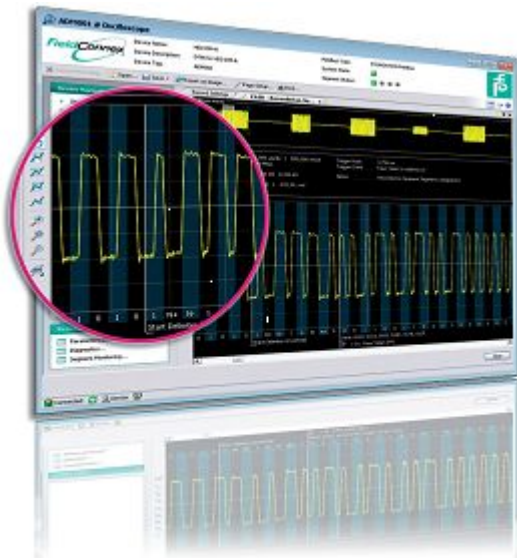


Fieldbus Advanced Integrated Physical-Layer Diagnostics in Experion



The FieldConnex® Advanced Diagnostic Module (ADM) by Pepperl+Fuchs easily integrates into Honeywell's Experion PKS Foundation Fieldbus solution to monitor the quality of Fieldbus communications and provide expert Advanced Physical-Layer Diagnostics during commissioning, plant operations and troubleshooting.

The Honeywell Experion Advanced Physical Layer Diagnostics (APLD) solution quickly turns Foundation Fieldbus (FF) H1 network data into actionable information and takes expert FF physical layer monitoring to a new level of efficiency and productivity. With just a few mouse clicks, the user can initiate automated testing of the entire FF installation and device communication status and produce detailed documentation. This can reduce network commissioning by as much as 80 percent, resulting in a faster, more efficient plant start-up.



The Pepperl+Fuchs ADM integration with Experion PKS makes Fieldbus network troubleshooting easy!

APLD consists of the Pepperl+Fuchs Advanced Diagnostic Module (ADM), the diagnostic bus and gateway and the Diagnostic Manager, a software user interface integrated in Experion. APLD helps automate working procedures, replacing cumbersome methods and old-fashioned tools during commissioning, monitoring, and troubleshooting.

Segment commissioning with just a few mouse clicks Monitoring on-line with early warning in realtime

While the ADM monitors the Fieldbus infrastructure, it checks against limits set during commissioning. If the infrastructure is outside of these limits, alarms enable timely intervention rather than unwanted plant shut-downs, allowing for truly pro-active plant upkeep. When instruments are added or after each maintenance procedure, the ADM reminds you to re-check the Fieldbus infrastructure.

Pointed troubleshooting with expert advice

The ADMs and associated Diagnostic Manager smart software tools translate FOUNDATION Fieldbus H1 network data into actionable information. The integrated solution introduces a built-in expert system that takes Fieldbus physical layer data to new levels of insight and efficiency.

The expert system diagnoses the segment and creates easy-to-understand messages that indicate possible problem causes. Maintenance crews know immediately what needs to be repaired. You can rely on the fact that your automation system works based on a solidly performing Fieldbus infrastructure. The expert system is at work for you. Time to relax!

Relevant information saves time, increases efficiency

The integrated Diagnostic Manager software solution for Experion offers a number of outstanding features that improve the efficiency and ease of start-up, operations and maintenance of Fieldbus networks.

Experion's APLD presents only the data that is relevant. Plant operators receive summary and status indications. Maintenance personnel get the full Fieldbus network details that help them schedule and plan for plant up-keep. With a top-quality Fieldbus infrastructure, plant production is never compromised.



Physical Layer Measurement Report

Date: 04.08.2006 10:59:02
 Description: Configuration with four fieldbarrers, Each is equipped with four field devices.

Fieldbus Type: FOUNDATION Fieldbus
 Segment Tag:

Measurement Equipment
 Type: DM-AM
 Serial Number: 01036130658014
 Software Revision: 1.1.0.0
 DTM Revision: 1.19.3.2

Result: Passed, Excellent

APLD provides simple and concise reporting!

Advanced Physical Layer Diagnostic Functions

Wizard speeds up commissioning by up to 80%

The commissioning wizard automatically tests the physical layer and creates reports. It is designed to check communication quality right from the start by measuring key electrical values for all devices and segments. The commissioning wizard then compares actual measurement values against target and highlights significant discrepancies.

These automated commissioning procedures have proven to reduce time needed to put segments into service by up to 80% through elimination of time consuming, repetitive tasks. Such impressive savings are possible because Fieldbus segment communications can be verified and documented by running automated tests with only a few mouse clicks.

Tests are performed on live Fieldbus networks without disturbing any wiring. The physical layer is documented 'as built' with best possible performance levels. Automated tag reading enables APLD to read and document tags and device IDs in combination with Honeywell Experion. The user is reminded to run the commissioning wizard for any newly added devices.

Online monitoring enables superior plant performance

For maximum availability, the Advanced Diagnostic Module (ADM) constantly monitors physical layer health. It detects degrading conditions or faults on the Fieldbus itself, such as a ground fault leakage that could occur from a water leak. Issues are often detected and resolved before they become critical to plant performance. A summary alarm informs the operator of abnormal and unwanted conditions allowing for timely and planned response before plant availability reaches critical levels.

Segment Measurement

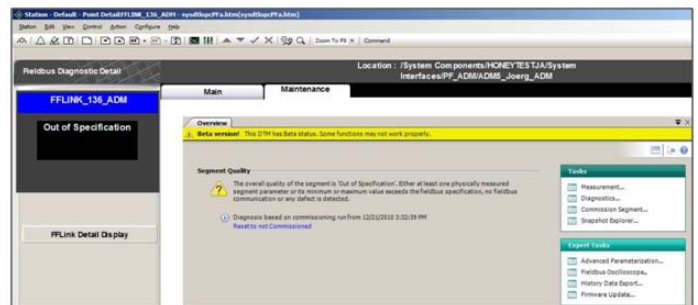
	Current V...	Value Range	Q...
Voltage	26,8 V	0,0 [26,8]	
DC Unbalance	0,0 %	0,0 [0,0]	
Noise	29,0 mV	0,0 [49,0]	
Jitter	0,6 µs	0,0 [1,5]	
Signal Level Minimum	810,0 mV	0,0 [1395,0]	
Signal Level Maximum	839,0 mV	0,0 [1656,0]	

The ADM always provides clear indication of all operating parameters!

Expert system accelerates troubleshooting and helps keep communications healthy

The Diagnostic Manager includes the most advanced built-in expert system available. It automatically learns the communications behavior of a segment during commissioning and subsequent operations. Over time, it can intelligently diagnose any situation on the basis of past experience. As a result, users are provided with specific warnings when the software detects a condition that might lead to a critical situation. Such warnings are complemented by incident-related information in clear text that points to possible causes and recommends remedies.

Field technicians are no longer faced with the often time-consuming task of searching for a problem cause. Now, they can know what needs to be done before they arrive on site. With Diagnostic Manager, time needed for troubleshooting is reduced to an absolute minimum, plant shutdowns can be avoided, and



APLD completely integrates Diagnostic Manager into Experion PKS Station

the availability of the complete system is improved considerably.

An expert's view of the physical layer

For difficult problems, the Diagnostic Manager Oscilloscope function displays Fieldbus signals in waveform, offering valuable expert insight into the actual signal quality. This unique feature supports automatically captured and stored Fieldbus-related trigger events. Each event is identified with type and value, as well as source and destination address.

Physical layer in plain sight

Now physical layer diagnostics are fully integrated into the intuitive look and feel of Experion. Maintenance personnel can get to the right information at the right time, enabling proactive responses to system messages.

Components and Engineering for Experion APLD

At the core of Honeywell's Experion APLD system lies FieldConnex® Advanced Diagnostics by Pepperl+Fuchs. This section describes the complete integration in the Experion world.

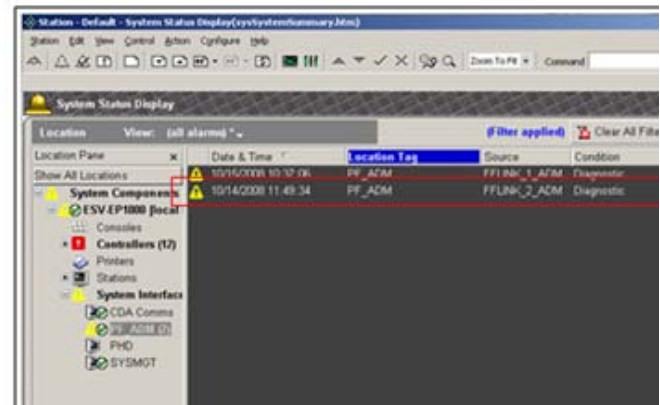


Advanced Diagnostic Module and FieldConnex Diagnostic Gateway

Components that make Fieldbus work for all users

The Advanced Diagnostic Module (ADM) is at the root of the FieldConnex diagnostic solution. It plugs into the FieldConnex Power Hub and covers four (4) Fieldbus links. It communicates physical layer measurements and events to the Diagnostic Manager via a dedicated path. A passive circuit design assures no interference with the physical layer, leaving Fieldbus bandwidth unaffected.

The FieldConnex Diagnostic Gateway allows bidirectional information exchange between multiple ADMs and the Diagnostic Manager. The Diagnostic Manager is software that displays data from multiple ADMs, performing functions that make working with the Fieldbus physical layer quick and easy. The Diagnostic Manager automatically identifies all ADMs on its network and is self-configuring. The result is quick and error-free installation



Fieldbus physical layer alarms appear in Experion Station

and setup of the ADM infrastructure. This further adds to efficiency and reliability.

The FieldConnex Diagnostic Server (FDS) is a server application generally installed in the control room. It allows the Experion system to access data from the ADM modules. The FDS provides events and information about the physical layer status of the segments monitored by the Advanced Diagnostic Module. It includes an OPC DA and OPC AE Server for easy data access.

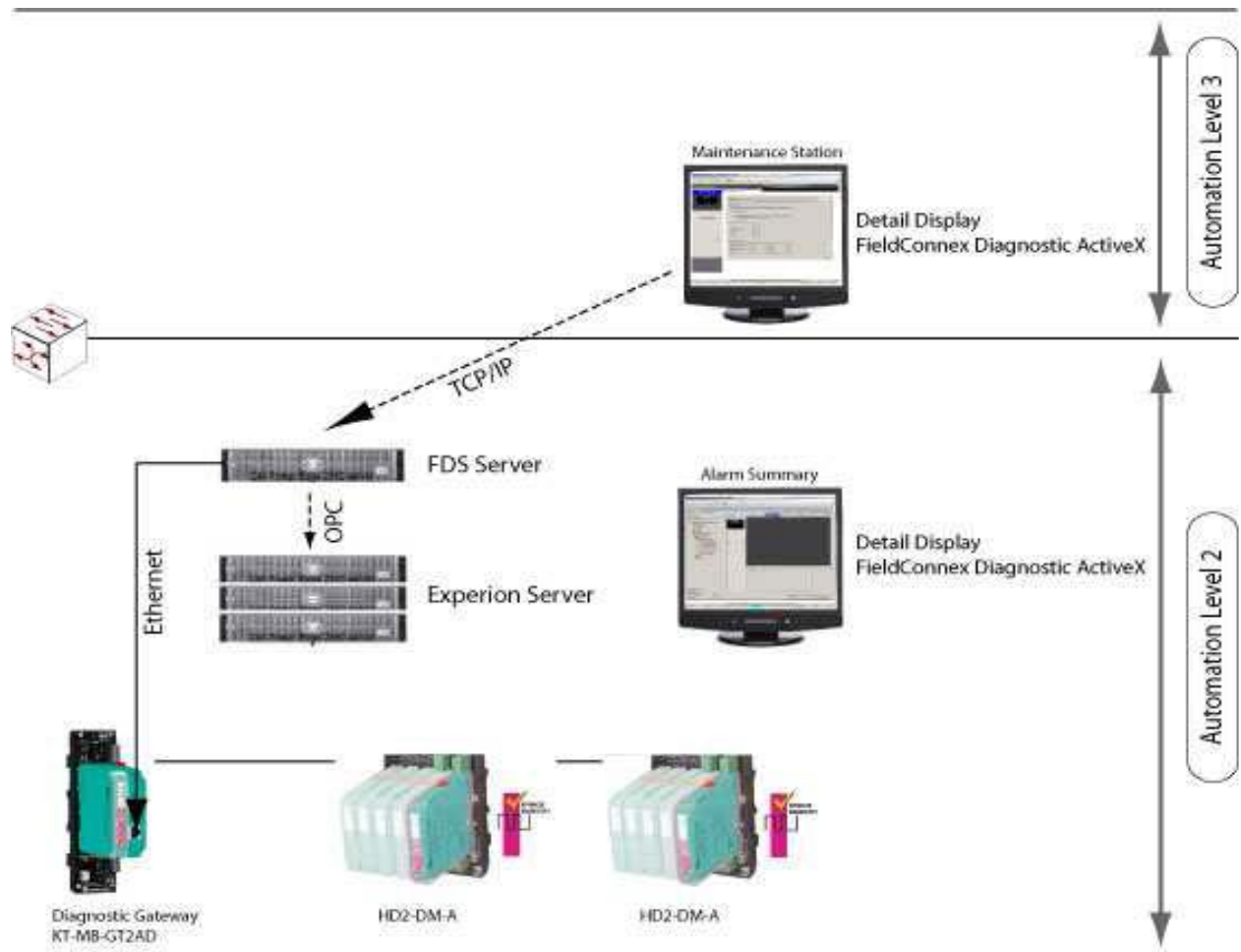
No hassle, automated configuration

To enable integration, a special APLD software tool reads Experion engineering data and automatically generates the configuration for ADMs and the FDS. Configuration tags for ADM warnings and alarms are written back to the Experion configuration database. The physical layer of the Fieldbus now appears as a manageable asset in its Experion environment. Detail Displays adapted for Experion show general status of the physical layer of the segments monitored by the Advanced Diagnostic Module.

The FieldConnex Diagnostic ActiveX is a component running within the Experion Station Detail Display. It allows Experion users to view and configure the Pepperl+Fuchs ADM System and to monitor and analyze Physical Layer detail.

Total control from the control room

The combination of the Diagnostic Manager and the FieldConnex Diagnostic Gateway results in a highly intuitive monitoring system which provides deep insight into the Fieldbus physical layer directly from the control room or maintenance shop. With this technology, the physical Fieldbus layer becomes fully transparent and can be managed for maximum availability without the need for detailed expert knowledge.



Pepperl + Fuchs Advanced Diagnostic Module (ADM) integration with Honeywell's Experion PKS Foundation Fieldbus solution

More Information

For more information on Fieldbus, visit www.honeywell.com/ps or contact your Honeywell account manager or field service leader.

Automation & Control Solutions

Process Solutions
Honeywell

1250 West Sam Houston Parkway South
Houston, TX 77042

Lovlace Road, Southern Industrial Estate
Bracknell, Berkshire, England RG12 8WD

Shanghai City Centre, 100 Junyi Road
Shanghai, China 20051
www.honeywell.com/ps

PN-11-15-ENG
June 2011
© 2011 Honeywell International Inc.

