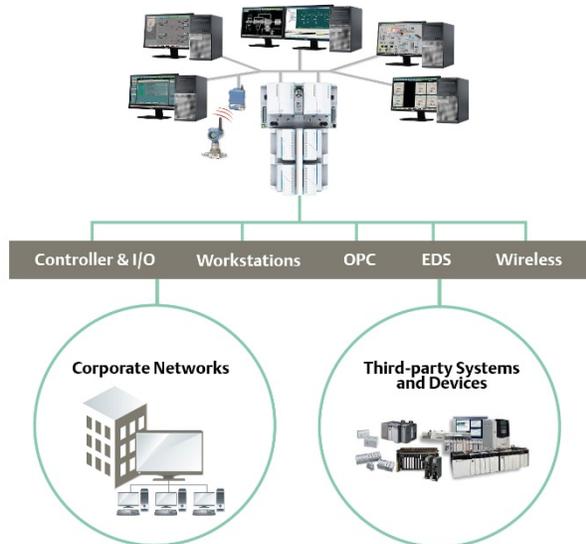


Features

- **Controller and I/O module platforms** - provides Ethernet, serial and digital bus interface capabilities to third-party devices and systems
- **Workstation platforms** - provides centralized monitoring, control and diagnostic functionality
- **Remote monitoring platforms** – enables remote visualization of process graphics, alarms and trends for individual or multiple systems & sites
- **OPC connectivity platforms** - integrates plant data with any OPC-enabled plant analysis application
- **Wireless platforms** – interfaces Wireless HART enabled devices with the Ovation control system



Introduction

Emerson's Ovation™ control system offers a suite of connectivity products that integrate individual plant control systems, applications, third-party devices and corporate networks into a single unified platform to provide accurate process data when and where it is needed the most.

Ovation's connectivity features translate into a number of benefits for power, wastewater and water utilities such as improved operational efficiency and immediate access to accurate up-to-date process information.

The ability to monitor processes from anywhere within a corporate or municipal structure provides additional flexibility for more efficient troubleshooting, improved individual site operations and enhanced evaluation of activities at multiple site locations.

Optional redundant configurations provide reliable and fault-tolerant data transmission.

Ovation's connectivity platform options include:

- Controller and I/O modules such as the Ethernet link controller and link controller
- Workstations such as the Ovation SCADA communication server
- OPC connectivity
- Visualization and data analysis tools such as EDS
- Wireless

Controller-Based Connectivity

Ovation Controller

Ovation controllers provide direct Ethernet TCP/IP interface to third-party systems. The Ovation controller has several available communication protocol drivers to accommodate Ethernet-based data links. The data links can be configured to be redundant if the remote device supports redundancy.

The Ovation controller can be used as a communication interface between the Ovation network and external turbine control systems to

provide fast and reliable data exchange for control and monitoring of turbine operations from the plant control system. Examples include Ovation controller interfaces to GE Mark V, VI, and VIe, Toshiba, and MHI turbine control systems.

I/O Module-Based Connectivity

Ovation Ethernet Link Controller Module

The Ovation Ethernet link controller is an I/O module that offers I/O-level Ethernet interface capability that is tightly coupled with the Ovation control system. The Ethernet link controller uses a standard Ovation I/O base and utilizes built-in bus communications to the Ovation controller. An RJ45 port interfaces the module to the third-party device or system. The Ovation controller directly reads the module's memory area allowing third-party device data to be included in the Ovation system database. Once in the database, the third-party data can be applied to Ovation control schemes and displayed in graphics. The Ovation Ethernet link controller module can communicate with third-party devices on multiple protocols and can be provided in a redundant configuration if required.

Ovation Link Controller Module

The Ovation link controller is an I/O module that provides serial communication capability to third-party devices or systems. The link controller module is mounted in an Ovation I/O base associated with a controller. An application serial port interfaces the module to the third-party device or system. A programming port is also provided which interfaces the module to an IBM-compatible computer's COM1 or COM2 serial port for configuration purposes. The module's memory area can be read directly by the Ovation controller. The data transferred through the memory area on the module can be defined in the Ovation database and used within control schemes and graphics.

Ovation Foundation Fieldbus Module

The Ovation Foundation fieldbus module controls communications between intelligent field devices and the Ovation controller. Every module includes two independent H1 ports for connecting to fieldbus segments. Each H1 port functions as a primary link master or link active

scheduler for the fieldbus segment it is connected to. Terminals on the I/O base of each module connect the module to the appropriate segment.

Ovation PROFIBUS DP Module

PROFIBUS DP fieldbus is based on the master/slave principle with 32 slaves running on a pair of wires in a segment. The Ovation to PROFIBUS DP module is implemented as the master on the fieldbus segment. The module uses standard RS485 transmission technology and cabling for data transmission. The transmission technology, commonly referred to as H2, is used in areas where high transmission speed and simple inexpensive installation are required. The interface between Ovation and PROFIBUS DP can be relied upon to provide real-time, consistently accurate inputs and outputs. The PROFIBUS DP module is capable of being scanned by the control schemes at different configurable scan rates. The scan rate is based on which of the five control tasks that the PROFIBUS DP I/O is assigned in the Ovation controller.

Ovation DeviceNet Module

The Ovation to DeviceNet module is typically a master on the fieldbus and provides a standard connector to the DeviceNet cabling system, which uses two twisted pairs and a drain. DeviceNet power is supplied on one pair while data is transferred on the other pair. The interface is based on the master/slave principle. Sixty-three devices may be connected on a segment.

Workstation-Based Connectivity

Ovation SCADA Server

With Ovation's SCADA communication server, important information from remote terminal units is readily available to the control system and desktops of supervisors and managers throughout an organization enabling faster and more effective decision making. The Ovation SCADA communication server incorporates various optional redundancy and failover schemes to keep plant process operating.

The Ovation SCADA communication server has the flexibility to operate over a variety of media,

interfaces with RTUs through multiple serial and Ethernet ports using routers, terminal servers, A/B switches, and modems and communicates with multiple protocols including Allen-Bradley DF1, BSAP, DNP3.0, MODBUS and OPC drivers to name a few.

Ovation OPC Connectivity

Emerson's Ovation OPC connectivity bridges the gap between third-party Microsoft™ Windows™-based applications and process control systems. Using the latest standard in process data exchange—OLE for Process Control (OPC), OPC users can easily and automatically access dynamic process information, integrating third-party applications with the Ovation control system.

In an Ovation system, OPC connectivity can be comprised of a combination of the following software applications; data access server, client mapper or alarm and event server.

Remote Monitoring – EDS

EDS™ is a comprehensive system for collecting and processing plant data that allows viewing of current and past process information from anywhere within a corporate structure.

EDS information is gathered from control systems and other plant data sources and is presented in process and (read-only) control diagrams, alarm lists, trends and reports, to give remote users a close representation of what the operator sees in the control room. A key feature of the EDS is its ability to import and convert original control system process graphics for viewing at the EDS terminal client application.

Wireless Solutions

Emerson offers a full portfolio of wireless solutions enabled by self-organizing WirelessHART networks. The Ovation system provides redundant and reliable link to wireless gateway. All the benefits of HART including HART device alerts for wireless gateways are available with the Ovation system.

Emerson's SmartWireless gateway connects to the control system as a network node and is configured using standard Ovation engineering tools. WirelessHART devices can be easily added to the wireless mesh network where they are autosensed and matched with the database. Once in the database, the data from any device can be associated with any Ovation controller for use in its control schemes.

Summary

Ovation's connectivity options provide plants with innovative technology that can transport real-time process data directly to and from the desktop. By meeting specific data transfer requirements, each connectivity product is tailored to deliver critical plant performance data for effective process analysis and information integration between systems.

Additionally, Ovation offers several connectivity options that provide communication between individual Ovation systems through multi-networking and the use of an Ovation Process Historian.

An Ovation multiple network integrates several control system LANs within the plant site or remote facilities at other sites, which allows each unit to interact, while still maintaining a level of autonomy and independence for each network. It permits personnel in a central control room to monitor and control multiple units just as if they were at that unit's console. It also simplifies the collection and correlation of historical data for all units.

The Ovation Process Historian's distributed data scanner architecture supports data collection from multiple Ovation systems, allowing a centrally deployed historian server to collect and store data, service requests for process values and messages from multiple plant units, and provide this information to historical client applications. These applications are capable of displaying, printing, or saving files that contain information combined from the individual Ovation systems.

Connectivity Requirements	Ovation Platform	Supported Protocols
Third-party system interfaces	Link controller module – serial connectivity	Modbus, AB DF1 , IEC 60870-5--101, GE MARK IV
	Ethernet link controller module – Ethernet connectivity	Modbus TCP/IP, DNP3.0, IEC 61850 MMS, IEC 60870-5-101, IEC 60870-5-104, Allen Bradley (CSP,EIP), GE GSM client (GE Mark V-VI-VIe turbine control), Turbine control interface client
	OPC connectivity applications	OPC DA, OPC A&E server protocols
	Ovation controller	Modbus, Allen Bradley (CSP,EIP), GE Mark V/VI/VIe interface, MHI turbine control interface, Toshiba turbine control interface
	Ovation Foundation fieldbus, PROFIBUS, DeviceNet modules – digital bus connectivity	Foundation Fieldbus PROFIBUS DeviceNet
Centralized monitoring & control	Ovation SCADA communication server	Modbus, DNP3.0, Allen Bradley (DF1, EIP, CSP), OPC, BSAP
Remote monitoring	EDS	Ovation standard communication interface

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