

# Because of your safety

# USER'S GUIDE



Apr, 2020

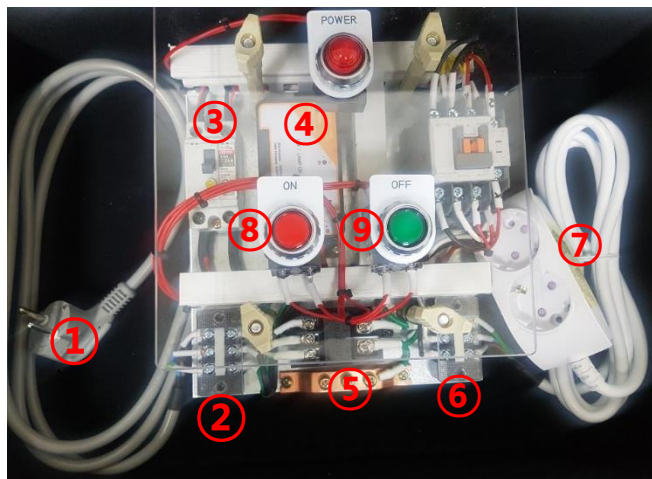


**ENERPARK CO., LTD.**

### ❖ Purpose of EP KIT

In general, when the powered light bulb, motor, and outlet (3 types of ground connection) are put in water, the bulb is turned off, the motor stops working, and electric shock can occur in the water. The cause of this phenomenon is due to the leakage current generated in the water.

This demo kit is a device that forcibly generates leakage current in water. This kit is designed to show that the leakage current can be prevented by shielding, absorbing and reducing the leakage current through ECSPD or ENSPD. That is, this kit is a kit designed to show that light bulbs, motors, and outlets work normally in water and that there is no electric shock even if you put your hand.



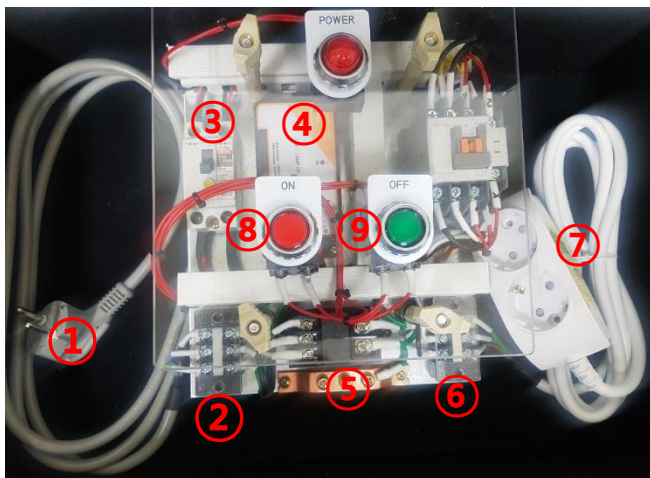
- ① Input plug: A plug that turns on the power.
- ② Input terminal: Terminal block with power on.
- ③ ELB: A device that turn off power when an leakage current occurs.
- ④ ENSPD Or ECSPD: Prevents electric shock by shielding, absorbing and reducing leakage current in water.
- ⑤ GD-2000: Multifunction grounding leakage current shielding device.
- ⑥ Output terminal: Terminal block where power is supplied through ENSPD.
- ⑦ Outlet outlet: Connect a motor or a light bulb and put the outlet itself in water.
- ⑧ ON switch.
- ⑨ OFF switch.

Electric movement direction :① → ② → ③ → ④ → ⑤ → ⑥ → ⑦ → bulb and motor



### ❖ Connection method

division	How to connect with GD	How to connect to the wire.
L(RED)	Connect with L	Connect to ELB load side voltage line
N(BLOCK)	Connect with N	Connect to ELB load side neutral line
FG(GREEN)	Connect with FG	
EPG(WHITE)	Connect with EPG	



## ❖ Demonstration method

1. Connect ① to the outlet, turn on the power, and raise ELB (③).
2. Check the lamp of ENSPD(④) and set the polarity.  
(Refer to the polarity setting method below)
3. Connect the bulb and motor connected to outlet(⑦) and put it in the water bottle.
4. Turn on the power by pressing the switch(⑧).
  - ➔ In this state, demonstrate by putting an outlet in the water and putting your hand.
  - ➔ Be sure to measure the leakage current in the water before putting your hand, and only place your hand if it is less than 5mA.
5. When the demonstration is over, press the switch (⑨) to turn off the power to the kit.
6. Pull out the bulb, motor and outlet(⑦) from the water.

## ❖ How to match polarity

1. ENSPD has 3 LED lamps (L, N, E3)

If the polarity is correct in a place with 3 types of grounding,  
the L and N lamps turn on and E3 turns off.

➔ Demonstration must be done in this state.

➔ If the polarity is not correct, the demonstration may fail or be dangerous.

2. If you are demonstrating where there is no ground,  
after consultation with the head office, proceed.
3. The polarity of the bulb socket must also be matched (using a tester).

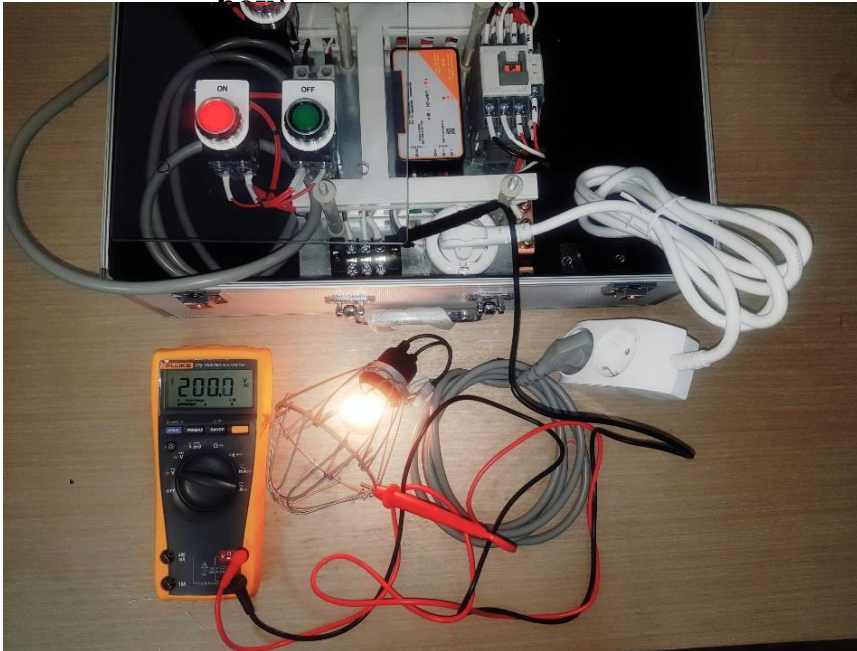


## ❖ Precautions

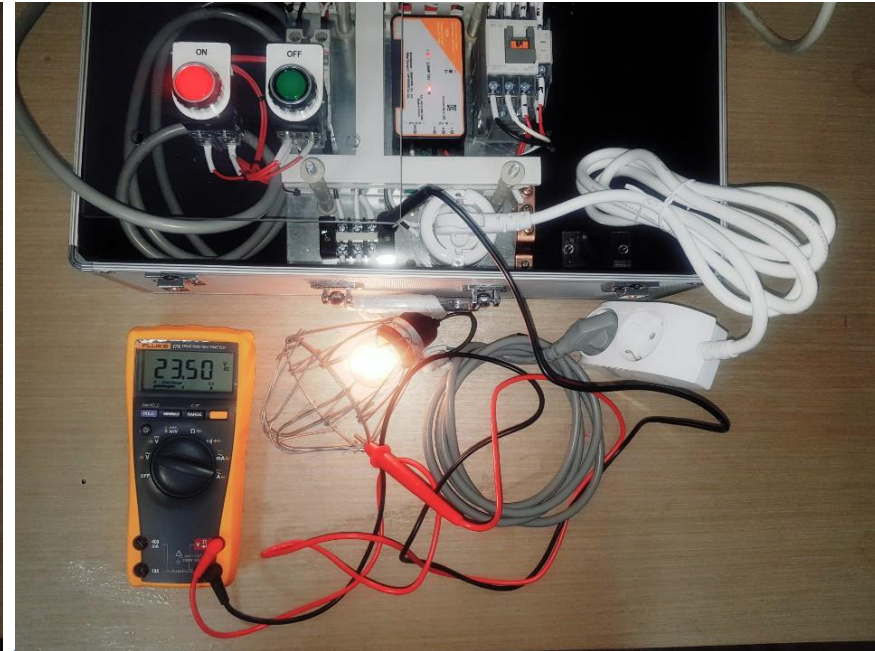
- 1. Be sure to correct the polarity and demonstrate. (ENSPD, Bulb Socket)**
- 2. Put the motor and light bulb in the water and turn on the power.**
- 3. After the demonstration, turn off the power and take out the motor or light bulb.**
- 4. The water bottles used for the demonstration are acrylic, rubber, and plastic materials.**
- 5. When you put your hand in the water, be sure to measure the leakage current and then put your hand only if it is below 5mA.**
- 6. Rust may occur in the light bulb or outlet after the kit demonstration.**  
→It should be stored after removing moisture.
- 7. There is a lot of rust on the motor or bulb.**  
→ Motors, bulbs and sockets must be replaced at least every 3 months.
- 8. It can be dangerous if you disassemble or modify the kit.**  
**Therefore, the company prohibits the production and sale of unauthorized kits.**
- 9. Since the rated voltage is divided into 220V and 110V, it should be used according to the rated voltage.**
- 10. If you purchase and use a kit, you must use it after training.**

## ❖ The importance of polarity(I)

### ◆ Voltage measurement between 3 types of ground and bulb collection network (or kit)



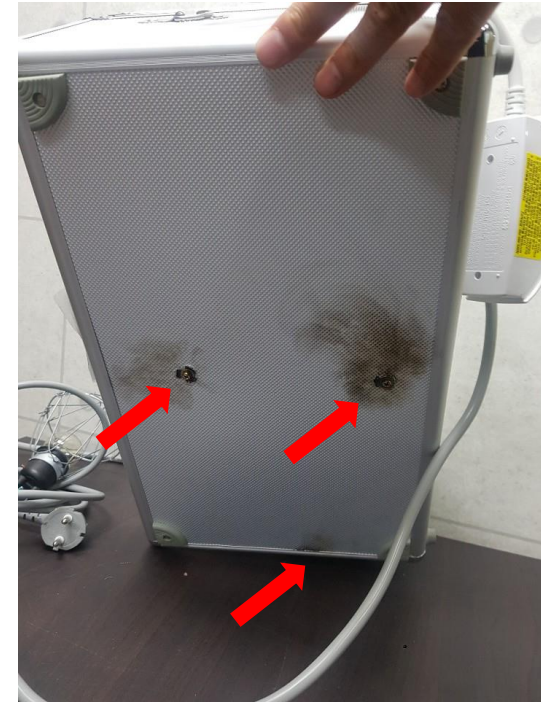
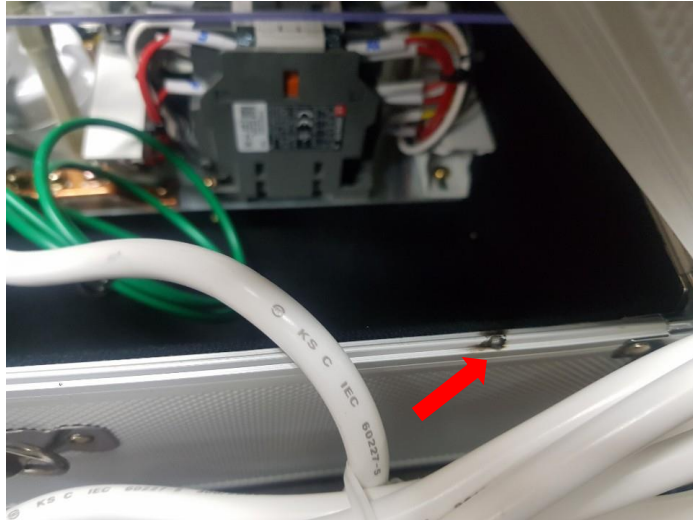
Voltage when polarity is wrong : 200V



Voltage when polarity is correct : 23.5V

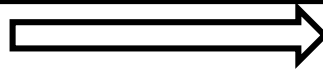
**When measuring the voltage between the three types of grounding(input terminal) and the light bulb collecting network (kit box), it is dangerous because 220V ( $\pm 13V$ ) occurs when the polarity is wrong.  
→ Kit demonstration must be done after correct polarity.**

## ❖ The importance of polarity(II)



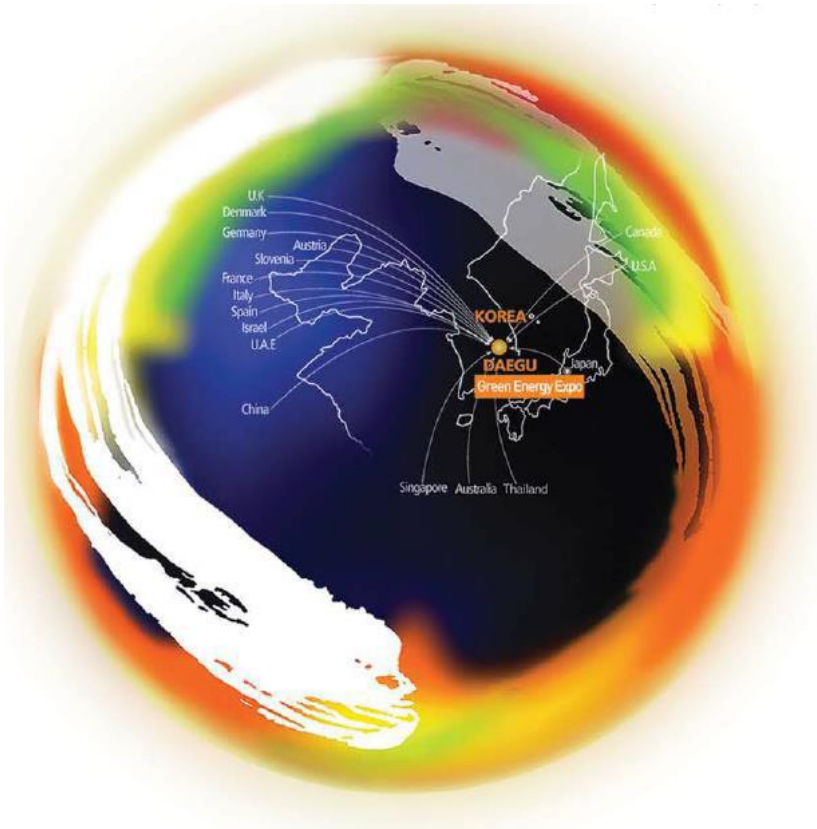
When it is connected to the kit's bulb collection network and the kit box,

If the polarity is wrong



220V flows and an accident occurs.

1. Make sure to set the polarity and operate the kit.
2. Put the electric bulb or motor into the water and turn on the kit.
3. Turn off the power and take out the bulb or motor.



THANK YOU

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