Pulsar 200: Next-Generation DC System Controller

Modular by Design. Smarter by Function. Trusted Cybersecurity. Future-Ready Architecture.

Product Description

OmniOn Power's Pulsar 200 redefines intelligent DC system control for both small and large power plants. Its robust, modular design with hot-swappable expansion ensures your system can scale as your needs evolve. Advanced cybersecurity supports industry-standard protocols (SNMP, MQTT, RADIUS, TACACS+, SAML, OAuth, and more), while dual 1GbE WAN ports and multiple connectivity options (LAN, USB, Wi-Fi/Bluetooth, Cellular 4G/5G) provide flexible, redundant access.

Integrated smart monitoring covers dynamic load management, advanced battery health, and remote diagnostics. For comprehensive site oversight, an add-on remote monitoring module aggregates and normalizes data from generators, HVAC, security, and environmental sensors - eliminating the need for separate hardware. This module's embedded edge firmware natively supports driver files, enabling seamless communication with over 150 vendors and models of third-party devices. This unified approach maximizes energy efficiency and system availability, making the Pulsar 200 ideal for mission-critical facilities.

All of this is secured by a **zero-trust security architecture**, designed to align with IEC 62443-4-2 and FIPS 140-3 standards. Secure Boot, hardware-backed encryption, and TrustZone®-based isolation ensure every connection is authenticated and every transaction protected by default.

Key Features

Uncompromising Cybersecurity: Pulsar 200 features a zero-trust security architecture, aligning with rigorous industry standards like IEC 62443-4-2 and FIPS 140-3. Secure Boot, hardware-backed encryption, and Trust Zone®-based isolation authenticate every connection and protect every transaction by default.

Reliable, Always-On Connectivity: Dual 1GbE WAN ports, Wi-Fi, Bluetooth, and optional 4G/5G cellular modules provide continuous connectivity. A RESTful API and built-in integration with major Network Operations Centers (NOCs) and asset platforms ensure uninterrupted system access.

Advanced Energy & Battery Management: Supports intelligent monitoring of both VRLA and lithium chemistries. Native integration with leading Battery Management Systems (BMS) optimizes efficiency, extends battery life, and maximizes system availability.

Optional Remote Monitoring: An optional monitoring module consolidates data from generators, HVAC, security, and environmental sensors. This single platform approach simplifies oversight, reduces service visits, and accelerates fault resolution.

Flexible Modular Expansion: Hot-swappable modules connect directly to the base unit or via CAN bus, enabling on-demand customization. The modular ecosystem supports scalable I/O and real-time visibility of diverse on-site assets.

Intuitive Touchscreen Control: A 5" color touchscreen provides a clear interface for live schematics, alarms, and site views. Guided setup, task wizards, and real-time alerts simplify operation and deliver actionable insights at a glance.

Comprehensive Protocol Support: Ensures secure communication and access management with support for HTTPS, SSHv2, SNMPv3, RADIUS, TACACS+, SAML, OAuth, and role-based access control.

Future-Ready by Design: Built of open standards with socketed core components, Pulsar 200 can adapt to future technology updates. Wide protocol support ensures seamless integration with evolving devices and networks.

Pulsar 200 Technical Specifications

Input	
Operating Voltage	18 - 60 V_{DC}
Protection	Low voltage, over-current, input transients (±15%), reverse polarity protections.

General	
Operating temperature	-40 to +75°C[1]
Storage temperature	-40 to +85°C
Relative humidity	5 to 95%
Altitude	0 to 4000m

Standards	
Safety	UL 62368, UL 1801 Issue 3
EMC	EN 55032, EN 55035, relevant clauses
Environment	RoHS 10 Compliant
MTBF	> 1 million hours at 25°C per Telcordia SR232 Issue 4

Controller Base
– 5” LCD touch screen with highly visible light bar for system and alarm status indication.
– iMX Dual-Core, 1GB RAM, 8GB Storage.
– Dual Gig WAN: High-Speed, Redundancy, Network Segmentation.
– Dedicated Rectifier Communication Port.
– Dual RS-485 (Modbus) ports: variable baud rates, master/slave configurable.
– Dual CAN bus ports.
– Console: 100Mbps Ethernet, USB (Upgrade/Setup/ Data). MicroSD slot: 128GB (Logs, Alarms, Config, Raw Data).
– Built-in buzzer with different cycles/intensity for alarm and event notifications

Notes

- [1]Temperature will be degraded based on optional monitoring and remote monitoring load.

IO Module	P1A	P1B	P2A
Voltage Inputs	2	2	4
Current	2	2	4
Alarm Inputs	6	6	12
Relay Outputs	6	6	12
1-wire Temp. Input	25	25	25
1-wire Humidity Input	2	2	2
Integrated LVD	No	Yes	No

Remote Monitoring Modules (Optional)	M500	M1000
R485 – 3pin (Modbus)	2	-
1 Giga Ethernet Ports	-	4
SFP Copper/Fiber	-	1
Power-over-Ethernet Ports, PoE+ or 30W each	-	-
Alarm Inputs	24	-
USB Port	1	1
Analog/Digital Inputs		
• 0 - 10V	2	-
• 4 – 20mA	2	-
DC Power Outputs		
• 0 - 5V (max. 50mA)	2	-
• 0 - 12V / 24V (max. 100mA)	2	-

Remote monitoring modules support data aggregation from -

DC Power Systems	Grid – AC power
Diesel Generator / Fuel Tank	PoE Cameras
Automatic Transfer Switch (ATS)	Environment
Energy Storage Systems	Power IoT sensors
Heat Exchanger	Cooling
Analog/Digital sensor inputs	Cellular connectivity

Pulsar 200 Ordering Information

Part Number	Description
1600481722A	Controller Base Unit: Door-mounted controller with 5-inch LCD touchscreen.
1600481724A	P1A Standard I/O Module: 2x voltage inputs, 2x current inputs, 6x NO/NC alarm inputs, 6x Form C relays, CAN interface, 1-wire temp/humidity inputs.
1600483525A	P1B Standard I/O Module: Same as P1A, plus integrated Low Voltage Disconnect (LVD)
1600481725A	P2A Extended I/O Module: 4x voltage inputs, 4x current inputs, 12x NO/NC alarm inputs, Form C relays, CAN interface, 1-wire temp/humidity inputs.
Options	
1600485010A	2-LVD Module: Dual Low-Voltage Disconnect module (CAN bus). Requires EMH01.
1600485011A	M500 – Monitoring Module: Extends site visibility by integrating diverse alarms, sensors, and control points into a single platform.
1600481726A	M1000 – Ethernet Module: Expands networking flexibility with additional high-speed Ethernet and fiber options.
1600482560A	EMH01 Module Holder: 1-slot holder for door mounting.
1600485015A	EMH04 Expansion Backpack: 4-slot expansion, mounts to controller rear or other locations (e.g., GPS door).
1600482561A	EHM07 Expansion Module: 7-slot unit, fits 19" or 23" rack; 23" ears pre-installed, 19" ears ship loose
1600485012A	Voltage Monitoring Module: 6x voltage measuring channels, 0-60 Vdc.
1600485013A	Shunt Monitoring Module: 6x shunt voltage measuring channels, -200mV to +200mV.
1600487637A	Binary Input Module: 6x measuring channels, polarity sensitive dry contact inputs.
1600487638A	Temperature Monitoring Module: 6x measuring channels, -40°C to +125°C, Input types: Thermocouple, RTD (Pt100, Pt1000)
1600483530A	USB Dongle Support Bracket with integrated electronics – Wi-Fi/Bluetooth Ready (Dongle not included)
Software Options	
1600487608A	Software for advanced control and optimization of power consumption through load shifting, based on demand.
1600487609A	Provides communication capabilities with several Lithium Battery Management Systems.
1600487672A	Radius Module - Integrates Radius authentication for secure network access.
1600487673A	TACAS+ Module - Integrates TACACS+ authentication for enhanced network device management.
1600487674A	SAML Module - Enables SAML-based Single Sign-On (SSO) for streamlined user authentication.
1600487675A	KAFKA Telemetry - Facilitates real-time data streaming and telemetry through Kafka integration.

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