

GMAP

Grid Management and Analytics Platform

The Gridco Systems Grid Management and Analytics Platform™ (GMAP) is an advanced suite of back-office applications that provide remote monitoring, asset control, data collection, analysis, reporting, and feeder optimization. Designed from the ground-up to provide a comprehensive view of Gridco Systems In-line Power Regulators™ (IPRs), Power Regulating Transformers™ (PRTs), Static VAR Compensators™ (SVCs) and Distributed Grid Controllers™ (DGCs), GMAP seamlessly integrates with SCADA, DMS, VVO and other applications, and enhances distribution system operations with real-time alerts, trending and actionable power system analytics.

GMAP enables distribution system operators to enhance their situational awareness and optimize feeder- and system-level performance by effectively managing any mix of Gridco Systems products, and coordinating them with other distribution devices.

Platform Architecture

The application is purpose-built for utility distribution operation centers and supports industry-standard data models, communications protocols, security standards, and enterprise interfaces for integration with existing operational systems. The software platform is a highly robust and scalable architecture that provides actionable information on the health of the distribution feeder and deployed Gridco devices. GMAP consists of four main functional components:

- **Element Management** – the core of the GMAP provides remote management and control of Gridco Systems IPRs, PRTs, SVCs and DGCs, and storage for all power quality, alarm, event, and log data
- **Advanced Grid Applications** – advanced power analytics and grid management modules that leverage data collected from Gridco devices to further optimize the distribution system and actively coordinate with other utility systems
- **Enterprise Interfaces** – interface used to integrate with existing utility systems using industry-standard protocols such as ICCP, DNP3.0, and web services
- **Network Interface** – interface used to communicate with deployed devices using industry-standard Cyber Secure communication protocols, such as IPsec, TLS, and usage of X.509 certificates over existing utility communications infrastructure

Device Management and Grouping

GMAP is designed to effectively manage all deployed IPRs, PRTs, SVCs and DGCs, providing convenient point-and-click access across all devices. A key feature of the platform is its ability to consolidate alarms and events that provides a grid view of activity on the distribution grid. The application also supports grouping of deployed units by lateral, feeder or geographical area so that grid operators can manage devices on an aggregate basis enabling firmware updating and configuration change management for multiple devices simultaneously.



KEY FEATURES

The significant management capabilities of GMAP include:

- Control of all power mitigation functions from a centralized location across all Gridco deployed devices
- Remote configuration of Set Points for: voltage regulation, reactive power regulation, power factor regulation, voltage and current harmonic mitigation
- Monitoring and management of all alarms, including acknowledge and clearing functions
- Event and log collection, and correlation for effective troubleshooting and problem resolution
- Monitoring and collection of power quality and event data, including histograms, bar charts and customizable graphs
- Display of captured waveforms to enable detailed post analysis of grid events
- Exporting of waveform data in COMTRADE or .csv formats for importing into existing waveform analysis tools
- Management of Device and User account Certificates to ensure a cyber-secure environment for the management and control of the deployed Gridco devices
- Authenticated communications between GMAP and deployed Gridco devices across the utility communications networks
- Industry-standard protocols for seamless integration with existing enterprise applications
- Web Cloud Hosted Service using Amazon Web Services technology providing a secure 24/7 anywhere anytime remote access capability

Data Collection & Real-Time Monitoring

GMAP supports periodic and customizable data collection schedule of all power monitoring, waveform and event data, enabling offline analytics and reporting. Operators are able to customize the frequency of data collection and specify what data is collected. GMAP also supports configurable refresh rates that allow operators to arrange display pages with real-time device and power values, allowing for optimal device and system awareness based on communications network capabilities.

Analytics & Reporting

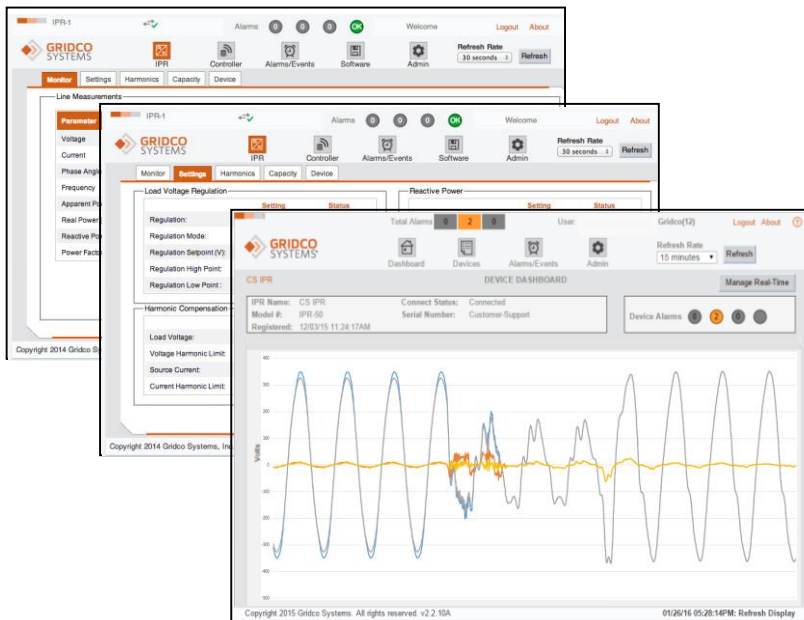
GMAP provides sophisticated offline analytics and reporting to assist distribution operators in identifying trends and opportunities to improve integration of distributed energy resources, CVR/VVO programs, and overall system performance and reliability.

Remote Power Management

GMAP provides simple and intuitive controls to enable and disable power quality mitigation functions including voltage regulation, reactive power compensation and harmonic cancellation. Operators can also configure set points and limits per device or group of devices to coordinate interactions along a feeder or provide discrete control to a local area that may need additional power regulation.

System Dashboard

The system dashboard within GMAP provides an overview of IPR, PRT, SVC and DGC parameters, events and alarms across the entire distribution system so that operators can quickly understand grid conditions and the health of the distribution system, all the way out to the service transformer edge.



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Data subject to change

KEY BENEFITS

- Easily manage fleets of IPRs, PRTs, SVCs and DGCs without impacting existing SCADA or DMS
- Receive real-time alerts and notifications for device and system awareness
- Collect, store and analyze data to understand trends, optimize distribution grid performance and improve business processes
- Enhance existing DA, CVR, VVO, FDIR, asset management, revenue protection, and other initiatives
- Understand new patterns of power demand and flow to more reliably integrate distributed energy resources
- Enable utility-controlled peak demand management capabilities
- Quantify the power quality improvements attributable to deployed Gridco devices as they counteract grid disturbances
- Time synchronization of all deployed Gridco devices to improve situation awareness of Grid events
- Report Generator that creates a periodic concise executive report for the configured time period

GMAP SPECIFICATIONS

Deployment	Cloud Hosted Service On Premise
Model	Device Edition Fleet Edition Data Edition
Web Browser	Internet Explorer Firefox
Standards	HTML 5 JavaScript IEC 62351 COMTRADE

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