Universal Process Cabinet

Universal Process Cabinet, UPC is a modular cabinet that allows Universal IO to be installed in a remote location eliminating the long home run cables. It is an off-the-shelf standard solution with 96 Universal IO channels that reduces engineering, construction and commissioning costs and reduces the project schedule. Along with virtualization and cloud engineering, UPC brings in a paradigm shift challenging the traditional lengthy and costly project execution.

The Universal Process Cabinet (UPC) provides a convenient mechanical enclosure to remotely locate the Universal IO in a process area. Locating the Universal IO in the Universal Process Cabinet remotely can reduce the space needed in the local equipment room as well as significantly reducing the Capital expenditures required to home run process signals back to the control room.

Key Features
- IP66 rated SS316 1300mm(H) X 800mm(W) X 400mm(D) cabinet
- 96 software configurable redundant UIO channels - with HART
- Redundant Power Supplies
- Fiber on Single mode or Multi mode and Copper connections
- HAZLOC Certifications - C1/D2, C1/Z2 Mounting / Field Wiring
- I/O Hive – Connect each I/O channel across multiple controllers
- Field mounted Control Solver – Scalable
- Integrated cyber security
- Universal Marshalling/Signal Conditioning - Optional IS and Non IS
- Multiple options for low level temperature signals
- Cabinet with 128 IO LLAI for Furnace/Heaters/Reactors
- Power supply AC mains designed to daisy chain up to 3 cabinets
- Daisy chaining of up to 7 UPC cabinets over FOE over I/O Link
- IO from each UPC can be assigned to 20 Controllers using IO HIVE
- Cabinet monitoring – Temperature, Door, Fan and Power Supply status
- Optional FDAP integration for wireless I/O
- Optional Power & Fiber Distribution Panel
- Sun and rain shield canopy – Project Options

BENEFITS
- Standard cabinet builds
- HAZLOC certified for extended temperature spec -40 to +70 deg C
- Lower installation and maintenance cost
- Uniform design for Non-IS and IS I/O
- Eliminates long home run cables
- Communication over Single-Mode and Multi-Mode Fiber
- Compressed project schedule and increased flexibility
- Shorter cabinet delivery cycle ensures better cash flows
- Reduced CAPEX and OPEX
- Capital cost savings - $450 to $600 per I/O
- Up to seven UPCs can be daisy chained
- Approved design allowing AC mains to be daisy chained to three cabinets
Universal Channel Technology

Universal IO uses Universal Channel Technology to unchain the process I/O from channel-type dependency. This offers flexibility in I/O type, eliminating the need for custom hardware alignment with different I/O configurations. Universal IO is a 32 channel module, and each channel is individually software configurable as AI, AO, DI or DO designed for extended operating range of -40 to 70 °C. Universal IO are installed in the UPCs allowing the cabinets to be standardized, since any field signal can be connected to any I/O channel.

Standard Solution

Universal Process Cabinet, UPC provides a standard layout with components pre-configured reducing engineering, testing, commissioning works drastically in comparison to customized cabinets. This standardization enables faster delivery, allowing late procurement and a more efficient startup minimizing the time spent on site in the case of greenfield projects. In the case of brownfield projects, UPC mounted in remote locations helps in avoiding already crowded central control rooms that pose challenge for incremental changes to the control system.

Reduced Equipment Room footprint

UPC enables installation of IO modules in the field which reduces the cabinet count in the equipment room significantly. The space required for the equipment room is reduced allowing reduced expenditure on utilities, power and HVAC.

Eliminating long home run signal cables

As the IO modules are mounted in field, they are closer to the field instruments and connected using single pair cables. Multi core home run cables which are long running into thousands of feet are eliminated. The associated cable tray, cable duct, mechanical and electrical works are also avoided, thereby reducing project costs significantly. As the field instruments are directly connected to IO modules in the UPC, additional terminations due to field junction boxes and cross wiring are avoided, which loop wiring, benefitting both project execution and maintenance thereby even reducing the OPEX also.

Experion PKS IO HIVE - 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 achieved by connecting the IO link to the CN100 module in the UPC. This is a step beyond the traditional approach of controller to IO communication having a direct 1-1 physical connection between controller and UPC cabinet. 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.
Distributed Scalable Control
In the UPC, CN100 acting as IO HIVE Enabling device can also be optionally assigned as a distributed scalable controller 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.

Modular Commissioning
Provides the ability to commission UPCs independent of the control system. With this capability, Experion controllers can be ran on a laptop, plugged directly into the UPC 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
All the process critical components in the Universal Process Cabinet are designed to withstand the toughest environments, with an operating temperature range of -40 to 70°C in humidity of 10% to 90%.

Optional Universal Marshalling - IS and Non-IS IO
Despite the outstanding features of Universal IO Module with fuse less protection and HAZLOC certified for Class 1 Div 2 (ic) certification but based on the regional design mandates and end user requirements, additional marshalling and signal conditioning are required. Honeywell’s Universal marshalling solution with a 16-channel signal conditioning assembly by default provides pass-through and knife disconnect functions addressing a broad range of system-powered analog HART I/O and digital I/O, interfacing to general purpose or to Division 2 / Zone 2 areas.

Optional plug-in adapters address 3-wire or 4-wire analog inputs, relays, isolators, Intrinsically Safe barriers as well as thermocouples and 3/4-wire RTDs. This extends LEAP™ benefits to include field signal conditioning and wiring – a powerful combination with Universal I/O.
For More Information

Learn more about how Honeywell’s Universal Marshalling Solution can improve your performance, visit honeywellprocess.com or contact your Honeywell Account Manager Distributor or System Integrator.

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