

DIGITAL DATA IN THE PALM OF YOUR HAND



Emerson's Sanjin Biševac explains how mobile applications are transforming the way digital plant data is accessed, enabling improvements in safety, reliability and operational performance

A challenge faced daily by manufacturing and process companies is finding ways to make improvements across the key areas of safety, reliability and efficiency. The pervasive sensing strategies increasingly employed in today's digital plants are producing a wealth of critical process and diagnostic data which can help bring about such improvements. But for this to happen, the information must be delivered securely to the relevant personnel, at the right time, so that it can be analysed and acted upon efficiently.

When plant data reaches distributed control system (DCS) workstations in a control room, it can be quickly viewed and assessed by operators. But what happens when an operator needs assistance from other personnel who are outside the control room and need to access the data? This is a problem that mobile applications are helping to solve. By securely delivering the right information to the right people at the right time, well-designed mobile platforms are transforming the way data related to plant and worker safety, equipment reliability, and device/facility performance is accessed and consumed.

Using Industrial Internet of Things (IIoT) technologies, mobile solutions enable users based anywhere in the world to monitor real-time process values, diagnostics, trends and alarms from multiple data sources. This ability to monitor operations and share critical information, without being restricted by location or regular business hours, enhances flexibility and enables faster decision-making.

Solutions such as Emerson's DeltaV Mobile put the digital plant securely in the palm of the user's hand, wherever they are located. Critical data is shared more easily, therefore streamlining workflows and

helping to improve plant performance. They also create a variety of benefits for specific roles.

Operations managers/supervisors can:

- Maintain high visibility of their operations when they are away from their PC or even off-site.
- Monitor critical process values and key performance indicators with intuitive, easy-to-read mobile views.
- Receive critical alarm notifications.
- Share information quickly with their team members, wherever they are, so that issues can be resolved.

Safety engineers can:

- Monitor safety-critical data and alarms specific to their responsibilities.
- Receive notifications and alarms in real time, exactly as they appear in the operator console.
- Monitor safety instrumented functions such as bypasses or partial stroke tests.

Process engineers can:

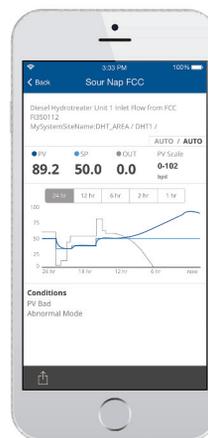
- View critical data, alarms and trends in real time to help them diagnose issues.
- Receive contextualised alarms to help them evaluate what has happened.
- Receive notifications for critical alarms, even when they are off-site.
- Quickly communicate issues and troubleshoot with operators and remote experts.

Operators can:

- Receive critical notifications enabling them to maintain situational awareness while away from the control room.
- Access vital alarm information, including relevant process data and recommended actions.
- Securely share critical alarms and process data with subject matter experts anywhere in the world.

All these roles require access to different

Solutions such as Emerson's DeltaV Mobile provide a secure platform that allows managers, engineers, and operators to have their operations at their fingertips, whenever they need it



With mobile solutions, the same data that is shown on an operator console can be easily and securely viewed on mobile devices

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information. Mobile applications filter and simplify data so that it meets the user's specific needs. Customisable data filters cover a range of equipment, roles and times when the user is on duty. This can be either when they are at the plant but away from their workstation, or away from the plant but still on-call. Filtering data prevents users from receiving irrelevant alerts and instead allows them to receive only essential notifications. Also, the alerts provide contextual process information and recommended actions, enabling users to make better-informed decisions.

Extending secure, organisation-wide expertise beyond the confines of the plant, mobile solutions can connect managers, supervisors, engineers and subject matter experts with access to essential data, alarms and trends, offering benefits over traditional DCS operator consoles.

Screenshots of the information can be easily shared – if not via the mobile application, then by email or text message, connecting senders/recipients to the same live mobile view.

Cybersecurity has been an important consideration in the design of mobile applications. To help ensure the secure transfer of data to mobile devices, measures such as multi-level segmented architectures, user authentication and authorisation, and data encryption should be implemented. To prevent users from inadvertently affecting operations, monitoring via mobile technologies is strictly read-only. Process and diagnostic data is routed to intermediate, secondary servers located above the DCS or automation control network and isolated by firewalls. These servers are accessed via secure VPN or Wi-Fi, creating a built-in means of secure data transfer. Whitelisting and data encryption provide further layers of network security.

A barrier to implementing layered mobile solutions that collect data from historians and other systems can be the amount of engineering required for configuration and maintenance. However, DeltaV Mobile seamlessly integrates with DeltaV so that no additional DCS configuration is needed, and there is no requirement to manage a separate tags database. Instead, the DCS takes advantage of existing configurations, equipment hierarchies, diagnostics, control logic and alarm rationalisation. The same data that is shown on an operator console can be viewed on mobile devices. Alarms update in real time, just as they would on a DCS workstation.

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