HART line
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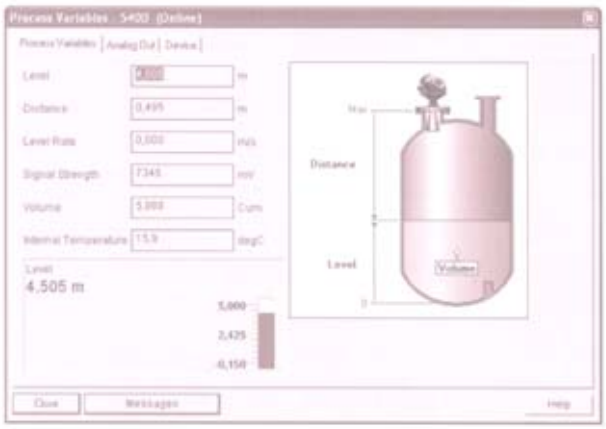
Enhanced DDL Technology Nears Completion



Sample graphics screen enhancement of new HART eDDL

The new HART enhanced Device Description Language (*e*DDL) Specification has been successfully validated and is near completion.

"I think the enhancements are very easy to use," says Dominique Kobiella, Endress+Hauser. "I think the most useful aspect is that we can define our menus now in more detail."

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HART Fact

HART Communication isn't just for configuration and maintenance anymore! Though best known for ease in calibration, commissioning, and maintenance of smart process measurement and control devices, today's HART-enabled devices have many valuable advanced capabilities. Integrating the intelligent capabilities of these devices with plant control, safety, and asset management systems allows the *full potential and benefits* of smart instrumentation investments to be realized.

New Wireless HART Development Launched

A new HCF initiative to develop a Wireless HART Standard is now underway. The **Wireless HART** initiative will result in new HART Communication technology that will ensure interoperable products and new connectivity solutions for leveraging the intelligence of HART-smart devices.

"The HCF continues to invest in new technology capabilities and tools, like the *e*DDL, Integrated Development Environment and Smart Device Configurator technology, and Wireless HART, to support the evolving needs, advanced capabilities and increasing intelligence of HART-enabled devices," says Ron Helson, HCF Executive Director.

A **Wireless HART** Standard will provide major benefits for all industry users. Wireless HART technology will offer new capabilities, ensuring seamless, interoperable solutions for connecting HART devices in a wireless environment.

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HART Plays Vital Role in Safety System Testing

The HART Protocol's bi-directional, digital communication capability has given the technology a vital role in the testing of safety instrumented systems that protect people, the plants they work in and the environment.

By their very nature, valves in a safety system remain stationary nearly all the time, but in those rare instances when they're called upon to bring about the safe shutdown of a process, they must work without fail. The only way to ensure that a safety shutdown valve will function when it's needed is to periodically test it.

In fact, the length of time between tests has a major effect on the system's Probability of Failure on Demand (PFD), a factor in determining the Safety Integrity Level (SIL) under industry regulations governing safety systems.

"Lengthening the interval between tests has a linear affect on the PFD. So, if the length of time between tests is doubled, the PFD is

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HART Plays Vital Role in Safety System Testing (cont.)

doubled as well," says Riyaz Ali, development manager for Emerson Process Management's FIELDVUE instruments. "Therefore, it is imperative that these valves be tested frequently in order to reduce the PFD and meet the target SIL rating."

The answer: partial stroke testing. Stroking a safety valve as little as 10% does not have a significant effect on the ongoing process, but it provides enough travel to determine the valve's responsiveness in emergency conditions.

What's necessary in this situation is feedback from a positioner to verify that the valve actually has moved as expected. Consequently, some vendors are providing that capability via HART. Although the safety system uses the 4-20mA signal for the PV, HART provides the additional information used to measure the integrity level of the device or, in this case, the valve travel.

"The HART Protocol defines a device-status byte, which is determined by the HART standard. It says things like 'a signal has gone over-range' or 'a signal has locked up'," explains John Emmett of Moore Industries International. "There are eight defined states in HART Protocol, one of which is called 'additional status available.' That's the one that allows manufacturers to build in their own special features, like partial stroke testing.

"Our HART Interface Module can pick up signals like 'test in progress,' so we can actually indicate back to the control system that a partial stroke test is happening. But more importantly, the smart positioner can detect if the valve is stuck. We can pick up that particular alert and alarm back to the control room."

According to engineers at Emerson Process Management, users of the Fisher DVC6000 Series of digital valve controllers and Emerson's AMS ValveLink software for emergency shutdown solutions do not require the presence of personnel in the field because the controller's software is able to provide feedback on positioner information via HART. In addition, they can automatically initiate partial stroke testing routines.

By using this technique many plants have extended their intervals between scheduled shutdowns and thereby significantly lowered maintenance and operational costs.