Ovation™ Operator Workstation for Microsoft® Windows® Platforms

Features

- Delivers full multi-tasking operation
- Accesses up to 200,000 dynamic points
- Secure standard operating desktop environment
- Intuitive graphics configuration, modifiable to match changing plant configurations
- Easy navigation through alarms and displays
- Predefined templates available for faceplates, graphics, diagnostics and trends
- Sophisticated alarm management
- Real time and historic trending
- Interfaces with a variety of third-party applications and components
- Secure remote desktop access through terminal services
- Supports multiple languages, character sets and cultural conventions
- Provides context sensitive help information specific to where the user is within the operator workstation application
- Saves and recalls user settings and preferences
- Print, print review and data export to PDF, XLS and other common file formats

Introduction

Effective control requires a clear and concise picture of plant operations. Using Microsoft® Windows® technology, Ovation™ operator workstation software provides a dynamic view of all plant processes with the stability, performance and flexibility needed to operate modern control systems.

High-resolution windows are used to present control graphics, diagnostics, trends, alarms and status displays.

Access to dynamic system points, historical data, general messages, standard function displays, event logging and a sophisticated alarm management program are available through intuitive operator navigation tools, using a variety of techniques and features including hyperlinks, drag and drop and contextually driven menus and tool bars.

The high-speed Ovation network communicates updated plant process data every second, with access to up to 200,000 dynamic points. Ovation

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system security limits access of critical information and plant control features to authorized personnel. Operator software can be implemented on various PC configurations, providing flexibility in processing performance to match budget needs. Compatibility with many third-party applications and components makes the operator workstation ready for upgrades to meet future plant requirements.

Operator Applications

- Process diagram system
- Point menu
- Alarm management system
- Trending (live and historical)
- Point information
- Point review
- Operator event messaging
- Ovation error log
- Signal diagram.
- System viewer
- Ovation utilities

Process Diagram System

Process diagrams organize and present process information using high-resolution graphics and display features such as windowing, zoom, and pan. Dynamic use of color, shape, and size indicate status of plant operations. Process diagram windows can be formatted in various sizes and placed anywhere on the screen to suit specific work preferences. Up to sixteen process-diagram windows can be displayed simultaneously over multiple screens, in addition to trend and alarm windows.

Ovation supports connection of a single workstation, keyboard, and mouse to multiple monitors, expanding the view of your plant using less equipment. Individual monitors can be dedicated to specific operator functions, such as alarms, trends, or graphics for constant monitoring of important points, processes, or equipment.

Navigation of diagrams is effortless through user-definable links and paging hierarchy. Creating a list of favorite displays, similar to the internet favorite

function, is another method for quickly accessing diagrams that are used on a regular basis.

Point groups are previously defined sets of points that utilize the same process diagrams to represent different equipment with similar functions. Use of point groups provides easy configuration for multiple diagrams.

Custom diagrams, including conditional logic graphics, developed with the point-and-click graphics builder, are stored on the server class host PC hard drive. Completed diagrams can either be distributed to all operator workstations or designated to specific workstation(s).

Process Diagram Specifications	
Process diagram quantity	More than 25,000
Process diagram windows	Up to 16 (on multiple screens)
Dynamic fields per diagram	Unlimited— typically 25 to 250 points per graphic
Diagram update rate	Once per second

Point Menu

The point menu provides immediate access to information about a particular point displayed at the operator station. A simple right mouse click over any point shown on any Ovation application window that displays a point name or point value opens a pull-down menu that provides links to internal and external applications. Standard navigation links are provided to Ovation functions, as well as nine customizable navigation links to either additional Ovation functions or external applications such as documents, spreadsheets, plant photos, schematics, P&ID, action/help files and more.

The standard Ovation applications include the following options:

- **Point information —** view or modify point data
- **Trend —** view point activity for the selected point
- **Signal diagram —** view signal diagrams (control sheets) directly associated with the selected point

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- **Summary diagram —** view summary diagrams (custom diagrams) directly associated with the selected point
- **System viewer —** Use to display the hardware status
- **AMS device manager —** Use to obtain detailed information about PlantWeb alerts
- **Alert details —** Foundation fieldbus alerts

Non-applicable options are grayed out.

Direct access to point operations, such as alarm acknowledge, reset alarm, scan on/off, alarm & limit check on/off, etc., is also provided.

Alarm Management System

The Ovation alarm management system focuses the operator on important plant activities that deviate from normal operation. Operators manage system alarms through several views and acknowledge functions.

Ovation alarm management expands beyond the control system alarms to present alerts from field devices, creating a central repository for all system actionable events.

The alarm management system includes the following features:

- **Alarm Filtering —** Determines what alarms appear on the various alarm lists at the operator station, what alarms are sent to the printer, to audio, and what alarms are sent to the historian for storage. Identifies and filters alarms by specific user-defined criteria such as network/unit, destination (plant area), alarm type, and priority under normal and/or priority mode in various alarm list tabs of alarm window.
- **Alarm Priorities —** Distinguishes the importance of alarms. Process point alarm priorities are defined on a priority scale of one (highest) to eight (lowest). Separate priorities can be assigned to analog high and low alarm limits. Color codes within alarm system displays, except for iconic alarming, are based on alarm priority.
- **Audio Alarm —** Produces an audio output when an alarm occurs. The audio feature sounds an alarm for a configured period of time, or until the sound is acknowledged. Different tones can be defined for each priority.

- **Alarm Acknowledgment —** Acknowledges an alarm, group of alarms, or page of alarms, indicating operator awareness of an alarm condition or confirming an action to follow.
- **Reset Alarms —** Resets an acknowledged return from alarm and removes it from the alarm list.

Tools allow the operator to customize the alarm display view and to group alarms using request filters from the ribbons tool bar. The value ribbon tab provides a group of operations like scan on/off, etc. that can be performed on the alarms that appear in the displayed alarm list.

Several views to Ovation alarms are available in the alarm management system window using various alarm list tabs:

Alarm List

The alarm list displays all current alarm entries processed every second in reverse chronological order (i.e. newest alarm shows at the top of the list) and as an option, by alarm priority. When the alarm list is minimized, an alarm icon on the Windows desktop changes color to indicate when a new alarm has occurred. The point menu feature can be used to access diagrams, trends, and other features associated with the point in alarm by right-mouse-clicking over the point's alarm list entry.

Changes in alarm status are automatically updated in the alarm list. Alarm returns can also be displayed to show that the problem has been corrected. An unacknowledged alarm is acknowledged by pressing the *acknowledge* button on the alarm list window or on the optional operator keyboard.

Alarm History List

The alarm history list displays the most recent 15,000 alarm occurrences in reverse chronological order. The history list includes alarm returns and incremental and digital state changes. Optionally, all alarms can be sent to the Ovation process historian for archiving and future retrieval.

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Acknowledged / Unacknowledged / Reset Alarm List

Alarms can be segregated and listed according to their status, either acknowledged, unacknowledged or reset. Each list displays the alarms in chronological order and can be further filtered by priority level. When an alarm has changed status, it is removed from its current list and added to the appropriate new alarm list.

Alarm Check Remove List

Displays all the alarms (with point name, date, time and description) that are currently alarm check removed. It allows the user to turn alarm/limit checking back on from the list.

Iconic Alarm List

Iconic alarms present alarms grouped by priority and an associated plant area. Alarm groups are represented by bitmap images displayed in the iconic alarm list window. The icon list contains up to 336 bitmaps, each with a user-defined border that changes color depending on the alarm status of individual points within groups and the acknowledgment status of the entire group. Each bitmap icon is linked to process graphics that relate to the points within the group, providing quick display of alarm information. A default alarm group for initial display may be defined by the operator.

Remote Network Status List

If configured to receive alarms from remote networks, the remote network status list will present detailed information concerning each remote network connection.

Trending

Trending shows samples of live or historical data collected from the network for a selected time interval. Trends can be displayed in graphic, tabular, and radar format. The trend display window can be launched from the Ovation applications folder at the operator station, a point menu or from a process diagram.

Trend groups can be created for quick access to a pre-defined set of points with the same trend display parameters. A trend group can consist of up to 32 different points, with all points having identical group parameters. However, each point in a trend group may have unique point parameters.

Other trend display features include:

- Horizontal, vertical, X-Y, tabular and radar/spider formats
- Cross-hair cursor displays trend values
- Globally defined point groups
- Customized graphs with different colors, labels, chart type, scale and fonts
- Zoom and pan for focusing on a certain trend area
- Printable table and graphs

Radar View

These are useful for plotting similar points together to identify commonality between them and to easily see outliers/deviations from the others.

Real-Time Trend Intervals

Real-time trends track the performance of plant data as it is happening. Trending can be performed from 10-minute to $33^{1/3}$-day intervals with sample rates ranging from one second to 80 minutes. In live trend mode, an information tab is provided, which shows the top value, bottom value and various alarm limits associated with the assigned points.

Trend Intervals	Sample Rates
10 minutes	1 second
100 minutes	10 seconds
5 hours	30 seconds
10 hours	1 minute
100 hours	10 minutes
200 hours	20 minutes
25 days	60 minutes
$33^{1/3}$ days	80 minutes

Historical Trends

Historical trend periods vary through a combination of start and end times or intervals. Trend periods can consist of one minimum 10 minutes to weeks or even months, resulting in the computation of a completely variable sample trend interval. Historical trend can display up to 32 points in several different graphical layouts. Historical trends can also show various aggregate values based on point type as shown on the table that follows:

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Point Type	Trend Aggregate
Analog	Actual value Average value Integral value Maximum value Minimum value
Digital	Time on/off in hours Time on/off in minutes State transition

General Trend Specifications	
Simultaneous trend windows	Limited only by the processing power of the PC
Points per trend window	Limited only by the processing power of the PC
Trend groups	Max of 1,000 global trend groups
Number of samples per point display	Up to 2000
View / save / print raw data	Yes

Point Information

Point information shows a complete database record of a selected live process point. With proper authorization, adjustments can be made to point attributes such as scan status, alarm status, alarm limits and value. The point information window organizes related types of database fields into logical groupings with labeled tabs. Where used window of point information contains a list of places and items that currently reference the selected point.
Tabs can be customized and point information may be displayed in multiple panes. Data on the various tab(s) of point information can be saved to a text, image, CSV, HTML, PDF, XML, MHT, RTF, XLS or XLSX file.

The alarm tab provides Ovation system alerts, including the following:

- Failed
- Maintenance
- Advisory
- Communication
- Abnormal

Point Review

Point review displays point-related data views using request filters from the ribbon tool bar, such as points generated from a list with common characteristics, status conditions, and qualities. Authorized users can adjust the points' operating status. Request filters include:

- Value limits
- Engineering range limits
- Limit alarms
- Reasonability limits
- Value clamp limits
- Sensor limits
- SID alarm
- Alarm check remove
- Cutout disabled
- Cutout from alarming
- Engineering range check off
- Value clamp off
- Entered value
- External calibration
- Scan remove
- Tagged out
- Test mode
- Uncommissioned
- Good/fair/poor/bad quality
- Timed out

Operator Event Messaging

Certain actions, including user log on and log out will cause the operator workstation to send an event message to the historian. Operator event messages can then be retrieved for display on the screen or printed out at a local printer. Every operator event message contains the event subtype, the date and time (to the nearest second) and the event description. Depending on the type of event, each message also contains some of the following data:

- Point, device or drop name
- Point description
- Old value/mode and new value/mode
- Loop number, algorithm name and algorithm type

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Signal Diagrams

A signal diagram is an Ovation operator station application that monitors and tunes (if enabled) a control process. Once control function (sheet) is created and saved in the control builder, it can be viewed online through a signal diagram. The following functions are provided by the signal diagrams:

- Monitoring analog and digital value.
- Monitoring algorithm mode, tracking and limit status
- Tuning algorithms parameters
- Manipulating set point and MA station algorithms
- Using points through page connectors
- Navigation for control subsystems

System Viewer I/O Graphic

This application automatically generates a real-time, live display of a drop's I/O from the controller to the individual points or channels on the modules. This allows technicians, project engineers, installation engineers and plant operators to more effectively monitor their I/O at a glance when operating, performing maintenance and commissioning the plant.

Remote Desktop Terminal Services

Ovation operator workstations may be equipped with Microsoft terminal services to provide remote access to Ovation operator applications at desktop computers located throughout your facility. Remote desktop functionality provides authorized users with the opportunity to view or control your Ovation system from a position outside the control room.

Logins are secured through validated user identification and password protection. Secure system access varies for each user. Operator features can be configured to be activated remotely, locally or both.

Use of the remote desktop function requires the Microsoft Windows Server 2008 operating system loaded on an Ovation operator workstation.

Summary

The Ovation operator workstation is an intuitive software tool for displaying critical process information through control graphics, diagnostics, trending, alarms and status displays. Powerful applications provide access to dynamic system points plus historical data, general messages, standard function displays, event logging and a sophisticated alarm management program.

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