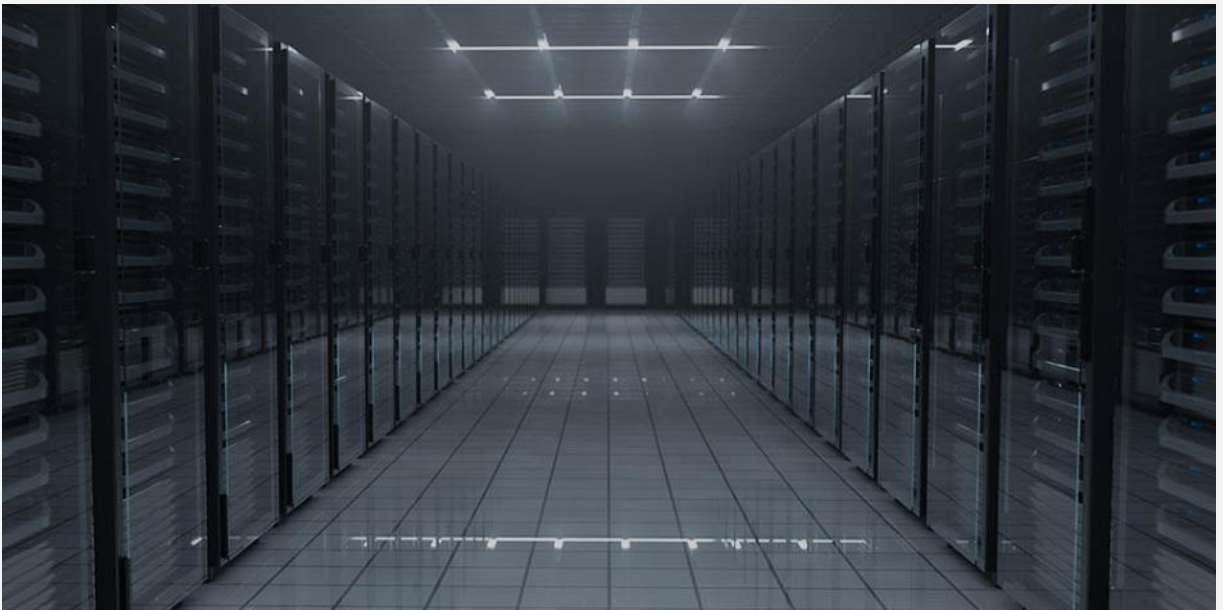


What is Digital Power Supply? Detailed Explanation of its 3 Major Advantages and Applications



In modern electronic products, the demands for power, performance, and energy efficiency have significantly increased. To meet the needs of more intelligent product applications, digital power supply has become the standard power solution for mainstream electronic products. This article will introduce the advantages of digital power supply and explore the technological differences of digital power supply across various fields.

What is Digital Power Supply?

Driven by the trend towards smarter power solutions, digital power stands out with its exceptional control capabilities. It not only combines the advantages of traditional power supplies and micro power modules but also offers high safety and a wide input voltage range. In terms of performance, it achieves efficient power conversion, providing high-quality power management solutions for modern electronic devices.

Differences Between Digital Power Supply and Traditional Power Supply

Signal Processing Differences

Digital Power uses a Digital Signal Processor (DSP) to convert audio signals into a digital format, which is then processed and output as analog signals through a digital-to-analog converter. In contrast, traditional analog power supplies directly output unprocessed signals, resulting in lower precision.

Power Efficiency

Digital Power Supply offers higher power processing efficiency, with less energy loss during voltage conversion. It can also switch to a low-power mode in environments with low power demands through built-in programming. On the other hand, traditional analog power supplies tend to have higher power losses, especially in high-power environments.

Flexibility and Controllability

Digital Power Supply allows for direct editing of built-in software and other functions, enabling customization of parameters and integration into various electronic products. Traditional analog power supplies lack this flexibility in parameter adjustment and are more limited in application, relying on hardware configurations to optimize performance.

Application Scenarios

Digital Power Supply has a wide range of applications, from smartphones and mobile devices to data servers and wireless base stations. Its flexibility enables developers to create power systems that automatically adapt to the environment and optimize efficiency for the end products.

Three Major Advantages of Digital Power Supply

Precise Control

Digital Power Supply can use Power Management Bus (PMBus) and System Management Bus (SMBus) for communication, offering flexibility and control that traditional analog power systems cannot achieve. Designing with Digital Power allows the host controller to easily manage output voltage adjustments, power sequencing, and synchronization of multiple voltage rails.

Shortened Product Development Time

As intelligent applications in modern electronics become more widespread, product design cycles may require the addition of different power rails, higher voltage loads, or stricter power monitoring. Digital Power Supply enables system designers to reduce the time spent on power design, focusing instead on the critical features and functions of the system product. This leads to shorter product development times, lower R&D costs, and faster time-to-market for new products.

Cost Reduction and High Flexibility, Scalability

Digital Power's system management and power control functions can be expanded through built-in software, eliminating the need for additional analog and power control components. Because the derivative applications of Digital Power Supply are often sufficient on the hardware side, it reduces the PCB footprint for power supply, allowing more functional ICs to be added to the same circuit board area.

Applications of Digital Power Supply

Data Centers and Enterprise Server Rooms

Data centers and enterprise server rooms typically require the integration of Uninterruptible Power Supplies (UPS) with Digital Power Supply to achieve high power stability. This ensures timely protection of surrounding computers, internal servers, and related hardware systems in the event of a power input or main power failure. FSP offers a full range of Digital Power Supply products and UPS applications to address various power issues, including high-wattage server power supplies needed for AI training.

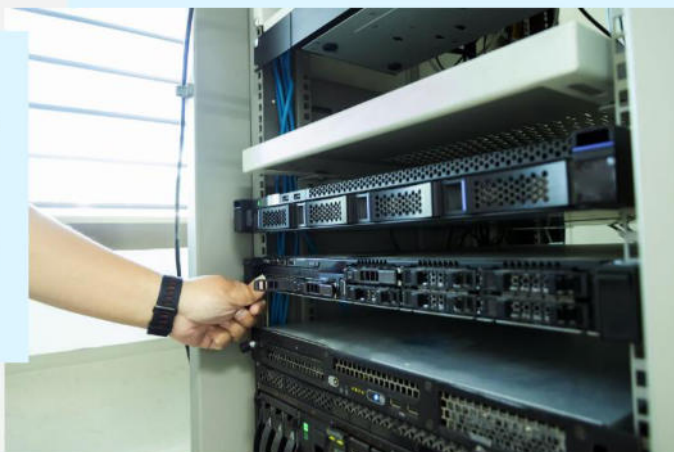
Industrial Control

Digital Power Supply can achieve precise power control, aiding the development of industrial automation and robotics by directly integrating Edge AI applications. FSP provides efficient and stable Edge AI power supply products, making them the best choice for edge computing applications in factory settings.

Asia's leading IT solution company

The key to edge computing is whether the edge server can compute with high performance to improve the experience of end users and save the load of datacenters. FSP power products and customer's systems have been successfully installed on over a million edge server systems for field operations. They have enormous power with stable outputs, and highly efficient power conversions. They are equipped with digital monitoring functions, providing edge customers with great experiences and satisfying the needs of end users.

FSP Products: CRPS 550~1200W



Consumer Electronics

The application of Digital Power Supply in traditional consumer electronics is even more diverse. Whether it's smart home appliances, computers, or smartphones, the demand for power flexibility and high efficiency has become increasingly stringent.

Future Trends of Digital Power Supply - FSP Offers Comprehensive Solutions

Digital Power Supply holds a significant position across various fields, including commercial, industrial, consumer, and other niche applications. As the pace of electronic product innovation accelerates, the application of Digital Power Supply will extend to all domains. For example, in high-demand areas such as Edge AI and data centers, FSP has introduced high-wattage power products that meet CB 62368 safety standards, which can be directly applied to ground server equipment and Edge AI-related products. FSP's power products encompass all the advantages of Digital Power Supply, enhancing performance and efficiency while offering customized firmware solutions tailored to different applications. This allows for the convenience of one-stop shopping

Conclusion

FSP offers a complete range of products and customized design services for industrial Edge AI applications, energy storage/solar power generation systems, and even enterprise-level data center applications.

FSP Power Products



FSP2400-20HM

- Low iTHD
- Working temperature: 0 to 55°C
- Design for 5,000 meters above sea level
- Support OCP, OTP and OVP circuit protection
- Short circuit protection on all outputs
- Resettable power shut down
- MTBF: 250K hours of continuous operation at 55°C, 75% output load



FSP2700-20HM

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