Remote Monitoring Solution for Backbone Network Using AC-DC Power Supply

Overview

BENNING´s microprocessor based monitoring and control system MCU 2500 offers a user friendly and flexible solution for the integration of AC and DC power systems into a network management system.

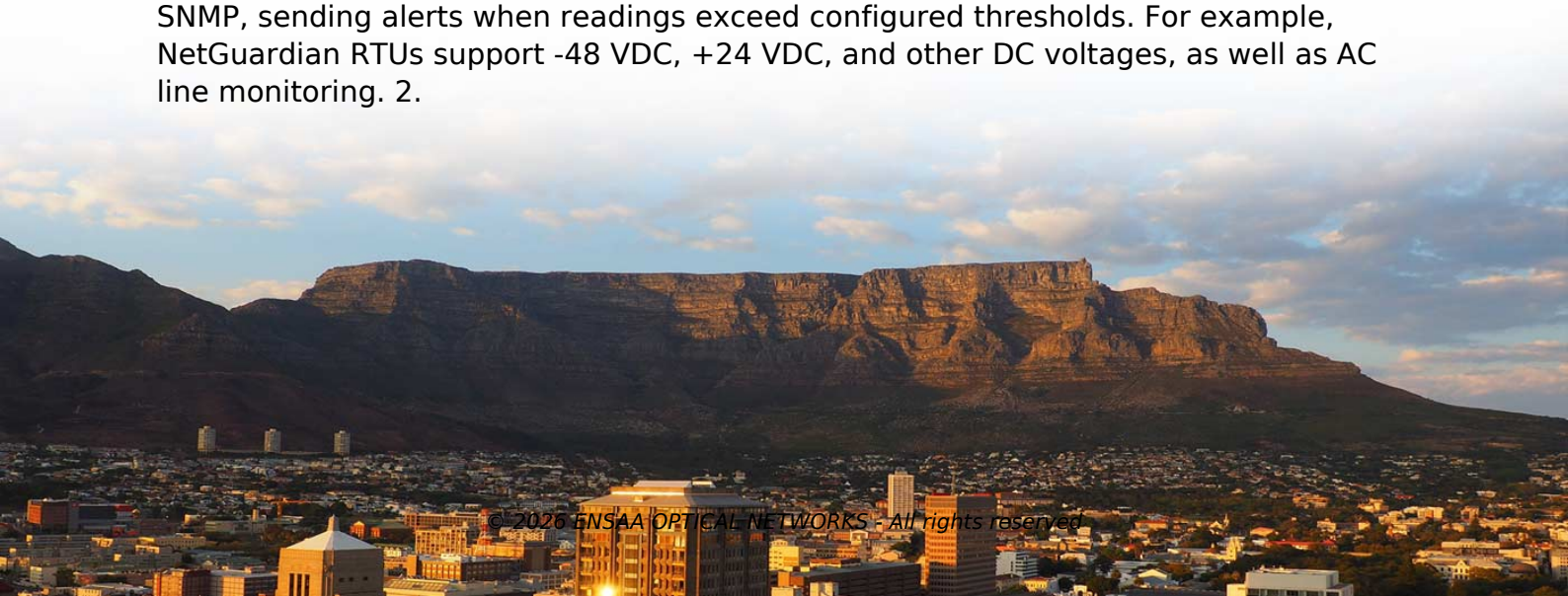
Key Takeaways

A robust remote monitoring solution for backbone networks combines AC-DC power monitoring, RTUs, modular metering, and centralized alarm management to ensure real-time visibility and fault detection. Key Components of the Solution1. Remote Terminal Units (RTUs) and Sensors RTUs are installed at each network site to monitor AC and DC power sources, including rectifiers, battery plants, and generators.

They collect real-time data on voltage, current, battery state, generator status, and environmental conditions.

RT

Us can interface with analog inputs, contact closures, and protocols like Modbus or SNMP, sending alerts when readings exceed configured thresholds. For example, NetGuardian RTUs support -48 VDC, +24 VDC, and other DC voltages, as well as AC line monitoring. 2.



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Modular Power Monitoring Systems Systems like Socomec DIRIS Digiware provide a flexible, modular approach to monitor both AC and DC circuits. Modules can measure branch circuits, current, voltage, and power quality, and communicate via RS485 or Ethernet. Digital and analog inputs allow integration with environmental sensors, protective devices, and multi-utility meters.

Centralized software like WEBVIEW enables visualization, historical analysis, and alarm management across all connected devices. 3. Centralized Alarm Management For networks with multiple sites, a central alarm master aggregates data from all RTUs and monitoring modules.

It provides a geographic map view, supports escalation procedures, and integrates with existing network management platforms such as SolarWinds, IBM OpenView, or SCADA systems. Alerts can be sent via email, SMS, or SNMP traps to ensure rapid response to power anomalies. 4.

AC-DC Power Conversion and Safety Some solutions, like the Panduit Fault Managed Power System (FMPS), convert standard AC input (110/220V or 208V) into high-voltage DC and deliver it via pulse current waveforms. This approach allows rapid fault detection, such as line-to-earth or short circuits, and can halt power transmission almost instantaneously to prevent damage. 5.

Remote Control and Maintenance Advanced panels, such as the Centri Series DP 10i, allow remote on/off control, fuse reset, and monitoring of load circuits. Weatherproof enclosures with battery backup and low voltage disconnect ensure continuous operation even in harsh environments.

Implementation Considerations

Scalability: For fewer than 10 sites, RTU web interfaces may suffice; larger networks require a central aggregator. Integration: Ensure compatibility with existing network management platforms and protocols. Alerting: Configure thresholds for AC/DC voltages, battery levels, and generator status to trigger automated notifications.

Data Analysis: Use historical data to predict failures and optimize maintenance schedules. Safety: Employ fault-managed power systems to prevent hazards and protect equipment.

Conclusion

A comprehensive remote monitoring solution for backbone networks using AC-DC power supply combines RTUs, modular metering, centralized alarm management, and fault-managed power delivery. This setup ensures continuous monitoring, rapid fault detection, and integration with existing network management systems, enhancing reliability and reducing downtime across critical infrastructure.

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Article Content

Remote monitoring system MCU 2500 (Monitoring Control Unit

BENNING´s microprocessor based monitoring and control system MCU 2500 offers a user friendly and flexible solution for the integration of AC and DC power systems into a network management system.

Power metering & monitoring for AC & DC systems

A complete solution from current sensors to software. The only system combining power monitoring, power quality and residual current monitoring.

Platinum Series AC/DC Power Supply with Battery Management »

Allows remote monitoring of power supply conditions. Remote management features include turning DC outputs off and on, adjusting output voltage and current-limit settings, and configuring Email alarm

Packet Power

Capturing energy usage on circuits ranging from 20 to 3,000 Amps on 5-24V, 48V and 200-380V DC systems, Packet Power''s self-configuring wireless mesh network offers an easy, cost-effective

Remote site monitoring solution

Monitor your sites remotely with Multitel''s FUSION remote telemetry unit (RTU). Our RTU allows you to get real-time visibility on power and cooling infrastructure. Elevate your monitoring capabilities to

Remote Monitoring Card » Helios Power Solutions Group

RMS-300 has ping monitor software that allows you to monitor network devices and alert you to failure and possibly power cycle the device. Monitor all this

Battery & Rectifier Monitoring for Remote Sites | DPS

Our cohesive power monitoring solutions will help you guarantee dependable uptime for your operations. By combining devices like the T/Mon SLIM master station with the BVM G3 (Battery

Telecom Power Supply Systems

BENNING has been supplying battery-based AC and DC power supplies to various mobile and fixed network operators worldwide for decades and has invested heavily in the development of highly

AC & DC Power Monitoring System for Electrical Installations

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Master your electrical installation and improve your energy performance with the most versatile and intelligent power monitoring system available.

AC DC Power Monitor Dual Relay Voltage Frequency Current Measure

The AC & DC Voltage & Current Monitor measures and reports AC and DC voltage, and reports AC and DC current measured with attached Hall-Effect transducers (sold separately) to the E-2D/5D/16D unit.

Power Monitoring & Control | Remote Site Monitoring | Circuit Breaker ...

Centri Series EH-MU Centri Series EH-MU provides weatherproof power supply with Low Voltage Disconnect and Batter Back-up, housed in a fibreglass NEMA 4X enclosure, which is dust-proof and

Design of Remote Monitoring System for Substation DC Power Supply

Design of Remote Monitoring System for Substation DC Power Supply under the Background of Big Data Jiyu Wang 1,*, Qigen Zhao, Qiang Ye 1 Yunnan Power Grid Co. Ltd,

Selecting a remote power monitoring system the easy way

Monitoring for every link in your power supply chain: If you want complete visibility of your remote site power supplies, you need a system that monitors everything - commercial power availability, battery

Towards medium voltage hybrid AC/DC distribution Systems:

In the hand-to-hand configuration of hybrid AC/DC distribution network, the AC and DC subsystems are connected in parallel, and both systems simultaneously supply power to the load.

An optimization model for identifying backbone networks to enhance

The proposed approach offered an efficient and effective solution by taking account of load classification, network topology requirements, and substation capacities. It also incorporates the

Power solution architecture for telecommunication site. DC: direct ...

DC: direct current, AC: alternating current, PV: photovoltaic. from publication: Design And Development of a Remote Monitoring Agent For Energy Service Companies In The Telecommunication Industry ...

A Better Solution for Remote DC Power Control

A Better Solution for Remote DC Power Control In any application that includes electronic devices located in remote, off-site equipment cabinets, DC power is usually the obvious solution for powering

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Remote Power Monitoring for Maintenance Managers | Fluke

How to perform 24/7 remote power monitoring and simultaneously measure all legs of three-phase power for motors, generators, or electrical cabinets.

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