alpais

battery monitoring system

CONTROL AND MANAGE YOUR BATTERIES

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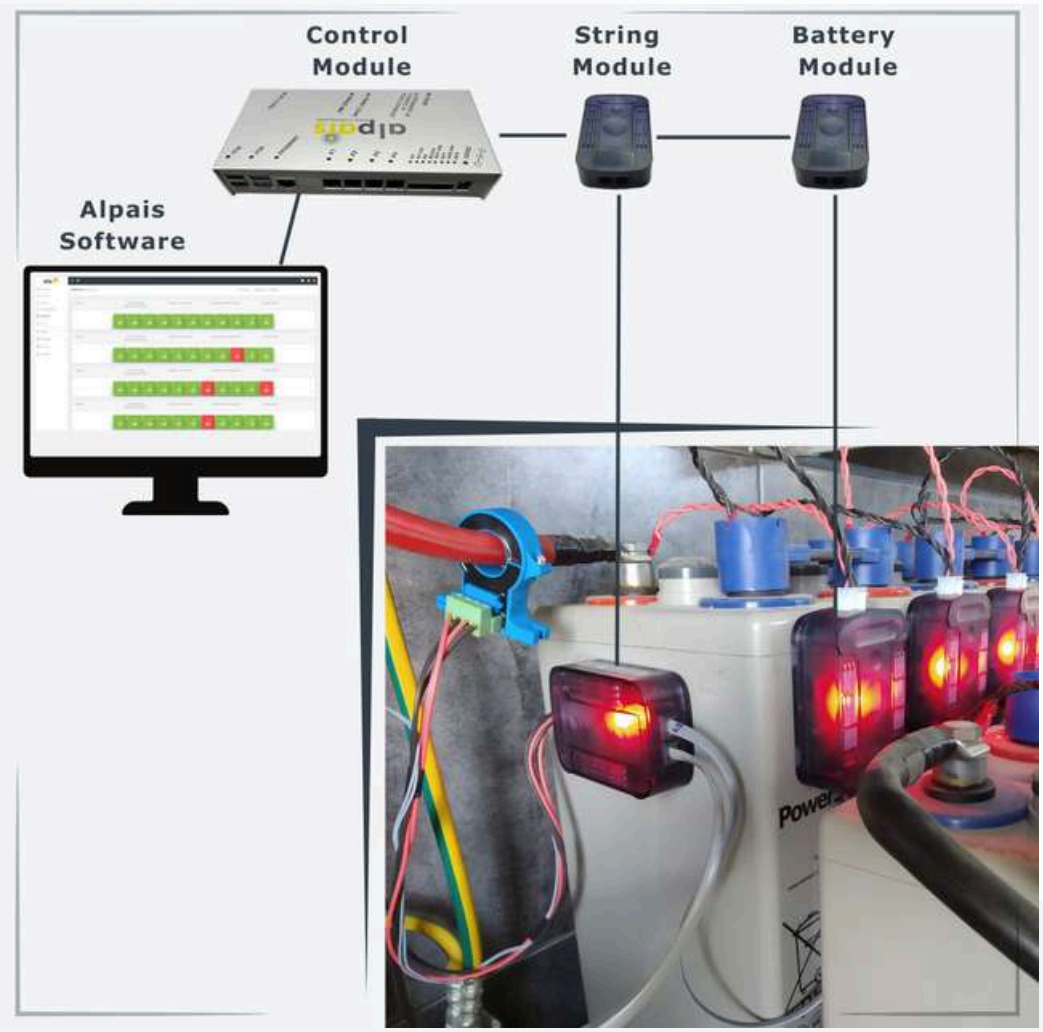
Battery failures remain one of the leading causes of unexpected downtime.

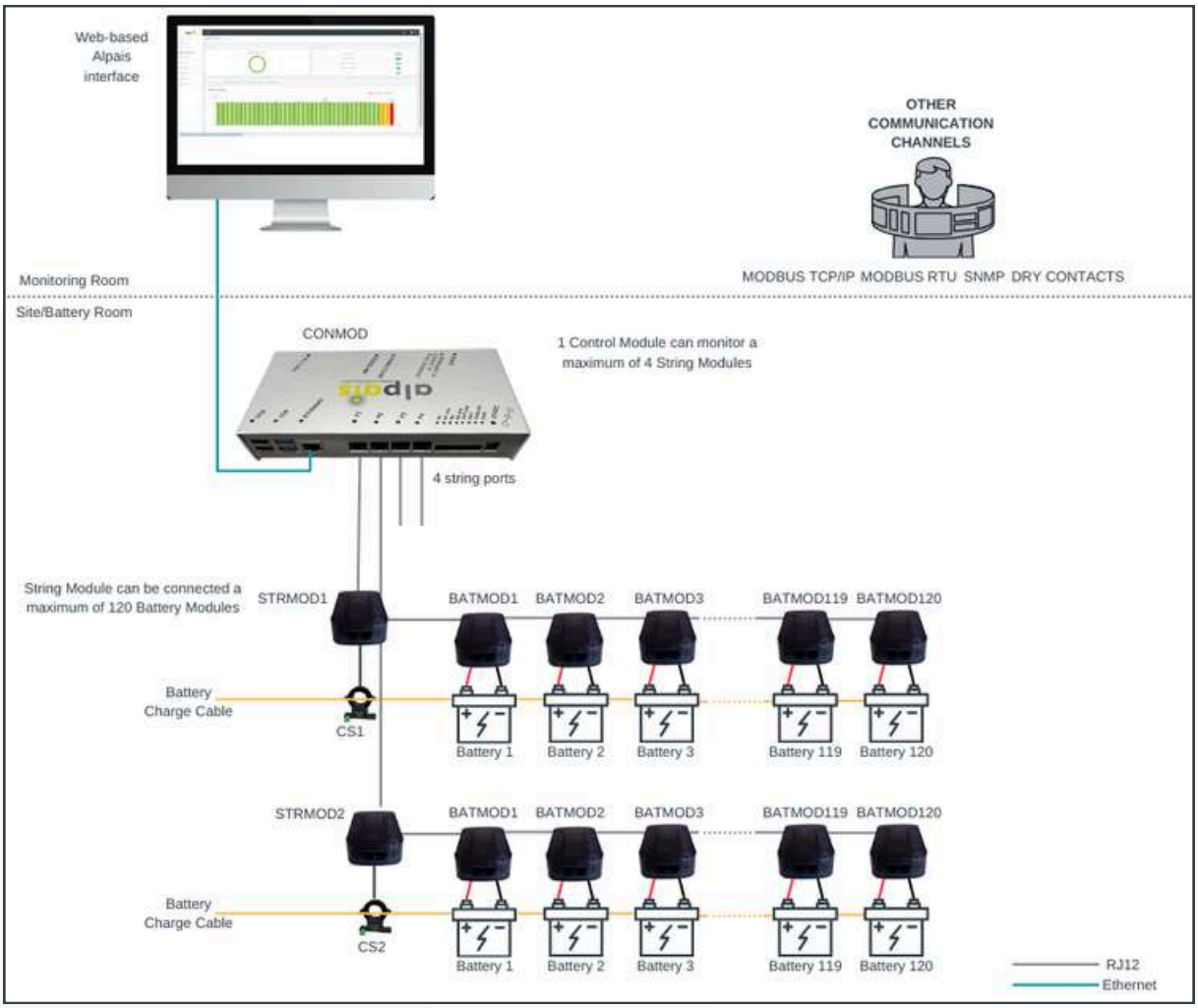
Battery systems operate under demanding conditions and often fail without visible warning signs. Manual inspections, periodic maintenance, and standalone measurements are not sufficient to detect early-stage degradation, hidden cell failures, or environmental risks. As a result, critical facilities remain exposed to unplanned outages, safety risks, and shortened battery lifespan.

Alpais continuously monitors battery systems to prevent failures before they occur.

Alpais Battery Monitoring System provides continuous, real-time visibility into individual batteries, strings, and environmental conditions. By detecting abnormal behavior at an early stage, Alpais enables proactive maintenance, eliminates human error, and helps ensure maximum availability of backup power systems. This approach extends battery lifetime, improves operational reliability, and reduces the risk of unexpected downtime.



GENERAL SYSTEM ARCHITECHTURE



SYSTEM MAIN COMPONENTS

Control Module

The central unit that collects, processes, and manages all battery data. With its embedded server and pre-installed software, commissioning is fast and no external PC or server is required.

Battery Module

Provides cell-level visibility by continuously measuring voltage, internal resistance, and temperature. Early detection of weak or failing batteries enables proactive maintenance.

String Module

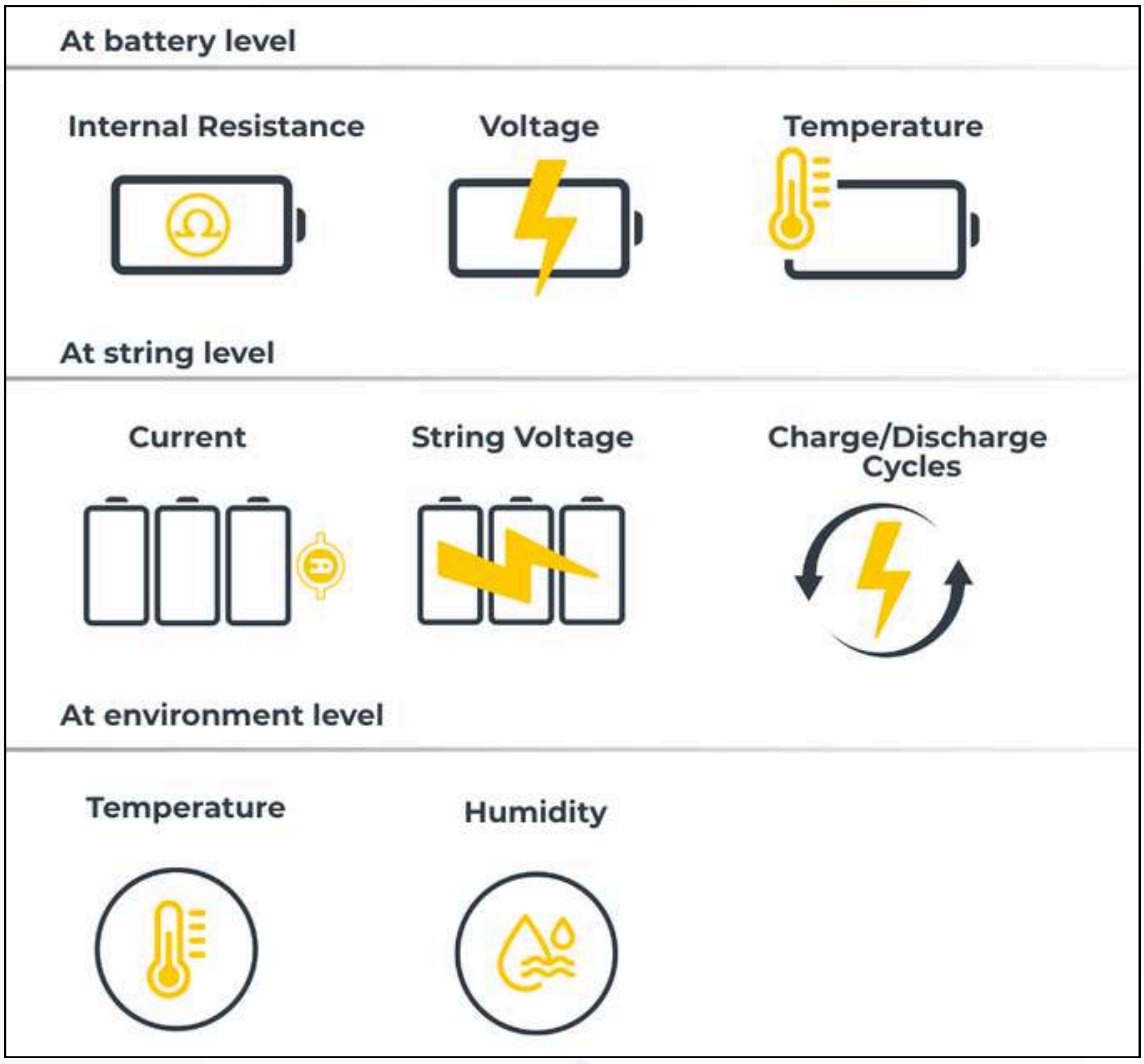
Monitors string current and environmental conditions to reveal hidden system-level risks. Ensures accurate performance analysis at string level.

Alpais Software

Delivers real-time monitoring and centralized visibility for single or multiple sites. Supports early warnings and notifications to prevent unexpected downtime.

MEASURED PARAMETERS

Alpais provides the most crucial measurements for determining the status of a battery system, down to the individual batteries. In addition, to ensure the safety of the battery environment, the system also provides ambient measurements.



ADVANCED FEATURES

Voltage Balancing: Extends battery life by keeping cell voltages aligned.

Balanced cells reduce stress and extend battery lifetime.

State of Charge: Shows how much usable energy remains in the battery at any moment.

State of Health: Reveals battery aging to prevent unexpected end-of-life failures.

SOC and SOH are displayed as percentage values with graphical trends for clear and consistent interpretation.

GENERAL SOLUTION FEATURES

Monitoring & Visibility

- VRLA, VLA, and NiCd battery compatibility
- Immediate detection of battery manufacturing failures
- Monitoring up to 480 batteries on up to 4 strings
- Individual battery and string measurements
- Graphical tools to determine battery performance trends over time
- Recording of constant measurement and alarm logs
- 3 LED sources on modules for on-site detection

System Architecture & Deployment

- String-based structure allowing different battery types with the same Control Module
- Embedded Server with pre-installed Alpais Software
- No external PC or server required
- Automatic addressing of Battery & String Modules
- Up to 10 years of historical battery data

Communication & Integration

- SNMP, Modbus, Dry Contacts
- Email, SMS, and buzz notifications
- Wireless communication is available
- Dry contacts for third-party system integration

Reporting & User Access

- Reporting in PDF and CSV format
- Daily, monthly, or yearly reports
- Advanced user management
- Multiple locations management
- LCD panel option for local room monitoring

Additional Sensors Offered by Alpais BMS

- **Ground Fault Detection**
- **Hydrogen Gas Sensor**
- **DC Insulation Sensor**
- **Cell Leakage Sensor**
- **Low-electrolyte Level Sensor (Liquid Level Sensor)**

APPLICATION PICTURES