



Modern HMI Software

Connect people to the information that
drives better decisions



Connect people to information

Good things happen when operators, technicians and engineers have relevant production information at their fingertips. They can meet production targets, reduce waste and energy usage, improve processes, quickly resolve problems, and more.

Modern HMI software makes this possible. It delivers the timely, useful information that workers need to make faster and better decisions.

DEFINING CHARACTERISTICS

Modern HMI software connects people to information by:

- **Integrating with production hardware and software** to provide instant access to data from the shop floor.
- **Contextualizing production data** into meaningful and useful information that can help workers make better decisions.
- **Visualizing information** with easy-to-understand graphics while focusing workers' attention on important information like alarms or abnormal conditions.
- **Allowing workers to interact with data in familiar ways**, like using touch gestures to scroll through trending data, flip through PDF pages, and zoom in and out of webpages.
- **Supporting new technologies** like cloud computing, virtualization, thin clients, mobile devices and mixed-reality headsets that change how we access and view information.



With a greater reliance on information, **the HMI has become the central point for decision making.**

6 key benefits

Modern HMI software can find data buried deep in operations and bring it up to the screen surface where critical production decisions are made.

But the software doesn't just deliver data. It converts the data into meaningful, timely and easy-to-understand insights for workers. It also makes sure those insights are delivered to the right person, in the right place, at the right time.

Let's look at six ways modern HMI software can improve your operations:

- IMPROVED UPTIME AND PRODUCTIVITY
- BETTER ALARMING
- IMPROVED VISUALS AND EASE OF USE
- INFORMATION WHERE YOU NEED IT
- FASTER DESIGN AND COMMISSIONING
- SECURE PRODUCTION





Improved uptime and productivity

More productive workers. Faster access to mission-critical information. Less downtime. So much is possible when you connect operations and maintenance workers to the right production information.

OPERATIONS

Operators can see more, know more and do more with modern HMI software. They can:

- Assess situations and navigate systems faster with easy-to-understand visual displays
- Access more types of information—job instructions, camera feeds, work orders—that they previously accessed from another system or even in another building
- Interact with the HMI to be more productive—from pinching and zooming in on technical manuals, to leaving comments in alarm logs to provide context for maintenance workers

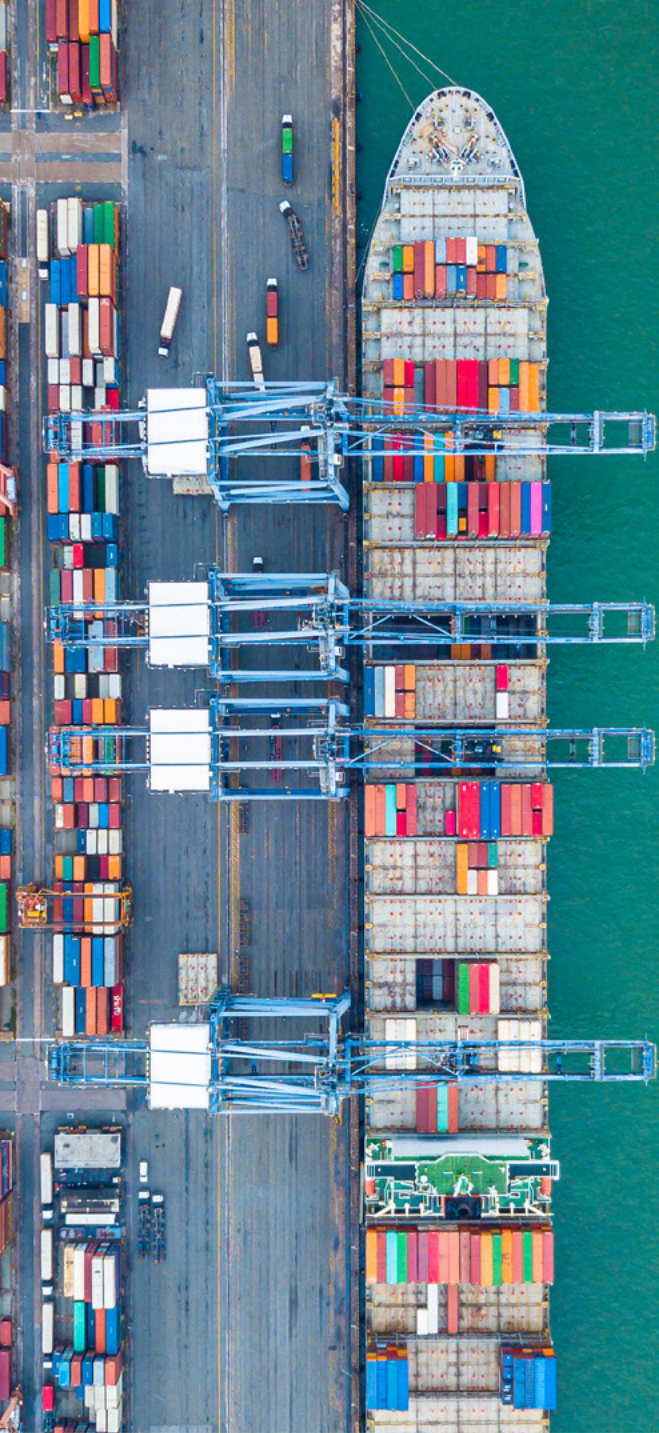
MAINTENANCE

Modern HMI software can tell technicians what happened in a system, and correlate information across devices to help them troubleshoot problems and identify root causes. If needed, technicians can even open a technical manual on the HMI as they work to resolve an issue.

MANAGEMENT

HMI is no longer just a tool for operators and engineering. Management can get data right from the source in easy-to-access dashboards to view:

- System status information
- OEE and production quotas where and when they need it



A ROOM WITH A VIEW

When Pacific Coast Terminal needed to move operators from the cab of a ship loader to a remote control room, visualization was key.

The company needed to make sure operators could still efficiently move materials from rail cars to ships, and minimize the potential for equipment collisions.

Cameras were used to replicate in-cab views in the control room. And sensors provided anti-collision detection outside of the vessel.

The sensors were connected to modern HMI software, **allowing operators to monitor and troubleshoot issues during ship loading.** Management also has visibility into the process and knows when a ship is being loaded and the loading rate.

Better alarming

Modern HMI software can improve how workers see and respond to alarms in several ways.

BETTER SPEED AND ACCURACY

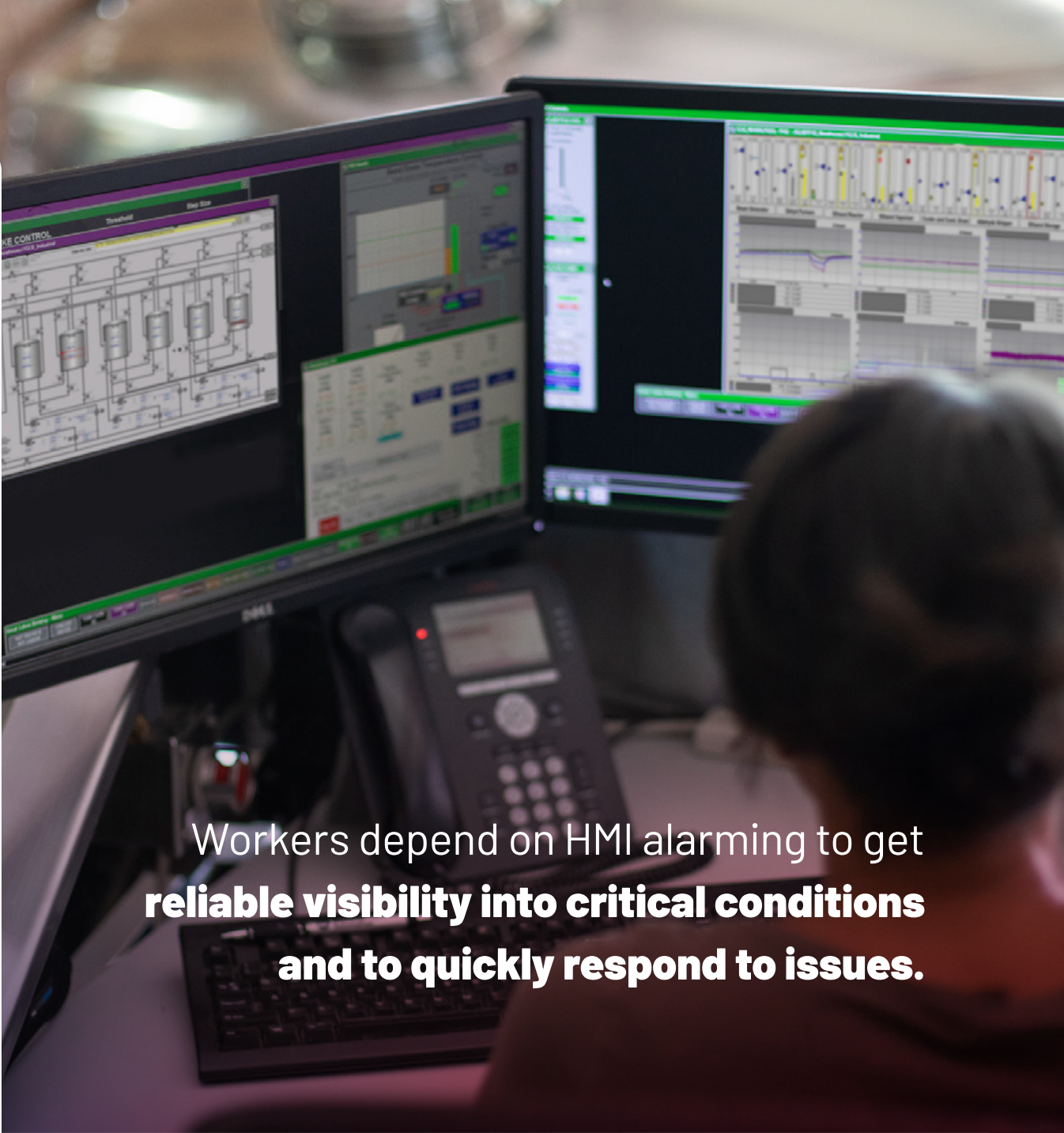
Device-based alarms can detect alarm conditions faster and give workers more accurate alarm time stamps than tag-based alarms. This is because they detect and manage alarms in a controller, not in a server.

FASTER ISSUE RESOLUTION

Rather than a technician digging backward to understand an operating state when an alarm was triggered, modern HMI software can instantly provide those details. This information is delivered in associated tags that are included with an alarm message.

IMPROVED NOTIFICATION

Workers don't need to be standing in front of screens to know when alarms happen. They can be remotely notified by email, text message or smartphone alerts. You can also escalate alarm notifications to others, like when a worker isn't responding to an alarm or when conditions worsen.



Workers depend on HMI alarming to get **reliable visibility into critical conditions** and to quickly respond to issues.

GOING UP THE CHAIN

What does an alarm escalation look like in a production facility?

80°

Here's a possible scenario:

A TANK EXCEEDS ITS ACCEPTABLE THRESHOLD OF 80 DEGREES

Operators are notified with a traditional HMI alert and with a text message to their smartphones.

90°

THE TANK REACHES AN URGENT THRESHOLD OF 90 DEGREES

A text notification is also sent to the maintenance team and plant manager.

100°

THE TANK REACHES A CRITICAL THRESHOLD OF 100 DEGREES

The notification triggers the emergency monitoring system to begin a plant evacuation.

“Our operators now have more data available to observe, and it’s organized in a way that allows them to understand what’s happening at any stage of the process. The standardized language and graphics make it easier to document the process and key data points, as well.”

– Chris Roberts, City of Tacoma Environmental Services

Improved visuals and ease of use

More flexible and advanced processes, an influx of new technologies, and an ocean of data are all making industrial operations more complex. Meanwhile, skilled workers are retiring, and new, less experienced workers are taking their place.

Now more than ever, you need to deliver information in a clear, easy-to-understand manner. Modern HMI software can help:

- **User-friendly interfaces** can include graphic-rich displays that make operations monitoring more intuitive. Or they can include displays that make it easy to detect abnormal situations by highlighting items that need a viewer’s attention. For more information, [click here](#).
- **A consistent look and feel** across operator terminals, PCs and tablets gives operators a familiar environment to work in. Centralized administration and reusable objects can also make HMI displays and functions consistent across lines and plants.
- **Multi-language support** allows operators to work in their preferred language. Different workers can even dynamically switch between languages while a machine is running.



RETHINK YOUR HMI

As production continues to evolve with new technology, modern HMI software should evolve with it. That’s where the ISA101 standard can help. **Follow these guidelines** to take advantage of best practices for designing, implementing, using, and managing HMIs in manufacturing applications.

Information where you need it

Information is only truly powerful when workers can access it in their moments of need. This is the difference between merely having information, and having it in the time and place where decisions are made.

MOBILE DEVICES

Operators and plant managers can instantly access information anywhere when modern HMI software extends to mobile devices. The displays can be delivered on popular mobile platforms with responsive and configurable views that are tailored to the user. And the mobile access can be secured to help prevent changes by remote users. Learn about some **best practices for designing a mobile HMI**.

VIRTUALIZATION

Modern HMI software that supports virtualization can extend the life of your HMI, and reduce downtime and maintenance risks. Virtualization breaks the traditional link between hardware and operating system, so workers can change hardware without replacing the operating system or applications on it.

THIN CLIENTS

Modern HMI software can also deliver HMI displays to thin clients. **Learn how** thin clients can provide cost savings, reduced maintenance and enhanced security compared to using PCs on the shop floor.

SCAN-AND-SEE TABLET HMI

When a large pharma maker updated the equipment in its process-development labs, it ditched the HMIs on its bioreactors and opted for mobile tablets.

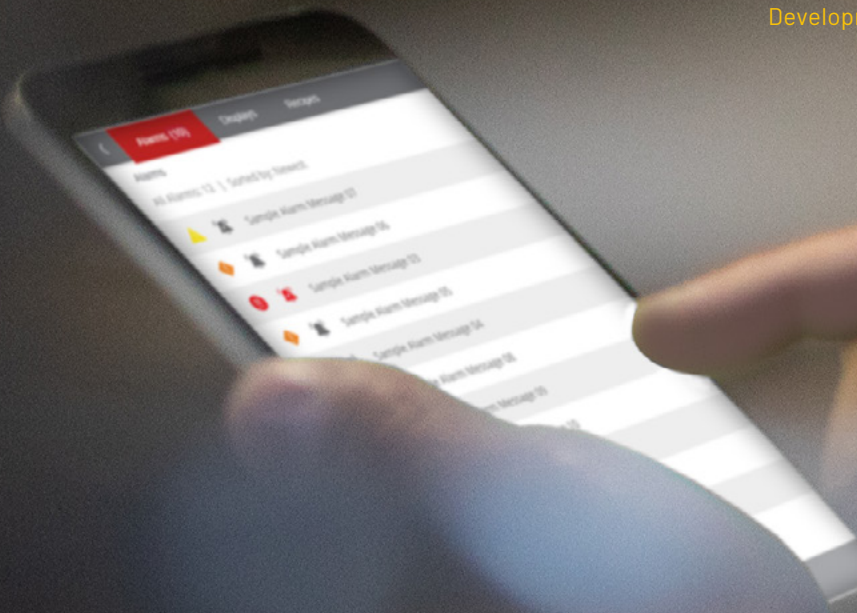
Now, lab scientists simply scan a QR Code on a bioreactor, and its information is displayed on the tablet.

To enhance usability, tablet faceplates are consistent across functions. This simplifies training and makes it easier for workers to find and interpret data.



Once you learn how to read the faceplates, you can operate any of them, because they look and feel the same."

- Associate Director of Pharmaceutical Development and Manufacturing Sciences





Faster design and commissioning

Design and commissioning engineers are always looking for ways to work faster. That's why they appreciate modern HMI software that can help them more quickly develop and deploy systems.



SAVE TIME: With the ability to store and reuse device faceplates and other objects in a library, developers can more quickly deploy common interfaces across lines and plants. And when using HMI design standards like ISA-101.01, developers can create and reuse graphics that align with the standard.



STREAMLINE: Multiple people can collaborate to create applications with HMI software that supports multi-user application editing. They can also save time with a common development tool for machine-level and supervisory-level applications.



SIMPLIFY: Developers can avoid duplication of design efforts when HMI software integrates with the control system. HMI display objects can reference tags in the controller directly, without an intermediary and repetitive HMI tag database. This can also help increase accuracy in state-tracking and alarm time stamps.

Secure production

Safe, secure production information is a cornerstone of operational productivity. Gain peace of mind with a modern HMI that delivers the goods!

EASY COLLABORATION WITH IT

Security breaches are no longer the sole concern of our Information Technology (IT) friends. Now more than ever, hackers are attempting to make their way into control systems to affect your production, quality, and safety. Keep your processes and workers safe and secure with a modern HMI that makes it easy to enable security through IT collaboration.

BUILT-IN CHECKS AND BALANCES

Strong application security and built-in checks and balances through change management make sure the only changes that are made are authorized ones.

SECURITY NATIVE TO THE INFRASTRUCTURE

Modern HMI is part of a platform designed for security from the ground up, through certification to security standards and cooperation with national security response organizations.



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Know the value of a connected HMI

HMI software that connects to your different systems is the gift that keeps giving. It results in more robust decision making. But it can also improve operations in other ways.

PRODUCTION SYSTEMS

Modern HMI software can integrate with production systems to help workers better analyze production, optimize equipment performance, track product quality and more. They gain access to not only real-time controller information but also information stored on the plant floor.

HISTORIAN INFRASTRUCTURE

The software can store data using a historian, allowing plant managers and operators to analyze complex process data over a long period of time with ease. In fact, with the right historian infrastructure, workers can store, retrieve and analyze data over periods of several years.

Learn how HMI and Historian work in tandem to deliver a powerful production reporting tool.

THIN CLIENT MANAGEMENT SOFTWARE

The software can share user credentials with thin client management software. This means workers don't need to log in multiple times to different software. Multiple HMI sessions can be delivered to a thin client with just one license, so workers can access the information they need without worrying about session limits. **Learn how** HMIs using client software can streamline your operations.

ASSET MANAGEMENT SOFTWARE

Finally, the software can integrate with asset management software to back-up and recover HMI applications. This means engineers don't need to rebuild custom HMI applications in the event of a catastrophe or a machine going down. **Avoid downtime or quickly recover when it occurs.**

"Our production facilities—and our supply chain—literally cover the globe. The tools that FactoryTalk® provided us gave us the visibility we needed to identify areas that needed improvement and to collaborate on problem solving. It's made us much more responsive and able to get ahead of potential issues before they can affect production."

- Plant Manager

With the right production information, workers can shine a light on their operations to see where they're struggling and how operations can be improved.

MODERN HMI SOFTWARE MAKES THIS POSSIBLE

It connects to your systems, accesses the data you need, and puts that data in front of workers, when and where they need it, in the form of relevant information.

To learn more about how modern HMI software can benefit your operations,
contact a Rockwell Automation sales representative
or visit: **www.rockwellautomation.com**.

Connect with us.    

rockwellautomation.com — expanding **human possibility™**

AMERICAS: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

EUROPE/MIDDLE EAST/AFRICA: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

ASIA PACIFIC: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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