

Digital valve controller offers detailed asset health insights

Controller uses edge computing capabilities

to analyze data in real time, providing diagnostic valve health indications and recommended corrective actions.

Control and on-off valves are installed throughout process plants and facilities to regulate the flow of liquid and gas media, often in critical applications. Because these valves frequently change position and are in constant contact with process media, wear and tear is inevitable, so their performance and condition must be carefully monitored to ensure proper operation and anticipate any issues.

To address issues with control and on-off valve monitoring and provide other functionality, digital valve controllers were first introduced to the market back in 1975, with improved versions following over the past few decades, culminating in the Fisher DVC7K, recently introduced by Emerson.

Edge computing enables advancements

This digital valve controller is built on 30 years of proven field-tested innovation (Figure 1). Data and information from the controller can be used to improve the performance, reliability, and uptime of both on-off and control valves, and by extension an entire process plant or facility.

The controller interprets data to create an optimized path to action by combining patented technology, experience-based algorithms, and continuous real-time analytics with flexible connectivity and easy integration.

It uses real-time and onboard edge computing to analyze issues and create actionable information, providing real-time awareness of valve health by analyzing data locally via its on-board diagnostics. If analysis reveals a problem, an alert is created,

which can be viewed locally or remotely, providing the information required to create streamlined and efficient work processes. All alerts include recommended actions to fix the problem.

All information can be viewed at the controller's local user interface, nearby via secure Bluetooth, or remotely after it is transmitted via a wired digital network to a host, such as a distributed control or asset management system. The local user interface provides indication of valve health at a glance via LEDs, and users can drill down from the interface home screen to find more information. Secure Bluetooth enables access to one or more digital valve controllers at distances up to 30 ft from any device capable of supporting Bluetooth, such as a smartphone or tablet. Whether the information is viewed locally, nearby or remotely, plant personnel can use it to drive awareness of valve health.

With more opportunities for remote connectivity and advice at the device, flexibility increases, providing the information needed for fast decisions and quick action to address arising issues. The DVC7K digital valve controller can be specified for all new valve purchases, and it can be retrofitted to most existing valve installations, in either case quickly and easily commissioned via the local user interface.

Control valve applications

With the controller's always-running, onboard diagnostics, diagnostic data is now automatically captured at the time an event occurs, and it is



FIGURE 1: The Fisher FIELDVUE DVC7K is the industry's highest performing and most reliable valve controller, and the first to include embedded prognostics, communicated locally via Advice at the Device. Courtesy: Emerson

Learning Objectives

- **Understand** the role control and on-off valves play in process plants and facilities.
- **Learn how** edge computing is improving and enhancing valve operation and maintenance by giving users better and faster insights.

stored and managed onboard the instrument. This new feature allows the instrument to constantly monitor valve operation, and it provides users with access to the most recent and relevant information so they can review and analyze their control valves installed in critical applications.

On-off valve applications

Users with critical isolation valve applications can use the controller when changing from solenoid control to a digital positioner with on/off diagnostics. Stroke time measurements with stroke time degradation tracking, and partial stroke testing, provide monitoring and testing of on/off valves, giving users the ability to address problems before they impact operations. The controller provides these new features, along with other diagnostics, in a new offering specifically designed for high criticality on/off valves. Along with the added diagnostic data features, the controller also greatly improves reliability as compared to solenoid control, which is often a weak point for these types of applications.

Control and on-off valves carry out critical functions in process plants and facilities worldwide.

Valves perform critical roles

Control and on-off valves carry out critical functions in process plants and facilities worldwide, so their performance and condition must be closely monitored. New digital valve controllers provide this functionality, along with other tasks, improving the operation and uptime of these valves. These controllers also enable optimization of maintenance activities by predicting failures well in advance, allowing for proactive instead of reactive actions. **E**

Josh Grosvenor is the OEM industry manager on the Global Industry Sales team for the Emerson Flow Controls business unit in Marshalltown, IA. He holds a BS degree in Business Economics from Iowa State University. Preston Schaaf is a senior sales engineer for Emerson's Flow Controls business unit in Marshalltown, IA. He holds a BS degree in Materials Engineering from Iowa State University.

▶ Insights

Control valve insights

- ▶ **The Fisher DVC7K** by Emerson employs edge computing for real-time analysis, improving valve performance, reliability and uptime for critical applications.
- ▶ **With secure Bluetooth** and wired digital network transmission, the controller offers viewing options locally, nearby or remotely, enhancing awareness and enabling quick, informed decisions for valve health.