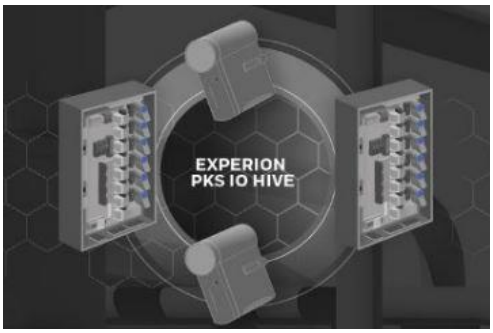
Experion® PKS IO HIVE

Product Information Note

Experion PKS HIVE is a new generation of control technology that uses LEAP™ project execution principles, software and networking to unchain control applications from physical equipment, and controllers from physical IO. Experion PKS IO HIVE enables any Experion controller to access any IO channel on the IO HIVE network. IO HIVE provides flexible IO and control distribution enabling the control system to become a natural extension of process equipment and facilitate modular and parallel project execution.

Experion PKS IO HIVE delivers next level Honeywell Lean Execution of Automation Projects (LEAP) philosophy by decoupling the IO from controllers and enabling ease of IO addition without hardware or wiring or cabinet level changes on the controller.



Distributed IO as an extension of modular equipment

Key Features

- Supports IO association to any controller or to multiple controllers
- Exact IO count + spare is delivered without wastage of IO
- Enables easy late IO addition or changes
- Decouples IO cabinet from controller cabinet
- Expands IO and controller capacity without interdependencies
- Experion IO HIVE network is over Fault Tolerant Ethernet (FTE) – R515
- Field cabinets can be commissioned independently of the control system
- CN100 is the device enabling IO HIVE function
- CN100 has an integrated firewall
- CN100 integrates media conversion over copper or fiber optic
- CN100 is remote hardened for -40 to +70 DegC and hazardous area

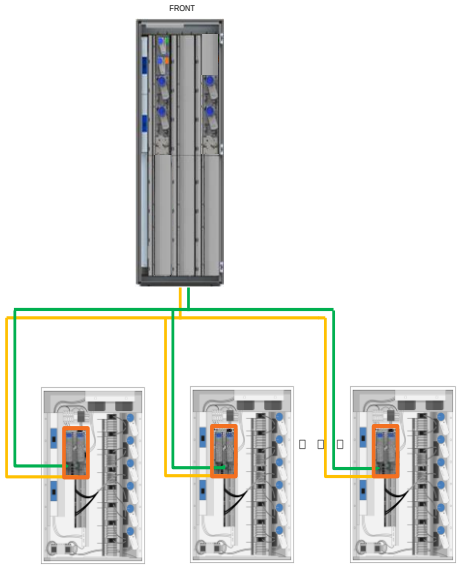
Experion PKS IO HIVE

Experion PKS IO HIVE delivers a broad range of features to facilitate modular and parallel project execution. It is based on a highly resilient, high speed Ethernet field IO network that connects controllers to Honeywell's Universal IO mounted in the production areas. As the foundation for IO communications, the Experion PKS IO HIVE network is cybersecure, with a built-in firewall and enhanced with encryption technologies where needed while providing the technology to accommodate future increases in the amount of sensed data. In Experion R515, IO HIVE network operates over field proven Honeywell Fault Tolerant Ethernet, FTE.

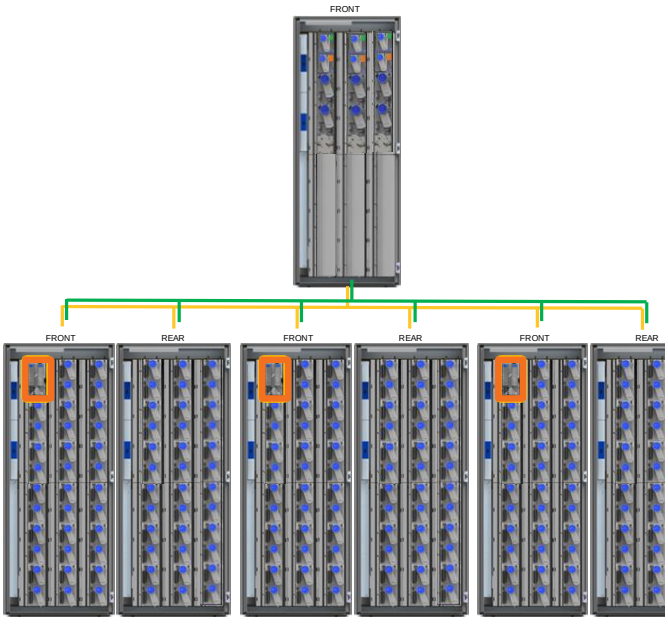
BENEFITS

- IO and controller decoupled
- Each IO can be shared with 20 controllers
- UPC cabinet count reduced 15 to 20%
- Reduced engineering hours by 10% to 15%
- IO addition is further improved
- Cybersecure with encryption technologies
- Reduced wastage of unused spare IO
- Commissioning without control system
- Reduces commissioning by 20% to 30%
- Eliminates 3rd party fiber optic extenders
- Reduces spares, utility costs and OPEX
- CN100 can optionally act as a 20ms controller
- CN100 as controller uses the same CEE and Series IO hardware
- CN100 as controller is a perfect package controller

An environmentally hardened, cyber secure, high performance Control & IO Network module, CN100, is the hardware that supports the Experion PKS IO HIVE function by enabling IO channels to be accessed by multiple controllers.



IO HIVE (Remote solution) – IO Channel to Multiple Controllers



IO HIVE (Safe Area Solution) – IO Channel to Multiple Controllers

CN100 – Experion IO HIVE Hardware

Table 1: Model Numbers

Model Number	Description
CC-IION01	Control & I/O Network Module
CC-TIUON11	Control & I/O Network IOTA - Star/PRP
CC-INAM01	Network Adapter
CC-TION13	Control & I/O Network IOTA DIN - Star/PRP
TC-SWHS01	CN100 Control Solver - Small
TC-SWHS02	CN100 Control Solver - Medium
TC-SIMHS01	CN100 Control & I/O Solver - Simulation
50154761-001	SPF - Single Mode
50154762-002	SPF - Multi Mode

Experion PKS IO HIVE Benefits:

Universal IO Discovery

Provides the ability for any Experion controller to access any IO module and channel on the Experion PKS IO HIVE network. This is a step beyond the traditional approach of controller to IO communication having a direct 1-1 physical connection between controller and IO cabinet.

Honeywell's Experion PKS IO HIVE enables a step change reduction of project costs - fewer wires, reduced engineering hours, reduced cabinets, reduced spares, and smaller footprint

This eliminates a significant amount of planning and manual work by seamlessly allowing any controller to communicate with any IO without restriction. The control strategy can now be designed and assigned to a controller and it will automatically find its relevant IO. This reduces project engineering/planning hours significantly.

Easy addition of IO and Control

As IO and Controller are decoupled, addition of IO to the system is independent of the Controller, without affecting the controller cabinet design and wiring. This dissociation also enables adding control capacity on need basis as IO increases. In the case of brownfield projects or live processes, IO can be **moved** to a different controller without the risk of controller and cabinet wiring changes and avoiding plant disruptions

Modular Commissioning

Provides the ability to commission field IO cabinets independent of the control system. With this capability, Experion controllers can be ran on a laptop, plugged directly into the remote cabinet at a module yard and perform a set of commissioning activities as if the rest of the control system is connected. This simplifies modular builds spanning multiple yards.

Endures Tough Environments

CN100 is designed to withstand the toughest environments, with an operating temperature range of -40 to 70ºC in humidity of 10% to 90%.

CN100 hardware has conformal coating to G3 and is hazardous area certified to CSA Class I Division 2, IECEx Zone 2 and ATEX Zone 2. The device can be used both in safe area cabinets and in the UPCs in hazardous locations.

Reduces Cabinet Costs

In the case of a remote Ser C solution with UPCs, with the elimination of one to one connection between IO module and Controller, all the 96 IO channels physically connected to each cabinet can be efficiently used with any controller. In a project with 1200 IO, ***two*** UPCs can be reduced in comparison to conventional dedicated IO.

Link design, which is 15 to 20% reduction. This reduces both CAPEX and OPEX of the customer.

Standard Cabinet Design

Since IO and Controller are decoupled, the IO cabinets can be designed and built independent of the Controller cabinets both for control room and field installations. This eliminates exhaustive engineering hours spent on prototype designs enabling shorter cabinet delivery, allowing late procurement while enabling better cash flows. This enables shorter cabinet delivery, allowing late procurement of up-to-date equipment.

Reduced Spares

With IO being shared to multiple controllers at channel level, exact IO + spares can be delivered without wastage due to unused spare channels. This reduces 10% to 17% of IO channels that are unused with the traditional IO link design. This reduces spare counts and thereby OPEX.

Table 2: Compatible IOMs

IOM Type	Compatibility
Series C Mark I	Yes
Series C Turbo Modules	Planned in Experion R520
Series C Mark II IOTA	No

Distributed Scalable Control

CN100 can optionally function as a distributed scalable controller by using an optional Control Solver license to deliver fully redundant, high performance control in a compact, environmentally hardened package. Ideal for packaged equipment, and physically distributed control applications. Control Solver licenses are available for applications ranging from less than 240 IO up to 800 IO points. Regulatory, sequence, and logic controls are supported with control execution periods as fast as 20 msec. As the CN100 is remote hardened, Experion PKS control can now be taken to the field, closer to the process and equipment. PCDI interface and Automated Device Commissioning (ADC) will be available from Experion R516 onward.

De-centralizing process control – the control system becomes an extension of your existing equipment

Honeywell Lifecycle Support

Currently, Fiber Optic Extenders, FOE play a major role in the Honeywell remote solution approximately 3000 modules per annum. The CN100 hardware has a built-in media converter which provides both fiber and copper media communication options. This eliminates the use of 3rd party FOEs. Lifecycle complexities and lead-time variations due to 3rd party hardware are reduced considerably. Honeywell is a single source vendor, from field instruments to control system with lifecycle support following Honeywell system support standards.

For More Information

Learn more about Honeywell Experion® solutions visit www.honeywellprocess.com or contact your Honeywell Account Manager.

Honeywell Process Solutions

2101 CityWest Blvd, Building 1
Houston, TX 77042 US

Honeywell House, Skimped Hill Lane
Bracknell, Berkshire, England RG12 1EB UK

Building #1, 555 Huanke Road,
Zhangjiang Hi-Tech Industrial Park,
Pudong New Area, Shanghai 201203

www.honeywellprocess.com

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