

Reference Topology HON04

Honeywell Experion®PKS and PROFINET over Ethernet-APL
for Chemical Industry



Supported by:



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1 Document Information

1.1 Purpose and Scope

This document specifies the Open Integration Reference Topology HON04. All content of this document is jointly developed, reviewed and released by Honeywell Process Solutions and Endress+Hauser as a common deliverable of Open Integration.

1.2 Document History

This is version 1.00.00 of this document. Version history:

Version	Released	Description
1.00.00	2024-09	Initial version

1.3 Related Documents

Please refer to related documents as listed below:

Document	Description
SD02921S/04/EN/01.24	Integration Tutorial HON04
SD02922S/04/EN/01.24	Integration Test Summary HON04
SD02923S/04/EN/01.24	List of Tested Devices and Versions HON04

2 Target Market

2.1 Industry Application

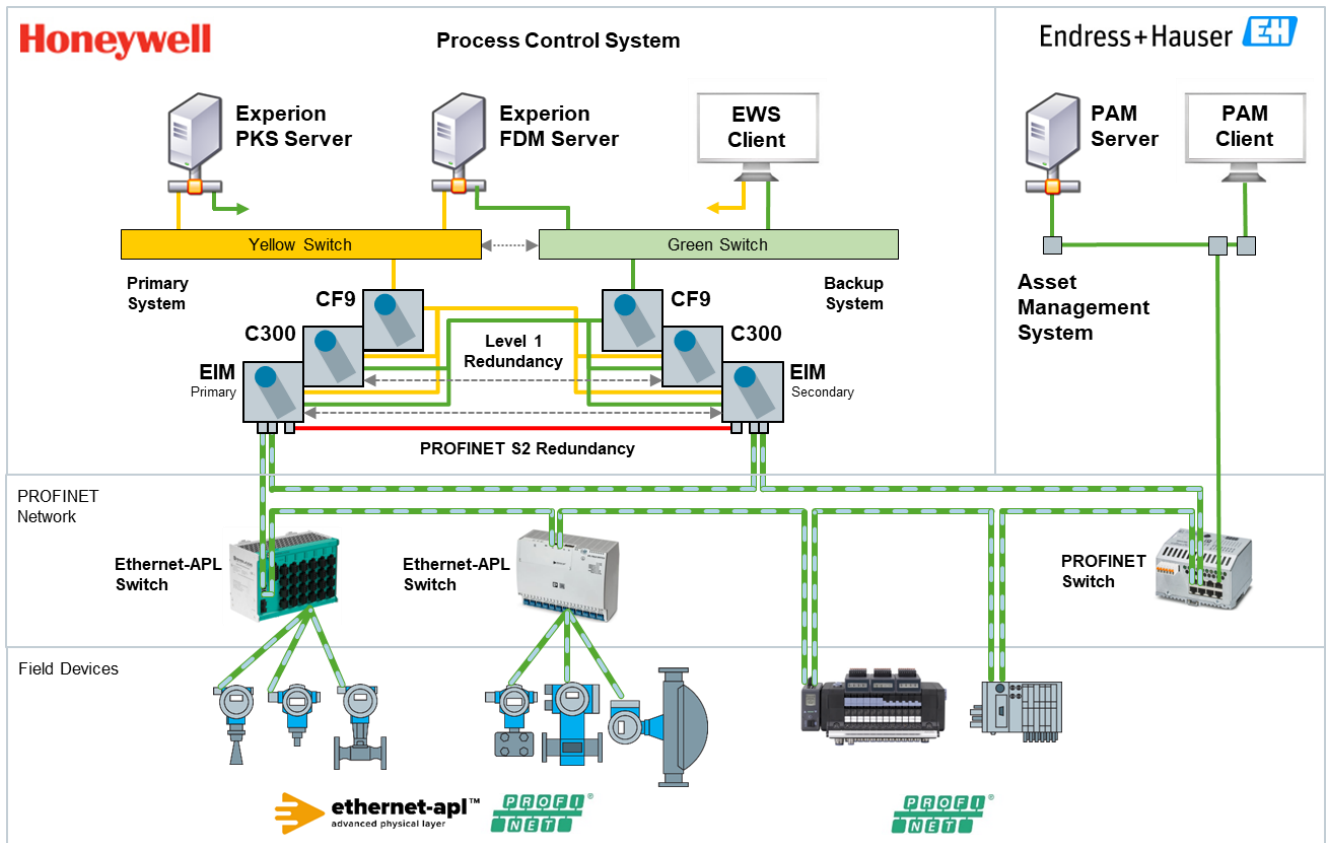
This reference topology is designed to serve applications in Chemical Industry.

2.2 Fieldbus Technology

This reference topology is designed for instrumentation with PROFINET and PROFINET over Ethernet-APL.

3 Reference Topology

3.1 Overview






Please note: The use of CF9 is tied to the version of the C300; PCNT05 does not require CF9, then the EIM can be connected directly to the yellow and green switches of the Honeywell FTE network.

3.2 Process Control System

The process system part top left in the overview is provided by Honeywell Process Solutions:

The yellow and green switches establish a redundant Ethernet backbone for all Honeywell Experion® PKS servers, workstations and control units. Each control unit consists of at least two CF9 control firewall modules and two C300 controller modules to provide level 1 redundancy. EIM modules serve to connect to underlying PROFINET network. Core element on top of the system backbone is the Experion® PKS Configuration Studio software for control engineering and commissioning of the overall system, complemented with Experion® FDM software for asset management.

Reference hardware:

Honeywell	Article	Description
Experion®PKS CF9 	Processor: CC-PCF901 IOTA: CC-TCF901	Control Firewall Module with 9 ports (CF9) (May not be required when using C300 CC-PCNT05)
Experion®PKS C300 	Processor: CC-PCNT02 IOTA: CC-TCNT01 or: Processor: CC-PCNT05 IOTA: CC-TCNT01	C300 Controller Module
Experion®PKS EIM 	Processor: CC-PEIM01 IOTA: CC- TEIM01	Ethernet Interface Module (EIM)

3.3 Asset Management System

The asset management system part top right in the overview is provided by Endress+Hauser:

A FieldCare PAM server is directly connected to the PROFINET Network, e.g. via an Industrial Ethernet Switch or any to connect field devices.



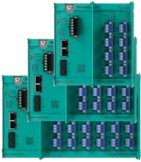
One or multiple FieldCare PAM clients may be connected to the FieldCare PAM server, both wired or via WLAN for mobile use, e.g. with Field Xpert.



3.4 Field Network Infrastructure

3.4.1 PROFINET-APL Network

Ethernet-APL switches are mandatory for this reference topology, with relevant impact to integration tests. It belongs to the MRP ring. Honeywell and Endress+Hauser recommend using the components as listed below:

Reference hardware:



 PEPPERL+FUCHS	Article	Description
Ethernet-APL Rail Field Switch 	ARS12-B2-IC ^{*1} - ^{*1}	Ethernet-APL rail field switch Powered spur ports intrinsically safe Ex ic according to 2-WISE and FISCO, PROFINET MRP, S2 redundancy and dynamic reconfiguration, 2 ports each for 1000BASE-T and SFP transceivers, Redundant power input 20 VDC ... 60 VDC, IECEx approval, International, Europe. Intrinsically safe Ex ic spur ports "*1" : <ul style="list-style-type: none"> ▪ Option 08, 16 or 24 Terminal connection type "*2" : <ul style="list-style-type: none"> ▪ Option 1, Screw terminals ▪ Option 2, Spring terminals
Ethernet-APL Rail Field Switch 	ARS1*-B2-IA ^{**} - ^{**}	Ethernet-APL rail field switch Ethernet-APL rail field switch with 8, 16, 24 intrinsically safe Ex ia spur ports and screw/spring terminals, Managed Ethernet-APL field switch for process industries, Powered spur ports intrinsically safe Ex ia according to 2-WISE and FISCO, PROFINET MRP, S2 redundancy and dynamic reconfiguration, 2 ports each for 1000BASE-T and SFP transceivers, Redundant power input 20 VDC ... 60 VDC, IECEx approval, International, Europe.

	Article	Description
Ethernet-APL Rail Field Switch 	FL SWITCH APL 2224-4A-213-PA -	Industrial Ethernet Switch 24-port Ethernet-APL + PROFIBUS PA field switch, Zone 2 mountable, Ex 'ia' APL ports, four uplink ports

3.4.2 PROFINET Switch for PAM

The Industrial Ethernet Switch is mandatory for this reference topology to connect the Plant Asset Management system, with relevant impact to integration tests. It belongs to the MRP ring. Honeywell and Endress+Hauser recommend using the components as listed below:

Reference hardware:

	Article	Description
Industrial Ethernet Switch 	2506-2SFP PN	Managed Switch 2000, 6 RJ45 ports 10/100/1000 Mbps, 2 SFP ports 100/1000 Mbps, PROFINET Conformance-Class B, PROFINET mode preset, PROFINET status LEDs.

3.5 Field Devices

Open Integration reference topologies always have to be tested versus a selection of most relevant field devices for the target market defined in chapter 2.1. This serves to verify that the system under test is capable to handle a necessary variety of certified field devices. All field devices are fully compliant to standards but may be implemented versus different version of standards and each field device typically implements only a subset of relevant compliant means.

This chapter defines only a basic set of mandatory field devices for verification of this reference topology, as agreed by Honeywell Process Solutions and Endress+Hauser. For more details, please refer to latest list of tested devices and versions for this reference topology, referenced in chapter 1.3.



3.5.1 PROFINET-APL Devices



Reference hardware:

Endress+Hauser  People for Process Automation		Article	Description	Device Type
	Cerabar	PMP71B	Absolute and Gauge Pressure Transmitter	0xA22A
	Deltabar	PMD75B	Differential Pressure Transmitter	0xA231
	Micropilot	FMR62B	Radar Level Transmitter	0xA1C1
	Omnigrad M	TM131 + TMT86	Temperature Transmitter	0xA3FF
	Promag P 300	5P3B	Electromagnetic Flow Transmitter	0xA43C
	Promass F 300	8F3B	Coriolis Flow Transmitter	0xA43B
	Prowirl 200	7F2C	Vortex Flow Transmitter	0xA438

3.5.2 PROFINET Actuators

Reference hardware:

	Article	Description	Device Type
Valve Island 	320835	Valve Island 8652 8-bank ALQ AL	0x23

	Article	Description	Device Type
Valve Terminals 	MPA-S	Valve Terminals type 32 MPA	0x101

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