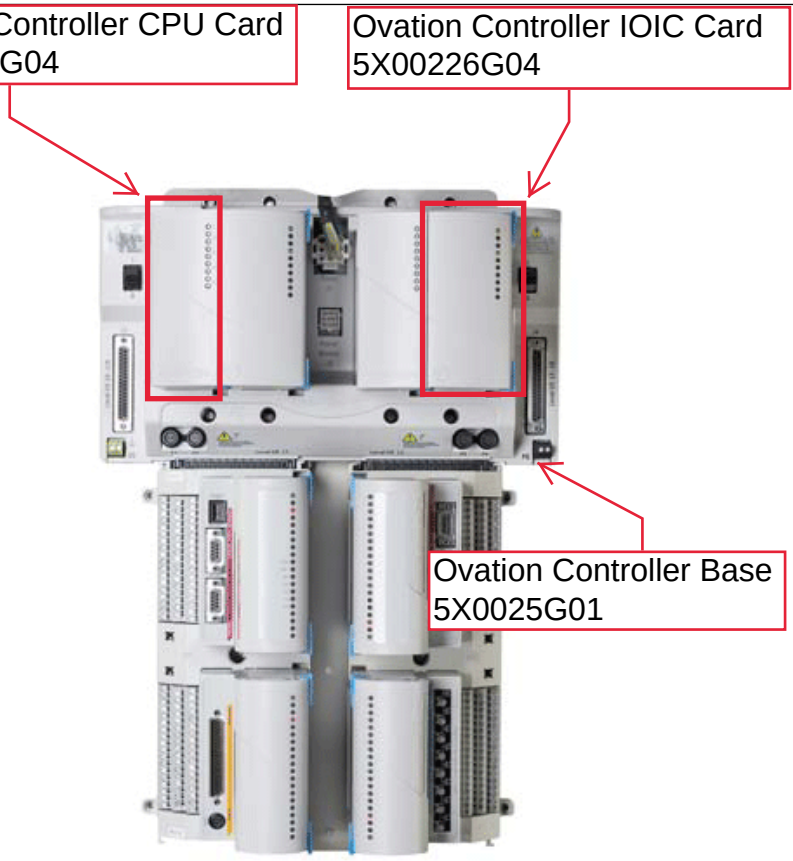
Ovation™ Controller Model OCR1100

(5X00481G04/5X00226G04)

Features

- Secure, reliable and mission-critical control capability providing “bumpless” automatic failover between redundant controllers.
- Fast processor for increased productivity
- One-step data acquisition functionality through the definition of the I/O database
- Small footprint with low power requirements and fanless operation
- Interfaces to Ovation and WDPF I/O, both local and remote
- Integral interface to digital busses through Ovation I/O modules
- Integrated virtual I/O capability for third-party OEM systems over Ethernet protocols.
- Non-volatile storage of application software, point database, configuration information, and operating tuning constants
- Integrated sequence of events capability with 1 millisecond resolution
- Meets IEC 61131-3 standards
- Achilles Level 1 certified



Redundant Ovation controller model OCR1100 shown with four local Ovation I/O modules installed on two I/O branches.

Introduction

Emerson’s Ovation™ distributed control system is renowned for delivering precision control with outstanding performance. That precision begins with the Ovation controller secure, mission-critical operations such as those of power generation, water and wastewater plants.

The OCR1100 model of the Ovation controller series executes simple or complex modulating and sequential control strategies, performs data acquisition functions and interfaces to the Ovation network and various I/O sub-systems. It has the capability to originate up to 32,000 points.

Process Applications

The Ovation OCR1100 controller is designed to meet the demanding requirements of a wide range of process applications. Functions performed by the controller include:

- Continuous (PID) control
- Boolean logic
- Advanced control
- Special logic and timing functions
- Data acquisition
- Sequence of events processing
- Cold junction compensation

- Process point sensor/limit checking
- Process point alarm processing
- Process point conversion to engineering units
- Process point database storage
- Local and remote I/O interface
- Process point tagout

Standard Functions

Control Execution

The Ovation OCR1100 controller, with an Intel®-based processor, is capable of simultaneously executing as many as five process control tasks at loop speeds ranging from 10 milliseconds to 30 seconds. Each control task is comprised of the I/O process point input scan, control scheme execution and an output scan. Two of the control tasks use predefined loops speeds of one-second and 100 milliseconds. The other three control tasks can have user-selectable loop speeds. Individual control sheets assigned to an available task coordinate the control execution loop time with the appropriate control function. Advanced diagnostics visible on Ovation HMI graphics indicate control task loop times for configured, average, worst case and standard deviation.

Control Scheme

OCR1100 functionality is defined by control sheets created from an extensive library of standard and advanced Ovation algorithms specifically designed for the power, water and wastewater industries. Control sheets provide the basis for executing, documenting and automatically creating control tuning diagrams used during commissioning and when adjusting control schemes. On average, the OCC100 controller can execute more than 1,000 control sheets.

Sequence-of-Events

Integral sequence-of-events processing capability is provided using Ovation I/O and standard controller software. With a resolution of one millisecond, the sequence-of-events subsystem records the sequence in which a set of user-defined digital input indications change state, providing a valuable troubleshooting and diagnostic tool for high-speed electrical systems.

In addition to the higher resolution time tags, sequence-of-events points may be used in control schemes like any other I/O point, including limit checking and alarming.

Alarm Processing

The OCR1100 processes limits and alarms based on each process point's database definition. These functions are performed regardless of whether the point is scanned for input to a control loop or for data acquisition separate from control functions. The alarm status of each point in the controller is updated with each scan. The status may indicate whether a point value has:

- Exceeded the range of the sensor
- Exceeded the user-defined limits
- Changed state
- Passed an incremental limit

Alarm reporting can be delayed on a per-point basis by a user-specified period.

When coupled with a workstation, the Ovation OCR1100 controller has the capability to report six independent alarm thresholds defined as:

- Four high limits
- User-defined high limit
- Highest plus incremental limits
- Four low limits
- User-defined low limit
- Lowest plus incremental limits

The workstation can sort and display alarms based on a user-selected alarm significance level.

Operator Interface Processing

The Ovation controller performs all limit and alarm processing based on the database configuration for each point. However, Ovation HMI's provide the capability to suspend these functions, as necessary, based on the process state or operator actions.

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Ovation Controller Specifications

Ovation Controller Model OCR 1100 - Specifications		
Item	**Capability**	
Bus structure	CompactPCI standard	
Originated points	Up to 32,000 points	
Process control tasks	Up to 5 each with a different loop execution rate	
Control task loop execution time	Two of the 5 tasks are predefined @ 1 s and @ 100 ms. The other three tasks are user definable, with each task individually defined to execute at a rate between 10 ms. and 30 seconds in increments of 10 ms.	
Processor base frequency	1.1 GHz	
Memory	1 Gb Flash & 256 Mb RAM	
NIC ports	4 x 10/100 Mb Ethernet Two options: (i) 4 x RJ45 or (ii) 1 x RJ45 + 3 SFP Fiber	
Temperature	Ambient: 0-60 ºC or 32-140 º F (i) 4 x RJ45	Ambient: 0-50 ºC or 32-122 º F (ii) 1 x RJ45 + 3SP Fiber
Power	24 VDC 40W	
Humidity	0 - 95% RH	
Size	20” w x 8” h x 7” d	
CE Mark	Certified to be CE Mark when installed in a CE Mark cabinet	
BootROM	OCR1100 only OCR400 replacement / OCR1100	
Achilles Level 1 certification	Model No. OCR1100 Category Embedded Device	

Ovation Controller Model OCR 1100 - I/O Specifications		
Item	**Capability**	
Local Ovation I/O	Up to 16 independent branches of 8 modules per branch for a total of 128 I/O modules	
Local Q-Line I/O	1 node of 48 Q-line I/O cards	
*Extended Q-Line I/O	1 additional node of 48 Q-line I/O cards	
Remote Node Interface	Up to 16 remote node interface modules where each remote node interface can support up to 64 I/O modules	
*Remote Ovation I/O	Up to 8 nodes where each node can support up to 64 I/O modules	
*Remote Q-Line I/O	Up to 8 nodes of 48 Q-line I/O cards	
Smart device capability	Foundation™ fieldbus / PROFIBUS / DeviceNet	
Virtual I/O capability via Ethernet TCP/IP and standard protocols	Allen-Bradley PLCs DF-1 GE Mark V/VI GSM Modbus/TCP	MHI turbine control External Ovation network GE Genius I/O Toshiba turbine control

**Any one of these I/O types can be supported at one time.*

Ovation Controller Model OCR1100 - Cabinet Specifications		
Item	**Standard Controller Cabinet**	**Expansion Cabinet**
Size	(h x w x d) 79 x 24 x 24 in 2006.6 x 609.6 x 609.6 mm	(h x w x d) 79 x 24 x 24 in 2006.6 x 609.6 x 609.6 mm
Weight (fully configured)	426.25 lbs. 191.81 kg.	396.25 lbs. 178.31 kg.
Operating ambient temperature (Refer to NIC ports above)	0-50 °C; 32-122 °F (i) 4x RJ45 ports 0-40 °C; 32-104 °F (ii) 1 RJ45, 3x SFP ports	0-60 °C; 32-140 °F
Storage ambient temperature	-40 to 70 °C; -40-158 °F	-40 to 70 °C; -40-158 °F
Operating humidity	0 - 95% Non-condensing	0 - 95% Non-condensing
Storage humidity	0 - 95% Non-condensing	0 - 95% Non-condensing
Capacity	Redundant controllers, 32 I/O modules, 2 power supplies	Space for spare equipment, 32 I/O modules, 2 power supplies

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