative, or open without having to reconnect clips from one battery pole to another.
- Test for continuity with its built-in auxiliary ground lead.
- By depressing the power switch, conduct a positive or negative battery current to the probe tip for testing the function of an electrical component without the use of jumper wires.
- Test for poor ground contacts instantly without performing voltage drop tests. The tool is also short-circuit protected; its internal circuit breaker will trip if it becomes overloaded.
- Follow and locate short circuits without wasting fuses.

Power

The tool is powered via the vehicle battery. Connect the RED battery clamp to the POSITIVE terminal of the vehicle's battery, and the BLACK clamp to the NEGATIVE terminal. When the tool is first connected to a battery (power source), it will sound a beep and the Head Lights will be on to illuminate the test area of the probe tip.

Quick Self-Test

- Before you test a circuit or component, be sure your tool is in good order by doing a quick self-test.
- With the tool connected, perform a quick self-test. The power switch is a momentary rocker switch located on the tool's body. Flanking the switch are positive and negative markings.
- Press the Power Switch forward to activate the tip with a positive voltage. The Red LED should light and the LCD display will read the battery voltage. If the tone feature is turned on, a high pitched tone will sound. Let go of the power switch and the LED will turn off and the high tone will cease.
- Press the Power Switch rearward to activate the tip with a negative voltage.The Green LED should light and the LCD display will read the "0.0V" (ground). If the tone feature is turned on, a low pitched tone will sound. Let go of the power switch and the LED will turn off and the low tone will cease.
- Your tool is working correctly and is now ready for use.



IMPORTANT:

- When powering-up components, you can increase the life of power switch in the tool if you first press the switch, then contact the tip to the component. The arcing will take place at the tip instead of the contacts of the switch.

Circuit breaker

This product has automatic short circuit protection, its internal overload protection system will automatically break the circuit and restart it in the event of an overload or short circuit.

When the circuit is overloaded, a restart screen appears on the screen without damaging the unit, meaning you can still use functions such as circuit detection and observation of voltage values.

Work mode

There are four modes to diagnose the electrical systems, which can be accessed by depressing the Mode Button and cycling through each one.

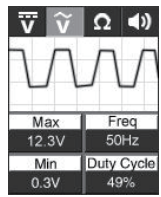
DC voltage

- While the tool in this mode, contact the probe tip to a circuit, then the LCD display will read the DC voltage with a resolution of 0.1 volt.



AC voltage

- While the tool in this mode, contact the probe tip to a circuit, then the LCD display will read the Max. voltage, the Min. voltage, frequency and duty cycle.



Resistance

- While the tool in this mode, contact the probe tip to a circuit, then the LCD display will read the resistance between the tip and auxiliary ground lead.



Tone On / Off

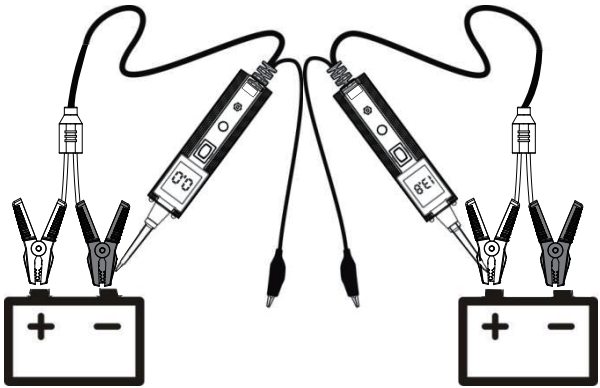
- While the tool in this mode, just do a quick press of the mode button to toggle the tone on or off. While quickly pressing (a quick press and release) the mode button, if a short high beep is heard, this means the audio tone is turned on. If a short low beep is heard, the audio tone is turned off.
- This function is invaluable when working in bright areas where LED illumination alone is not sufficient. The audio feature may be disengaged when desired, such as for applications where the tool will be connected to circuits for long periods of time and the audio could become annoying.



TEST APPLICATIONS

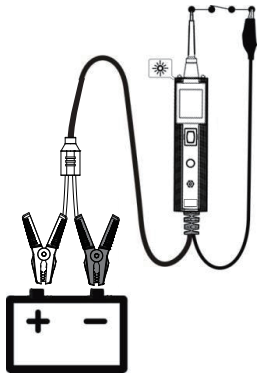
Voltage & Polarity testing

- While the tool is in DC Voltage mode, contact the probe tip to a POSITIVE circuit. The red LED will light and the LCD displays the voltage with a resolution of 0.1V. If the beep is turned on, a high pitched tone will sound.
- If contact the probe tip to a NEGATIVE circuit, the green LED will light and the LCD displays the voltage with a resolution of 0.1V. If the beep is turned on, a low pitched tone will sound.
- If contact the probe tip to an OPEN circuit, neither of the LED will light.



Continuity testing

- While the tool is in Resistance mode, using the probe tip with chassis ground or the auxiliary ground lead, continuity can be tested on wires and components attached or disconnected from the vehicle's electrical system.
- When the probe tip is contacting a good ground, the LCD will indicate "0.0Ω " and green LED will be on. If the tone feature is turned on, a low pitched tone will sound.



- In other cases, the LCD only indicates the resistance value.



- If the resistance value is greater than 200kΩ , the LCD will show “0L”.

There is also another way to prove continuity of connections to ground or battery. Power up the connection using the power switch. If the circuit breaker trips you know that you have a good solid low resistance connection.

⚠ NOTE:

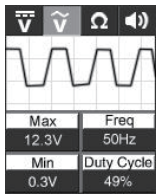
- You can use the probe tip to pierce the plastic insulation on a wire. This means that you can test the circuit without disconnecting anything.

Signal circuit testing

Once you extract a DTC from the vehicle and realize that trouble-shooting begins with some kind of sensor circuit, there is a quick test you can perform to verify the code.

Testing your sensor is easy while using the tool. For example, you suspect there is a problem with your M.A.P. Sensor circuit, then follow the procedure involved with testing this sensor:

- Set the tool in AC Voltage mode, using the probe tip with chassis ground or the auxiliary ground lead.
- Connect vacuum pump to MAP sensor.
- Contact the probe tip to the MAP sensor positive terminal and observe the LCD readings which should be a sine wave in normal condition.
- Apply vacuum.
- Release vacuum and observe the LCD readings.



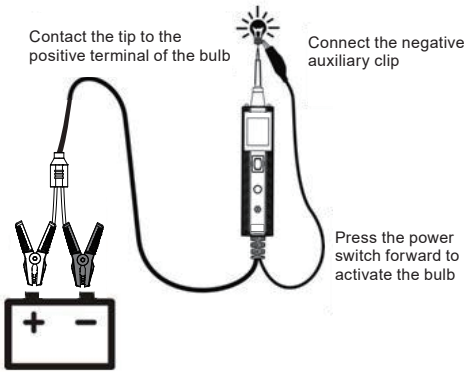
▶ If the LCD readings are abnormal, there is a problem with this sensor.

Activating compo-nents in your hand

While the tool is in DC Voltage mode, by using the probe tip in connection with the auxiliary ground lead, components can be activated right in your hand, thereby testing their functions.

Connect the auxiliary ground lead to the negative terminal or ground side of the component being tested. Then contact the probe tip to the positive terminal of the component, the green LED should light, indicating continuity through the component. While keeping an eye on the green LED, quickly press and release the power switch forward. If the green LED went out and the red LED came on, you may proceed with further activation. Rock the power switch forward and hold it down to provide power

to your component. With the power switch rocked forward, power will flow from the positive lead on the battery into the probe tip, through the tip into the component's positive terminal, into the component and out of the component, through the auxiliary ground lead and back into the tool, and back to the vehicle battery's ground.



If the green LED went off at that instant or if the circuit breaker tripped, the tool has been overloaded. This could happen for the following reasons:

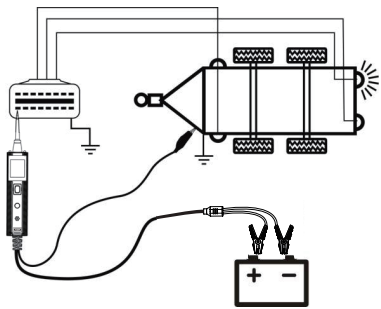
- The contact you are probing is a direct ground or negative voltage.
- The component you are testing is short-circuited.
- The component is a very high current component (i.e., starter motor).

If the circuit breaker is tripped, reset it by waiting for it to cool down (15 sec.) and then depressing the reset button.

Test trailer and connection status

Connect the ground auxiliary wire to the ground of the trailer lights when in DC voltage mode, and insert the probe into the OBD pin to display the real-time voltage. By using this method it is possible for you to check the function and direction of the

connector and trailer lights.If the circuit breaker trips, please wait for 15 seconds for it to cool down and then it will automatically reset, then press the reset button until it snaps into place.



Activating components in the vehicle

While the tool in DC Voltage mode, contact the probe tip to the positive terminal of the component, the green LED should light, indicating continuity to ground. While observing the green LED, quickly depress and release the power switch forward. If the green LED went out and the red LED came on, you may proceed with further activation. If the green LED went off at that instant or if the circuit breaker tripped, the tool has been overloaded. This could happen for the following reasons:

- The contact you are probing is a direct ground.
- The component you are testing is short-circuited.
- The component is a very high current component (i.e., starter motor).

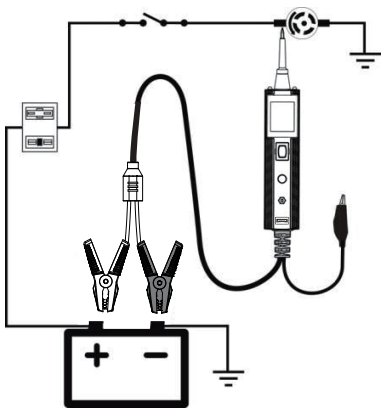
If the circuit breaker is tripped, reset it by waiting for it to cool down (15 sec.) and then depressing the reset button.

⚠ WARNING:

- Haphazardly applying voltage to certain circuits can cause damage to a vehicle's electronic components. Therefore, it is strongly advised to use the vehicle manufacturer's schematic and diagnosing procedure while testing.

⚠ NOTE:

- When powering up components, you can increase the life of power switch if you first press the switch, then contact the tip to the component. The arcing will take place at the tip instead of the contacts of the switch.

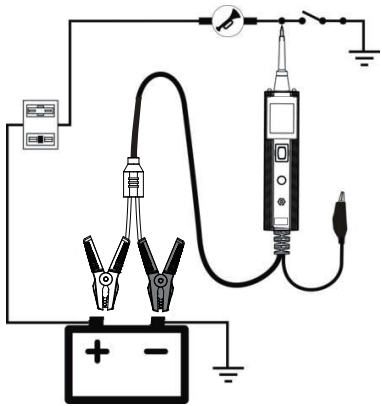


Activating components with ground

While the tool in DC Voltage mode, contact the probe tip to the negative terminal of the component, the red LED should light. While observing the red LED, quickly depress and release the power switch rearward. If the red LED went out and the green LED came on, you may proceed with further activation. If the green LED went off at that instant or if the circuit breaker tripped, the tool has been overloaded. This could happen for the following reasons:

- The contact you are probing is a direct positive voltage.
- The component you are testing is short-circuited.
- The component is a very high current component (i.e., starter motor).

If the circuit breaker is tripped, reset it by waiting for it to cool down (15 sec.) and then depressing the reset button.



▶ With this function, if you are contacting a protected circuit, a vehicle's fuse can be blown or tripped if you apply ground to it.

Checking for bad ground contacts

Probe the suspected ground wire or contact with the probe tip.

- Observe the green LED. Depress the power switch forward then release. If the green LED went out and the red LED came on, this is not a true ground.
- If the circuit breaker tripped, this circuit is more than likely a good ground. Keep in mind that high current components such as starter motors will also trip the circuit breaker.

Following & Locating short circuits

In most cases a short circuit will appear by a fuse or a fusible link blowing or an electrical protection device tripping (i.e., a circuit breaker). This is the best place to begin the search.

- Remove the blown fuse from the fuse box.
- Use the probe tip to activate and energize each of the fuse contacts. The contact which trips the circuit breaker is the

shorted circuit. Take note of this wire's identification code or color.

- Follow the wire as far as you can along the wiring harness. Here is an example for this application.
- If you are following a short in the brake light circuit, you may know that the wire must pass through the wiring harness at the door sill. Locate the color coded wire in the harness and expose it.
- Probe through the insulation with the probe tip, and depress the power switch forward to activate and energize the wire.
- If the circuit breaker tripped, you have verified the shorted wire. Cut the wire and energize each end with the probe tip. The wire end which trips the circuit breaker again is the shorted circuit and it will lead you to the shorted area.
- Follow the wire in the shorted direction and repeat this process until the short is located.

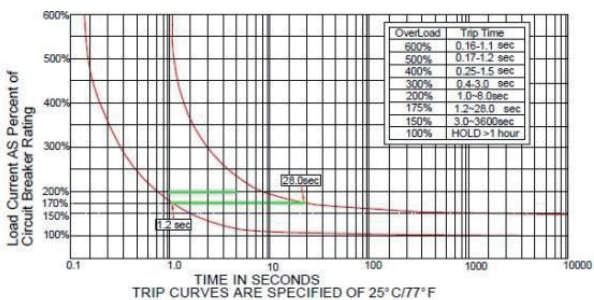
Red / Green polarity LED

- The Red / Green Polarity LED lights up when the probe tip voltage matches the battery voltage within ±0.8 volts. It is added information that could be valuable to the technician.
- If the circuit you are testing is not within a 0.8 volt (plus or minus) of supply voltage, you will see the voltage reading on the LCD but you will not hear a tone or see a red or green LED. This tells you either you have a voltage drop in excess of 0.8 volt from battery voltage or you are probing a circuit that has an increase of a 0.8 volt or more over battery voltage.
- To determine battery voltage, simply remove the tip from the circuit and press the power switch forward. Battery voltage will then be displayed on the LCD. The difference between the battery voltage and what is read on the circuit is either voltage drop or voltage increase. This allows you to determine a voltage drop without running back to check the battery. It's just another one of time saving feature the tool has.

TEST TOOL SPECIFICATIONS

DC voltage range	0~65V +1
AC voltage range	0~65V +1
Resistance range	0~200KΩ
Frequency response of tone pass through	0Hz~10Khz
Circuit breaker rating current	1~10Amp

Testing Standard	
100% current	no trip
150% current	trip in one hour
200% current	trip in 3~30 seconds
300% current	trip in 0.5~4.0 seconds



TEST TOOL KNOW-HOW

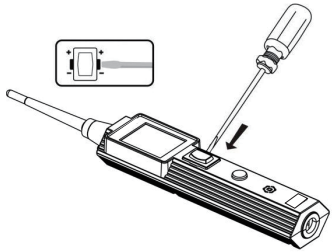
Is the Power Scan Probe Tester computer and air bag safe?

- The tool LED and LCD pull no more than 1 milliamp of current, therefore when using it as a test light or multimeter it is computer and airbag safe. However, pressing the power switch is a different story. When you press the switch forward, you are conducting full battery current to the tip of the probe. There is a nice safety feature built into the tool. Simply connect the extra ground lead to the tool and press the power switch forward until it trips the circuit breaker. This will prevent power from going to the tip but still allow you to use the tool as a multimeter. When you are away from computer components, simple press the reset button and you are ready to power up again.

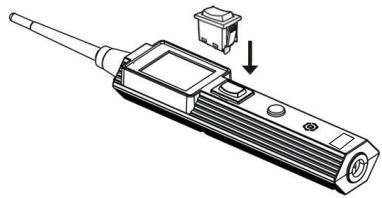
Why do I have no power at the tip when I am pressing the power switch forward but the red LED is on?

- The power switch goes through a lot. It is one of the few things that go wrong with the tool. The switch is a consumable that needs to be replaced on occasion. We have made it real simple to not only change it but also buy a new switch. The switch can be snapped out and replaced in seconds.
- You can buy switches from your authorized tool supplier.
- The tool with the Rocker Switch slots makes it easy to replace a worn switch in the field without having to send it in for repair. Power Switch replacement procedure:

① Remove the worn switch with a pry tool. Be careful when applying force.



② Make sure to install the switch straight and press until flush with casing.



It is recommended when buying you get two. This will fix your tool now and give you a spare so you won't experience any down time in the future.

MAINTENANCE SERVICE

Our products are made of long-lasting and durable materials, and we insist on perfect production process. Each product leaves the factory after 35 procedures and 12 times of testing and inspection work, which ensures that each product has excellent quality and performance.

Maintenance

To maintain the performance and appearance of the product, it is recommended that the following product care guidelines be read carefully:

- Be careful not to rub the product against rough surfaces or wear the product, especially the sheet metal housing.
- Please regularly check the product parts that need to be tightened and connected. If found loose, please tighten it in time to ensure the safe operation of the equipment. The external and internal parts of the equipment in contact with various chemical media should be frequently treated with anti-corrosion treatment such as rust removal and painting to improve the corrosion resistance of the equipment and extend its service life.
- Comply with the safe operating procedures and do not overload the equipment. The safety guards of the products are complete and reliable.
- Unsafe factors are to be eliminated in time. The circuit part should be checked thoroughly and the aging wires should be replaced in time.
- Adjust the clearance of various parts and replace worn (broken) parts. Avoid contact with corrosive liquids.
- When not in use, please store the product in a dry place. Do not store the product in hot, humid, or non-ventilated places.