



MNS RPP-V3 AWS POWER DISTRIBUTION UNIT

Next-Generation Power Distribution
for Data Center Co-location

ENGINEERED
TO OUTFIT

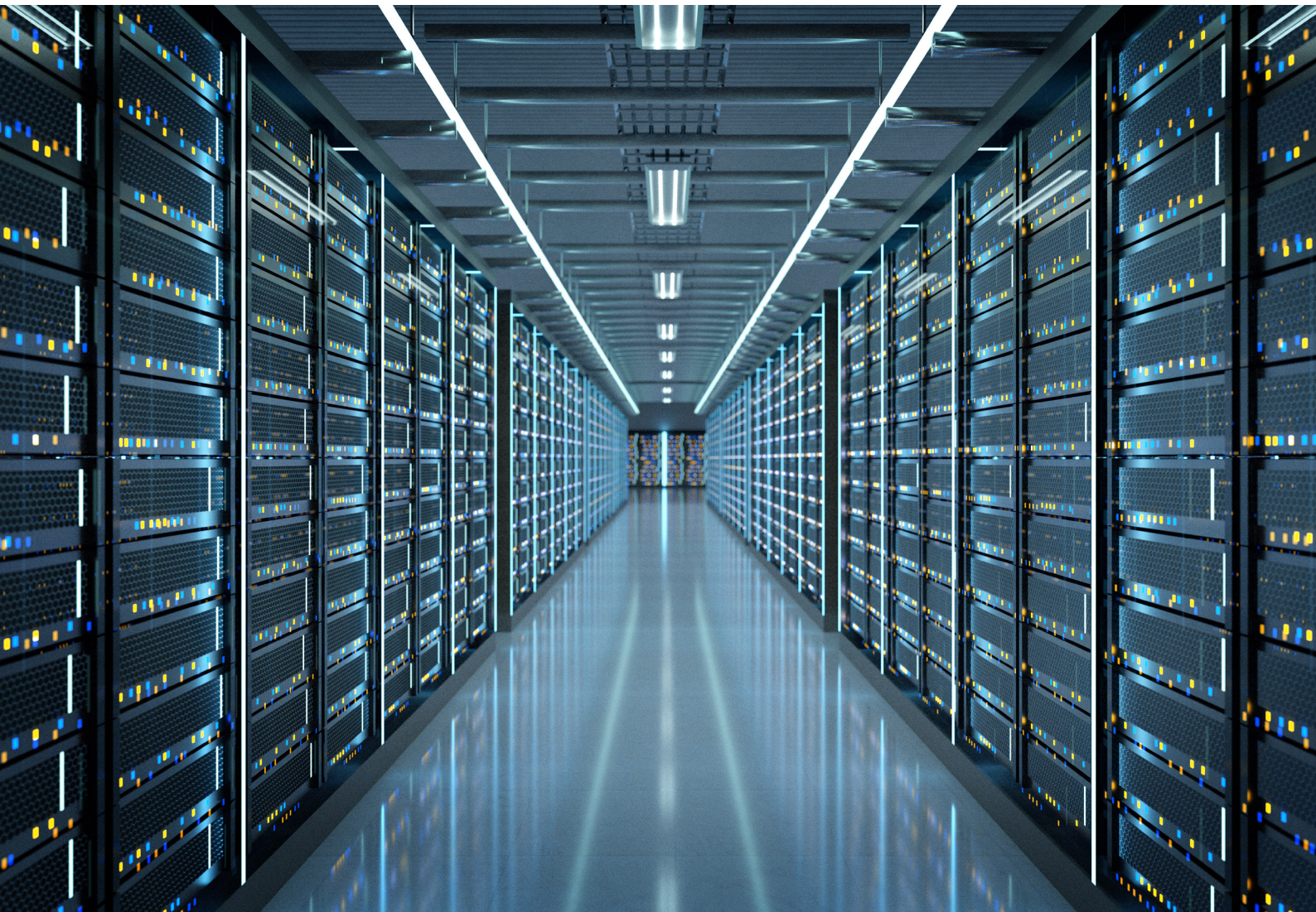


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ENGINEERED FOR MISSION-CRITICAL PERFORMANCE

The MNS RPP-V3 (Remote Power Panel Version 3) represents ABB's latest innovation in power distribution technology, purpose-built for hyperscale data center environments. Designed to meet the stringent demands of co-location facilities, the MNS RPP-V3 delivers outstanding reliability, scalability, and advanced intelligent monitoring capabilities. Based on the industry-proven MNS Compact platform, the MNS RPP-V3 is fully compliant with AWS specification 0700.206.EXT.RPPV3. specification.02.3, ensuring alignment with hyperscaler requirements while offering a robust, future-ready solution for critical power distribution.

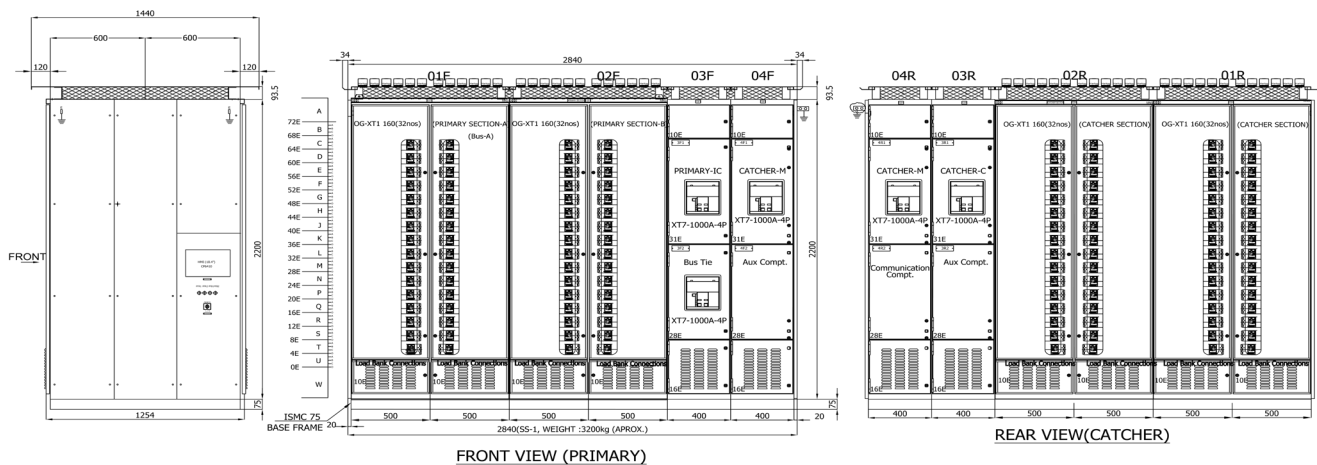


Figure 1- Standard 128 MCCBs Outgoing Solution

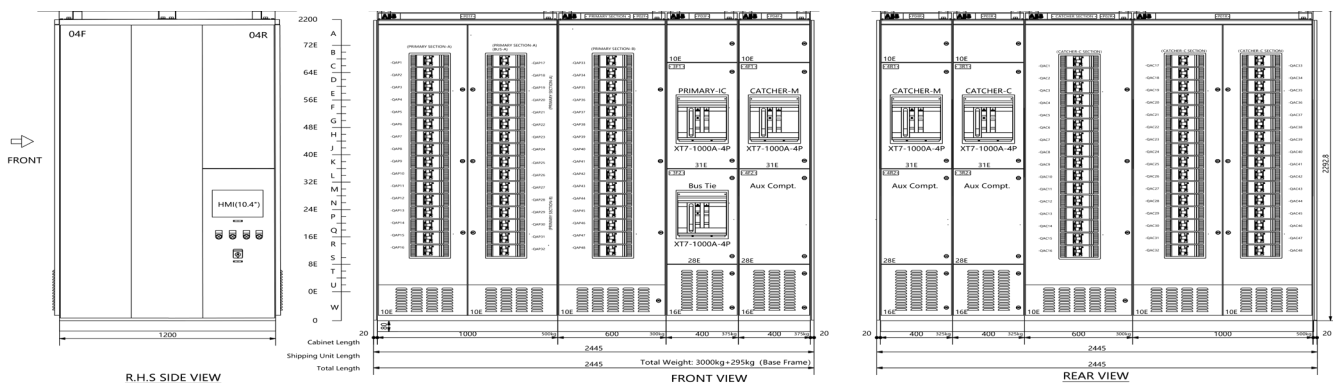


Figure 2 - Compact 96 MCCBs Outgoing Solution

The benefits of choosing MNS RPP-V3

- AWS approved make and model listed in doc. UID-0700-206
- Certified to IEC 61439 standards
- Tested to IEC TR 61641 internal arc containment
- 1000A rated capacity with 65kA fault level protection
- Modular, plug-in MCCBs for rapid maintenance
- Advanced monitoring with integrated PLC and 10.4" HMI touchscreen
- IP31 rated enclosure with optimized ventilation
- Dual primary and catcher sections for enhanced redundancy
- Real-time power monitoring and environmental sensing
- Ethernet-based communication with Modbus RTU/TCP protocol



TECHNICAL SPECIFICATIONS

The MNS RPP-V3 is engineered to deliver exceptional performance in demanding data center environments, with specifications that meet and exceed industry standards.

Electrical Performance

Voltage	240V L-N / 415V L-L, 3-Phase + N + PE
Busbar Rating	1000A (main), 750A (distribution)
Frequency	50/60 Hz
Short Circuit Rating	65kA RMS prospective fault level
Rated Current	1000 A
Configuration	Back-to-back arrangement with primary and catcher sections

Physical Dimensions & Environment

Dimensions	2840mm (L) × 1440mm (W) × 2428mm (H) – standard version with 128nos. outgoing MCCBs or 2440mm (L) × 1440mm (W) × 2428mm (H) – compact version with 96nos. outgoing MCCBs.
Environment Limit	
Enclosure Rating	IP54 (top), IP31 (sides)
Operating Temperature	-5°C to +40°C (average 24hr: +35°C)
Humidity	50% RH at 40°C, 90% RH at 20°C (non-condensing)
Altitude	Up to 2000m above sea level
Paint Finish	RAL9005 (Primary), RAL3015 (Catcher)
Ventilation	Natural or forced ventilation options
Power Entry	Busduct from Top (incomer)/Cable from Top (outgoing)
Plinth	75mm
Arc Containment	IEC TR 61641



ADVANCED FEATURES FOR MODERN DATA CENTERS

Protection & Safety

The MNS RPP-V3 incorporates multiple layers of protection to ensure continuous operation and personnel safety:

- ABB Tmax XT7 MCCBs with Long Time, Short Time, and Instantaneous trip protection
- ABB XT1 MCCB Plug-in type with thermal-magnetic protection
- Bus tie disconnect switches for flexible power routing
- Integrated surge protection devices (SPD) to IEC 61643-11
- Electrical interlocking
- Auxiliary contacts for comprehensive status monitoring
- Form 4A (incoming) /Form 2b (outgoing) separation for enhanced safety



Intelligent Monitoring & Control

Real-time visibility and control capabilities ensure optimal performance and rapid response to any condition:

- 10.4" TFT HMI touchscreen for local monitoring and control
- ABB SCU200 and Janitza UMG 801 power monitoring modules
- High-accuracy metering: CMS sensors (0.5%), voltage/current (1%), power (2%)
- Branch circuit monitoring for all outgoing feeders
- Environmental sensors for temperature and humidity tracking
- PLC-based control system with remote I/O modules
- Ethernet connectivity with managed switches for EPMS integration
- Modbus RTU/TCP protocols for seamless BMS integration



BENEFITS FOR CO-LOCATION OPERATORS

The MNS RPP-V3 delivers tangible operational advantages that translate directly to improved uptime, reduced maintenance costs, and enhanced scalability:



Rapid Deployment

Pre-engineered, tested, and certified units reduce installation time and commissioning effort, available globally from multiple approved manufacturing facilities



Operational Visibility

Comprehensive monitoring enables predictive maintenance and energy optimization



Simplified Maintenance

Plug-in MCCBs enable hot-swapping without system shutdown



Compliance Assured

Full IEC 61439 certification and thermal load testing documentation



Enhanced Reliability

Dual primary and catcher sections provide N+1 redundancy for critical loads



Complete Documentation & Support

Each MNS RPP-V3 unit includes comprehensive documentation to support installation, operation, and maintenance:

- Operation and Maintenance Manual
- Installation and Start-Up Guide with completed commissioning records
- Factory Test Reports including thermal load testing
- Complete panel schematics and wiring diagrams



REMOTE CATCHER CONTROL PANEL (RCCP) / MANUAL CATCHER CONTROL PANEL (MCCP)

The MNS RPP-V3 system incorporates an advanced Remote Catcher Control Panel (RCCP), also referred to as Manual Catcher Control Panel (MCCP), designed to provide centralized monitoring and control capabilities for data center power distribution. This intelligent control system enables seamless load transfer between multiple incoming power feeds and ensures optimal power resilience.

RCCP/MCCP System Functions

- **Centralized Control:** Provides unified control interface for managing multiple MNS RPP-V3 units across the data center infrastructure.
- **Breaker Status Monitoring:** Real-time monitoring of primary (Q1, Q2) and catcher (Q3, Q4) breaker states including open, closed, and tripped conditions.
- **Remote Load Transfer:** Enables automatic or manual transfer of critical loads between primary duty supplies and redundant catcher supplies via bus tie controls.
- **Advanced Interlocking:** Implements electromechanical interlocks ensuring safe operation by preventing simultaneous closure of incompatible breaker combinations (Q1/Q2 together with bus tie, or Q3/Q4 together).
- **Modbus TCP/IP Communication:** Supports Modbus TCP/IP and RS485 protocols for seamless integration with Building Management Systems (BMS) and Energy Management Platforms (EPMS).
- **Multi-Master Support:** Accommodates up to 5 simultaneous Modbus TCP/IP masters, enabling integration with multiple monitoring and control systems.
- **Redundant Power Supplies:** Features dual 24VDC power supplies (primary UPS-backed and catcher-backed) with 60-second ride-through buffer modules for uninterrupted operation.
- **Environmental Monitoring:** Continuous monitoring of SPD (Surge Protection Device) alarms, temperature, ventilation status, and load bank access conditions.

RCCP/MCCP System Architecture

The RCCP/MCCP comprises the following core components:

- **Dedicated PLC/DDC Controller:** Manages all control logic, interlocking, and communication protocols.
- **Network Switch:** Provides Modbus TCP/IP connectivity with segregation from primary EPMS networks.
- **Remote IO Modules:** Distributed at each RPP for local monitoring and control of breaker operations.
- **15" TFT HMI Display:** Full graphical interface with web-based access for operator control and status visualization.
- **Redundant Power Architecture:** Dual 24VDC supplies with buffer modules ensuring 60-second ride-through capability.

ABB RCCP/MCCP Key Components

The ABB RCCP/MCCP solution integrates industry-leading components specifically selected for reliability, performance, and global compliance. Each component is designed to work seamlessly within the control architecture, ensuring optimal system performance and long-term operational stability.

1. ABB PLC Controller

- CPU with 8MB user memory for extensive control logic and data storage.
- Dual Ethernet ports supporting redundant network configurations.
- 24VDC power supply with high noise immunity.
- Spring-type terminal connections for maintenance free operation.
- 8GB memory card for program backup and data logging.
- Supports Modbus TCP/IP master/slave functionality.
- Real-time operating system for deterministic control response.

2. ABB Human Machine Interface

- 15-inch TFT color display with 65K color depth for clear visualization.
- 150MB user memory for graphical interfaces and data storage.
- Touch screen operation with intuitive graphical interface.
- Web-based access capability for remote monitoring.
- 24VDC power supply with low power consumption.
- Front-panel mounted for operator accessibility.
- Password protection for secure access control.
- Auto-sleep function after 5 minutes of inactivity (unless alarms active).

3. Industrial Ethernet Switch

- 10-port Layer-2 managed switch for advanced network control.
- 8 × RJ45 ports (10/100 Mbps) for copper Ethernet connections.
- 2 × Fiber Optic (FO) ports (10/100 Mbps, Multi-Mode) for long-distance communication.
- 24VDC power supply with industrial-grade reliability
- DIN rail mounting for compact installation.
- VLAN support for network segmentation and security.
- Ring topology support for network redundancy.

4. Redundant Power Supply Units

5. ABB Buffer Modules

6. Diode OR-ing Unit

7. Line Interface Unit (LIU)

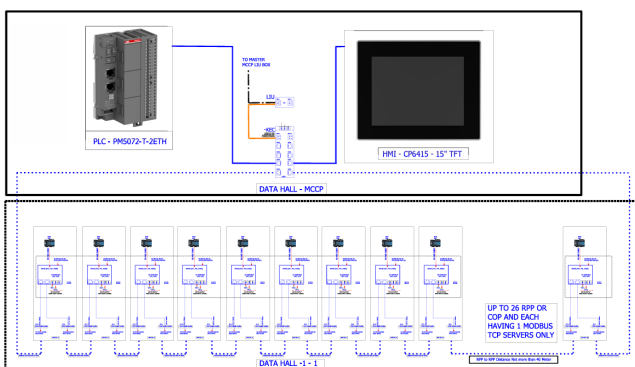


Figure 3- DataHall MCCP

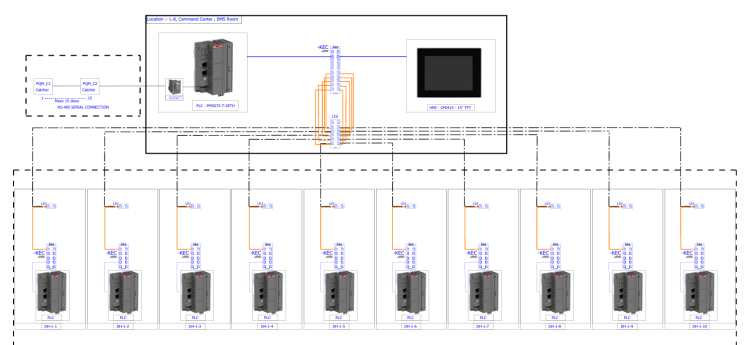


Figure 4- Master MCCP

Operational Modes & Safety Features

RCCP/MCCP Operation Modes:

- Manual Mode: Operators control breaker operations and load transfers via HMI interface with password protection
- Remote Monitoring: Real-time status updates and alarm notifications for all connected MNS RPP-V3 units
- Load Bank Testing: Support for safe load bank testing with dedicated connection points and monitoring

Safety Features:

- Password-Protected Access: Ensures only authorized personnel can execute critical control operations
- Hardware Interlocks: Electromechanical interlocks prevent unsafe breaker configurations at the hardware level
- Status Feedback: Continuous confirmation of breaker position through auxiliary contacts and digital status inputs
- Alarm Management: Comprehensive alarm monitoring for SPD activation, temperature exceedances, power supply failures, and emergency conditions
- Network Segregation: Isolated control network prevents interference with primary EPMS infrastructure

BACOP Functionality Integration

The RCCP/MCCP supports Busbar Automatic Circuit Operation Protocol (BACOP) functionality, enabling:

- Automatic bus tie control for seamless power transfer between redundant feeds
- Coordination with physical interlocks to ensure safe operation during automatic transfer scenarios
- Support for planned maintenance operations with minimal impact on active loads
- Compliance with industry standards (IEC 61439) for switchgear and control panel design

Integration & Deployment Benefits

The RCCP/MCCP significantly enhances the AWS RPP-V3 solution through:

- Seamless BMS/EPMS Integration: Modbus TCP/IP and RS485 connectivity enables real-time data exchange with facility management systems
- Scalability: Support for multiple MNS RPP-V3 units allows centralized control of distributed power infrastructure across large data centers
- Operational Efficiency: Reduces manual intervention through automated load transfer and centralized monitoring
- Predictive Maintenance: Real-time status and alarm data support predictive maintenance strategies, reducing downtime risk
- Future-Ready Design: Segregated network architecture and Modbus support ensure compatibility with emerging data center technologies

Contact ABB for More Information

To learn more about the MNS RPP-V3 Power Distribution Unit and how it can enhance your data center infrastructure, contact your local ABB representative or visit:

www.abb.com/datacenters

ABB is committed to delivering innovative power distribution solutions that meet the evolving needs of mission-critical facilities worldwide.