

## Solution Note

### Smart Connection Suite: SmartLine® Pressure Transmitter Integration with Experion® PKS



Honeywell SmartLine pressure transmitters have revolutionized the way technicians and operators work in industrial facilities. These advanced instruments were designed with a focus on usability and intuitive response, making plants safer, more efficient and more effective.

Today, the field device revolution is centered on reducing process variable uncertainty and enhancing device functionality and diagnostics, while enhancing plant safety and security. Integrated solutions not only help accomplish those goals, but help make employees much more efficient and even reduce project start-up time.

#### Honeywell's Integrated Solution: Smart Connection Suite

With our enhanced line of SmartLine® pressure transmitters, Honeywell has revolutionized the way technicians and operators work in industrial facilities. These transmitters were designed with a focus on usability and intuitive response, so plants are safer, more efficient and more effective.

SmartLine transmitters are not only the most stable and accurate transmitters on the market, but they also help plant operators quickly identify areas requiring maintenance and efficiently troubleshoot any issues.

SmartLine transmitters employ the Honeywell Digitally Enhanced (DE), HART\* and FOUNDATION\* fieldbus protocols, and can be utilized with both Honeywell and third-party control systems. All products and protocols have been tested and seamlessly integrate with Honeywell's Experion® Process Knowledge System (PKS).

SmartLine's unique Smart Connection Suite integration with Experion PKS improves the safety of plant operations and maintenance while simultaneously helping to optimize efficiencies and overall process reliability.



Figure 1. Honeywell SmartLine Pressure Transmitters

When installed in combination with Experion PKS, Honeywell's SmartLine pressure transmitter offers the following innovative features:

- Transmitter Messaging
- Maintenance Mode Indication
- Tamper Reporting
- FDM Area Health Views
- Experion Integration Testing

The integrated SmartLine/Experion solution provides operators with extended diagnostics delivering a summary health status of a transmitter or group of transmitters. Device identification in the field is simplified using Honeywell's unique transmitter messaging capability. Plus, safe maintenance modes are confirmed through our maintenance mode indication.

Together, these advanced capabilities assist in locating the correct transmitter, communicating the action required, and providing confirmation the device/loop is in the correct mode for safe maintenance.

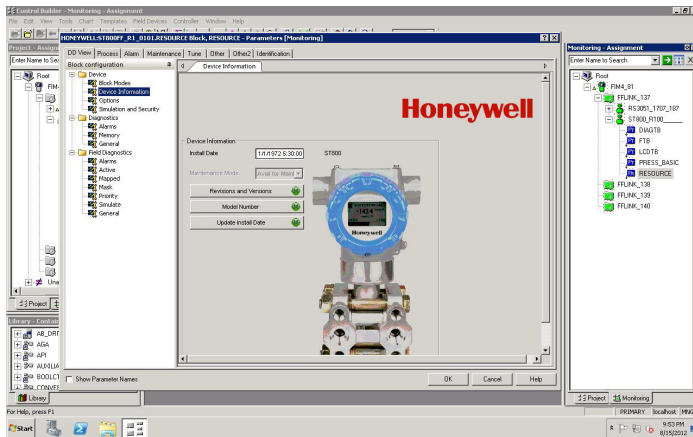


Figure 2. Experion Station Display

### Transmitter messaging

Honeywell's innovative SmartLine Transmitter Messaging technology leverages powerful HART 7 protocol features to provide plant operators with the ability to send custom messages to the transmitter and have them posted on an integral, enhanced graphics display.

With this innovative feature, notifications, updates and alerts can now be read at the instrument location without the need for a handheld or other host device. And thanks to a free-form message capability, comprehensive information can be sent to the device alerting various personnel of required actions. This helps to reduce start up and commissioning times, increase maintenance efficiency and improve plant safety.

Messages residing in transmitter memory are automatically posted on the advanced graphics display and inserted in the user's configured display rotation scheme as an additional screen. The display's screen rotation timing may also be automatically adjusted.

SmartLine messaging is supported by the transmitters' standard set of Device Descriptions (DDs), Electronic Device Description Language (EDDL), or Device Type Manager (DTMs) allowing messages to be created and/or deleted by any handheld or PC/host-based configuration tool. In addition, specific screens provide message input and reset capabilities. Messages sent to the transmitter remain in memory and display until they are reset or replaced by a new message.



Figure 3. Transmitter Messaging Display

### Maintenance mode indication

For safety reasons, plant and equipment repair work should only be performed when transmitters and associated loops are in the proper maintenance modes. Maintenance on devices operating in active control loops can upset the process; trigger alarms; and result in lost production, equipment damage and unsafe conditions.

In combination with Experion PKS, SmartLine HART and Foundation Fieldbus transmitters offer a powerful maintenance mode indication, which works with the operator to provide an indication on the enhanced digital display that the transmitter and/or loop is in a mode suitable for maintenance. When the operator or system sets proper modes, the transmitter will display the message "Available for Maintenance" on its graphics display.

### Tamper reporting

In addition to a wide variety of diagnostic capabilities aimed at ensuring safe operations, Honeywell SmartLine instruments now offer an additional capability to help monitor instrument configuration changes or attempted changes.

Most instruments today have a write protect feature which disables the ability to make configuration changes on a field device. These methods are typically enabled via device software, hardware (jumper or switch) or in some cases a combination of both. SmartLine HART transmitters employ both a hardware jumper and software methods with the hardware (jumper) always taking precedence to provide the highest level of protection against inadvertent changes. Although these approaches are very good at protecting against inadvertent changes, they provide little or no protection against purposeful attempts at configuration changes. A software setting or jumper setting may not be inadvertently reset, but with little difficulty they can easily be

purposely reset thus permitting potentially unauthorized configuration changes

SmartLine Tamper Reporting can provide an additional layer of protection on HART enabled devices in the way of an alert. With the tamper reporting feature enabled operators can be advised of attempted or successfully completed configuration changes as well as any changes made to the SmartLine write protection jumper or software setting. If a change is attempted or successfully completed to an instrument with the Tamper Reporting feature enabled, the operator will be alerted and take any necessary actions to insure the process, the plant, and personnel as well as the surrounding community are properly protected.

### FDM area health views

When used in conjunction with Honeywell Field Device Manager (FDM), the FDM Plant Area Health Views capability enables users to set up hierarchical screen displays providing quick and easy views of the health of various areas in the plant or process.

FDM Plant Area Views can help to quickly identify plant assets operating at inefficient levels due to sub-standard or failed devices.



Figure 4. Field Device Manager Plant Area View

### Experion integration testing

To insure the highest level of integration and reliability in its plant automation architecture, Honeywell system tests multiple units of all protocols and configurations with Experion PKS, as well as related configuration tools such as Multiple Communication Configurator (MC Toolkit), SmartLine Configuration Toolkit (SCT 3000) and FDM. Tests are even performed with competitive configuration tools such as the Emerson 475 and 375 units to clearly understand the expected level of compatibility.

## Flexible Configuration Options

Honeywell has made additional strides in smart pressure transmitter technology by allowing for a choice of flexible configuration options with the SmartLine devices. For example, users can configure SmartLine transmitters via externally accessible buttons in conjunction with either the basic alphanumeric or advanced graphics display. Zero/span capabilities are available with or without selection of a display option.

SmartLine pressure transmitters can operate with any properly validated handheld configuration device. The transmitters also feature a two-way communication and configuration capability between the operator and the device. This is accomplished via several Honeywell field-rated portable configuration devices, including the MC Toolkit, SCT 3000 and Smart Field Communicator (SFC).

Additionally, Honeywell FDM can be used to centralize remote access to all instrumentation throughout the plant, as well as simplify and reduce configuration and diagnostics effort. This technology saves configuration time by automatically detecting smart devices and adding them to the database. Information from devices is then used to establish device records and automatically assign the proper templates. This eliminates any need to pre-build the instrument database.

## Benefits

Advanced SmartLine pressure transmitters, integrated with Experion PKS, enable process plants to realize much greater value from today's robust instrument diagnostics. This solution provides a means for end users to:

- Quickly identify the right device for maintenance
- Provide an indication of action required
- Indicate a safe (device/loop) environment for maintenance activity
- Receive warnings when unauthorized reconfiguration attempts

SmartLine field device responses contain valuable information regarding instrument health, and having this data sent with every message, stored in memory, and viewed in comprehensive form on an integral transmitter graphics display gives plant personnel confidence in the integrity of the process measurement along with immediate notification of any problem.

Process control and reliability engineers can speed the process of “root cause analysis” by starting with on-board transmitter information for analysis, saving time and cost in the race to ultimately address asset problems.

Through these actions, industrial facilities are able to reduce start-up times, improve maintenance efficiency, reduce process down time and increase plant safety.

## Innovations in Intelligent Instrumentation

In 1983, Honeywell introduced the first smart pressure transmitter. Six years later, we launched the first all-digital, bi-directional protocol for smart field instruments. Now, Honeywell is creating new opportunities for the use of device intelligence and advanced diagnostics to optimize process industry operations.

Honeywell SmartLine gauge pressure, differential pressure, and absolute pressure transmitters are designed around a high-performance piezo-resistive sensor. This one sensor actually integrates multiple sensors linking process pressure measurement with on-board static pressure (DP models) and temperature compensation measurements, resulting in improved overall performance.

Using these intelligent pressure transmitters, processing facilities can provide advance warning of possible failure events and avoid costly shutdowns. They can also reduce the costs associated with finding and correcting root causes of failures. Improved accuracy in process measurements leads to increased production run rates.

### For More Information

Learn more about how Honeywell’s SmartLine Pressure Transmitters feature the most efficient control system integration, visit our website <http://www.honeywellprocess.com/smartline> or contact your Honeywell account manager.

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## Global Support from an Industry Leader

Our measurement and control solutions can help you reduce operating and maintenance costs, improve reliability, and increase production efficiency. We also provide comprehensive pre- and post-sales support, as well as value-based solutions that help drive business success.

Honeywell is a pioneer in process control and instrumentation, and today, more than 8,000 technicians use collective expertise to work for customers in 67 countries around the world. Our global development teams are driven to the highest standards to meet customer product requirements for ease of use and maintenance.

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