

Experion HS

Product Information Note

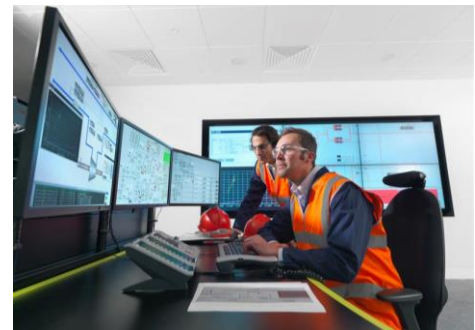
Experion HS is a powerful software platform that incorporates innovative applications for human machine interface applications (HMI) and supervisory control and data acquisition (SCADA). Built upon the proven technologies of the Experion platform, Experion HS is an integrated and reliable solution for any-size unit operations.

Experion HS delivers the power of Experion for any operation through proven HMI and tools to monitor and control the plant environment in real-time for faster responses, safer operations, and a more productive process. Experion HS addresses the complex needs of modern industrial environments: integrating a wide range of DCS, RTUs and PLCs; incorporating geographically dispersed applications; and ensuring security and regulatory compliance. Powerful and intuitive, it helps plant managers, plant maintenance engineers, process engineers and operators get the most from their operation.

Easy to configure, simple to expand, stable and secure, Experion HS is used by any-size plants in a wide range of industries, delivering information where it is needed to boost operator effectiveness, improve management of critical processes and equipment, and promote faster, more accurate engineering and maintenance.

Advanced HMI design for effective operations

The Experion HMI incorporates features developed from extensive consideration of human factors by the Abnormal Situation Management consortium. Operator's situational awareness is optimized, fatigue minimized and quick identification and response to abnormal situations promoted.



Experion HS- Enabling Operational Excellence!

- Built-in system displays, and configurable reports, easy-to-use scripting, and recipe management (21CFR Part11)
- Wide range of interfaces for controllers and enterprise applications
- Optional redundancy with onboard historian and OPC support including OPC UA, UA HA and MQTT interfaces
- Protect the plant with the advanced alarm and event management subsystem, in-built operator security and data integrity

FEATURES & BENEFITS

- Equipment template feature help reduce upfront configuration design by up to 80% and easy addition of new instances
- Experion HMI and advanced Alarm management features, improved operator effectiveness and better abnormal situation handling
- Universal scan engine ensuring improved data availability and data integrity
- Integrated Gas and Liquid Operations Suite for Pipelines
- Proven Windows and Experion-based user security and change management for improved security and regulatory compliance; 21CFR Part11
- Simple, lean, and secure integration with ControlEdge PLC and RTU; faster uptime and reduced maintenance costs
- Offers secure communication interfaces of OPC UA and MQTT; reduces cyber risks
- Onboard history with built-in reporting and trending features
- Various data mobility options ensuring secure data access and notifications on the go!
- Data exchange options such as excel data, ODBC and, OPC for reduced integration and seamless data aggregation
- Native EFM interface for custody transfer logs transfer
- Supports major protocols for improved investment protection- Modbus, DNP3, IEC 60870, IEC 61850, OPC DA, HDA, A&E and more
- Available in runtime, regular software options with touch enabled user interface; single solution for all your SCADA needs

- *ASM compliant graphics and advanced alarm management features for improved operator effectiveness*

- *Connect to multiple PLCs/RTUs without needing any additional software license*

- *No practical limit on number of graphic displays per Panel HS*

- *Up to 90% reduction in PLC integration time and efforts when using Experion HS and ControlEdge PLC/RTU*

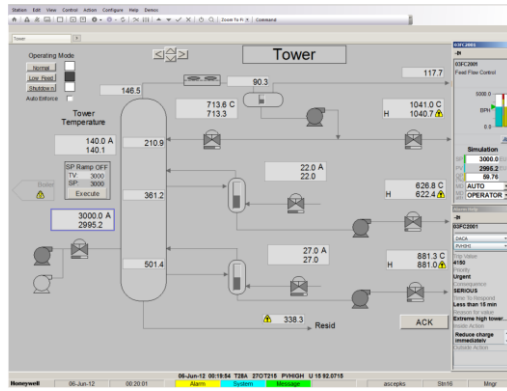
- *Supports a wide range of SCADA interfaces enabling standardized data exchange with various controllers- Modbus (TCP/Serial), Universal Modbus, OPC UA, DNP3, IEC 60870, IEC 61850 (for smart IEDs/Relays) and more*

- *Built-in Security for protection against Cyber Security risks*

- *Rich function libraries, HMI Web Solution pack for rapid custom display configuration*

- *One of the most enriched SCADA for reporting and trending*

- *Secure and flexible data mobility options and remote operations solution*



Sample Experion HMI Graphics – ASM Value Built In for better process visualization

Fast, Lean and Secure Integration with ControlEdge

Experion HS takes the controller integration paradigm to the next level with Honeywell’s ControlEdge PLC and RTU Integration over OPC UA and DNP3 interfaces respectively. This integration is fast and lean as the PLC/RTU configuration tool can be directly launched from the Experion HS engineering environment and the engineered PLC variables are automatically configured in the Experion point database. This improves configuration efficiency and simplifies PLC data integration into Experion.

The built-in firewall and secure boot features of the ControlEdge PLC/RTU and ISA99 compliant secure communication model between ControlEdge PLC and Experion HS significantly reduces cyber security risks.

Open architecture and seamless connectivity

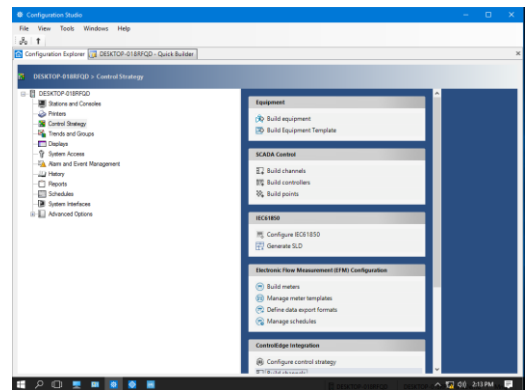
The Experion SCADA engine uses various polling techniques depending on communication protocols supported by respective controllers. Multiple SCADA interfaces are natively supported in Experion including Modbus (TCP/Serial), Universal Modbus, OPC UA, DNP3, IEC 60870, IEC 61850 (for smart IEDs/Relays) and more.

The polled IO points from these various controllers are treated uniformly in structured points by the Experion SCADA engine for display, alarming, events historization and reporting. This is irrespective of the controller make, type or the communication protocols being used while polling, which makes Experion HS a perfect choice for multi-vendor sub-systems.

These technologies include SQL access via an ODBC driver, Microsoft Excel Data Exchange, Visual Basic scripting, OPC DA, HDA and A&E Client interfaces, OPC Data Display Client and OPC DA, HDA and A&E servers for read/write access to the database.

Easy to use HMI tools

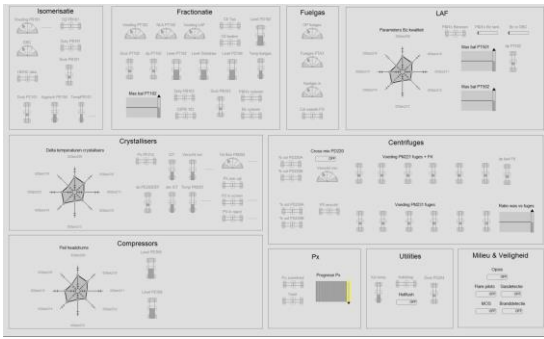
Experion HS offers an intuitive Configuration environment, Configuration Studio that hosts all the Experion configuration tools in a single ordered location. Configuration Studio exposes configuration activities as tasks rather than tools to the user. E.g., ‘Build SCADA Points’, ‘Configure Equipment Templates’. Changes to configuration can be made while the Experion system is on-line. All configuration data is stored on the Experion SCADA server and takes advantage of its redundancy capabilities to provide increased robustness.



Experion Configuration Studio

Included in Configuration Studio is the HMIWeb Display Builder. This is the object-oriented tool for building and maintaining Experion user displays. It includes an object browser to easily navigate and make changes, a property window to enter and view parameters and a structured list of shapes. Shapes can be dragged and dropped to quickly engineer new displays and modify existing ones.

Honeywell’s HMI Web Solution Packs are the foundation of Honeywell’s Human-Machine Interface solution. They are focused on the principles of safe and effective operations and adhere to the guidelines and methodologies for effective HMI design as described by the Abnormal Situation Management (ASM) Consortium. It provides an engineering framework for the creation of a complete Experion operation Human Machine Interface solution.



HMIWeb Solution Pack – Pre-built library taking visualization to the Next Level

A combination of ControlEdge PLC/RTU, Experion PPC and Experion HS SCADA system provides

- A consistent plant-wide data flow and exchange for improved operator emergency response and workflow
- Common HMI tools extended to Experion PPC for lower training and maintenance overheads and therefore improved TCO
- Improved lifecycle support by providing ease of system maintenance and change management.

Composite Device Points

When important information Experion HS supports Composite data structure, where several field values are available in just one SCADA point. So multiple I/O tags are stored and consumed in one SCADA point. For example, for an analogue control loop, the process variable, the setpoint, the output, the mode and all related alarms and other parameters are components of a single SCADA point. There is also the capability to have an unlimited number of user defined parameters. These could be used to store calculations for this point or hold related equipment information like maintenance details.

Data mobility for improved workflows and maintenance

When important information needs to reach people outside the control room or site, the Experion Alarm Pager uses paging, SMS, e-mail, or SNMP traps to escalate operational and system alarms. Alarms can be forwarded to one or multiple recipients and can be further escalated to another recipient if an alarm remains unacknowledged. The forwarded information can be custom designed to include values such as time, date, point ID, alarm, priority, description, and value.

Experion® eServer provides remote and mobile personnel with secure access to key Experion process graphics. Using real-time data, operations teams including management, engineering and field operators can make faster decisions and drive better business outcomes. Experion eServer enables remote users to access the vast amount of information stored on Experion HS in a secure and reliable fashion.

Experion® Augmented Remote Operations Solution

(ARO) allows you to maintain full production with minimal on-site staff by augmenting your local control system with remote operations capabilities. Utilize available resources from any location to maintain operations and business continuity through a range of challenging scenarios. ARO allows you to maintain production during periods of on-site staff shortages, run process operations from any facility, and enable multi-site operations with quick deployment where no HMI re-engineering or client installation is required.

Experion HS Virtualization Solutions lead the industry with a turnkey approach to bringing major benefits of virtualization to SCADA users for new projects and existing installations alike. For new projects, new paradigms are enabled for greater project flexibility and for existing systems.

Enhanced reporting and Scripting

Experion HS SCADA provides many built-in reporting functions to help document or analyze process and system data and events. Reporting can be customized further with Microsoft Excel Data Exchange. Standard report descriptions include:

- **Alarm/Event Report** – Reports all alarms and events in a specified period. By using filters, this report provides operators or engineers with a point trace facility.
- **Alarm Duration Report** – Reports the time of occurrence and elapsed time before return-to-normal for specific alarms in a specified period.
- **Integrated Excel Report** – Provides the ability to launch a report built with Microsoft Excel.
- **Free Format Report Writer** – Generates reports in flexible formats, which may include mathematical and statistical functions such as maximum / minimum and standard deviation.

• *Experion HS comes with flexible packages including runtime, regular software, Panel HMI version, and bundled kits that are easily repeatable. Therefore, providing maximum flexibility and ease of purchase and deployment for various application and architectures*

• *Experion Augmented Remote Operations (ARO) combines Microsoft remote services and virtualization to enable remote plant operations*

• *Experion Panel PC (PPC) along with optimized HS software components provides Honeywell's proven Experion HMI user experience with touch user interface for field operations. Experion PPC can be used as a standalone HS system or as a remote Experion SCADA station for maximum usage flexibility and smoother plant-wide operations.*



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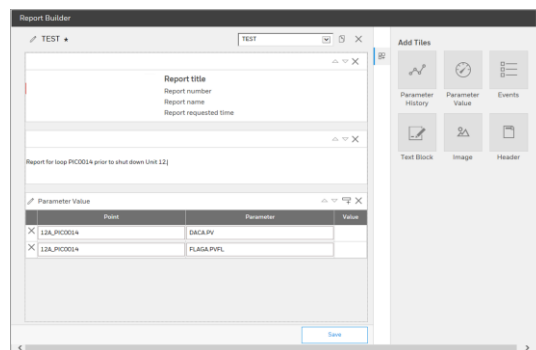
- *Secure and flexible data mobility options and remote operations solution*

Point Attribute Report – Reports on points displaying specific attributes, such as off-scan, bad data and alarm inhibit.

Point Cross-Reference – Determines database references for specified points to enable easier system maintenance when points are decommissioned or renamed.

Batch Reporting – Enables integrated reporting of batches or lots of a production process run (typically thermal in nature) to be compiled and archived automatically. This feature enables batch history for a set of points (up to 50) and events to be output either as a CSV file or directly into Microsoft Excel. Static batch data can also be added to the report such as batch number, customer name, lot size and so on.

Multiple reports may be active, each event-activated. Reports can be generated periodically or on an event-driven or on-demand basis and can be configured online. Report output can be directed to a screen, a printer, a file or directly to another computer for analysis or electronic viewing.



Experion Report Builder – easy configuration, flexibility and compliance

The Experion Report utility allows users to create report definition files that specify the report data as well as layout. This is achieved through a new **Experion Report Builder** display that allows users to build and modify the report definition files for Experion Reports in a simple and flexible way

The Experion HS platform makes extensive use of the VBScript **Scripting** language throughout the supervisory system. Users can create a script that will run when a display is active or scripts can also be attached to server objects like point parameters, alarm events, report completion and other events.

Display Scripting -Users can extend the functionality of graphic displays by writing event-based scripts for display objects. Scripts are typically used to create

animation that is not possible with standard functions.

Server Scripting – The server scripting support allows the behavior of the server and its runtime objects to be extended. Examples of server objects are:

- Server
- Points and parameters
- Reports
- Areas
- Tasks

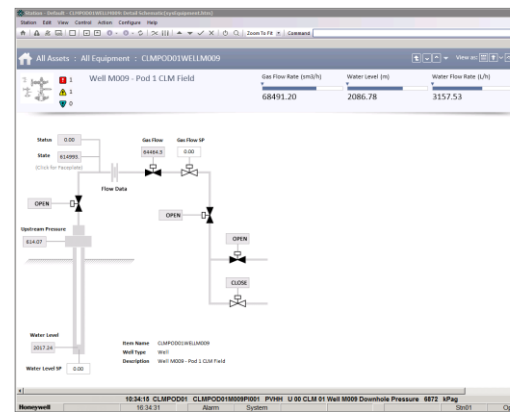
Equipment Template

Experion Equipment templates radically simplify asset’s initial configuration and future expansion costs by enabling configuration by equipment rather than by SCADA points.

Therefore, instead of building and maintaining hundreds of points and displays, you build a wellhead, a pipeline compressor or a pump set by defining just the few unique fields for that instance of that equipment type. By having libraries of equipment templates that can be imported and exported, organizations can standardize on best practice even across multiple sites.

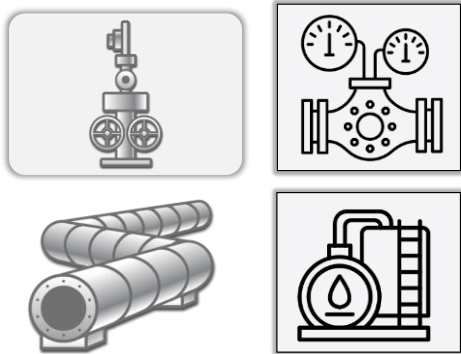
The Equipment Display within the Experion HMI is automatically generated based on equipment configured and is driven by the information contained in the Equipment templates, thereby enabling superior operations. Features of the Equipment Display include:

- Tabular displays of similar equipment showing the key parameters for each
- Selectable filtering to provide task-based views. For example, show me the wells that are underperforming. Or, show me all my compressors



Equipment Template configured for Well head operations

- Filter by Assets in addition to task.
- Spanning all Equipment in the Operator's scope of responsibility across all DSA servers.
- Drilling through to individual Equipment for closer monitoring or control with:
 - Tabular style presentation of parameters.
 - Custom HMIWeb displays.
 - Links to configured trend sets
 - Links to related Equipment and applications
 - A banner listing KPIs and the alarm status of the Equipment aggregated from individual alarms.
- New Equipment automatically appears with no further configuration



Example of Equipment Templates – integrated applications in Experion

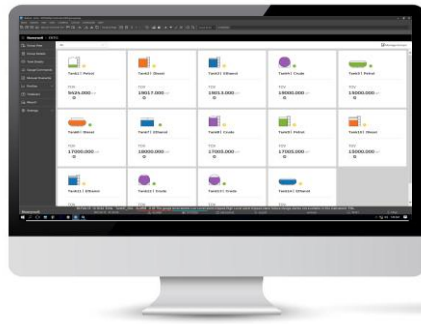
This dashboard-style auto generated content allows an operator or pipeline controller to efficiently manage thousands of individual pieces of equipment freeing up time for more value adding tasks. As best practices evolve, templates are easily updated with the latest task definitions, trends, and displays. Every operator then becomes your best operator.

Solution Enablers

Experion HS offers proven technology that enables various industry specific solutions. These solutions use core Experion SCADA features for delivering incremental value for various applications.

Tank Farm Management

Running an oil storage terminal requires focus on safety and efficiency. Honeywell's Enraf® Tank Inventory Systems (ENTIS) provide accurate and secure inventory data at all times enabling overfill protection, leak detection and alarming to mitigate or prevent possible disasters and protect the tank farm's people and



New ENTIS – uses Equipment Template for Tank Farm

environment. It allows users to reduce costs, increase efficiency and improve profits. ENTIS is built on the proven Experion HS® Platform. Powerful, modular, and easy to use, ENTIS is suitable for all kinds of distribution and bulk terminals. It provides industry-leading accuracy, flexible options and advanced security features.

Oil & Gas Metering SCADA

Experion HS provides a single polling engine to collect **Electronic Flow Meter (EFM)** custody transfer logs alongside regular process data. This includes historical data log collection and export to gas management systems like Flow-Cal.

Optimizing Control and Monitoring of Metering Installations

Honeywell's Metering Automation System (MAS) provides a total solution for gas and liquid metering, including stations from a single stream up to 50+ streams. MAS includes everything you need in one package. From process visualization to performance monitoring, validation support and reporting & billing.

The Metering Automation System is powered by Experion HS. The system allows you to perform:

- Flexible configurations for any size installation
- Automatic stream switching.
- Flow control management
- Validate your system (Z-proving)
- Reporting and billing
- Hand-off information to commercial systems

Manage all your metering equipment optimally

Measurement IQ (MIQ) Optimize provides a single enterprise-wide view of the performance from your gas measurement equipment at all individual station's.

• EFM interface in Experion enables collecting the various data from flow meters, including: Historical flow logs, Meter configuration logs, and Alarm/event/audit logs

• Collected is automatically exported to text (CSV) / binary FLOWCAL® CFX file formats for use by third-party gas measurement and/or billing systems.

• Accurate and secure inventory data at all times enabling overfill protection, leak detection and alarming etc. using ENTIS for improved safety, and efficiency

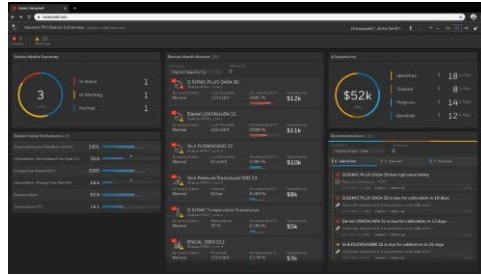
• Secure automated control and monitoring of critical metering functions, derived calculations, trending and communication

Built-in security covering Experion user-based security with configurable access and security levels for operators, supervisors, and other personnel.

For secure electronic record keeping for Pharma/F&B industry, Experion HS has built-in security mechanisms like electronic signature for every change, time-out period and signature requirements for revert functions, change authorization and more.

Experion HS delivers a unique electrical automation solution providing the power and electrical management information directly to the operator, and the power control information directly to the process controllers.

It connects remotely to all distributed assets to get deeper insights to drive up measurement accuracy across the organization and delivers clear and actionable recommendations in case of issues. MIQ Optimize is powered by Experion-HS and expands the proven capabilities of Measurement IQ.



MIQ Optimize – web based analytics platform for meters

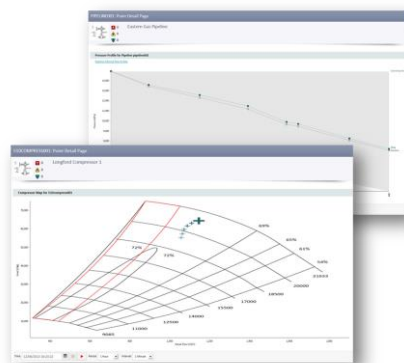
Gas and Liquid Pipeline Operations

Experion HS enables cost effective; easy to configure; easy to maintain gas and liquid operations applications such as pipeline linepack and leak detection hosted within Experion in compliance with API 21.1 and 21.2 standards for gas and liquid respectively.

The Experion Gas and Liquid Operations Suite provides the following features for the industry:

- Server based flow compensation calculations
- Flow and Gas/Liquid Quality calculations
- Linepack
- A basic leak detection solution
- Pipeline Compressor Maps

These applications are hosted as part of the Experion server. Experion Equipment templates are used as the building blocks of the applications. As the pipeline is being defined using the pipeline, route, segment and node Equipment templates, so are the applications being configured and aspects like Linepack being calculated.



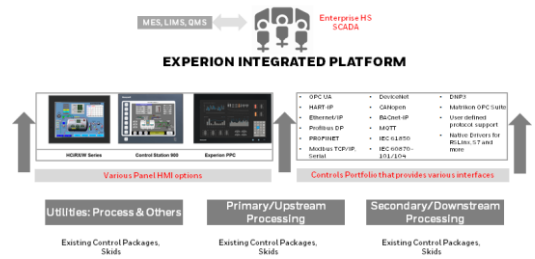
Gas/Liquid Ops Suite – Basic Leak detection and Compressor map

This also means the applications are visualized using the Equipment display and relationships can be configured between equipment. For example, when at the pipeline compressor, you want to see the Compressor Map.

Pharma and Food & Beverage

Experion HS based solutions help regulated industry manufacturers maintain auditability and transparency, optimize production, and increase profitability while focusing on quality, flexibility and repeatability.

Honeywell’s Experion led solutions support compliance with 21 CFR Part 11/EU Annex 11 and current Good Manufacturing Practices (cGMPs). The solution can be used across the plant including clean utilities, Clean In Place, Water and other packaged systems such as boiler, heat exchange, HVAC and more.



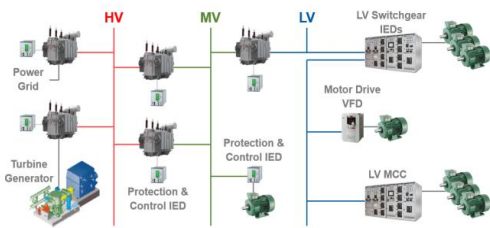
Designed for 21CFR Part11, Experion HS supports a dual electronic signature, that helps make FDA electronic records compliance a Plug and Play operation. Secure Audit Trails track operator control changes automatically, track and log operator actions into a secure database, and Experion features such as operator security, access, single sign-on etc ensure that only authorized person access the system.

Combined with Honeywell’s ControlEdge HC900 controller that supports version control and history backfill feature, Experion HS offers a solution with complete data integrity, ultimate data/ trending availability and compliance for regulated industry applications.

Electrical SCADA

Electrical power management equipment in substations and motor control centers (MCC) have for a long time been connected to process control systems. These systems have an inherent role to power and protect process equipment such as process controllers require status information for interlocking strategies and are

involved in load shedding applications or track energy use in industrial plants with significant operating costs.



Electrical T&D Equipment – with IEC 61850 interface in Experion HS

Experion HS, in combination with IEC 61850 substations, becomes a single process and power automation solution. Whether you prefer separate operator consoles for power and process or a single console managing both, Experion delivers One System, One Platform Approach for ultimate lifecycle benefits. The solution led by Experion HS and inbuilt IEC 61850 Edition 2 support can be used in various power management applications, including

- Electrical Control System
- Electrical Load Shedding Systems
- Electrical Power Management System (PMS)
- Substation Automation Systems
- Medium Voltage Automation Systems

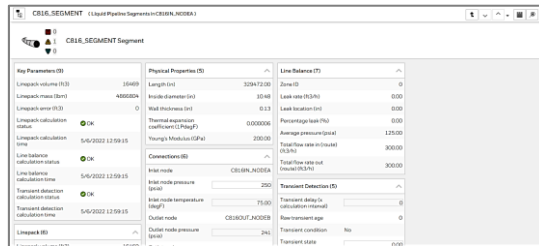
There are numerous opportunities to improve power usage, reliability and quality by having access to real time data from power management devices.

Water and Wastewater

Because water and wastewater infrastructure systems are fundamental to the health and well-being of the entire world’s population, their security, integrity and resilience are crucial. However, maintaining and protecting them involves attention to a wide variety of significant challenges.

A solution like Experion HS SCADA offers hundreds of pre-built graphs and task-based filters to customize the presentation of data to control room operators. The software’s HMI displays real-time and historical process trends such as overflow counts, pumping metrics and dissolved oxygen numbers. The solution is applicable across the water and wastewater value chain including pumping and lifting stations, storage tanks, valve vaults, water treatment and desalination facilities.

The two-way communication between the meters and Experion HS allows integration with SCADA systems to detect and report water usage or tampering. By analyzing flow data combined with water pressure metrics, Experion liquid operations suite applications such as pipeline linepack and leak detection can report a leak in progress before it becomes serious, using a variety of available transmission methods, including Wi-Fi and other wireless options.



Water Operations Suite –Linepack volume, Line balance & calculations

The cybersecurity protection must be centralized at the enterprise level, encompassing all components of the system end-to-end, no matter how widely distributed or complex. Water utilities should work with a partner like Honeywell for industrial cybersecurity, with expertise in operational technology (OT), and offering enterprise-wide deployments with Experion at core.

Infrastructure

Experion HS with a variety of Honeywell controllers such as ControlEdge PLC, RTU, HC900, Safety Manager SC, MasterLogic and Panel HMI can be used across various infrastructure applications. Some examples are

- Tunnel automation (HVAC, control packages)
- Metro rail with SIL PLCs
- Commercial complexes, stadium
- Correction facilities
- Datacenter
- Airport automation and Traffic Light control
- New Energy/ Battery Energy storage systems

The offered Experion SCADA solution provides the necessary interfaces for data collection, monitoring and control where Honeywell’s proven controller and Panel HMI portfolio ensures data integrity, smoother operations, and optimized maintenance costs. Easy to use HMI, tools with advanced trending and alarming enhances the operators’ ability to handle the process more efficiently.

High-performing water utilities need accurate analytics reporting and data visualization to optimize performance and effectively benchmark their operations’ efficiency. To be comprehensive, the data must provide a complete history, regardless of the control systems employed, and offer a reliable and robust archive of customizable reports.

Experion HS Support and Services

From installation and start up to system maturity and future expansion, Honeywell TotalCare remote and on-site support services ensure you get maximum return from your automation system investment. The TotalCare Service program features specially designed service package options in addition to Honeywell's standard support commitment under the Scalable Control Solutions portfolio. Available on an annual subscription basis, TotalCare Lite and Enhanced service packages encompass system updates, upgrades, corrective and preventive maintenance, support requests and more. Factory-trained remote service engineers provide technical support and rapid responses to queries regarding procedures, documentation, operation, service, training, and system enhancements. In addition, TotalCare remote services include a review of operational procedures, software analysis and diagnostic evaluations when required

For More Information

Learn more about how Honeywell's Experion HS SCADA Solution can improve your operations, visit <https://process.honeywell.com/us/en/products/control-and-supervisory-systems/scada/experion-hs> or contact your Honeywell Account Manager, Distributor or System Integrator.

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