

Renewable Energy Power Bank for IoT



DSC100 Data Sheet

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1. Introduction

DSC100 is a renewable power bank with a 110mm x 55mm dye-sensitized module, two 250F lithium capacitors, the IP65 of water resistance rating, and an LED light to indicate the power of the device.

The DSC100 can be charged through indoor light resources and supply power to IoT devices with low power consumption. With little power remaining, you can connect the DSC100 in parallel or adjust the bracket to face the module directly to the light resource to get sufficient power.

2. Working Principle

The DSC is the third-generation solar cell. Light enters the cell through transparent conductive glass, stimulating the dyes adsorbed on titanium dioxide to generate electrons. The electrons then flow out of the cell and the electrolyte reduces the dyes. Through the cycle, the DSC is able to generate electrical energy. Even in an environment without a sufficient light source, the DSC can still generate electricity and store the energy in the lithium capacitors to power the electrical equipment.

3. Storage and Maintenance

The DSC module performed better than the traditional silicon solar cells in an environment without many light sources. However, the power generation efficiency of the DSC module decreases compared to the silicon solar cell as they are exposed to the sunlight.

Direct exposure to sunlight or high temperatures could cause permanent damage to the DSC100. To maintain the device's performance and function, it should be used indoors or outdoors with shades. If the DSC100 has to be used for outdoor purposes, the membranes should be applied to the solar module. Exposure to a low-temperature environment (below -20°C) may affect the power generation of DSC100, but the permanent damage would not be made.

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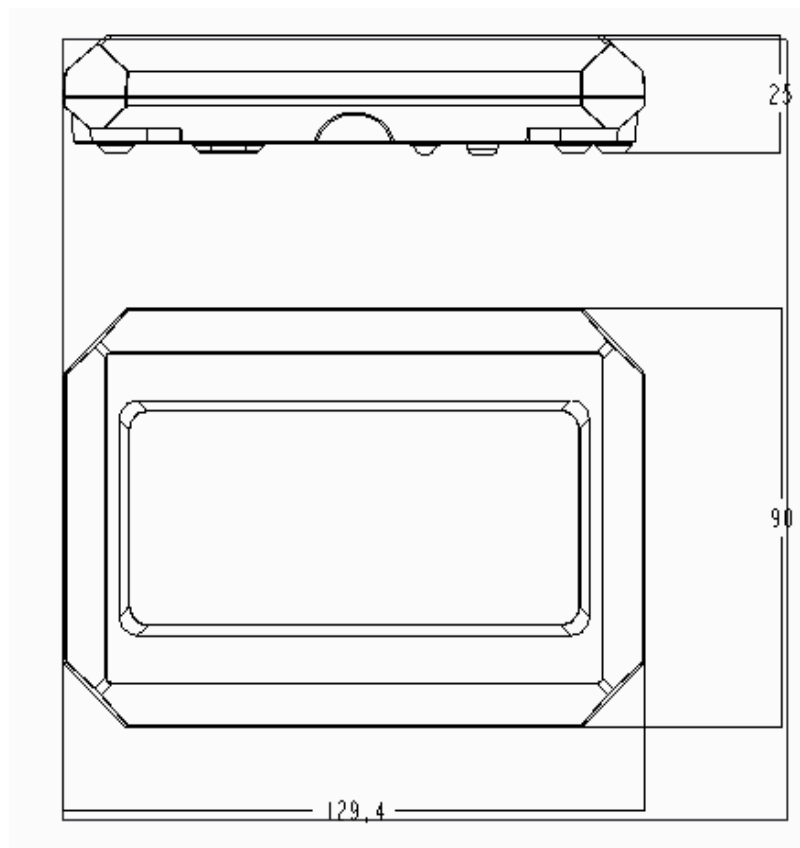
4. Features

- Reduce costs to buy or change a new battery
- Power Netvox's and third-party devices through Type-C (and DC port)
- Lithium-ion capacitor (LiC) for safer uses and longer lifespan
- Adjustable bracket to change the angle of module
- Connect in parallel to support high power-consuming devices or receive frequent report

5. Dimensions

DSC100: 129.4mm x 90mm x 25mm

DSC100 module: 110mm x 55mm x 2.4mm



▲ DSC100

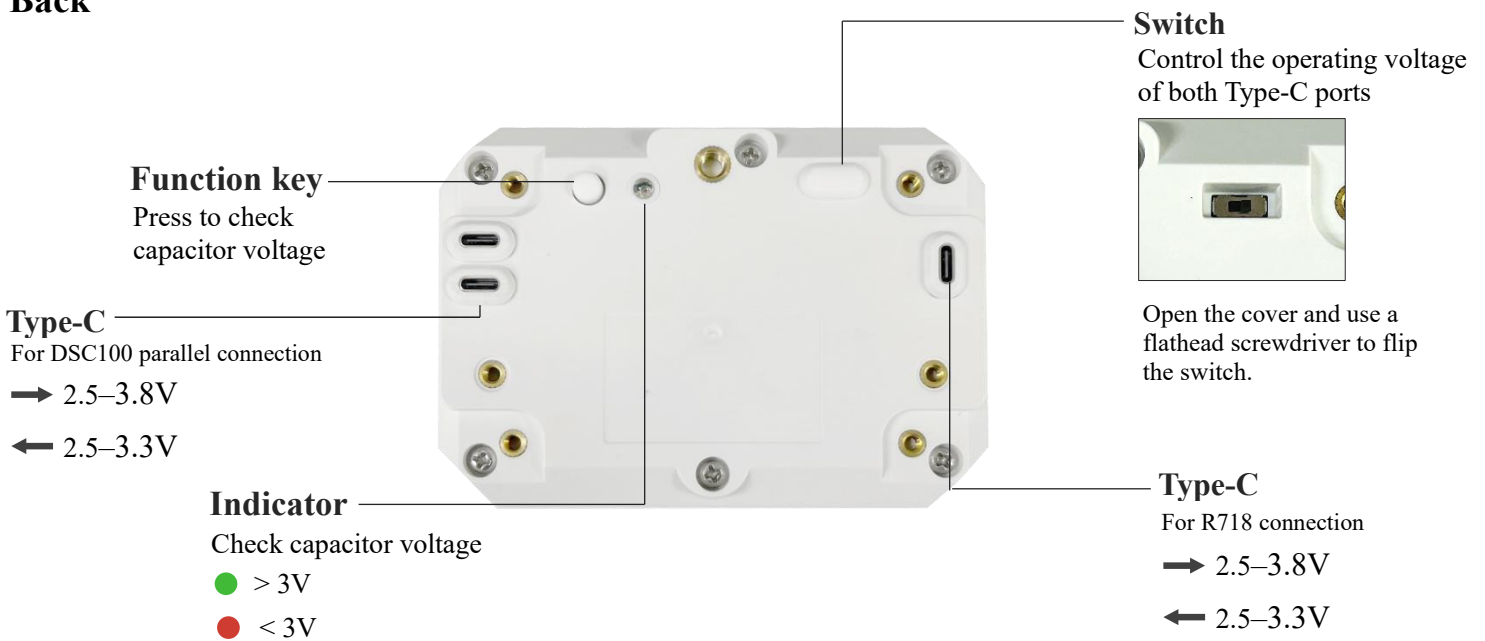
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Front



Dye-sensitized module
110mm x 55mm x 2.4mm

Back



Note: DSC100 cannot be connected with 5V or 12V power source. Connecting DSC100 with other Type-C cable along with transformer could damage the components.



DSC100 + Bracket



DSC100 Parallel Connection

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6. Electrical Specifications

Power Supply	2 lithium capacitors in parallel (One 250F capacitor: about 79mAh)
Operating Voltage	<p>Flip the switch to ...</p> <p>(1) Right: 2.5V – 3.8V</p> <p>(2) Left: 2.5V – 3.3V</p> <p>Note: User may flip the switch to control the operating voltage of both type-c ports at the same time.</p>

6.1 DSC Module

	Isc (mA)	Voc (V)	Pmax (mW)	Imax (mA)	Vmax (V)
1000 lux	4.1	0.65	1.96	3.77	0.52
500 lux	2.11	0.63	0.97	1.86	0.52
200 lux	0.85	0.59	0.36	0.74	0.49

Luminance (lux)	Output 8hr/day (mWh)
1500	14.11
1200	11.52
1000	9.79
800	8.07
500	5.47
200	2.88