



Supercaps Application in Smarter Meter

Jinzhou Kaimei Power Co., Ltd. is one of the most professional supercapacitor suppliers from China. Ultracapacitor is of small size and has long-using life. It is environmental-friendly and easy to install. We supply the following supercaps with high quality. Kamcap supplies high-quality ultracapacitors and our customers can choose the supercap type which best suits their needs.



coin type supercaps



winding supercaps



combined supercaps



module supercaps



high temperature supercaps



hybrid supercaps

Nowadays, supercapacitor is widely used in the application of smarter meter. It includes three main fields, that is, smart gas meter, smart electric meter, and smarter water meter.

Supercaps application in smart gas meter

Supercapacitor is used in the field of gas meters, with environmental protection and high life.

Supercap capacitor also has some other unique energy storage advantages. One of the important benefits is that using ultracapacitor in smart gas meter can improve the safety of the product, which can well resist to acupuncture, extrusion, vibration, shock, burning, etc. In addition, it will not explode. The life



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span of the ultracap in smart gas meter is up to 500,000 cycles of charge and discharge.



Supercaps application in smart electric meter

At present, with the increasingly intelligent function of electric meters, long-term data storage and display functions are indispensable. Many electric meters use various batteries to supply power to the clock chip and power-off protection. At present, supercap capacitor can fully realize this function. And it has an advantage over using a battery.

The traditional method commonly used in electric meters is to install a lithium battery. When the external power supply is cut off, the voltage of the lithium battery is insufficient or under voltage. Randomly, if the battery is not accurately and timely monitored, the clock circuit will be timed. An error caused the billing or billing error. In order to avoid this phenomenon, the smart meter uses an external ultracap. When the battery is under voltage or low, it automatically switches to the supercapacitor to supply power to the clock circuit, thus ensuring the reliability of the entire system and ensuring the country and customers.

Ultracapacitor is compared to batteries and has the following distinct features:

1. Different types of supercapacitors can be used in different ways. Ultra-low series equivalent resistance (ESR), the power density is more than ten times that of lithium-ion batteries, suitable for large current discharge.
2. Ultracapacitor lasts a long life, which can charge and discharge more than 500,000 times. It is 500 times that of lithium-ion batteries, 1000 times that of nickel-metal hydride and nickel-cadmium batteries, if the super capacitor is charged and discharged 20 times a day, continuous use can reach 68 years.

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3. It can be charged with large current, short charging and discharging time, simple requirements for charging circuit, no memory effect. Supercapacitor charging is the physical process of electric double layer charging and discharging or the rapid and reversible chemical process of electrode material surface. Current charging can complete the charging process in tens of seconds to several minutes, which is a real fast charging.

4. The temperature range of the supercaps is wide from -40°C to 70°C . Some products can reach $+85^{\circ}\text{C}$.

5. By using supercap, the product can be produced into small size, compact size, which is easy to install, save space, maintenance-free and sealable.

6. It can be stored in a fully discharged state, and excessive discharge is harmful to many rechargeable batteries.

7. The use of ultra cap makes it safe, convenient, green and environmentally friendly to the environment.

Kamcap has high-quality ultracapacitors for sale. Our different types of supercapacitors can meet your different needs. If you have any questions, please contact our professional team.



Supercaps application in smart water meter

Conventional smart water meters use a built-in lithium battery when controlling the opening or closing of the water valve. After the lithium battery has been used for a certain period of time, it cannot supply energy to the control circuit and has to replace the battery. It is a cumbersome thing for the manufacturer to replace the battery or water meter for the user. More dangerously, the situation of insufficient battery power is random. If the battery is not accurately and timely detected, the water valve will not be reliably shut down, resulting in

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the inability to bill. This is a fatal shortcoming of a smart meter with a lithium battery inside, which directly affects its promotion and use.

At present, the use of super capacitor instead of lithium batteries for smart water meters is a very popular choice. An ultracap is a passive device that is interposed between a battery and a common capacitor. It has a large current and fast charge and discharge characteristics of the capacitor. It also has the energy storage characteristics of the battery and has a long service life.

Supercaps are compared to batteries and have the following distinct features:

1. Ultra-low series equivalent resistance, the power density is more than ten times that of lithium-ion batteries, suitable for large current discharge;
2. Ultracapacitor lasts long life, which can charge and discharge more than 500,000 times. It is 500 times that of lithium-ion batteries, 1000 times that of nickel-metal hydride and nickel-cadmium batteries, if the super capacitor is charged and discharged 20 times a day, continuous use can reach 68 years;
3. It can be charged with large current, short charging and discharging time, simple requirements for charging circuit, no memory effect. Supercapacitor charging is the physical process of electric double layer charging and discharging or the rapid and reversible chemical process of electrode material surface. Current charging can complete the charging process in tens of seconds to several minutes, which is a real fast charging. The battery takes several hours to complete the charging, and it takes several tens of minutes to use the fast charging.
4. The ultracap is of small size, compact shape, and easy to install, which saves space, maintenance-free and sealable;
5. By using ultracap, the product can be stored in a fully discharged state, and excessive discharge is harmful to many rechargeable batteries;
6. The use of supercap makes it safe, convenient, green and environmentally friendly to the environment.

The advantages of using supercapacitors for water meters

1. Separate the battery from the water meter, thus eliminating the influence of battery life on the water meter and prolonging the use time of the water meter.

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2. The high current discharge characteristic of the super capacitor ensures the reliability of the shutoff of the water valve. When the external dry battery is insufficient, the water valve can be shut off by the energy stored in the super capacitor.

3. Previously, the pursuit of leakage current indicators, mainly to protect the battery life, after switching to super capacitors, the leakage current indicators become unimportant. If the battery is low, the user can change it at any time. In this way, not only the circuit design is simplified, the factory inspection procedure of the product is reduced, and the cost of the product is also reduced.



Above is a brief introduction about supercapacitor's application in smarter meter. If you want to [buy super capacitor](#) or know [ultra capacitor price](#) information, please contact us!