

Power Transmission

PowerPlus Series

PowerPlus-50-Rack • PowerPlus-50-MOD

PowerPlus

PowerPlus is Raycap's solution for an intelligent power transmission to the RRH units of a wireless telecommunication site.

PowerPlus is a power conversion system, installed at the PSU output and increases its output voltage to compensate for the voltage drop on the DC power cables that feed the RRHs.



The PowerPlus System is a power conversion system for up to 12 independent high power DC circuits, with a maximum load current of 50A each, feeding new generation-high power RRH units.

The PowerPlus System contains up to 4 pluggable PowerPlus-50-MOD modules, each able to service 3 DC circuits. The module output voltage of each DC circuit is adjusted so that it keeps the RRH input voltage stable to a user configurable value by compensating the voltage drop on the power cable. The voltage drop is determined by the voltage at the power input to the RRH which is received from an RS485 communication link.

Competitive Advantages

- **PlusPowerMap™** The most advanced feature of PowerPlus is the patented auto-mapping functionality
- **Automatic circuit allocation**
No manual settings are required for the system to operate (significantly reduces installation time)
- **Uninterrupted power to the RRH**
In case of a module failure, power to the RRH is not interrupted by activating an internal by-pass circuit on the rear rack unit
- **Pluggable concept**
Plug and Play solution without power interruption to the RRH
- **Risk-free solution**
No additional risk to the site, as in case of failure there is no power interruption to the RRH
- **High efficiency**
The design of this DC to DC converter runs with increased efficiency above the standard converter designs
- **Compatible with the voltage monitoring system installed at VZW sites**
- **High output power**
The PowerPlus system can increase the voltage of up to 12 independent DC circuits of 50A each, covering all types of next generation high power RRHs.
- **Small footprint**
12 DC circuits are serviced in a 2U rack unit

Benefits of intelligent power transmission

- Eliminates the need to upgrade to larger conductors when newer generation high-power RRHs are added
- Eliminates the need to install larger size conductors for long runs of DC cables
- Increased energy efficiency to high power RRH/ AAS installations
- Prolongs battery lifetime in case of utility power outages

Power Transmission PowerPlus Series

PowerPlus-50-Rack • PowerPlus-50-MOD

Additional Features

- Reverse polarity protection
- Current limit – user configurable (default setting at 30A)
- Undervoltage protection (disconnect input when voltage is $>-40\text{Vdc}$, reconnect when voltage is $<-48\text{Vdc}$)
- LEDs for status indication and RC alarm
- LCD unit for system configuration and status/alarm display
- SNMPv3 communication for remote status/alarm/data monitoring
- Bootloader for remote firmware upgrades
- Web interface available to perform monitoring and apply settings

Alarms

Under normal operation, the PowerPlus system adjusts the output voltage of all active DC circuits to keep the RRH input voltage stable according to its setting parameters. System status LED is green and blinking every time it receives top voltage measurements through the RS485 communication port.

System alarms :

- Major alarm
System status LED is red.
The following conditions may apply :
 - Forced by-pass (corresponding DC circuit status LED turns red)
 - Undervoltage at input
 - RS485 communication loss
 - Tower OVPs address conflict
- Critical alarm
System status LED is red.
The following conditions may apply :
 - Overcurrent at output
 - Reverse polarity at input
 - Rear unit failure

SPECIFICATIONS

Power Transmission PowerPlus Series

PowerPlus-50-Rack • PowerPlus-50-MOD

Rack

DC circuit capacity Up to 12 DC circuits (3 per PowerPlus-50-MOD module)

Electrical Specifications of each DC circuit

Input voltage range	-40 to -58Vdc
Maximum input current	80A (@ -40Vdc)
Efficiency	>98%
Output voltage range	-54 to -74Vdc
Maximum output current	50A
Maximum output power	3700W (@ -74Vdc)

Environmental Specifications

Operating temperature	-40 to +65°C
Storage temperature	-40 to +70°C
Cooling	Dynamic ventilation

Mechanical Specifications

Power input	(24x) 1/4" Stud hole size, 2 Holes, 5/8" Pitch (1 each -48/RTN)
Power output	(24x) 1/4" Stud hole size, 2 Holes, 5/8" Pitch (1 each -48/RTN) (1x) Ground 1/4" Stud hole size, 2 Holes, 5/8" Pitch
Environmental ingress protection (IP) Rating	Indoor
Dimensions	23,38"x3,46"x18,98" [594mm x 88mm x 482mm]
Weight	53lbs

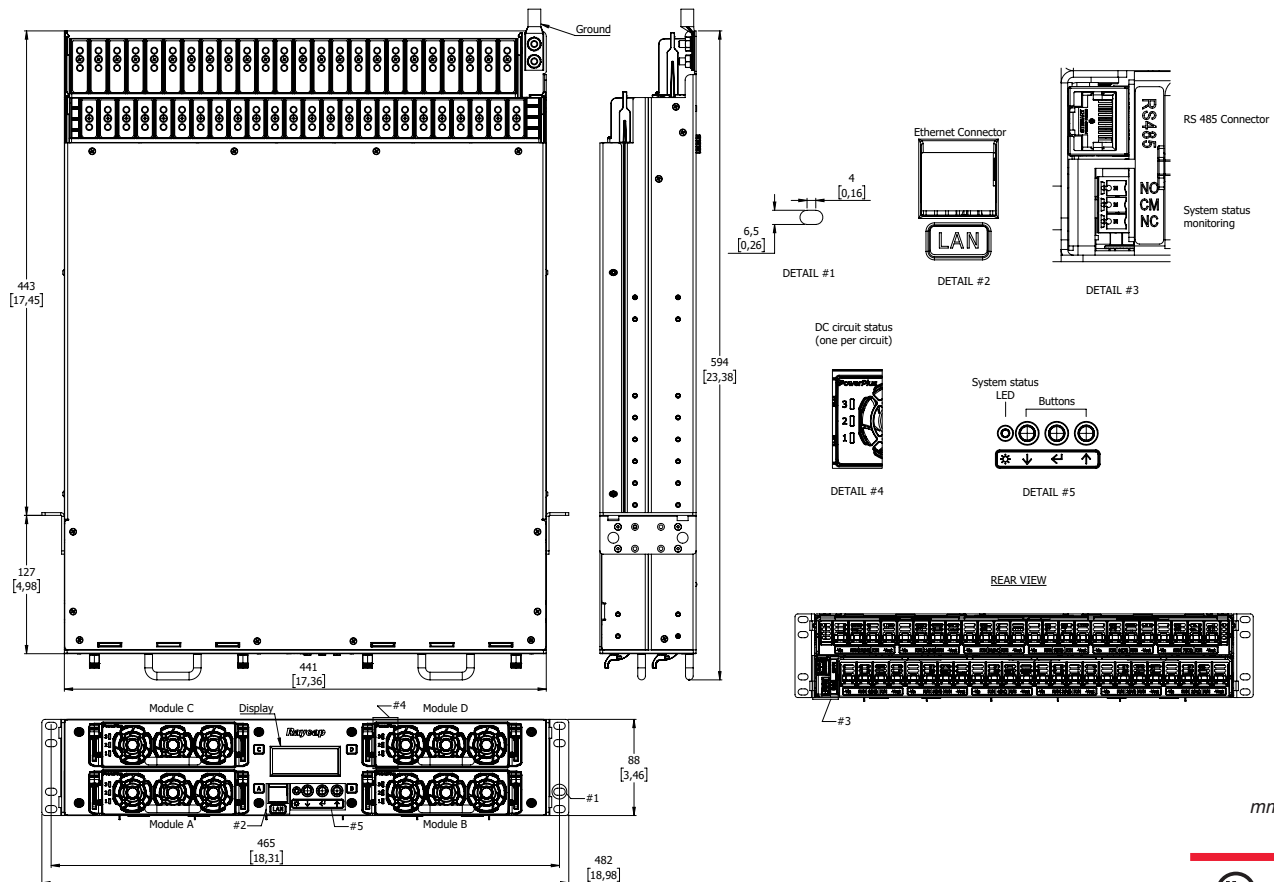
Standards Compliance

UL 62368-1, GR-3108-CORE, GR-63-CORE, GR-1089-CORE

Compliance/Certifications

CE, UL

PowerPlus System Diagram



mm [inches]



Information contained in this document is subject to change at any time without notice.

Raycap

www.raycap.com

G02-02-466 231011