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ISA-101 HIGH-PERFORMANCE HMI CHEAT SHEET

A Field-Ready Reference for Reducing Cognitive Load and Improving Situational Awareness

ISA-101 is the consensus standard for HMI graphics in process industries. It helps operators detect abnormal situations quickly and trust what they see. Normal operation should feel calm and uncluttered so real urgency stands out instantly.

QUICK ISA-101 SELF-CHECK: CRITICAL CHECKS

ABNORMAL DETECTION

01	**DETECTION** Operator identifies deviation, direction, and required action within ~5 seconds.	IF NOT:	Operator cannot assess state in < 5s
		ACTION:	**Rework the primary deviation cue.**
02	**COLOR DISCIPLINE** Strong color appears only on abnormal states and required actions.	IF NOT:	Normal equipment uses saturated color
		ACTION:	**Return normal-state graphics to neutral gray.**
03	**LIMITS AT POINT OF USE** Critical values show engineering units, setpoint, and high/low limits on the same element.	IF NOT:	Operators must recall limits from memory
		ACTION:	**Add limits visually to the element.**
04	**TRENDS ADJACENT** Each key variable has an adjacent trend showing limits and tolerance bands.	IF NOT:	The trend requires navigation to see
		ACTION:	**Relocate the trend to the primary view.**
05	**ALARM HYGIENE** Alarms are prioritized, action-oriented, and nuisance alarms are suppressed.	IF NOT:	The alarm banner is always full
		ACTION:	**Rationalize alarms before adding graphics.**

↑ TRIAGE: If any of the checks 1–5 fail, fix those before cosmetic work. They carry the highest operational risk.

CONSISTENCY CHECKS — SPEED + SCALABILITY

06	**SCREEN PURPOSE** Title explicitly states the operator decision or action the screen supports.	IF NOT:	The title is just an equipment tag
		ACTION:	**Rename it to reflect operational purpose.**
07	**VISUAL HIERARCHY** Emphasis uses position, size, and brightness first; color is the last resort.	IF NOT:	Color is doing most of the visual work
		ACTION:	**Restructure the layout and contrast.**
08	**NAVIGATION** Navigation is identical in location, labeling, and behavior across the unit or line.	IF NOT:	Operators must hunt for navigation
		ACTION:	**Standardize the navigation template.**
09	**FACEPLATES** Start/Stop, modes, and permissives follow one standard layout.	IF NOT:	Every faceplate layout is different
		ACTION:	**Consolidate to a single standard template.**
10	**GOVERNANCE** Style guide exists and reviews are tied into plant change control.	IF NOT:	Style guide is informal or absent
		ACTION:	**Formalize it now, or projects reinvent.**

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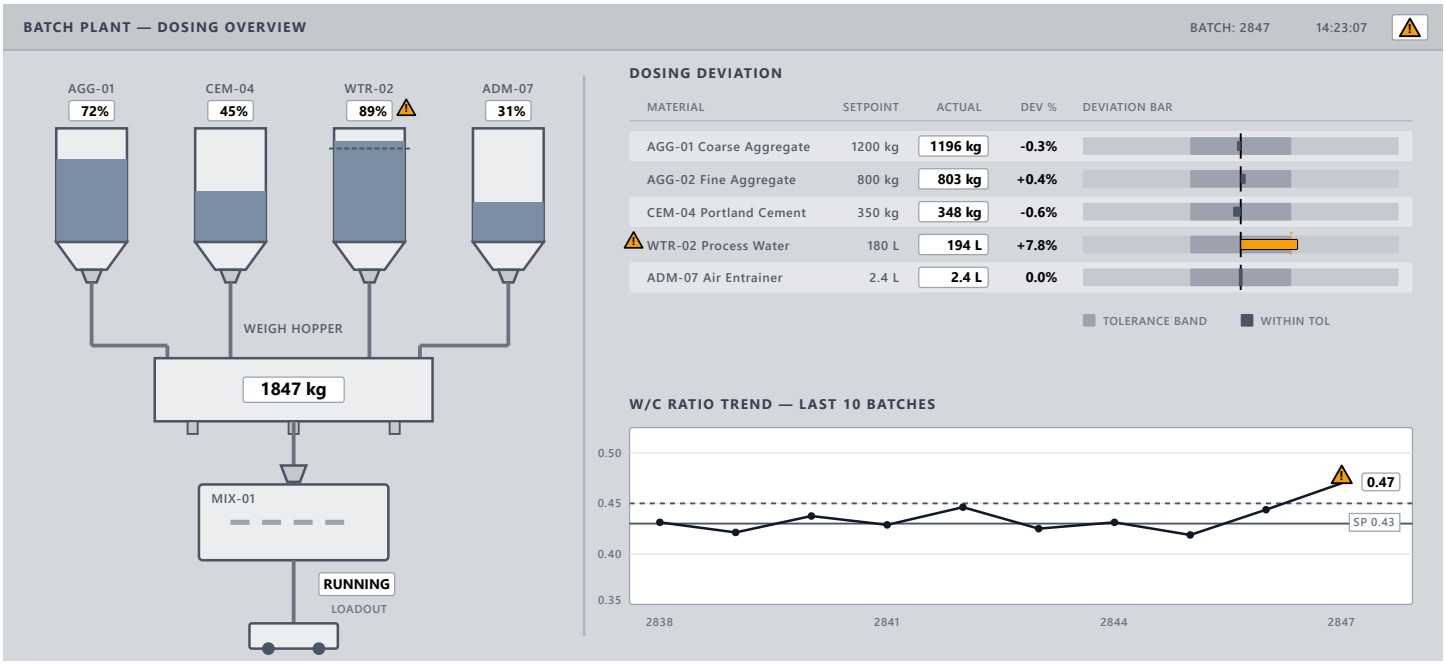
WHAT GOOD LOOKS LIKE + WHAT TO REQUEST

HIGH-PERFORMANCE PATTERNS: DEVIATION-FIRST DOSING



Normal state is neutral gray. Deviation is centered with a tolerance band. An adjacent trend shows setpoint and limits. The operator sees "how far off and which way" before anything else.

MINIMUM ISA-101 DELIVERABLES (TO PREVENT DRIFT)

Without these artifacts, consistency degrades with every project handoff:

HMI PHILOSOPHY

Principles for abnormal emphasis, visual hierarchy, and screen purpose.

STYLE GUIDE

Versioned rules for color semantics, typography, grid layouts, and symbol conventions.

REUSABLE LIBRARY

Standard faceplates, symbols, and graphic components under source control.

VERIFICATION CHECKLIST

Checklist-based screen review integrated directly into your plant's change control workflow.

If any are missing, creating them is the first engagement — otherwise improvements won't survive the next contractor turnover.

YOUR LOGIC IS READY. LET'S BUILD THE SCREENS.

Stop burning engineering hours on HMI layouts. Industriant delivers the operator-facing layer so your team stays focused on logic and commissioning.

> Treat your HMI library like code: versioned, reviewed, reusable.

BOOK A CONSULTATION →

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