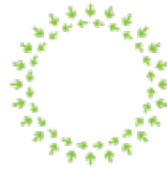


# Data Center and Open Compute Power Solutions

*Modular, Scalable, High Density and Titanium Efficiency Products*





**OPEN**  
COMMUNITY®

Murata has been developing and manufacturing a range of power products including AC-DC power supplies and DC-DC converters for various applications for more than 35 years. Recently, we have focused our efforts on power distribution sub-systems used in the emerging Data Center market. Our latest product offerings include shelf systems compliant with Open Compute V1 and V2 Power Shelf Specifications. While typical OCP Power Shelves only support 3-phase AC input, our Power Shelves support Single Phase AC, 3-Phase AC and HVDC (200-400Vdc) inputs, allowing you to achieve a leading edge, power efficient Data Center with either an AC or DC input power architecture.



### Key Components

- 21" 10U Power Shelf
- 19"/21" 2RU Power Shelf
- 3kW Titanium Efficiency Power Supply (PSU)
- ATS (Automated Transfer Switch) Modules
- RMU (Remote Management Unit)
- Battery Backup Units with Shelves

### Murata's key power shelf features:

- Up to 18kW total output power
- 15kW N+1 or 9kW N+N redundant
- 12.3V main output
- 12.2V AUX output
- PSU conversion efficiency higher than 96% at 50% of load (80Plus Titanium class)
- Available flexible input configuration (Single or 3Phase AC; HVDC)



# Open Compute and Data Center Power Solutions

The OCP power distribution topology for centralized power supply systems is an excellent solution with which you can enjoy benefits such as redundancy and expandability. Our power shelves are OCP compliant and offer leading edge performance.

## 10U Power Shelf

The MWOCES-21x Series of shelves is an 18kW, 21" 10U, power shelf that provides 18kW total output power. The shelf provides up to 15kW in N+1 or 9kW in N+N redundancy configurations. You can install up to six 3 kW PSUs in the shelf, so you can scale the total power solution according to your needs today, while offering flexibility to support what you may need tomorrow. The PSU efficiency is higher than 96% at 50% load level, one of the highest available on the market.

### Power Shelf Features

- Provides maximum power of 15kW (N+1) in 10U compact size
- Extremely high efficiency 80+ Titanium PSU (3kW). Up to 6 PSUs per shelf
- High reliability, redundant design
- OCP V1 and V2 open rack compliant
- 2 AC inputs to shelf for flexible shelf configurations (N+1, N+N)
- 2 AC outlets for additional input power to ICT equipment in the rack
- External communication interface RMU through SNMP
- Hot swappable



## 2RU Power Shelves

The MWOCES-19x Series is an 18kW, 19" (convertible to 21") 2RU, power shelf that provides up to 18kW total output power or 15kW in N+1 redundancy configuration. You can install up to six 3 kW PSUs and 2 ATS modules in the shelf.

### Power Shelf Features

- Provides up to 15kW (N+1) in 2RU height
- Extremely high efficiency 80+ Titanium PSU (3kW)
- Up to 6 PSUs per shelf
- High reliability, redundant design
- OCP V1 and V2 rack compliant
- ATS unit equipped to support high reliable AC redundancy
- 6 AC outlets for additional input power to ICT equipment in the rack
- External communication interface RMU through SNMP
- Hot swappable



## 3kW Power Supply

The MWOC74-3000-RM is an 80plus® Titanium efficient (96% at 50% of load) 3,000 Watt, power factor corrected front end power module with a 12.3Vdc main output and a 12.2Vdc (2.5A) standby. The power module has active current sharing and up to six (6) modules may be operated in an OCP shelf delivering up to 15kW, N+1 rack level power for use in the OCP Open Rack.

### Power Supply Features

- 3,030W output power *Also available in 3.2kW with dual ATS inputs*
- 12.3V main output & 12.2V standby output
- 1U height 73.5 x 550 x 40mm (2.89" x 21.65" x 1.57")
- 30.4W/cubic inch power density
- N+1 redundancy capable
- Hot pluggable
- Active current sharing on 12V main output, ORing FET isolation



## 15kW ATS (Automated Transfer Switch) Modules

In addition to basic functions, Murata offers advanced features and modules. ATS Units can also be installed in the MWOCES-19x Power Shelf. If you connect two power sources to the Power Shelf with the ATS Units, they automatically select a healthy input if one power source fails. Combining the ATS with the Battery Back-up solution, our ATS Unit can distinguish if an event is just noise or a real power loss so it does not operate unless it is absolutely necessary. Consequently, our ATS Unit has class-leading reliability.



## Remote Management Unit (RMU)

The MWOC-RMU is a Remote Management Unit for the MWOCES series OCP compliant power shelves. The MWOC-RMU can monitor and control the internal PSUs and/or peripheral equipment installed in the MWOCES-21x and MWOCES-19x via the PMBus, and can communicate with the host system via Ethernet by SNMP. The MWOC-RMU provides efficient communication and reporting for datacenter applications.

### RMU Features

- Communicates internally via PMBus
- Communicates externally via SNMP
- LED status indicators
- Two (2) RJ45 connectors
- Hot pluggable



## Battery Backup Solution

Murata offers 21" OCP and EIA 19" rack mountable battery backup solutions to support high reliability architectures. We utilize Murata's best in class Lithium Ion battery cell technology for our BBU (Battery Backup Unit). With a compact form factor, each BBU is capable of supplying 4kW for up to two minutes. The 21" OCP Battery Backup Shelf (BBS) has 4 slots for BBUs and can supply up to 16kW for two minutes in the event of an AC power loss. The BCU (Battery Control Unit) in the shelf communicates with each BBU and the power shelf to implement intelligent power system control via our Remote Management Unit (RMU). Murata's Battery Backup Solution is lighter and smaller than traditional Lead Acid batteries, improving your business in terms of maintenance, OPEX and total cost of ownership.

### BBU Features

- 4kW maximum output power
- 12V input and output voltage
- 120 seconds hold up time
- Adjustable charging power
- Active current sharing on 12V output
- Oring FET isolation
- Hot swap available
- Overvoltage, overcurrent, over temperature protection and reporting



### Battery Shelf Features

- Fits into the 21" OCP Open Rack Standard
- Up to 16kW total power per shelf (4 BBUs )
- Battery Shelf (600×537×87 mm )
- Four battery slots; each BBU provides 12Vdc, 4kW (max)
- One battery control unit for management of BBUs
- Communicates with Murata Power Shelf (MWOC series)
- Three battery shelves can be connected in parallel

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# Global locations

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## Note

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