


FACTSHEET


ACTIVEPOINT* HMI


Improved user experience for reduced cost and increased operator efficiency

Because of changing industry dynamics, there are fewer operators working in plants, and they have more responsibility. According to the ASM Consortium, unexpected events in industrial settings—turbine trips and equipment failures—cost up to \$10B in annual lost production. Up to 40% of abnormal events can be attributable to operator error, and up to 88% of accidents are associated with poor situational awareness. One reason is complex or poorly engineered HMIs (Human Machine Interfaces), the physical and digital tools operators use to experience and control multi-million dollar gas turbines and other plant equipment.

GE Vernova worked with 100+ global power plant operators to develop its ActivePoint* HMI solution to increase plant operator efficiency and awareness. The improved system provides simpler and more intuitive navigation while reducing actionable alarms by as much as 80%. It complies with the standard ISA 18.2 for Alarm Rationalization, ISA 101 for HMI User Experience design, the High Performance HMI Handbook, and other industry standards.

 **SIMPLICITY**
Improves situational awareness and decreases costly errors/lost production.

 **INTUITIVENESS**
One-button plant startup/shutdown decreases \$1MM+ misses.

 **RESPONSIVENESS**
Improves due to an 80% actionable alarms reduction.

Total solution enabling system monitoring and controlling from any device, anytime, anywhere.

What is the ActivePoint HMI?

- **User Experience** that conforms to GE Vernova guidelines GEK121341, GEK121342, & GEK121344, based on ISA 101 for HMI User Experience Design.
- **Rationalized Alarms** that conform to GE Vernova guidelines GEK121341 & GEK121343, based on ISA 18.2 for Alarm Rationalization.
- **Rationalized Protection** that has gone through GE Vernova’s engineering process to streamline trips, runbacks, shutdowns, prestart checks, and permissives.
- **ActivePoint HMI** can be implemented on both Thick and Thin client HMI solutions.
- Implements **GE Vernova Intellectual Property** within the power generation space.



Before



After



HMI Approach

SIMPLE	Minimalism	Improves detection.
	Color Palette	Decreases cognitive workload.
INTUITIVE	Visual Coding	Increases speed of recognition.
	Information Layout	Provides intuitive, process oriented views.
SEAMLESS	Contextual Data	Reduces information overload.
	Imbedded Trend	Provides more information when it is useful.
	Screen Hierarchy	Reflects the operator's mental model.
CONFIDENT	Navigation	Enables quick, intuitive wayfinding.
	Alarm Presentation	Enables faster detection and understanding.

Key Performance Indicators (KPIs)

21%+ usability improvement for users and prototypes tested
First time opening or viewing previous screen that was opened

- < 2 seconds to open
- < 1 second to populate
- <= 1 second to refresh
- 80% actionable alarms reduction
- 30 - 40% reduction in trip causing protection functions

Required Hardware and Software

- Mark* V1e controller; Mark V1e DCS and HMI system for control
- Latest Proficy Cimplicity and ControlST* versions that work together
- Traditional (Thick Client) HMI Computers or Control Servers (Thin Client) System, validated and approved for use by GE Vernova
- Latest Windows Server or Windows OS validated and approved for use by GE Vernova
- Up to 4 Monitors that support 16:9 aspect ratio
- Thin Clients use Remote Desktop session for client connection to a server
- 1920 × 1080 widescreen monitor resolutions (16:9)

Additional Offerings

Improve ActivePoint* HMI adoption success with classroom training, on-the-job coaching, and a scenario-based training simulator.

Third- Party DCS

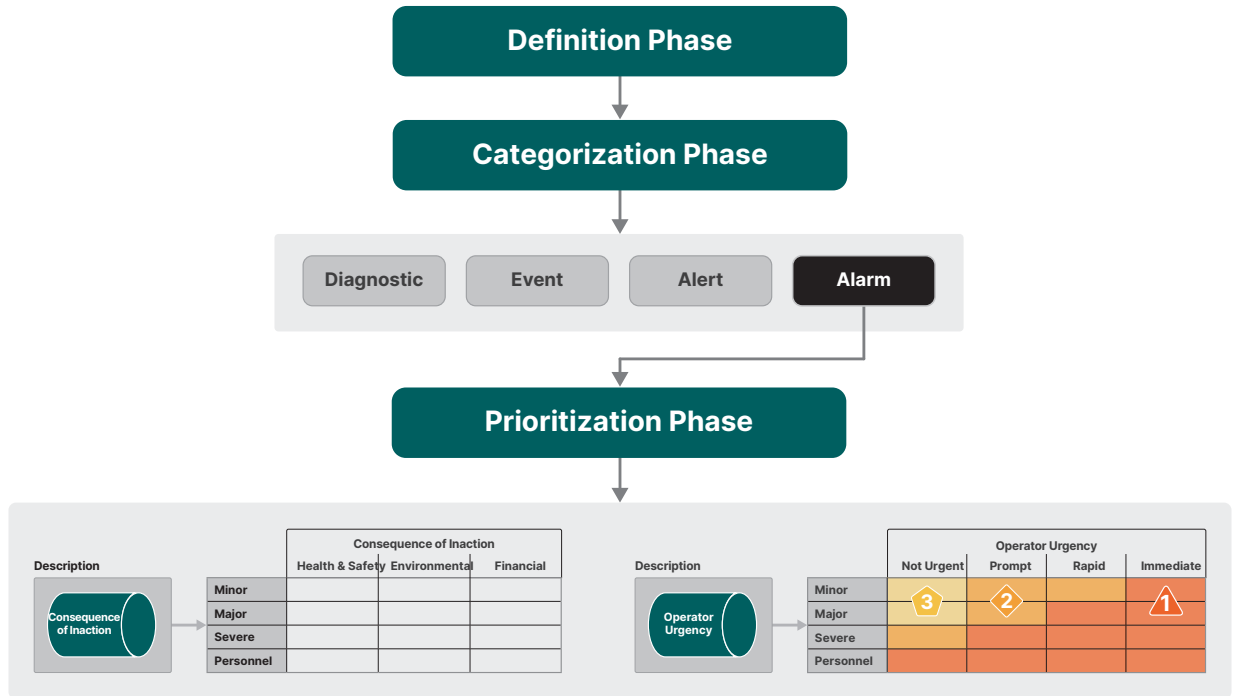
For balance of plant screens or DCS integration:

- GE Vernova alarm configuration and presentation functionality has to be duplicated
- GE Vernova HMI screens have to be recreated
- GE Vernova NDA, licensing agreement, and licensing fee

ActivePoint Protection Rationalization Process

- The objective of the Protection Rationalization initiative is to improve turbine reliability by removing or reducing protective actions that are taken in response to faults. The expected result is 30 – 40% reduction in trip causing protections.
- The rationalization is accomplished by examining each fault and questioning whether the driven protective action is appropriate. If it is not, a less restrictive action or no action is assigned to the fault.

ActivePoint Alarm Rationalization Process



Description		Consequence of Inaction		
		Health & Safety	Environmental	Financial
Consequence of Inaction	Minor			
	Major			
	Severe			
	Personnel			

Description		Operator Urgency			
		Not Urgent	Prompt	Rapid	Immediate
Operator Urgency	Minor	3	2		1
	Major				
	Severe				
	Personnel				



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GEA31967B (1/2024)