

Technical Note

SmartLine Transmitter
Field Modularity

SmartLine Transmitters deliver a new level of efficiency and safety throughout the plant lifecycle either when operating stand-alone or when integrated with a process control system. For example, their unique modular design reduces complexity along the entire lifecycle, from avoiding initial purchasing costs, providing flexibility for post-start up modifications, reducing maintenance and inventory costs by eliminating the number of spare parts required and simplifying module replacements and upgrades.

Field Modularity

Overview

Today, labor costs can be one of the most burdensome and costly issues associated with repair and maintenance. Whether it's an automobile or a process instrument the simplicity of the design and the ability to implement repairs easily is an important factor. The simpler the repair the less labor costs and more importantly in the case of process controls the less process downtime.

SmartLine Field Modularity

Modular Components: Many manufacturers may claim modular components, but this is really only a part of the story. Many components can be considered modular, but the real value is associated with the simplicity with which these parts or modules can be replaced. How easy (or difficult) is it to replace a particular part? Can it be accomplished efficiently in the shop, in the field, or perhaps on a ladder or tank side 30 feet or more in the air? Usually these products can be easily disassembled, but what about reassembly? If you are dealing with loose screws fragile parts or parts which are difficult to align and reinstall then these products don't meet the basic requirements of modularity suitable for field replacements.

SmartLine makes it Easier: SmartLine products offer a level of modularity which makes it easy to make field replacements. Our modules are robust; they may be

removed under power and in most all electrical and safety environments except explosion proof where opening the field enclosure is not permitted. This means even intrinsically safe SmartLine devices can be repaired in the field without removing power and without violating approval agency guidelines.

SmartLine modules are also designed to be easily removed and reinstalled. By using connection schemes which provide good registration and tactile feedback, not only are the modules easily removable, they can be quickly and confidently reinserted properly.

SmartLine Modular Components Include:

- Basic and advanced **display modules** which securely snap on without screws.
- **Communications modules** for:
 - Hart
 - Honeywell DE
 - Foundation Fieldbus
- **Terminal module** assemblies for standard or lightning protected connections.



Figure 1: SmartLine Transmitter Modular View

Potential SmartLine Modular Design Savings

Instruments with a true modular design can yield both operational and maintenance savings.

Operational (Inventory) Savings:

With kits that support the conversion of communications protocols, display choices and lightning protection, users can stock fewer and lower cost replacement parts and cover a wider range of product versus stocking complete units. The following very simple example would lower inventory by about \$4,000.

Complete Unit Stocking Practice		
Item	Qty	Description
1	1	200" DP w/Hart
2	1	200" DP w/Hart & Integral Indicator
3	1	200" DP w/Hart & LP
4	1	200" DP w/Hart Integral Indicator & LP
Total	4	Complete Units

Modular Components Stocking Practice		
Item	Qty	Description
1	1	200" DP w/Hart
2	1	Integral indicator
3	1	LP Terminal Board
Total	1	Complete Units

Operational and Maintenance Savings:

Consider the repair times and associated downtime in conjunction with an electronics communications module failure on a differential pressure transmitter with remote seals as summarized below:

-Complete Unit Replacement	Total Estimated Time
•Permitting (Hot Work and Line Break)	30 man minutes
•Acquisition and positioning of man lift (2 men)	60 man minutes
•Seal Removal	60 man minutes
•Capillary Removal (2 men)	60 man minutes
•Transmitter Removal	30 man minutes
•Seal Installation (2 men)	60 man minutes
•Capillary Installation (2 men)	120 man minutes
•Transmitter Installation	30 man minutes
»Total	7.5 man hours
-Communications Module Replacement	
•Permitting (Hot Work Only)	30 man minutes
•Acquisition and positioning of man lift (2 men)	60 man minutes
•Module Replacement	30 man minutes
»Total	2.0 man hours
Total Savings Potential	5.5 hours

The above example highlights 5.5 hours of maintenance manpower, but what about the process down time associated while removing and reinstalling the transmitter and associated capillaries and seals? In this example that's at least 3 hours of lost process.

Review our other SmartLine plant lifecycle savings opportunities delivered through:

- Transmitter Messaging and Maintenance Mode Indication
- Advanced Display and HMI Technology
- Tamper reporting
- Polarity Insensitivity

For More Information

Learn more about how Honeywell's SmartLine Pressure Transmitters deliver value across the entire plant lifecycle, visit our website www.honeywellprocess.com or contact your Honeywell distributor or account manager.

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