

ENTERPRISE DATA MANAGEMENT | PROCESS HISTORY DATABASE

PRODUCT INFORMATION NOTE

Enterprise Data Management - PHD helps you make sense of all the data in your plant, enabling you to make the right decisions and optimize process performance.

Honeywell's Process History Database (PHD) collects, store and replays historical and continuous plant process data, increases data security and improves process performance for better and faster decisions with superior data management.

Data-rich History

Make timely data visible at your production and enterprise levels through the collection, storage, and replay of your historical and continuous plant process data. PHD ensures the ongoing maintenance of vast amounts of data in your long-term history by integrating with existing control systems and applications across multiple plants and sites. This enables user access and application integration through data collection fail-over and automatic history recovery.

Honeywell's historian provides additional features to transform data into knowledge. PHD's calculated tags allows users to apply engineering and business knowledge to current and historical data, while built-in engineering unit conversions allow users to view data in a format that makes sense to them. And by combining process data with business data, this visibility empowers plant staff to better align, plan, execute and make the right decisions for the business.



With a seamless migration, users can avoid the risks of obsolescence and adopt the latest Windows® and SQL Server® platforms. The advantages of PHD are:

- Support for OPC UA standards (Server & Client)
- Enhanced system management with user query logging
- Utilize process data with thin client tools using REST APIs.

BENEFITS

Distributed Data Collection

- The distributed architecture scales from small sites to corporate enterprise systems
- Robust data collection ensures that data is not lost due to communication failure

Automated Tag Management

- Tag Synchronization reduces tag configuration from days to minutes
- Automate tag setup and maintenance for Experion, PHD peer systems, and OPC servers

Alarm and Event History

- Consolidated Event Journal provides long term storage and analysis of alarms and events from a variety of system
- Unmatched incident investigation

Integrated Smart Calculations

- Built-in virtual tag capability enables periodic or ad-hoc calculations
- Engineering unit conversions are performed for you – no spreadsheet logic needed

Robustness

- Interfaces support data collection servers with a warm standby
- Redundant enterprise servers ensure data is always available
- Automatic fail-over to a backup server supported

PHD Benefits

- **Scalable:** PHD's distributed architecture ensures that data may be collected from disparate data sources into a single consistent database. A PHD database may start small and be expanded to handle thousands of users and millions of tags.
- **Secure:** PHD provides support for common firewall configurations and protects historical records from unauthorized access. Keeps traffic off the process network by avoiding load on the control system.
- **Robust:** PHD provides data collection and history recovery features to ensure availability of complete data records, even after data collection interruptions.
- **Open:** PHD has interfaces to collect data from numerous Honeywell and third-party systems. Every PHD server includes an OPC server license, providing open integration to third-party applications.



Distributed Scalable Architecture

PHD's unique shadowing architecture provides distributed data collection and consolidation with a single configuration for the entire network of PHD servers. Your solution can start as a single server connected to a single DCS and later be expanded to numerous data providers, consolidating them into a centralized data store.

Data collection may occur at one or many physical locations, which may be widely geographically distributed. PHD collectors may be set up on offshore platforms, pipelines, shipping terminals, and plant units. Each collector is a full PHD history server so operators and other process users may access the local collector without having to cross network boundaries. Data may be consolidated into a single history database known as a shadow server. After a shadow server is established, collectors may be added as data collection needs grow.

PHD stores configuration of the tags (data points) in a single configuration database, so even though data may exist on many servers, it need only be configured once.

Secure

Meeting the external regulatory demands placed upon process industries can be costly and time-consuming. PHD helps meet regulatory expectations by allowing the uninterrupted collection of all critical data and securing data from unauthorized tampering.

PHD's shadow architecture ensures that the process control network can be secured through a firewall. Each PHD server is a fully functioning system so Level 3 applications can utilize the PHD collectors for their data, while general plant data users can collect data from the Level 4 shadow server. No firewall connections are necessary, and communication between PHD servers is through customer-configurable ports, allowing customers to lock down unsafe ports in the firewall.

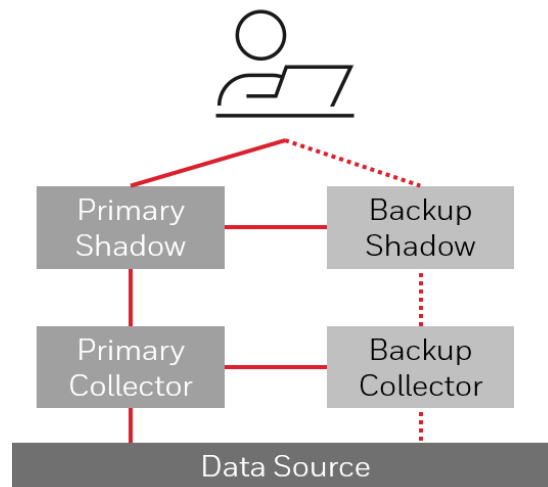
PHD also provides the means to secure historical data from unauthorized user access to read and write or edit data values. Security may be set for multiple tag levels: all, groups or individual.

Additionally, enabling Data Auditing ensures that changes to historical data and tag configuration are recorded.

Robust

PHD R410's 4x Redundancy option ensures that data is always available when you need it. The loss of a single Windows server will not disrupt data collection, ensuring that users and applications have access to current data 24x7

The R410 client supports automatic fail-over from a primary to backup shadow server, so applications are always connected to an active PHD server.



When history collection is critical, it may be desirable to install two PHD collector servers to ensure uninterrupted critical data collection. PHD's robust data collection provides dual data collectors with timely automated fail-over between collectors. Its architecture protects the data source from overload by ensuring that only one server is actively collecting data while synchronizing with its backup.

PHD layers on top of the DCS to provide a historian for engineering and business analytics. It collects, stores and replays historical and continuous plant process data. Data analysis and monitoring may be done at the engineer's desktop, reducing data gathering time by 25% or more.

In a distributed architecture, interface dependencies are tracked, and proper history back-fill is ensured when an outage occurs.

PHD helps improve visibility across the supply chain to transform islands of process and business data into valuable information, enabling organizations to make better and faster decisions.

PHD's 4x redundancy option ensures data is always available, with no server being a single point of failure.

PHD is designed with "no data lost" principles built in.

Robust Data Collection allows users to configure an optional fail-over data collector so that data collection is not interrupted by loss of a server.

Open Standards Lower Lifecycle Support

Open standard connectivity is available for servers and clients that support OPC Historical Data Access (HDA), OPC Data Access (DA) and OPC Unified Architecture (UA) allowing PHD to interface with all modern control and application platforms.

In addition to OPC, PHD provides Microsoft® OLEDB & ODBC support, making data available to Windows- based desktop applications in a table format using SQL commands. The .NET and Java development interfaces are available to build modern applications leveraging PHD's extensive history.

Features

Rest API

Users can leverage this capability to retrieve data without client components / footprint through the RESTful API. These Web APIs provide capability to both fetch & post data to PHD. These RESTful API support basic authorization, local identity provider (ADFS) or an external identity provider (such as Azure AD).

User Query Logging

PHD provides system administrators with greater visibility into the performance / usage of their servers. System Administrators have access to information such as user details; size of the query and the duration when large data queries are carried out in the system.

Automatic One-Time Configuration

While PHD may be used with a variety of Honeywell and third-party systems, when PHD integrates with Honeywell's Experion PKS, the result is a solution that requires less administration and gives greater data integrity than is possible with any other plant historian.

- PHD's Tag Synchronization capability enables a new PHD system to be installed, have tags automatically built and be collecting data all in the same day.
- Tag synchronization automatically builds the PHD database from the Experion server's information, removing the need for costly, error-prone manual configuration.
- As points are changed or added to the Experion system, they are automatically updated in PHD, reducing administration and maintaining the integrity of the database.

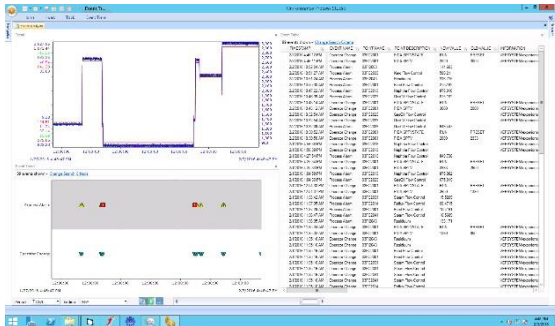
Integrated PHD/Experion data collection links ensure that operator history data and advanced history data is consistent while creating minimal data collection load.

When PHD is expanded to the enterprise level, Tag Synchronization may also be used to maintain consistency between regional PHD process historians and the enterprise PHD server at a corporate IT Center. As with Experion, PHD peer Tag Synchronization builds the enterprise database and maintains its consistency with the site databases.

Consolidated Event Journal

PHD provides history for both events and process data. Users have the historical data and tools to view process alarms, events, and process changes alongside charts and graphics to better understand trends, and troubleshoot conditions leading to process anomalies.

Consolidated Event Journal (CEJ) collects events and alarms from TPS, Experion®, OPC A&E Servers, and CEJ Peer Servers. Data collected by is available to reports and Process Studio.



Investigate alarms and events alongside traditional trends

Automatic Monitoring

System Monitor (USM) automates many of the repetitive tasks commonly performed by a PHD system administrator to evaluate the health of the system and to take appropriate actions. Support personnel can be notified when an error condition is detected and can choose to be notified when the situation has been corrected. Additionally, USM provides graphical and report-style methods of examining the entire system status at any time, on a per node or summary basis.

User-Friendly Desktop Tools

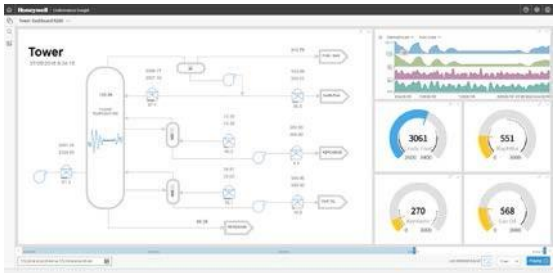
Suite provides productivity tools that retrieve, display, analyze and report process data – upgrading your decision support, including tools such as a companion add-in for Microsoft® Excel® and Insight.

Honeywell’s Insight is a thin-client software solution that offers data integration, performance information and visualization using existing IT/data systems. Using standards-based technology, this software connects a wide variety of information sources, including plant floor and business applications, for improved data visualization without the need for expensive custom interfaces. Its appealing and configurable workspace interface makes this data easier to trend, chart, monitor, report and display.

Migration

Migration to PHD is seamless and easy with the following advantages:

- "One-hop" migration from the R3xx series
- Minimum disruption and no loss of data
- May not need a server upgrade, hardware changes or data reformatting when upgrading from releases on Windows 2012 R2 or newer



View dashboards of graphics and trends from your browser

PHD Technical Specifications

PARAMETER	SPECIFICATION
CONCURRENTLY CONNECTED USERS	10,000*
NUMBER OF TAGS IN HISTORY	Millions*
RETENTION OF HISTORICAL DATA ONLINE	Unlimited
NUMBER OF CONCURRENT REAL-TIME DATA INTERFACES	65,535
OPERATING SYSTEM	Microsoft® Windows® Server 2012 R2, 2016 and 2019
OPC STANDARDS SUPPORTED	OPC DA (Data Access) 1.1, 2.04, 3.0 OPC HDA (Historical Data Access) 1.1, 1.2 OPC UA DA (Data Access) & HA (Historical Access)
PHD CONFIGURATION DATABASE	Microsoft® SQL Server® 2019, 2017, 2016, 2014 and 2012 Express, Standard or Enterprise SQL 2017 Standard may be ordered from Honeywell when ordering PHD
NETWORK TRANSPORT	TCP/IP
TAG SYNCHRONIZATION, EXPERION LINK	Experion 511, 510.1, 500.1, 430.1
CONSOLIDATED EVENT JOURNAL (CEJ) INTERFACES	Experion, TPS, OPC A&E

*Large databases should be planned using Honeywell services to ensure optimal hardware and system tuning.

*Contact a Honeywell representative for user licensing and data interface policies.

Note: Compatibility reflects data available at the time of release. Check the compatibility matrix at honeywellprocess.com/support for up to date information.

For More Information

Learn more about how Honeywell PHD can improve your decision making, visit our [website](#) or contact your Honeywell Account Manager.

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