



Annunciator Systems



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Background

Westinghouse Annunciator Systems address plant obsolescence by modernizing legacy annunciator equipment on the Emerson Ovation® platform, delivering a fully digital, integrated alarm presentation solution. The system preserves the familiar annunciator look and operator pattern recognition, while enabling flexible alarm consolidation and presentation on commercial off-the-shelf monitors for a more efficient and adaptable interface.

By leveraging deep expertise in nuclear instrumentation and control modernization, Westinghouse enhances alarm management with advanced functionality, including software-based configurability, integrated Sequence of Events (SOE) recording, and seamless Distributed Control System (DCS) integration. The result is a future-ready annunciator solution that reduces lifecycle risk, improves operator awareness, and supports long-term plant reliability and performance.

Non-Safety Systems

Main Control Board



Annunciators



Plant Computer



The Westinghouse Annunciator System leverages the proven Emerson Ovation® fully redundant Distributed Control System (DCS) to provide a highly reliable, modern alarm management solution. Legacy lampboxes are replaced with commercial off-the-shelf (COTS) displays, reducing lifecycle costs, improving maintainability, and simplifying future technology refreshes while preserving the alarm patterns and visual cues operators rely on for rapid recognition and response.

The fully redundant DCS architecture eliminates single points of failure and ensures continuous alarm availability to Operations. In addition to console mounted displays, alarms, graphics, and historical information are available on local workstations, providing enhanced diagnostic capability, greater operational insight, and redundant access to critical plant information.

Scope

- A Westinghouse Annunciator System provides operations with a fully digital system with enhanced capability to reduce operator burden while providing new features to expedite reactions. Advanced alarm suppression on nuisance alarms, programmatic alarm cutouts, alarm filtering and alarm priorities provide a great impact to the operations of the plant when reacting to alarms. High speed data recording, sortable alarm lists, and historical review provide accurate information of current and past data.

- # Advanced Visualization & Situational Awareness

III		AA1	RTN		AI
2A CCW PUMP OVERLOAD TRIP			CCW SRG TK LVL A TRN LO-LO		
		AA2	AI		
2B CCW PUMP OVERLOAD TRIP			CCW SRG TK LVL B TRN LO-LO		
III		AA3	AI		
2C CCW PUMP OVERLOAD TRIP			CCW SRG TK LVL HI-LO		
			A-TRN	B-TRN	
		AA4	II		
CCW RM CLR FAULT			CCW FLOW FROM RCP OIL CLRS LO		
2A	2B				
II		AA5	AI		
CCW PUMP RM FLOODING			RCP THRM BARR CCW FLOW HI		
LVL10	LVL18				

Value Added Services

- ## ALARM LIST

[illegible]



Streamlined Plant Integration and Reduced Lifecycle Cost

Operator Friendly Design

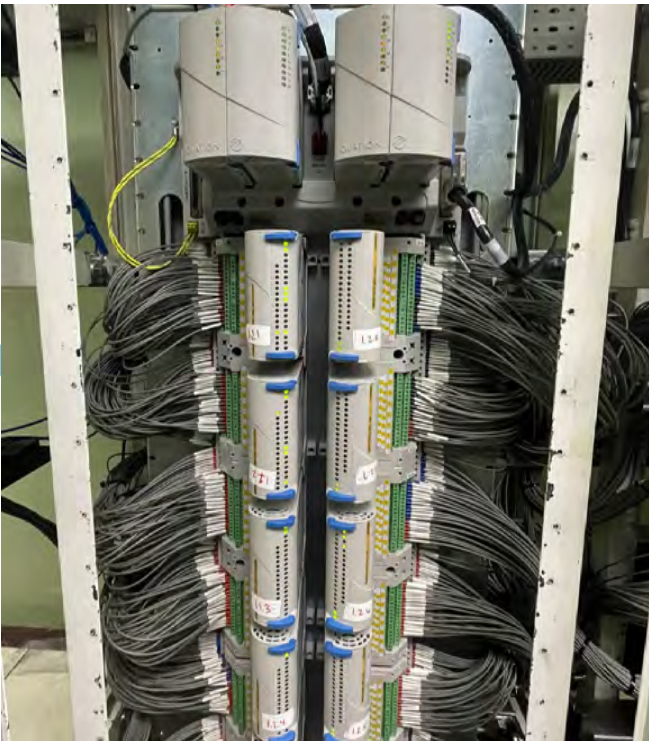
The system integrates directly with the existing **Emerson Ovation® DCS**, allowing utilities to:

- Reuse infrastructure, training programs, and spare parts programs
- Reduce duplicate documentation and maintenance effort
- Lower I/O footprint by removing lampbox wiring and leveraging existing DCS inputs
- Large Format Trends - Review critical plant parameters with self-scaling trends
- System Overview - Large P&IDs of critical plant parameters for constant operator viewing
- DCS Integration - The Annunciator System integrated into the DCS will reduce the intra-system hardwired relay connections to software based connections. Reducing the cost and footprint as new systems are integrated into the DCS system.

Alarm Flexibility and Operator Awareness

By replacing lampboxes with **commercial off-the-shelf monitors**, Operators gain capabilities that simply aren't possible with hardware based annunciators:

- Dynamic alarm tiles or traditional pattern replication
- Software based alarm changes (no rewiring)
- Detailed alarm lists with filtering and sorting
- SOE recording (1ms), first out indication, and ARP integration
- Alarm suppression tools (shelving, disabling, programmatic cutouts)
- Trending of critical plant parameters
- System overview screens
- Fully NEI 08-09 compliant



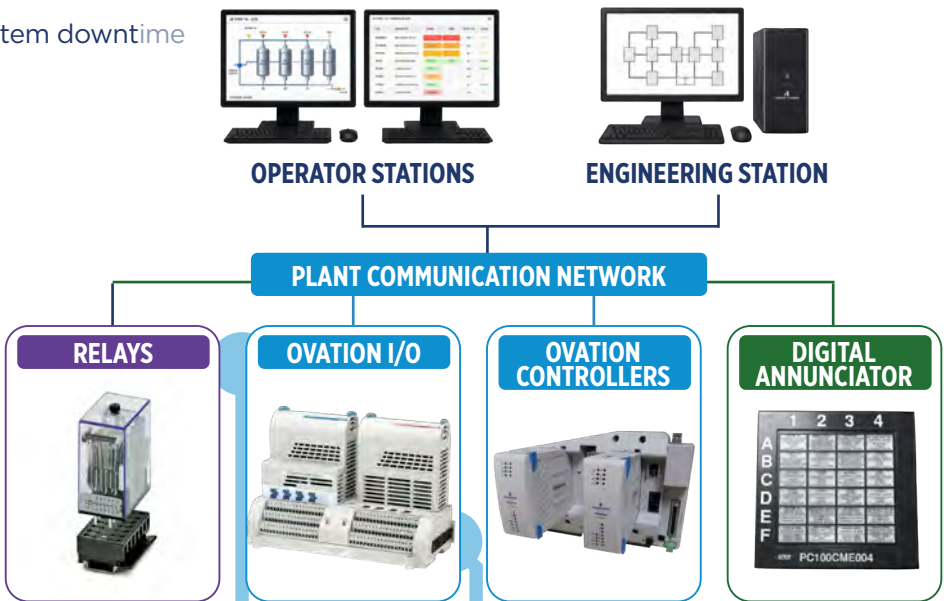
Improved Reliability and System Availability

Built on a **fully redundant DCS architecture** including redundant controllers, networking, and power supplies with self-monitoring diagnostics that can pinpoint system faults in real-time. Eliminating single point failures and providing self-diagnostics ensures operators always have access to alarm information and that repairs can be performed before operability is impacted.

Annunciator systems provide high availability virtualized architecture through:

- Redundant virtualization hosts
- Automatic failover of VMs
- Maintenance without System downtime
- Resource load balancing

DISTRIBUTED CONTROL SYSTEM (DCS) ARCHITECTURE



High Availability

Annunciator Systems



Learn more about Westinghouse I&C products
and services at



[https://westinghousenuclear.com/operating-plants/
instrumentation-controls-systems/](https://westinghousenuclear.com/operating-plants/instrumentation-controls-systems/)

