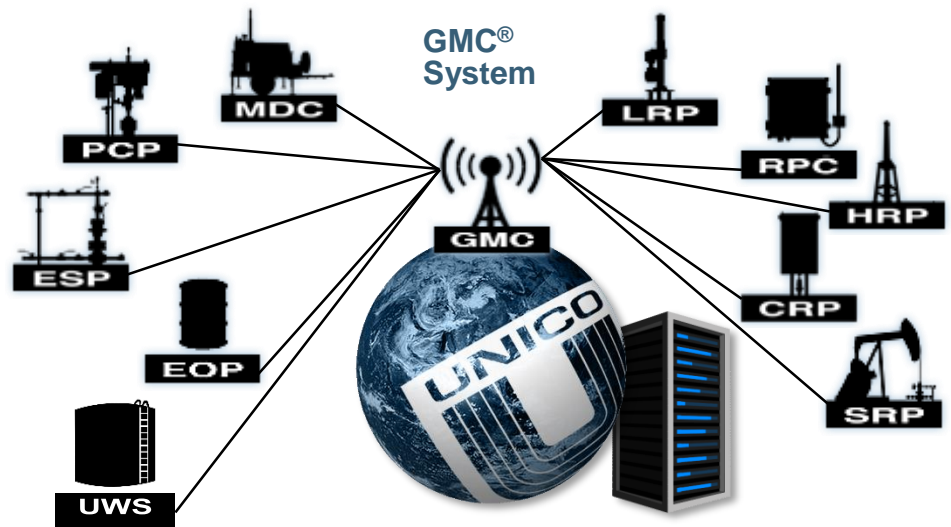


Global Monitoring and Control System



Overview

The GMC® system for enterprise monitoring and control is an efficient, cost-effective way for oil and gas producers to stay connected to the most critical aspects of daily operations. Using powerful hosted enterprise architecture, the GMC® system reduces time spent manually collecting and analyzing data. Operators can monitor multiple fields simultaneously from a standard Web browser or Internet-enabled mobile device. Personnel can be notified of faults and conditions automatically, even while away from a computer. Collected data is stored securely in a central database and is available through the same intuitive Web interface or exportable for use in third-party software. Other peripheral hardware can be integrated to provide a comprehensive solution.

Real-Time Displays

The GMC® system continuously collects data from an unlimited number of wells and fields and makes that data accessible from virtually anywhere at any time over the Web. Real-time displays provide hierarchical navigation through the data, allowing the user to view a summary of all fields, all wells within a specific field, a single well, or to probe even further into specific parameters or other details. At each level, data is presented clearly and prioritized so that crucial issues are brought to the user's attention without having to scan every well in search of problems. Since data is collected constantly, trends can be viewed over time, revealing behavior that might otherwise go unnoticed by periodic examination.

Automated Well Reports

Comprehensive well reports can be generated automatically or on demand. SRP reports include both surface and downhole dynamometer graphs. Users can simultaneously compare current and historical well performance. By collecting, tracking, and trending well reports and centralizing report management, the GMC® system greatly simplifies field and well analysis.

Notification and Alarming

A sophisticated subscription service alerts users when specific conditions are detected. Notifications can be triggered, for example, whenever a fault occurs, when specific faults occur, when there is a communication failure, or when a value crosses a threshold, such as when production falls below a desired minimum. Alarms can be specified for individual wells or for an entire field. Users can customize alarm criteria and delivery options.



GMC®

Global
Monitoring
and Control
System

Overview Mobile Data Access

(continued)

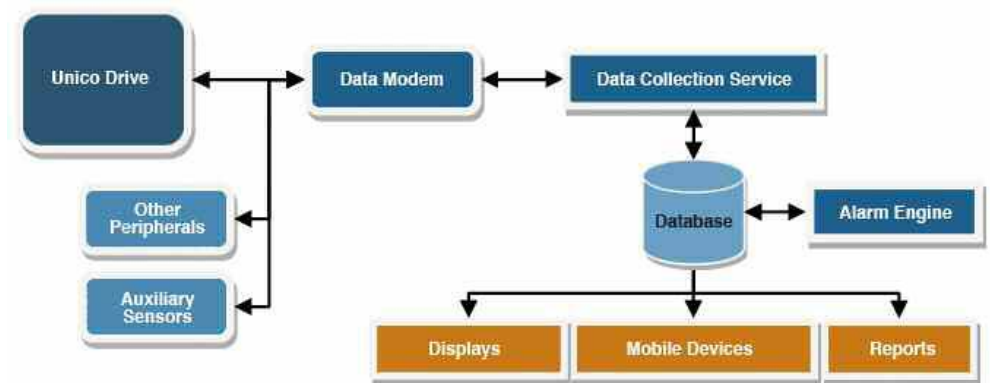
Mobile users can monitor the status of their wells and equipment from any location. Critical producer, field, and well content can be delivered to Web-enabled devices. Other devices can access select information via email or instant messaging services.

Sensor and Peripheral Support

Flexible GMC® data modems offer a host of features for interacting with external devices, including LAN, USB, and RS-232 communications as well as analog and discrete I/O. These capabilities extend system functionality by allowing monitoring and tracking of auxiliary sensor input and interfacing with external controllers.

Architecture

The GMC® system runs entirely on a host server. The server provides security, data collection, data storage, alarming, and notification services. The data modem provides a gateway between field equipment, such as drives and sensors, and the data collection service. Users access the real-time dashboard or mobile screens through the server's secure Web site.



Communication Options

A wide variety of communication hardware is supported, including cellular modem, Ethernet, Ethernet Advanced, local radio, and satellite.

Deployment Scenarios

The GMC® system can be deployed in a variety of configurations to meet both geographic and budgetary constraints. A clustered configuration, where multiple wells communicate via radio to a central cellular hub, maximizes use of cellular and satellite providers' unlimited data plans and allows operation outside of cellular coverage areas. A discrete configuration, using separate cellular modems on each well, simplifies field installation while allowing faster polling with asynchronous access.

Browser Interface

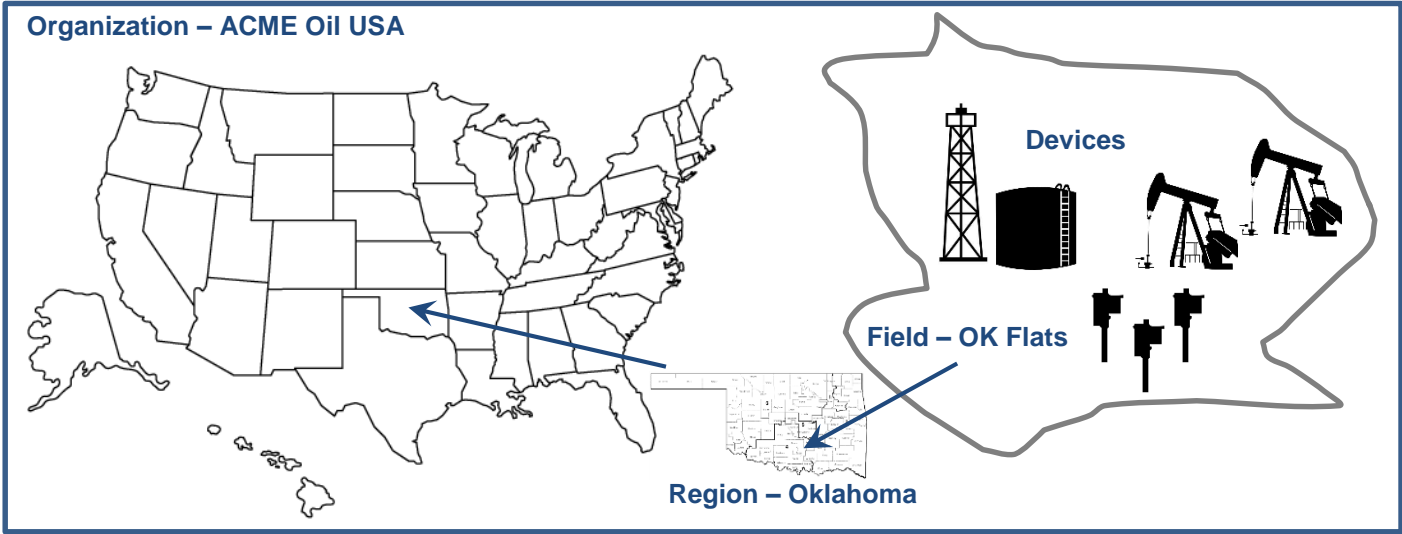
The GMC® System is accessible using any standard web browser. This makes it convenient for users at any location to monitor remote production sites. Alerts can be emailed to service facilities warning of faults or changes in production levels.

Navigation buttons are found in the footer of the web page. Active buttons are highlighted and inactive buttons are dimmed. A description of each button can be found by hovering over it. A link at the top of the screen shows you where you are and allows you to quickly move to previous pages by clicking on it.



Hierarchical Organization

All of the data on the GMC® System is organized in a similar fashion. An Organization refers to any one company, and contains a number of regions. A region contains a number of fields. And a field contains a number of devices.



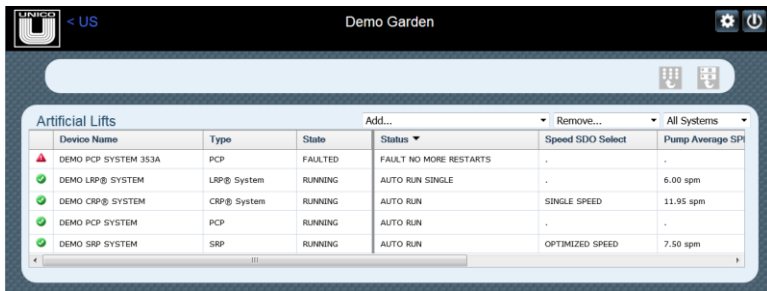
Dashboard

The *Dashboard* provides a quick overview of an organization's assets. These assets can be displayed in either a tile view, a list view, or a table view. The Dashboard shows the status of each device at a glance. Clicking on a device navigates to its Summary page.



Tile View

Tile View shows the devices in the simplest format possible. Only the name of each device and its status are given.



List View

The *List View* provides more information about each device in tabular form. The user can add or remove which columns are displayed. All devices can be viewed simultaneously or just those of a specific type.

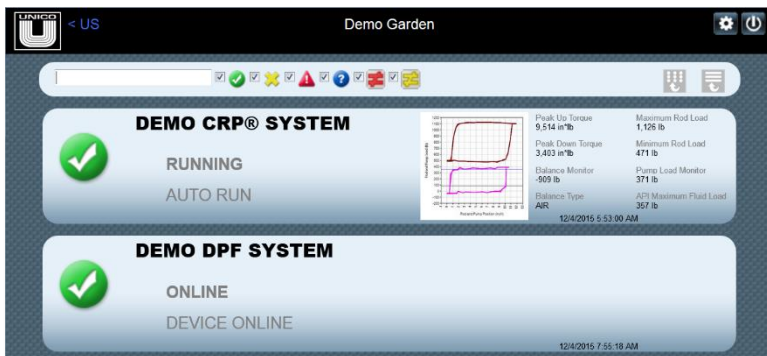
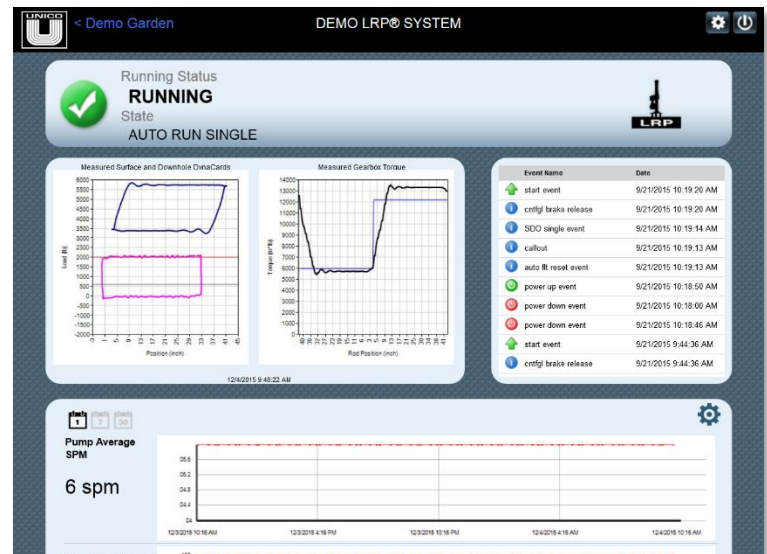


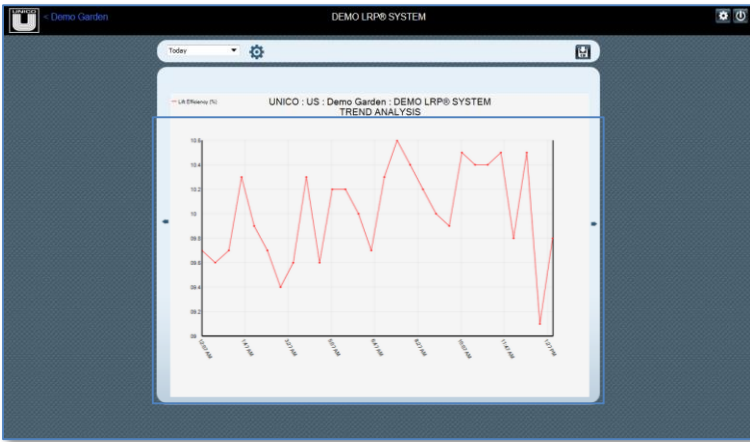
Table View

The *Table View* shows a great deal of information in an eye catching and informative display. The device status and program state are clearly displayed along with a chart.



Summary Page

The *Summary Page* provides a comprehensive overview of the selected device that includes its status, the most recent charts, a list of the most recent events, plots of real-time operating parameters with events clearly indicated on the timeline, and daily gauge information. The parameter and gauge trends are user selectable and feature selectable time frames. Users can quickly navigate to other wells in the same field or region by clicking the corresponding name in the header.



Trend Analysis

The *Trend Analysis* page allows the user to plot and compare selected parameter values for a specified period of interest.

Event	Type	Date
▶ gauge event 1	Event	12/3/2015 11:59:00 PM
▶ gauge event 2	Event	12/3/2015 11:59:00 PM
▶ gauge event 1	Event	12/2/2015 11:59:00 PM
▶ gauge event 2	Event	12/2/2015 11:59:00 PM
○ Online - OK	Device Comms	12/2/2015 11:54:35 PM
○ Offline - File Error	Device Comms	12/2/2015 11:53:44 PM
○ Online - OK	Device Comms	12/2/2015 4:31:59 AM
○ Offline - File Error	Device Comms	12/2/2015 4:31:01 AM
▼ gauge event 1	Event	12/1/2015 11:59:00 PM
gauge run time 24.00 h:m:mm		
gauge fluid production 0.0 gal		
gauge leakage 27032.6 gal		
gauge ang level -1.200 in		
gauge ang speed 0.0 rpm		
gauge energy usage 0.000 kWh/kWh		

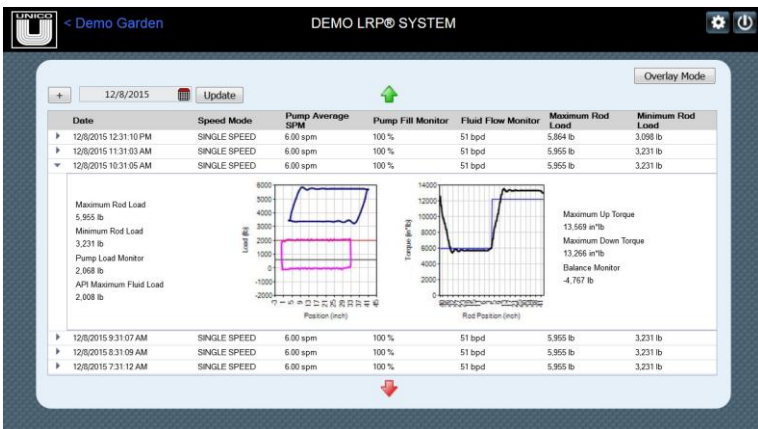
Event History

The *Event History* page displays all events that occurred within a time frame specified by the user. Other pertinent data, captured at the time the event occurred, can also be viewed by expanding the information under event record. Filter options allow the user to control the types of events that are displayed.

Reviewed	Date/Time Generated	Report Type	Description	Program Number
✓	Dec 4 2015 12:03PM	PumpReport	File On Demand	
	Dec 4 2015 11:03AM	PumpReport	File On Demand	
	Dec 4 2015 10:03AM	PumpReport	File On Demand	
	Dec 4 2015 9:03AM	PumpReport	File On Demand	
	Dec 4 2015 8:03AM	PumpReport	File On Demand	
	Dec 4 2015 7:03AM	PumpReport	File On Demand	
✓	Dec 4 2015 6:03AM	PumpReport	File On Demand	
	Dec 4 2015 5:03AM	PumpReport	File On Demand	
	Dec 4 2015 4:03AM	PumpReport	File On Demand	
	Dec 4 2015 3:03AM	PumpReport	File On Demand	
	Dec 4 2015 2:03AM	PumpReport	File On Demand	
	Dec 4 2015 1:03AM	PumpReport	File On Demand	
	Dec 4 2015 12:03AM	PumpReport	File On Demand	
	Dec 3 2015 11:03PM	PumpReport	File On Demand	
	Dec 3 2015 10:03PM	PumpReport	File On Demand	
	Dec 3 2015 9:03PM	PumpReport	File On Demand	
	Dec 3 2015 8:03PM	PumpReport	File On Demand	

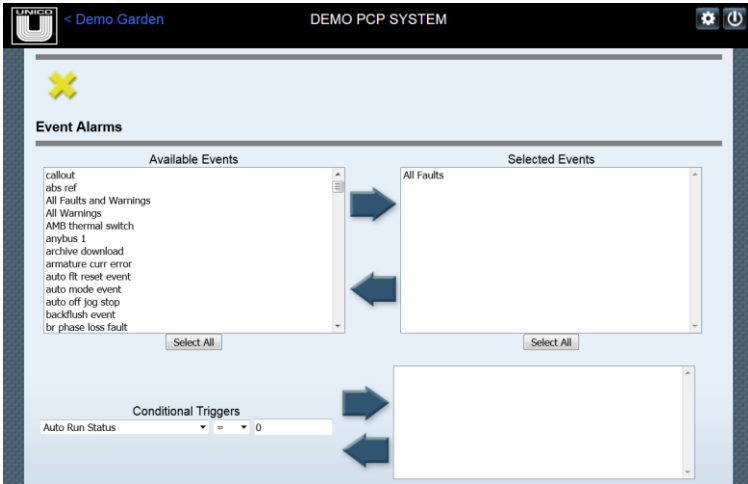
Reports

The *Reports Page* shows the type and time of every report collected from the device. Reports can be viewed, saved locally as PDF files, or printed directly from the Web page. The system also keeps track of which reports have already been viewed.



Charts

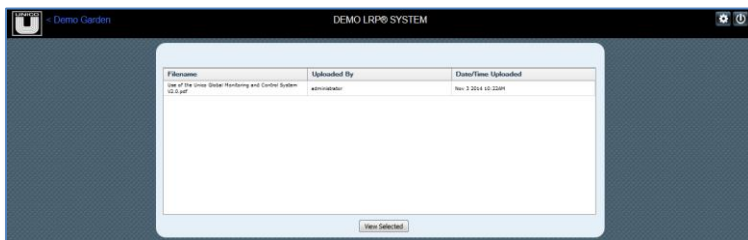
A *Charts Page* allows you to view application specific charts (i.e. dynacards) gathered from your drive over time.



Alarm Configuration

The *Alarm Configuration* lets you pick and choose which conditions you'd like to be alerted to by the GMC® Systems Alarm feature. These alarms will be delivered via email, sms message, or both depending on your account preferences.

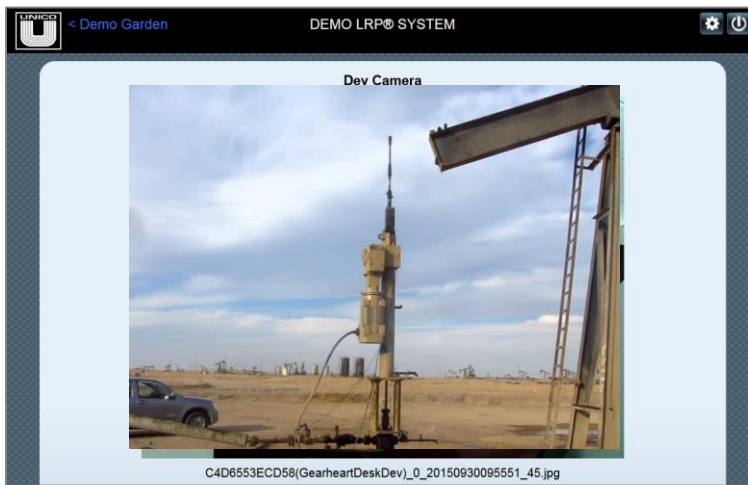
The *Alarm Tool* provides a convenient way to turn on or off alarms you have configured.



On-line Documentation

The *Documents* page allows users to post images or files relevant to a specific installation. It is also where Unico will post the latest version of all relevant documentation including how to use the GMC® System.

A *Notes Function* enables users to attach their own observations.



Camera

The *Camera* page displays photos taken by a camera at the well site. The images are uploaded periodically to an ftp server enabling them to be viewed using the GMC® system.

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