Power Cloud Server Solutions

AC/DC Power Supplies for Data Centers
Powering your innovation

Meet your cloud server power demands more efficiently

Our power supply products deliver high quality at a competitive cost for cloud, storage and server applications.

Expand your data center capacity with scalable power supply solutions. Our systems have high efficiency, digital control, black box recorder capabilities and proprietary firmware. Our experience designing for the data center means we have the latest processes and technologies when you need them.

Tap into our IP in power supply technology for cloud server power supply units that boost efficiency. We offer two classes of power supplies:

» Common Redundant Power Supplies (CPRS)
  - Standard Power Supplies
» Power Shelf Front End Power Supplies

Our CPRS Standard Power Supplies are designed for standard data center applications for server, storage and network equipment. They communicate with the server processor to unlock performance features.

Our Power Shelf Front End Power Supplies are designed for hyperscale data centers. They can be fully customized to deliver the highest level of power efficiency.
About Flex

Flex is the Sketch-to-Scale® solutions provider that designs and builds Intelligent Products for a Connected World™. With more than 200,000 professionals across 30 countries, in over 100 locations around the globe, Flex provides innovative design, engineering, manufacturing, real-time supply chain insight and logistics services.

Flex Power

Flex designs and manufactures AC/DC conversion products. Many of our products are designed for use in Cloud and Enterprise applications.

We are headquartered in San Jose, California and have design centers in Shenzhen, China and Austin, Texas. Manufacturing is also carried out in factories in Dongguan, China, Penang, Malaysia and Guadalajara, Mexico. The emphasis is on quality and highly automated production.

In order to support our customers globally we have a network of Technical Sales covering the Americas, Asia Pacific and Europe.

About our products

We have achieved many industry innovations in the area of Front End Distributed Power Architectures. We offer:

» Isolated AC/DC converters from 1100W to 4000W
» CRPS Products that fully comply with intel X86 requirements

Every product design is the result of extensive research and development in power technology, with a broad application and system knowledge and a focus on design for environment and design for manufacturing.

The result is:

» High efficiency over a wide load range
» High power density
» Efficient thermal management
» Low total cost of ownership over product lifetime
» Excellent dynamic load performance
» High MTBF and long lifetime

Let us help you to be successful in your business by choosing an innovative power solution.
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**Power Shelf Front End Power Supplies**

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CRPS Standard Power Supplies 12V output

Our CPRS Standard Power Supplies are designed for standard data center applications for server, storage and network equipment. They communicate with the server processor to unlock performance features.

FLEX STANDARD PRODUCTS
CRPS Standard Models

<table>
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<tr>
<th>Model</th>
<th>Input Voltage</th>
<th>Main V&lt;sub&gt;out&lt;/sub&gt;/ I&lt;sub&gt;out&lt;/sub&gt; High Line</th>
<th>Main V&lt;sub&gt;out&lt;/sub&gt;/ I&lt;sub&gt;out&lt;/sub&gt; Low Line</th>
<th>Standby V&lt;sub&gt;out&lt;/sub&gt;/ I&lt;sub&gt;out&lt;/sub&gt;</th>
<th>Chassis Dimensions (L x W x H) (mm)</th>
<th>Temp Range (°C)</th>
<th>Single / Dual Fan</th>
<th>Airflow</th>
<th>Efficiency</th>
<th>Input Connector</th>
<th>Output Mating Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPS-1600W</td>
<td>90-264 VAC</td>
<td>12V/1600W</td>
<td>12V/1000W</td>
<td>12V/3A</td>
<td>185 x 73.5 x 40</td>
<td>0 – +50</td>
<td>Single</td>
<td>N</td>
<td>Platinum</td>
<td>IEC 320 C14</td>
<td>FCI 10035388-102</td>
</tr>
<tr>
<td>FPS-2100W</td>
<td>90-264 VAC</td>
<td>12V/2100W</td>
<td>12V/1000W</td>
<td>12V/3A</td>
<td>185 x 73.5 x 40</td>
<td>+5 – +50</td>
<td>Single</td>
<td>N</td>
<td>Platinum</td>
<td>IEC 320 C14</td>
<td>FCI 10035388-102</td>
</tr>
<tr>
<td>FPS-2200W</td>
<td>90-264 VAC</td>
<td>12V/2200W</td>
<td>12V/1200W</td>
<td>12V/3.5A</td>
<td>265 x 73.5 x 40</td>
<td>0 – +55</td>
<td>Single</td>
<td>N</td>
<td>Platinum</td>
<td>IEC 320 C20</td>
<td>FCI 10035388-102</td>
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</tbody>
</table>

CRPS 1600W Server Power Supply

Main features
- AC – DC Power Supply
- Input range: 180 – 264Vac
- 1600W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- PMBus
- SMBAlert
- In-system FW Update
- Active Current Sharing on Main Output
- Hot Plug Operation
- Up to 4 power supplies parallel in either N + 1 or N + N configuration
- EEPROM for FRU data
- Indicator: 3 x LED for AC, DC & Fault
- EMI EN55022, Class A
- Dimensions: (H) 39mm x (W) 73.5mm x (L) 185mm

Key specifications

**Input**
- Rated Voltage: 200-240 AC Volts (HL)
- Operating Range: 180-264 AC Volts
- Rated Frequency: 50/60Hz

**Output**
- Rated Voltage: 12V normal (11.76-12.34V)
- Ripple Voltage: 120mV (peak to peak)
- Standby Power: 25W max.
- Power Rated: 1600W HL, 1000W LL

**Operational Temperature**
- Operation with Specifications: 0 – 50°C

**Conducted Emissions**
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A Margin to the limit > 6 dB

**Radiated Emissions**
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A Margin to the limit > 6 dB
CRPS 2100W Server Power Supply

Main features
- AC – DC Power Supply
- Input range: 180 – 264Vac
- 2100W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- PMBus
- SMBAlert
- In-system FW Update
- Active Current Sharing on Main Output
- Hot Plug Operation
- Up to 4 power supplies parallel in either N + 1 or N + N configuration
- EEPROM for FRU data
- Indicator: 3 x LED for AC, DC & Fault
- EMI EN55022, Class A
- Dimensions: (H) 39mm x (W) 73.5mm x (L) 185mm

Key specifications

<table>
<thead>
<tr>
<th>Input</th>
<th>Rated Voltage</th>
<th>Operating Range</th>
<th>Rated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200–240 AC Volts (HL)</td>
<td>180–264 AC Volts</td>
<td>50/60Hz</td>
</tr>
<tr>
<td></td>
<td>100–127 AC Volts (LL)</td>
<td>90–140 AC Volts</td>
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</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>Rated Voltage</th>
<th>Ripple Voltage</th>
<th>Power Rated</th>
<th>Standby Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12V normal (11.76–12.34V)</td>
<td>120mV (peak to peak)</td>
<td>2100W HL, 1000W LL</td>
<td>25W max.</td>
</tr>
</tbody>
</table>

Operational Temperature
- Operation with Specifications: +5 – 50°C

Conducted Emissions
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A Margin to the limit > 6 dB

Radiated Emissions
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A Margin to the limit > 6 dB

CRPS 2200W Server Power Supply

Main features
- AC – DC Power Supply
- 2200W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- CRPS features: PMBus, Closed Loop System Throttling (CLST), Smart Ride-Through (SmART), Cold Redundancy, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40mm x (W) 73.5mm x (L) 265mm

Key specifications

<table>
<thead>
<tr>
<th>Input</th>
<th>Operating Voltage</th>
<th>Rated Range</th>
<th>Rated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>180–264 AC Volts (HL)</td>
<td>200–240 AC Volts</td>
<td>50/60Hz</td>
</tr>
<tr>
<td></td>
<td>100–127 AC Volts (LL)</td>
<td>90–140 AC Volts</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>Rated Voltage</th>
<th>Ripple Voltage</th>
<th>Power Rated</th>
<th>Standby Power</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12V normal (11.4–12.6V)</td>
<td>120mV (peak to peak)</td>
<td>2200W HL, 1200W LL</td>
<td>25W max.</td>
</tr>
</tbody>
</table>

Operational Temperature
- Operation with Specifications: 0 – 50°C

Conducted Emissions
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A

Radiated Emissions
- Per CFR47 Part 15 / EN 55022 / CISPR22 Class A
Main features
- AC – DC Power Supply
- 1200W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- CRPS features: PMBus, Closed Loop System Throttling (CLST), Smart Ride-Through (SmaRT), Cold Redundancy, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40mm x (W) 73.5mm x (L) 265mm

Key specifications
- **Operating Voltage**: 180–264 AC Volts (HL) 100–127 AC Volts (LL)
- **Rated Range**: 200–240 AC Volts 90–140 AC Volts
- **Rated Frequency**: 50/60Hz
- **Rated Voltage**: 12V normal (11.4–12.6V)
- **Ripple Voltage**: 120mV (peak to peak)
- **Power Rated**: 1200W HL 1000W LL
- **Standby Power**: 25W max.
- **Operation with Specifications**: -5 – 50ºC
- **Conducted Emissions**: Per CFR47 Part 15 / EN 55022 / CSPR22 Class A
- **Radiated Emissions**: Per CFR47 Part 15 / EN 55022 / CSPR22 Class A
## CRPS 1200W Server Power Supply

### Main features
- DC – DC Power Supply
- 1200W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- CRPS features: PMBus, Closed Loop System Throttling (CLST), Smart Ride-Through (SmaRT), Cold Redundancy, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40mm x (W) 73.5mm x (L) 265mm

### Key specifications

<table>
<thead>
<tr>
<th>Input</th>
<th>Rated Range</th>
<th>40–72 DC Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Voltage</td>
<td>12V normal (11.4–12.6V)</td>
<td></td>
</tr>
<tr>
<td>Ripple Voltage</td>
<td>120mV (peak to peak)</td>
<td></td>
</tr>
<tr>
<td>Power Rated</td>
<td>1200W</td>
<td></td>
</tr>
<tr>
<td>Standby Power</td>
<td>25W max.</td>
<td></td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>Operation with Specifications</td>
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<tr>
<td>Conducted Emissions</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
<td></td>
</tr>
<tr>
<td>Radiated Emissions</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
<td></td>
</tr>
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</table>

## CRPS 2000W Server Power Supply

### Main features
- AC – DC Power Supply
- 2000W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- CRPS features: PMBus, Closed Loop System Throttling (CLST), Smart Ride-Through (SmaRT), Cold Redundancy, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40mm x (W) 73.5mm x (L) 265mm

### Key specifications

<table>
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<tr>
<th>Input</th>
<th>Operating Voltage</th>
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<tbody>
<tr>
<td>Rated Range</td>
<td>180–264 AC Volts (HL) 100–127 AC Volts (LL)</td>
</tr>
<tr>
<td>Rated Frequency</td>
<td>50/60Hz</td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>12V normal (11.4–12.6V)</td>
</tr>
<tr>
<td>Ripple Voltage</td>
<td>120mV (peak to peak)</td>
</tr>
<tr>
<td>Power Rated</td>
<td>2200W HL, 1000W LL</td>
</tr>
<tr>
<td>Standby Power</td>
<td>25W max.</td>
</tr>
<tr>
<td>Operational Temperature</td>
<td>Operation with Specifications</td>
</tr>
<tr>
<td>Conducted Emissions</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
</tr>
<tr>
<td>Radiated Emissions</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
</tr>
</tbody>
</table>
Main features
- DC – DC Power Supply
- 2000W rating load
- 80 Plus Platinum Efficiency
- OVP/UVP/OPC/SCP/OTP Protection
- CRPS features: PMBus, Closed Loop System Throttling (CLST), Smart Ride-Through (SmaRT), Cold Redundancy, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40mm x (W) 73.5mm x (L) 265mm

Key specifications

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>Operational</th>
<th>Conducted Emissions</th>
<th>Radiated Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Range: 40~72 DC Volts</td>
<td>Rated Voltage: 12V normal (11.4~12.6V)</td>
<td>Operation</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ripple Voltage: 120mV (peak to peak)</td>
<td>with</td>
<td></td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
</tr>
<tr>
<td></td>
<td>Power Rated: 2000W</td>
<td>Specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standby Power: 25W max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operation Temperature: -5 ~ 55°C</td>
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Power Shelf Front End Power Supplies

Our Power Shelf Front End Power Supplies are designed for hyperscale data centers. They can be fully customized to deliver the highest level of power efficiency.

POWER SHELF FRONT-END

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<tr>
<th>Model</th>
<th>Input Voltage</th>
<th>Main V_{out}/P_{out} High Line</th>
<th>Main V_{out}/I_{out} Low Line</th>
<th>Standby V_{out}/I_{out}</th>
<th>Chassis Dimensions (L x W x H) (mm)</th>
<th>Temp Range (°C)</th>
<th>Single/Dual Fan</th>
<th>Airflow</th>
<th>Efficiency</th>
<th>Input Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPS-4000W</td>
<td>90-300 VAC</td>
<td>54.5V/4000W</td>
<td>12V/2600W</td>
<td>12V/5A</td>
<td>530 x 69 x 40.5</td>
<td>0 ~ +45</td>
<td>Dual</td>
<td>N</td>
<td>Titanium+</td>
<td>Amphenol 10127397-07H1400LF</td>
</tr>
</tbody>
</table>

**4000W Power Shelf Front End**

![4000W Power Shelf Front End](image)

**Main features**
- AC – DC Power Supply
- 400W rating load
- 80 Plus Titanium+ Efficiency
- OVP/UVP/OCP/SCP/OTP Protection
- CRPS features: PMBus, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40.5mm x (W) 69mm x (L) 530mm

**Key Specifications**

<table>
<thead>
<tr>
<th>Input</th>
<th>Operating Voltage</th>
<th>Rated Range</th>
<th>Rated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model FPS-4000W</td>
<td>90-300 AC Volts</td>
<td>100-277 AC Volts</td>
<td>50/60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
<th>Rated Voltage</th>
<th>Ripple Voltage</th>
<th>Power Rated</th>
<th>Standby Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model FPS-4000W</td>
<td>54.5V normal (48-58V)</td>
<td>500mV (peak to peak)</td>
<td>4000W HL 2600W LL</td>
<td>60W max.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operational Temperature</th>
<th>Operation with Specifications</th>
<th>Temp Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model FPS-4000W</td>
<td>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</td>
<td>0 ~ -45°C</td>
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<table>
<thead>
<tr>
<th>Conducted Emissions</th>
<th>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</th>
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<thead>
<tr>
<th>Radiated Emissions</th>
<th>Per CFR47 Part 15 / EN 55022 / CISPR22 Class A</th>
</tr>
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</table>
Main features
- AC – DC Power Supply
- 400W rating load
- 80 Plus Titanium+ Efficiency
- OVP/UVP/SCP/OTP Protection
- CRPS features: PMBus, In-system FW Update, Black Box Compatibility Check
- Active Current Sharing on Main Output
- 6 + 1 Redundant PS
- PSU includes dual rotor fan for cooling use
- Dimensions: (H) 40.5mm x (W) 69mm x (L) 530mm

Key specifications

<table>
<thead>
<tr>
<th>Input</th>
<th>Dual inputs (Input 1 and 2) AC single phase 180Vac to 300Vac or 3 phase input (Capable of both Delta and Wye connection)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redundant</td>
<td>5 + 1 or 3 + 3</td>
</tr>
<tr>
<td>Output Power</td>
<td>24KW max, 6 4000W PSUs, 48 V_{out}</td>
</tr>
<tr>
<td>Mechanical</td>
<td>21&quot; rack, 1U - 46.5mm x 534mm x 690mm 6 PSU module slots Air flow direction — front to back</td>
</tr>
<tr>
<td>RMU Module</td>
<td>2x C13 outlets located on the back (connected to input 1 and 2 respectively)</td>
</tr>
</tbody>
</table>
For more information, please visit www.flex.com/cross-industry-technologies/power.

Headquarters

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