

Experion Server Specification



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1. Product Introduction

1.1. Experion System

The Experion Process Knowledge System (PKS) is Honeywell’s unified control system for process, business, and asset management that helps industrial manufacturers increase their profitability and productivity. Experion takes customers well beyond distributed control system (DCS) functionality with an advanced automation platform solution and innovative application integration to improve business performance and peace of mind.

1.2. Architecture Overview

The Experion platform comprises many different integrated hardware and software solutions depending upon the needs of the application. This pictured architecture is a representation of many of the possible nodes that can be used in the Experion architecture. Note that the architecture is highly scalable and not all nodes are necessary or required.

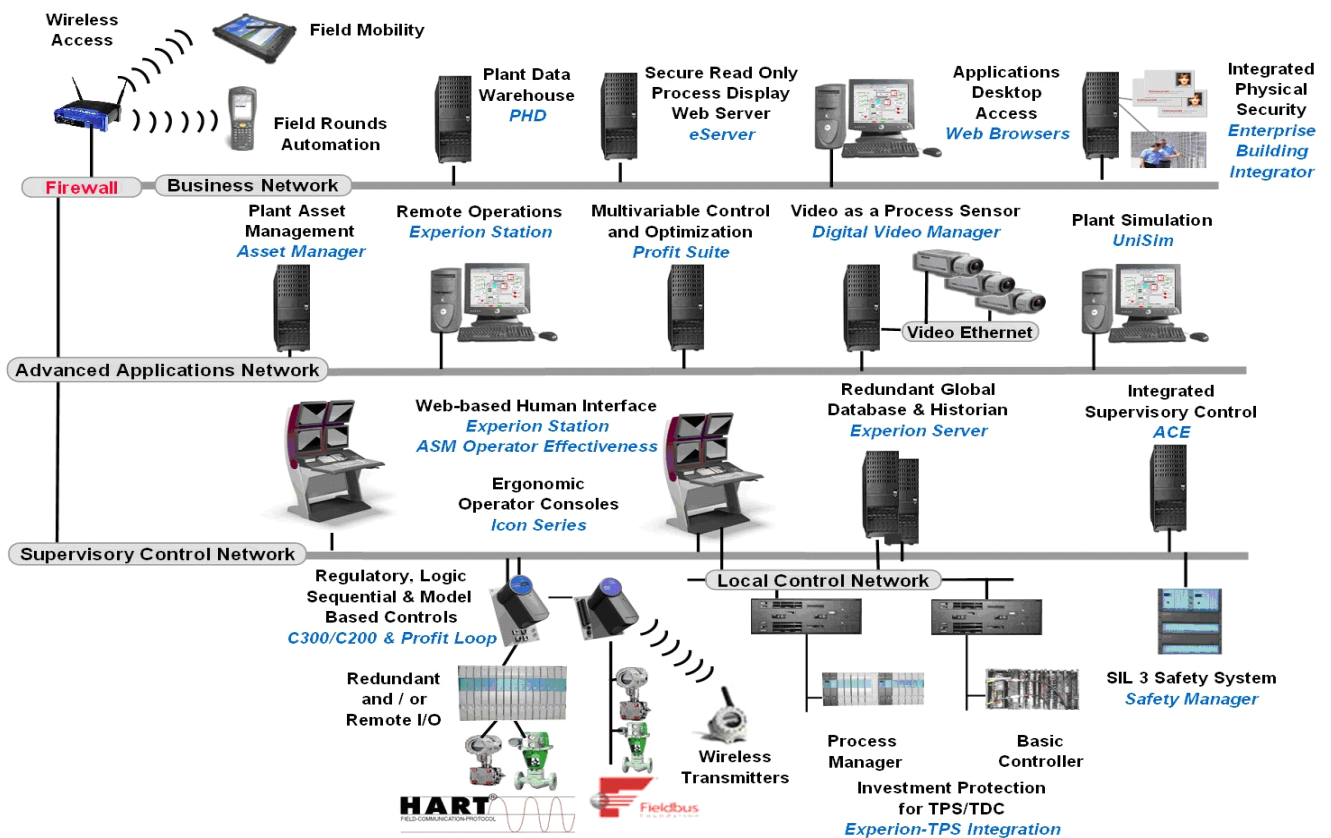


Figure 1. Sample Experion architecture

1.3. Experion Server Overview

An Experion server or redundant server combination functions as a system-wide historian and global database. The Experion server also supports communication to SCADA point sources, DSA point sources, OPC clients and servers and holds the system event journal, system configuration files, custom applications and server scripts. The server is the source for data, alarms, events, etc. for the client-connected applications and the Experion Station–Flex (ES-F). One or more Experion servers are required for an Experion system.

2. Base Server Specifications

2.1. Database Sizing

2.1.1. Maximum Point Count Per Server

| Items | Specifications | Comments |
|--|----------------|---|
| Process points | 20,000 | <ul style="list-style-type: none"> Any device that uses the Control Data Access (CDA) interface consumes process points. Examples of these devices include the ACE Node, C200 and C300 controllers etc. This is a licensed point type. |
| SCADA points | 65,000 | <ul style="list-style-type: none"> Any points that are used to display data retrieved from SCADA Interfaces are classified as SCADA points. Examples of these devices include the Data Hiway Interface, DNP3 Protocol Interface, etc. This is a licensed point type. See section 2.6.3, "Real Time Database SCADA Point Structures", for further information on SCADA points. |
| Remote Data Access Points | 65,000 | <ul style="list-style-type: none"> Remote Data Access Points are created whenever a point that belongs to another server is accessed using DSA. Remote Data Access Points are not licensed. |
| TPS points | 65,000 | <ul style="list-style-type: none"> Used when an Experion server – TPS (ESVT) is getting data from a TPS system. TPS points are not licensed. |
| Total of all point types | 65,000 | <ul style="list-style-type: none"> The maximum total number of points within a given server is 65,000. The total number of points is calculated by adding up all of the different point types listed above. The number of points in a system (a system consists of multiple servers) can exceed 65,000 points; however, the number of points in any one server cannot exceed 65,000 points. |
| <p>Multiple Experion servers can be combined into a single operational system. Limits shown here apply to a single Experion server. Points have a composite data structure that can represent several field values. For example, you only need one analog point for a control loop that maintains the temperature of an oven because the point's data structure can include the process variable (PV), output variable (OP), set point (SP) and mode (MD).</p> | | |

2.1.2. Alarm, Event, Alert and Message Lists

| Items | Specifications | Comments |
|---|--|---|
| Maximum number of active alarms and alerts | 2,000 | Alarms and alerts occupy the same storage space so there can be a maximum of 2,000 active alarms and alerts in the Alarm and Alert summaries. |
| Maximum number of active messages | 1,000 | Number of messages that appear in the Message summary. |
| Maximum number of SOE messages | 32,767 | Number of SOE messages that can appear in the SOE summary. |
| Maximum number of events in online event file | See section 2.5, "Notification Performance". | <ul style="list-style-type: none"> All alarms, login actions, operator actions, and configuration changes are logged in the online event file. Up to two events are generated for every alarm, including one event for entering the alarm condition and one for return to normal. |

2.1.3. Other Database Sizing Specifications

| Items | Specifications | Comments |
|--|--|--|
| Printer connections | 50 | This is the total number of printers that can be configured as either report or alarm devices. |
| Trend sets | 3,000 | |
| Trend pens per set | 32 | |
| Trend periods | 1, 5, 20 minutes 1, 2, 4, 8, 12 hours 1, 2, 5 days 1, 2, 4 weeks 3, 6 months 1 year | |
| Operating groups | 16,000 | |
| Points per group | 8 | |
| Reports | 1,000 | |
| Operators | 1,000 | This is the default limit. The quantity can be increased to 32,000, if required. |
| Multiple Experion servers can be combined into a single operational system. Limits shown here apply to a single Experion server. | | |

2.2. Enterprise Model Sizing

2.2.1. Assets

| Items | Specifications | Comments |
|---|---|---|
| Assets | 4,000 | The asset model represents the organization of items in the enterprise, for example, process units, individual pieces of equipment or facilities, etc. The relationship or hierarchy between assets and entities forms the asset model. The primary relationship in the asset model is that of asset containment, where one asset contains another. |
| Assignable assets | 1,000 | Assignable assets provide a way to assign assets to an operator's scope of responsibility. An assigned asset includes all asset children of the assigned asset including any points associated with those assets or any alarm groups that have been designated by that asset for scope of responsibility purposes. The number of assignable assets is a subset of the total number of assets. |
| Nesting depth for asset hierarchies | 10 | |
| Children per asset | No limit (up to the 4,000 total assets) | |
| One enterprise model is defined per system and a system can comprise multiple servers. These figures apply to the system. | | |

2.2.2. Alarm Groups

| Items | Specifications | Comments |
|---|----------------|--|
| Alarm groups | 5,000 | Alarm Ggroups present alarm state/status for a disparate group of points and assets that are not represented by a single asset in the asset model. |
| Children per alarm group | 500 | |
| Nesting depth for alarm group hierarchies | 5 | |
| One enterprise model is defined per system and a system can comprise multiple servers. These figures apply to the system. | | |

2.3. History Sizing

2.3.1. Collection Rates

| Items | Specifications | Comments |
|------------------|--|---|
| Standard history | <ul style="list-style-type: none"> 1-minute snapshot 6-minute average 1-hour average 8-hour average 24-hour average | When a point is configured for standard history collection, all of these intervals are stored. |
| Fast history | 1, 2, 3, 4, 5, 10, 15 or 30 seconds | When a point is configured for fast history collection, snapshots are stored at 1, 2, 3, 4, 5 (default), 10, 15, or 30 seconds. One fast history interval can be configured per server. |
| Extended history | <ul style="list-style-type: none"> 1-hour snapshot 8-hour snapshot 24-hour snapshot | When a point is configured for extended history collection, all of these intervals are stored. |

To support daylight savings and time zones, all collected data is historized in Universal Time Coordinated (UTC) time.

2.3.2. Default History Files Sizes

| Items | | Specifications | | Comments |
|------------------|--------------------------|--------------------|---------|---|
| | | Time | Samples | |
| Standard history | 1-minute snapshot | 24 hours | 1,442 | |
| | 6-minute average | 7 days | 1,682 | The averages are calculated using the 1-minute base interval. That is, 6-minute averages are calculated on six 1-minute values. |
| | 1-hour average | 7 days | 170 | The averages are calculated using the 1-minute base interval. |
| | 8-hour average | 3 months | 280 | The averages are calculated using the 1-minute base interval. |
| | 24-hour average | 1 year | 368 | The averages are calculated using the 1-minute base interval. |
| Fast history | 1- to 30-second snapshot | 2 hours – 72 hours | 8,652 | |
| Extended history | 1-hour snapshot | 3 months | 746 | |
| | 8-hour snapshot | 1 year | 281 | |
| | 24-hour snapshot | 3 years | 368 | |

The number of samples in each history file can theoretically be increased to 100,000 samples. If the size of the history file is increased beyond the default qualified size, care should be taken not to exceed the maximum history file size constraints. (See section 2.3.4). History archiving is available to store the history files for later retrieval. Experion history data is seamlessly available for use across every Experion Station for trend displays, reports, custom displays, applications, spreadsheets and ODBC compliant databases.

2.3.3. Maximum Parameters Assigned to History

| Items | Specifications | Comments |
|---|----------------|---|
| Standard history | 2,000 | This is the default limit that Experion is shipped with. The number can be increased beyond the default qualified number to 50,000. |
| Fast history | 1,000 | This is the default limit that Experion is shipped with. The number can be increased beyond the default qualified number to 10,000. |
| Extended history | 2,000 | This is the default limit that Experion is shipped with. The number can be increased beyond the default qualified number to 10,000. |
| The ability to collect history at the configured rate depends upon throughput of underlying process control network, see table 2.4, Server Data Access Acquisition Performance. For example, for a heavily loaded ESVT there may not be sufficient LCN bandwidth to deliver 1000 parameters/second to fast history. | | |

2.3.4. Calculating History Space Requirements

| Items | Specifications | Comments |
|---------------------------|--|--|
| Maximum history file size | 500 MB | <ul style="list-style-type: none"> Each type of history sample is stored in a separate history file. For example, there are five history files for standard history, one each for: 1-minute snapshot, 6-minute average, and so on. An individual history file should not exceed this size. |
| History file size formula | History file size in bytes = $2 * N * ((P*3) + 8)$ Where: N = number of samples P = number of parameters | <p>Example:</p> <p>Number of parameters P assigned to standard history is 50,000.</p> <p>Number of samples N for standard 24 hours one minute snapshot is 1,442.</p> <p>History file size = $2 * 1,442 * ((50,000*3)+8) = 432,623,072$ bytes/1,048,576 bytes/megabyte = 413 MB.</p> |

2.4. Server Data Acquisition Performance

| Items | Specifications | Comments |
|---|-----------------------|--|
| Experion Controllers | | |
| Maximum parameters per second (pps) from all controllers on FTE | 8,000 | This includes data access to all CDA devices such as C200, C300, FIM, IOLIM, ACE, Simulation environment and LIOM. |
| Maximum pps from all controllers on ControlNet | 4,000 | This includes data access to all CDA devices such as C200, FIM, and IOLIMs on ControlNet (not including ACE nodes – see next item) |
| Maximum pps from all ACE nodes | 2,000 | Maximum pps from ACE Nodes (through Ethernet or FTE) when controllers are on ControlNet |
| LCN¹ | | |
| Maximum values per second from LCN | 1,600 | |
| Maximum average values per second for history collection | 1,200 | <ul style="list-style-type: none"> This value is averaged over the entire minute. Fast and standard history may cause peak loads above this value. The ability to collect history at the configured rate depends upon the throughput of underlying process control network. For example, a heavily loaded ESVT will be limited by the usage of LCN data by other clients (such as Flex Stations and OPC data clients). |
| DSA | | |
| Maximum pps from each configured DSA subscribing server | 1,000 | This information is duplicated in section 3.2, DSA. |
| SCADA | | |
| Maximum pps from all configured SCADA devices | Limited by device | |
| OPC | | |
| Maximum OPC pps from all configured OPC Servers | See section 3.2 , OPC | |
| Note 1 – Supported through an Experion server – TPS (ESVT). | | |

2.5. Notification Performance

| Items | Specifications | Comments |
|---|---|--|
| Alarm and Event Notifications | | |
| Maximum number of events (burst condition) ¹ | 1,000 events | The Experion server alarm system will handle an event burst of up to 1,000 events, with a minimum time between consecutive bursts. An "event burst" is defined as a group of events greater than 40/sec, received from all connected event servers in a period of less than 3 seconds. |
| Formula to calculate the time period required between consecutive bursts, to allow for event processing | $\Delta T = BS / (40 - ER)$ Where: ΔT = # of seconds required between bursts BS = Burst Size (number of events in the burst) ER = Event Rate between bursts | Examples: <ul style="list-style-type: none"> 1,000 event burst and no events between bursts: $\Delta T = 1,000 / 40 = 25$ seconds 500 event burst with 30 events/sec between: $\Delta T = 500 / 10 = 50$ seconds |
| Maximum number of sustained events/second ¹ | 10,000/hour, with peaks of up to 40/sec | |
| Maximum number of sustained alarms/second ¹ | 20/sec | |
| Maximum duration of events in online events file | 5 weeks | |
| Maximum number of events in online events files | 1.2 million | Event archiving can be used to access older events. Approximately 60 MB of hard disk space is required for every 100,000 events archived |
| Alerts and Notifications | | |
| Maximum number of alerts/second | 1 | |
| Maximum burst of alerts | 100 | These totals are still subject to the overall maximum number of events per second and maximum burst of events limit that the Experion servers can support. |
| Note 1 – The Experion server includes the option to support OPC alarms and events in addition to native Experion notifications. When the Experion server is configured to receive alarms and events from an OPC alarm and event server, the notification limits noted in this table are applicable to the combined set of events received from all connected event sources. | | |

2.6. Supervisory Control and Data Acquisition (SCADA)

2.6.1. Communication

| Items | Specifications | Comments |
|--------------------------|----------------|---|
| SCADA Channels | 99 | Channels typically represent a physical connection to a device, such as a device connected to one port of a terminal server. A channel can support more than one Remote Terminal Unit (RTU). |
| SCADA RTUs (Controllers) | 255 | This is the maximum number of RTUs for a given server. It is spread across all channels and includes OPC RTUs to support the OPC client interface as described in section 3.3.1. (This information is duplicated in 3.3.1 "OPC Client Interface (SCADA Client)"). |

2.6.2. Serial Adapters and Terminal Servers

| Items | Qualified Devices |
|---|--|
| Serial adapters | Stallion EC8/64-PCI-K EasyConnection Smart Host Adapter PCI bus with Stallion PA-EC-8D4K 8-Port RS-232/-422/-485 Async module (DB25) |
| Terminal Servers | <ul style="list-style-type: none"> • Systech RCS-3282 (2 serial ports) or RCS-6008 (8 serial ports) • Stallion EasyServer II • Cisco Router |
| <p>The SCADA controller connection to the server depends on several factors, including the plant's layout, the type of interface used and the controller's communication port(s). For a small system, controllers can be directly connected to the server's serial ports. More serial ports can be added to the server with a serial adapter. Controllers can also be connected to the network through a terminal server.</p> | |

2.6.3. Real Time Database SCADA Point Structures

| Point Structure ¹ | Standard Parameter | | |
|------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Analog ² | Control Deadband | Scan Status | SP Low Limit |
| | Process Variable | OP High Limit | 0% & 100% Range |
| | Setpoint | Scan Period | Operator Control Level |
| | Normal Mode | Scan Address | OP Low Limit |
| | Output | Control Timeout | PV Clamp Flag |
| | Mode | Alarm Permit Flag | Engineering Units |
| | SP High Limit | Alarm Status | Drift Deadband |
| | Up to 4 user definable inputs | Up to 8 Alarm types ³ | Alarm Deadband |
| | Point Name | Alarm Status | Associated Display |
| | Point Description | PV Last Processed Time ⁴ | |
| Status ⁵ | Output Width | Output | Output Pulse Width |
| | Process Variable | Scan Status | Re-Alarm Status |
| | Control Timeout | Normal Mode | Associated Display |
| | Mode | Scan Period | Alarm Permit Flag |
| | PV Last Processed Time ³ | Scan Address | Input Width |
| | Point Name | Alarm Priority | Control Failure Alarm Priority |
| | Point Description | Operator Control Level | |
| Accumulator ⁶ | Output Width | Scan Status | Output Pulse Width |
| | Process Variable | Normal Mode | Re-Alarm Status |
| | Control Timeout | Scan Period | Associated Display |
| | Output | Scan Address | Input Width |
| | Operator Control Level | Mode | Alarm Priority |
| | Control Deadband | Alarm Permit Flag | PV Last Processed Time ² |
| | Process Variable | Control Failure Alarm Priority | SP Low Limit |
| | Setpoint | Scan Status | 0% & 100% Range |
| | Normal Mode | OP High Limit | Operator Control Level |

Note 1 – For each of the point types it is possible to add user-defined parameters to the existing pre-built parameters. This enables tags to be extended to contain free format values, constant values, or values used by applications and scripts to store calculated or derived plant information. User-defined parameters can be assigned to history collection.

Experion supports additional data processing through the use of standard algorithms that may be attached to an analog, status or accumulator point. Functions provided by these algorithms include:

- o Arithmetic calculations
- o Boolean calculation
- o Maximum/minimum value
- o Integration
- o Run hours totalization
- o Group alarm inhibit
- o Report request
- o Application program request

Note 2 – Used for continuous values.

Note 3 – Supported alarms include: PV Hi, PV Lo, PV HiHi, PV LoLo, Deviation Hi, Deviation Lo, Transmitter Hi, Transmitter Lo, Rate of Change, Control Fail, and Control Timeout. Each of the configured alarms can be assigned a priority ranging from Journal, Low, High to Urgent. An alarm sub-priority (0 to 15) can also be assigned to further differentiate alarms.

Note 4 – Each time the PV is polled from the RTU, Experion will track and maintain the time/date of when the value last changed, or more specifically, was last processed. If the Analog point in Experion has a drift deadband of 1%, then the last processed time is not updated until the PV moves by >1%. Similarly, if the drift deadband is 0%, then the last processed time is not updated until the PV moves slightly.

Note 5 – Used for digital values. The PV of a status point can range from a single bit to a three bit digital input, allowing up to eight possible states.

Note 6 – Used for totalizer values. Data associated with pulsed inputs are stored in the system in an accumulator point type that will provide automatic tracking of instrument rollover.

2.7. Server Scripting

2.7.1. General Server Scripting Specification

| Items | Specifications | Comments |
|---|---|--|
| Description | | |
| <p>Server scripting extends the behavior of the server-resident subsystems and its run time objects. Examples of server objects are points and parameters, reports, assets and tasks (application programs). Scripts can run by the server either periodically or when a specified event occurs. Standard displays support the monitoring of the status of running scripts.</p> | | |
| General Specifications | | |
| Maximum script size | Short scripts only (typically less than 50 lines) | <ul style="list-style-type: none"> Server scripting has been optimized for relatively short scripts and is not designed for implementing control strategies. If a task is computationally intensive, or requires extensive file handling, custom applications can be used instead of scripts – see section 3.6 “Application Development Toolkit”. Some tasks qualify for both categories, and the rules are flexible when deciding what tasks can and cannot be performed by server scripts, see the following section. Where possible, existing server functionality should be used in preference to writing server scripts. Standard server functionality optimizes the task implementation. |

2.7.2. Server Scripting versus Custom Applications

| Tasks | Server Scripting | Custom Application |
|--|------------------|-------------------------|
| Extend server functionality via information transfer | Yes | Yes |
| Relatively short processing (< 50 lines of code) | Yes | Yes |
| Used to provide linkage to other applications via automation servers | Yes | Yes |
| Code is interpreted at run-time. | Yes | No |
| Code is compiled and optimized at build time. | No | Yes |
| Computationally intensive | No | Yes |
| Optimized for supervisory control | No | Yes |
| Iterative code | No | Yes |
| Relatively complex user interface requirements | No | Yes |
| Extensive file handling | No | Yes |
| Script (program) state preserved on failover | No | No |
| Language | VBScript | Visual Basic, C++, etc. |

3. Option Specifications

3.1. Server Redundancy

| Items | Specifications | Comments |
|---|---|---|
| Description | | |
| Server redundancy provides a high availability platform by enabling a pair of similarly configured servers to support each other in a primary/backup fashion. | | |
| Details | | |
| Redundancy fail-over conditions | Should the primary server fail, a fully functioning backup assumes the primary role. | Primary refers to the specific server that is actively acquiring data from the controllers/RTUs and serving data to the clients. The primary server propagates all database transactions to the backup to enable both databases to remain synchronized. |
| On-process migration | Provides the ability to migrate the software from a current release to the next available release without shutting down the system. | |

3.2. Distributed Systems Architecture (DSA)

3.2.1. General DSA Specifications and Performance

| Items | Specifications | Comments |
|---|----------------|--|
| Description | | |
| Distributed System Architecture (DSA) is an option that enables multiple Experion servers to share data, alarms, alerts, messages and history without the need for duplicate configuration on any server. | | |
| Maximum number of DSA connected servers | | |
| Maximum number of DSA connected servers | 15 | Any one DSA server can subscribe from/publish to 14 other servers. |
| DSA Data Publish¹ | | |
| Maximum number of parameters per second (pps) to all remote servers | 2,000 | |
| DSA Data Subscription¹ | | |
| Maximum number of pps from each remote server | 2,000 | |
| Total number of pps from all remote servers | 10,000 | |
| Note 1 – The ability to deliver the published data rate depends upon the throughput of the underlying process control network. For example, a heavily loaded LCN-connected Experion server may not have sufficient LCN bandwidth to deliver an additional 1,000 pps via DSA. Refer to the documentation associated with the process control network for more information. | | |

3.2.2. DSA Publishing Server Communications Performance

| Available Network Bandwidth ¹ | Maximum Network Throughput (pps) ² | Maximum Throughput/Server (pps) ^{3,4} | Maximum Subscribing Servers |
|---|---|--|-----------------------------|
| 64 Kbps | 100 | 100 | 1 |
| 128 Kbps | 200 | 200 | 2 |
| 256 Kbps | 400 | 400 | 3 |
| 512 Kbps | 800 | 800 | 8 |
| 1 Mbps | 1,000 | 1,000 | 9 |
| 2 Mbps | 2,000 | 1,500 | 9 |
| 10 Mbps | 10,000 | 2,000 | 9 |
| 100 Mbps | 100,000 | 2,000 | 9 |
| Note 1 – “Available Network Bandwidth” means dedicated continuously available bandwidth for DSA use between the servers, and not shared bandwidth with other applications such as Station access or Control Builder multi-user access. Note 2 – Maximum traffic on any individual network segment. Note 3 – For Experion servers with process points, the total parameter throughput caused by remote Station displays, local Station displays, fast history, etc., cannot exceed 1,000 pps. Note 4 – A subscribing Station is one that displays data from another publishing server through DSA. A larger number of Stations subscribing to remote data will result in a greater amount of network traffic. The absolute maximum number of subscribing Stations/publishing servers is 20. | | | |

3.2.3. DSA Subscribing Server Communications Performance

| Available Network Bandwidth ¹ | Maximum Network Throughput (pps) ² | Maximum Publishing Servers |
|--|---|----------------------------|
| 64 Kbps | 100 | 1 |
| 128 Kbps | 200 | 2 |
| 256 Kbps | 400 | 4 |
| 512 Kbps | 800 | 6 |
| 1 Mbps | 1,000 | 8 |
| 2 Mbps | 2,000 | 9 |
| 10 Mbps | 10,000 | 9 |
| 100 Mbps | 100,000 | 9 |

Note 1 – “Available Network Bandwidth” means dedicated continuously available bandwidth for DSA use between the servers, and not shared bandwidth with other applications such as Station access or Control Builder multi-user access.

Note 2 – Maximum traffic on any individual network segment.

3.2.4. DSA Interoperability

DSA interoperability is defined as a DSA-based runtime connection between servers. The following table describes supported interoperability between various Experion and Enterprise Buildings Integrator releases.

| Experion Release | Can interoperate with | | | | | |
|------------------|-----------------------|------------------|------------------|------------------|---|---|
| | Experion R301? | Experion R210.0? | Experion R201.0? | Experion R101.0? | Enterprise Buildings Integrator (EBI) R310.0? | Enterprise Buildings Integrator (EBI) R300.0? |
| Experion R301 | Yes | Yes | Yes | No | Yes | No |
| Experion R210.0 | Yes | Yes | Yes | Yes | No | Yes |
| Experion R201.0 | Yes | Yes | Yes | Yes | No | Yes |
| Experion R101.0 | No | Yes | Yes | Yes | No | No |

General differences between releases need to be taken into account. DSA interoperability does not include interoperability of Configuration Studio engineering tools such as Control Builder, Quick Builder and Enterprise Model Builder.

3.3. OPC

3.3.1. OPC Client Interface (SCADA Client)

| Items | Specifications | Comments |
|---|--|---|
| Description | | |
| <p>The OPC Client Interface is designed primarily for robust integration of low complexity subsystems such as Programmable Logic Controllers (PLCs) and Remote Terminal Units (RTUs). It provides an open method for connecting a wide range of devices for supervisory monitoring, alarming and control.</p> | | |
| General OPC Client Interface Specifications | | |
| Maximum number of third-party OPC DA servers supported | 15 | |
| OPC DA versions supported | 1.0a and 2.05 | |
| Supports redundant OPC DA Servers | Yes | <p>There are two options for supporting redundant third-party OPC servers:</p> <ul style="list-style-type: none"> • The OPC Client Interface natively supports the concept of preferred and secondary servers. However, it only supports passive redundancy, requiring the interface to rebuild the items and groups on the secondary in the event of a primary failure. This will give acceptable performance for a moderate number of items. • Redirection Manager can be used as an alternative to the OPC Client Interface’s built-in redundancy. With support for active redundancy schemes, Redirection Manager is able to build items and groups simultaneously on the OPC DA Servers. This allows for extremely fast switching in the event of an OPC DA failure. |
| Time-stamping | Within the Experion server | Time-stamping of the data occurs within the Experion server once the data has been successfully read into the SCADA database |
| Alarming | Yes | Alarms are generated based on limits defined within the Experion server. |
| Scannable parameters per point | 8 – Analog 3 – Digital 1 – Accumulator | <ul style="list-style-type: none"> • A scannable parameter is a parameter that is able to source data from an OPC Item versus an internal register. • These are the standard quantities of scannable parameters found on all SCADA analog, digital and accumulator points. |

| Items | Specifications | Comments |
|--|--------------------|--|
| OPC Groups and Items | | |
| Maximum number of OPC controllers | 255 | This is the maximum number of SCADA controllers/RTUs that can be built across all channels on an Experion server. |
| Maximum number of items per OPC controller | 735 | This is the total number of OPC Items that can be built against a given controller. There will be a varying number of items consumed with each point, up to 8 for an analog point. |
| Maximum number of OPC groups supported | 500 | An OPC client controller manages groups as follows: <ul style="list-style-type: none"> • A group is created for each scan period used by the point parameters (items) defined on the controller. All point parameters that have the same scan period are placed in the same group. Note that if a scan period of 0 is used, the item is placed in a group with an update rate equal to the slowest scan rate of the server system. • All points defined on the controller have the same OPC deadband. Note that the OPC deadband is not the same as the alarm and control deadbands that can be specified for analog points. |
| Maximum number of items per scan period per controller | 735 | As above. |
| Rate at which items can be added to groups | 1,000/second | The rate at which items can be added to groups depends upon the design of the OPC Server and the throughput of the process control network with which it connects. |
| OPC group update rates supported | 1 second and above | The group rates supported match the Experion scan rates supported. |
| OPC Client Callback Support | | |
| Sustained callback rate from all OPC servers (values per second) | 1,000 | |
| OPC client write support | | |
| Number of item writes by OPC client interface per second (per channel) | 1 | |
| Maximum no. of items per list supported (write) | 10 | |
| Sustained write rate (items/second) | 1 | |

3.3.2. OPC Advanced Data Client

| Items | Specifications | Comments |
|---|-----------------------------------|--|
| Description | | |
| The Experion OPC Advanced Data Client is designed to facilitate the efficient reading of data between Experion and OPC Data Access Servers that have very complex point structures. These point structures typically would have a large number of parameters per point and many different point types. The Experion OPC Advanced Data Client is bundled with the OPC Client Interface option. | | |
| General OPC Advanced Data Client Specifications | | |
| Maximum number of third-party OPC servers supported | 15 | |
| OPC DA versions supported | 2.05 | |
| Redundancy supported | Yes | The OPC Advanced Data Client has no native redundancy like the OPC Client Interface; however, Redirection Manager can be used to provide redundancy support. With support for active redundancy schemes, Redirection Manager is able to build items and groups simultaneously on the OPC DA Servers. This allows for extremely fast switching in the event of an OPC DA failure |
| Alarming | No | Unlike the OPC Client Interface, the OPC Advanced Data Client relies on the OPC Advanced Alarm and Event client for alarming capabilities. It has no native ability to alarm without the presence of an OPC Alarm and Event (A&E) Server. In order for the OPC Advanced Alarm and Event client to provide alarming capabilities, condition-based OPC alarms are required from the OPC A&E Server. Because of the many different interpretations of the OPC A&E standard by third-party vendors, integration issues with OPC condition events in areas such as alarm acknowledgement and duplicate alarm identification may exist. Contact Honeywell for planning assistance when integrating a third-party OPC A&E Server that utilizes OPC condition events with Experion. |
| Scanned parameters per point | 400 | |
| OPC Groups and Items | | |
| Maximum number of OPC groups supported | | The OPC Advanced Data Client manages groups as follows: a group is created for each subscription rate used by local and remote clients. That is, all point parameters that have the same subscription rate are placed in the same group. When an item is no longer being subscribed to, it will be removed from its current group. |
| Maximum number of items per group supported | 2,000 | |
| Maximum number of items across all groups | 10,000 | |
| Group update rates supported | 1 second and above ^{1,2} | |

| Items | Specifications | Comments |
|--|--------------------|----------|
| OPC Client Callback Support | | |
| Sustained callback rate from all OPC Servers (values per second) | 1,000 ² | |
| OPC Client Write Support | | |
| Number of item writes by OPC client interface per second | 1 | |
| Maximum no. of items per list supported (write) | 2,000 ¹ | |
| Sustained write rate (items/second) | 500 ¹ | |
| <p>Note 1 – This value depends upon the design of the third-party OPC server and the throughput of the process control network with which it connects.</p> <p>Note 2 – The group rates supported match the Experion subscription rates supported up to the maximum subscription rate (default: 10 seconds). Beyond the maximum subscription rate synchronous reads are used to collect the data.</p> | | |

3.3.3. OPC Advanced Alarm and Event Client

| Items | Specifications | Comments |
|--|--------------------------------|---|
| Description | | |
| <p>The OPC Advanced Alarm and Event Client allows Experion to seamlessly integrate third-party OPC Alarm and Event data directly into the Experion alarm and event management system. This provides a central window for operators to view Experion alarms and events along with events that are coming from other sources. The Experion OPC Advanced Data Client is bundled with the OPC Client Interface option.</p> | | |
| General OPC Advanced Data Client Specifications | | |
| Maximum number of third-party OPC servers supported | 5 | |
| OPC A&E version supported | 1.1 | |
| Event types supported ¹ | Condition, tracking and simple | <p>Condition-related events are associated with OPC conditions (e.g. Acked, UnAcked, Disabled etc.). An example is the tag FIC101 transitioning into the LevelAlarm condition and HighAlarm sub-condition.</p> <p>Tracking-related events are not associated with conditions, but represent occurrences which involve the interaction of an OPC client with a “target” object within the OPC Event Server. An example of such an event is a control change in which the operator (the OPC client) changes the set point of tag FIC101 (the “target”).</p> <p>Simple events are all events other than the above. An example of a simple event is a component failure within the system/device represented by the OPC Event Server.</p> |
| Redundancy supported | Yes | <p>The OPC Advanced Data Client has no native redundancy like the OPC Client Interface; however, Redirection Manager can be used to provide redundancy support. With support for active redundancy schemes, Redirection Manager is able to build items and groups simultaneously on the OPC A&E Servers. This allows for extremely fast switching in the event of an OPC A&E failure</p> |
| Maximum notification rate from one OPC A&E server | 10,000/hour | |
| Maximum notification rate from all OPC A&E servers | 10,000/hour | |
| <p>Note 1 – Because of the many different interpretations of the OPC A&E standard by third-party vendors, integration issues with OPC condition events in areas such as alarm acknowledgement and duplicate alarm identification may exist. Contact Honeywell for planning assistance when integrating a third-party OPC A&E Server that uses OPC condition events with Experion.</p> <p>The risks with OPC simple and tracking events are lower than for OPC condition events. However, because of different interpretations of the OPC AE standard, integration issues may still be found. Thorough testing should be performed between the Experion OPC client and third party server to ensure correct operation.</p> | | |

3.3.4. OPC Display Data Client

| Items | Specifications | Comments |
|---|--------------------|---|
| Description | | |
| Primarily targeted as a convenient method of getting OPC Data into displays. Designed for situations where you need to bring data into the Experion displays via OPC and no additional processing needs to be done on the server e.g. no need for alarming, historization, point detail, group, etc. The Experion OPC Display Data Client is bundled with the Experion base software. | | |
| General OPC Display Data Client Specifications | | |
| Maximum number of third-party OPC servers supported | 15 | |
| OPC versions supported | 2.05 | |
| Redundancy Supported | Yes | The OPC Display Data Client has no native redundancy like the OPC Client Interface; however, Redirection Manager can be used to provide redundancy support. With support for Active Redundancy schemes, Redirection Manager is able to build items and groups simultaneously on the OPC DA Servers. This allows for extremely fast switching in the event of an OPC DA failure. |
| Alarming | No | |
| OPC Performance and Throughput | | |
| Maximum number of OPC groups supported | See Comment | The OPC Display Data Client manages groups as follows: a group is created for each subscription rate used by local and remote clients. That is, all point parameters that have the same subscription rate are placed in the same group. When an item is no longer being subscribed to, it will be removed from its current group. |
| Maximum number of data values per display | 40 | The performance of third-party OPC Servers can vary significantly. For very slow OPC Servers it is possible that the maximum number of OPC display data client values per display may be less than this. |
| Maximum number of data values per OPC server | 1,000 | |
| Display rates supported | 1 second and above | This value depends upon the design of the third-party OPC server and the throughput of the process control network with which it connects. |
| OPC client callback support | | |
| Sustained callback rate from all OPC servers (values per second) | 100 | The performance of third-party OPC servers can vary significantly. For very slow OPC servers it is possible that the maximum number of OPC display data client values per display may be less than this. |

3.3.5. OPC Data Access Server

| Items | Specifications | Comments |
|--|----------------------|---|
| Description | | |
| The Experion OPC Data Access Server provides OPC Data Access Clients with the capability to view Experion point data for the purposes of control and plant-wide historization. | | |
| General OPC Data Access Server Specifications | | |
| Maximum number of OPC Data Access Client Application Instances (CAIs) | 20 | Each OPC Client Application running on a physical node connecting into the server consumes one Client Application Instance (CAI) for each application. The applications can open multiple physical connections and this still only counts as one CAI for each application. If the same application is running on multiple nodes, one CAI is consumed for each node. |
| Maximum number of concurrent OPC DA connections across all OPC clients | 50 | |
| OPC DA versions supported | 1.0 and 2.05 | |
| Redundancy supported | Yes | Redirection Manager should be used for connecting clients that do not support redundancy to the redundant Experion servers. For clients that do support redundancy, use of Redirection Manager is still advised as it has been designed with Experion's redundancy scheme in mind. |
| OPC Groups and Items | | |
| Maximum number of OPC groups supported | 300 | |
| Maximum number of items per group supported | 7,000 | |
| Rate at which items can be added to groups | 1,000/second | Assumes the parameters are already primed. The rate at which items can be added to groups depends upon the throughput of underlying process control network. |
| Total number of items supported across all groups | 50,000 ¹ | |
| Group update rates supported | 1 second and above | |
| OPC Client Callback Support | | |
| Sustained callback rate from OPC server (items per second) to all OPC clients | 2,000 ¹ | |
| OPC Client Read Support | | |
| (Cache read) Maximum number of list reads from OPC server per second | 1 | |
| (Cache read) Maximum number of items/list supported | 2,000 ¹ | Assumes that the data is already subscribed to and is therefore in the Experion cache. |
| (Device read) Maximum number of list reads from OPC server per second | 1 | |
| (Device read) Maximum number of items/list supported | 2,000 ^{1,2} | |
| (Device read) Sustained read rate (items/second) | 500 ^{1,2} | |
| OPC Client Write Support | | |
| Number of list writes to OPC server per second | 1 | |
| Maximum no. of items per list supported (write) | 2,000 ³ | |

| Items | Specifications | Comments |
|---|------------------|----------|
| Sustained write rate (items/second) | 500 ³ | |
| <p>Note 1 – Ability to deliver published data rate depends upon throughput of underlying process control network. For example, for an LCN-connected Server there may not be sufficient LCN bandwidth to deliver an additional 2,000 parameters/second via OPC. Refer to the documentation associated with the process control network for more information.</p> <p>Note 2 – Device reads should be used with caution. It is possible to overload the underlying process control network if too many device reads are performed.</p> <p>Note 3 – The ability to deliver write data rate depends upon the throughput of underlying process control network.</p> | | |

3.3.6. OPC Alarm and Event Server

| Items | Specifications | Comments |
|---|---|---|
| Description | | |
| <p>The OPC Alarm and Event Server is a simple and convenient mechanism for publishing Experion alarms and events to client applications. It provides a rich range of different Experion alarm and event data in an efficient manner, using the latest version of OPC specification.</p> | | |
| General OPC Alarm and Event Server Specifications | | |
| Maximum number of Alarm & Event Client Application Instances | 15 | Each OPC Client Application running on a physical node connecting into the Server consumes one Client Application Instance (CAI) for each application. The applications can open multiple physical connections and this still only counts as one CAI for each application. If the same application is running on multiple nodes, one CAI is consumed for each node. |
| OPC A&E versions supported | 1.1 | |
| Redundancy supported | Yes | Redirection Manager should be used for connecting clients that do not support redundancy to the redundant Experion servers. For clients that do support redundancy, use of Redirection Manager is still advised as it has been designed with Experion's redundancy scheme in mind. |
| Event types supported ¹ | Condition, tracking and simple | <p>Condition-related events are associated with OPC conditions (e.g. Acked, UnAcked, Disabled etc.). An example is the tag FIC101 transitioning into the LevelAlarm condition and HighAlarm sub-condition.</p> <p>Tracking-related events are not associated with conditions, but represent occurrences which involve the interaction of an OPC Client with a "target" object within the OPC Event Server. An example of such an event is a control change in which the operator, (the OPC Client), changes the set point of tag FIC101 (the "target").</p> <p>Simple events are all events other than the above. An example of a simple event is a component failure within the system/device represented by the OPC Event Server.</p> |
| Experion alarm and event types published | Alarms, alerts, messages, events, SOE, operator changes | |
| OPC Performance and Throughput | | |
| Maximum notification rate to one OPC A&E client | 10,000/hour | The maximum notification rate is the total number of notifications received by the server from all sources. The maximum A&E notification rate is dependent on the total number of notifications being received by the server from all sources. |
| Maximum notification rate to all OPC A&E clients | 10,000/hour | As above. |

Note 1– Because of the many different interpretations of the OPC A&E standard by third-party vendors, integration issues with OPC condition events in areas such as alarm acknowledgement and duplicate alarm identification may exist. Contact Honeywell for planning assistance when integrating a third-party OPC A&E Client that utilizes OPC condition events with Experion.

The risks with OPC simple and tracking events are lower than for OPC condition events. However, because of different interpretations of the OPC AE standard, integration issues may still be found. Thorough testing should be performed between the Experion OPC A&E Server and third party client to ensure correct operation.

3.3.7. OPC Historical Data Access Server

| Items | Specifications | Comments |
|---|--|---|
| Description | | |
| The OPC History Data Access Server presents Experion history data in an open manner to client applications. Whether archived or online, the Experion OPC history data is able to retrieve and publish data timely and efficiently. A range of aggregate functions are provided to reduce the processing load on the client. | | |
| General OPC Historical Data Access Server Specifications | | |
| Maximum number of History Data Access Client Application Instances | 20 | Each OPC Client Application running on a physical node connecting into the server consumes one Client Application Instance (CAI) for each application. The applications can open multiple physical connections and this still only counts as one CAI for each application. If the same application is running on multiple nodes, one CAI is consumed for each node. |
| Maximum number of concurrent OPC HDA connections across all OPC clients | 40 | |
| OPC HDA version supported | 1.2 | |
| Redundancy supported | Yes | Redirection Manager should be used for connecting clients that do not support redundancy to the redundant Experion servers. For clients that do support redundancy, use of Redirection Manager is still advised as it has been designed with Experion's redundancy scheme in mind. |
| Supported aggregates | Interpolated, average, minimum and maximum | |
| Performance and Throughput | | |
| ReadRaw (average values per second) | 3500 ^{1,2} | |
| AdviseRaw (average values per second) | 1200 ^{1,2} | |
| ReadProcessed (average values per second) | 500 ^{1,2,3} | |
| Note 1 – A minimum of 10 point.parameters per call are required to achieve this performance. Note 2 – The specification for value/second is across all clients. Note 3 – ReadProcessed performance is for interpolation aggregate. | | |

3.3.8. OPC Integrator

| Items | Specifications | Comments |
|--|-----------------|--|
| Description | | |
| <p>OPC Integrator allows bi-directional data transfer between two or more OPC Data Access Servers for the purposes of supervisory monitoring, alarming and control. As a fully integrated part of Experion, it provides integrated diagnostic, configuration and operational experiences that are consistent with other Experion operations. Additionally OPC Integrator leverages Experion's advanced redundancy features for improved reliability.</p> | | |
| General OPC Integrator Specifications | | |
| OPC DA versions supported | 2.05 | |
| Maximum number of OPC Integrator transfer groups supported | Unlimited | A typical large system consists of approximately 40 groups. |
| Maximum number of items per group | Unlimited | Typical large systems will contain approximately 1000 items per group. |
| Transfer rates supported | 500ms and above | <ul style="list-style-type: none"> Typically set between 1 and 10 seconds. Ability of OPC Integrator to support a given transfer rate depends on the underlying OPC Data Access Server that it is connected to. Setting this number too low can impact performance. |
| Rate at which items can be added to groups | 1,000/second | Assumes the parameters are already primed. The rate at which items can be added to groups depends upon the design of the third-party OPC server and the throughput of the process control network it connects to. |

3.3.9. Redirection Manager

| Items | Specifications | Comments |
|--|--|----------|
| Description | | |
| <p>Redirection Manager (RDM) provides OPC server redundancy to OPC Data Access, Alarm and Event, and History Data Access Clients that may not support this capability by transparently redirecting client requests to a secondary OPC server when the primary OPC server is unavailable.</p> | | |
| Version Support | | |
| OPC versions supported | <ul style="list-style-type: none"> OPC DA versions 1.0 and 2.05 OPC A&E version 1.1 OPC HDA version 1.2 | |

3.4. Interfaces

| Interface Software ¹ | Connection Type |
|--|---|
| Honeywell S9000 Integration | Ethernet |
| Honeywell 620 LCS Serial and Ethernet Interface | Serial and Ethernet |
| Honeywell UDC 3000/5000/6300 Integration | Serial ASCII |
| Honeywell Micromax LPU & Video Paperless Recorder | Serial |
| Honeywell DPR Recorders (DPR 100, 180, 250, 3000) | Serial |
| Honeywell RM7800 Flame Safeguard | Serial (to Q7700 Network Interface) |
| Honeywell Universal Modbus Interface (HC900, UMC800, Trendview, DPR180/250, UDC2300/3300, DR4300/4500) | Serial and Ethernet |
| Allen-Bradley (Serial Interface and RSLinx) | Serial, Ethernet, DH+, and ControlNet |
| Applicom Interface ² | Proprietary |
| Asea Interface | Serial |
| Bristol Babcock RTU Interface | Serial and Ethernet (Via OpenBSI API) |
| DNP3 Protocol Interface | Open Standard Serial and Ethernet (TCP/IP & UDP/IP) |
| GEC GEM80 PLC Interface | Serial |
| GE Fanuc Series 90 PLC via Ethernet (requires MZ-AUIF01) | Ethernet |
| HITACHI Interface | Serial |
| Modbus (RTU, Plus, ASCII, & TCP) Interface | Serial, Modbus+, ASCII and Ethernet |
| Moore 351,352,353,383 Interface | Serial |
| Siemens S5/S7 & TI PLC Via H1 / TF API ² | Industrial Ethernet |
| YamatakeMA500 Interface | Serial |
| <p>Note 1 – The Honeywell FSC and Safety Manager Serial and Ethernet Integration is standard included with the Experion base software.</p> <p>Note 2 – Applicom interface and Siemens S5 interface will be affected by third-party support of the Experion Windows 2003 Server operating system. The Siemens S7 Interface is not affected. Please contact Honeywell when further information about these interfaces is required.</p> | |

3.5. Microsoft Excel Data Exchange

| Item | Specification |
|--|-------------------|
| Description | |
| Enables capture of real-time point parameter and history information, and displays the data in a Microsoft Excel spreadsheet, using cell formulas or the Microsoft Excel Data Exchange Wizard. | |
| Details | |
| Access to real-time.point.parameter values | Read/write access |
| Access to historical.point.parameter values | Read only |
| Access to database files (user tables) | Read/write access |

3.6. Application Development Toolkit

3.6.1. ODBC Driver

| Item | Specification |
|--|---|
| Description | |
| Primarily intended for reporting, the ODBC driver enables an ODBC-compliant application to access data in the Experion database, such as history, event, and point parameter values. With the ODBC Driver, the Experion server acts as a server application (contrast this with ODBC Data Exchange, where the Experion server acts a client application). The ODBC Driver allows the Server database to be queried using SQL commands from ODBC client applications. Additionally, custom applications written in Visual Basic or C++ can also access the server database via the ODBC driver. | |
| Details | |
| Access to real-time point.parameter values | Read only |
| Access to historical point.parameter values | Read only |
| Access to events | Read only |
| Configuration | Optimized for Microsoft Access and other ODBC ad hoc query/report applications. |

3.6.2. ODBC Data Exchange

| Item | Specification |
|---|---|
| Description | |
| Enables two-way exchange of data between the Experion server database and an ODBC-compliant local or network third-party database. It uses standard Structured Query Language (SQL) commands. The Experion server acts as a client application in this configuration, in contrast with the ODBC Driver option where the Experion server acts a server application. Data from an Experion server database can be transferred to a third-party database, and data from a third-party database can be transferred into the Experion server database. | |
| Details | |
| Access to real-time point.parameter values | Read/write access |
| Access to historical point.parameter values | Read only |
| Access to database files (user tables) | Read/write access |
| Databases that include ODBC drivers examples | Microsoft SQL Server, Oracle 7, Microsoft Access, and Sybase 10. |
| Configuration options | Can be configured to periodically exchange data or exchange on request. |

3.6.3. Network API

| Item | Specification |
|--|-------------------|
| Description | |
| Support custom applications — In Visual C/C++ or Visual Basic — that exchange data with the Experion database. | |
| Details | |
| Access to real-time point.parameter values | Read/write access |
| Access to historical point.parameter values | Read only |
| Access to database files (user tables) | Read/write access |

3.7. Application Enablers

3.7.1. Alarm Pager

| Items | Specifications | Comments |
|----------------------------------|---|---|
| Protocols | | |
| | <ul style="list-style-type: none"> • Paging Entry Terminal (PET) • Telocator Alphanumeric Protocol (TAP) • UCP protocols • UCP 01 • UCP 30 • UCP 51 | Service providers in North America generally use the PET or TAP protocols where as the UCP protocols are mainly used in Europe. The two-digit suffixes refer to the EMI command numbers used by the provider. |
| Sizing | | |
| Number of pagers | 100 | Each pager and email address can be configured with an individual schedule of operation so that users are only paged when they are on call. |
| Number of email addresses | 100 | |
| Delays | | |
| Configurable notification delays | 0 - 60 minutes | |

3.7.2. Point Control Scheduler

| Item | Specification |
|---|---------------|
| Description | |
| The Scheduler option allows point supervisory control to be automatically scheduled to occur at a specified time. This may occur on a "one-shot" basis, daily, workday, weekend, holiday, or a day of the week. | |
| Details | |
| Maximum number of point control schedules | 1,000 |

3.7.3. Recipe Management

| Items | Specifications | Comments |
|--|----------------|--|
| Description | | |
| Recipe Management provides facilities to create recipes and download them to nominated process units. Each recipe may have up to 30 items and recipes can be chained together to form larger recipes, if required. Recipe items may be used to set ingredient targets, set alarm limits, set timers and place equipment into correct operating state. Items may be individually enabled for scaling. | | |
| Details | | |
| Maximum number of recipes | 500 | This is the default limit. This number can be increased to 32,000 if required. |

3.7.4. Batch Reporting

| Items | Specifications | Comments |
|---|----------------|--|
| Description | | |
| Batch reporting enables integrated reporting of batches or lots of a production process run, to be compiled and archived automatically by the Experion server. This feature is standard included in the Experion base software. | | |
| Details | | |
| Maximum number of history samples per batch report | 65,000 | A batch report can collect one type of history sample (such as 5-second samples or 1-hour averages) for up to 50 points. |

4. Hardware and Software Requirements

4.1. Experion Server Computer Requirements

A computer must meet the following specifications to be used as an Experion server. These guidelines are intended to provide a minimum baseline. Honeywell computer platforms will meet these specifications and carry full support as a qualified offering. ESVTs are only qualified with Honeywell computer platforms. For installation information on computer platforms, including physical, electrical, corrosion, and other environmental requirements, please consult Honeywell installation guides or Dell documents.

Minimum Experion Server Platform – This is the minimum computer platform necessary to run the Experion server components. It should only be used for small configurations that may consist of 1 Experion server or redundant server pair with 1 Flex Station and up to 3,000 SCADA points. The system typically only includes passive monitoring and occasional report generation.

Standard Experion Server Platform – This is the typical computer platform capable of running Experion server components. Configurations will consist of an Experion server or redundant server pair with up to 1 DSA server. A non-redundant server can support up to 10–12 Flex Stations or a redundant server pair can support 6–8 Flex Stations. This type of system includes 1 or 2 Flex Stations actively monitoring and occasional report generation with up to 10,000 SCADA points or up to 600 process points and up to 2 single or redundant Experion controllers.

Performance Experion Server Platform – This computer platform is used for demanding applications. An advanced configuration may consist of an Experion server or redundant server pair, multiple DSA servers, and more than 10 Flex Stations or any number of Console Stations. This system typically includes active monitoring from multiple Stations and random report generation with more than 10,000 SCADA points or more than 600 process points and more than 2 single or redundant Experion controllers. This computer platform should also be used when the server is connected to Honeywell’s Uniformance PHD.

Requirements

| System Configuration | Minimum | Typical | Performance |
|--------------------------------|--|---|---|
| Processor | Dual 2 GHz Xeon or faster | Dual 3 GHz Xeon or faster | Dual 2.66 GHz Xeon dual core or faster |
| RAM ¹ | 1 GB | 2 GB | 3 GB |
| Video resolution | 1024 x 768, 65K colors | | |
| Hard drive | 80 GB | 80 GB | 160 GB |
| Video RAM | 8 MB | 8 MB | 16 MB |
| Operating system | Windows 2003 Server SP1 (32-bit) | | |
| Example platforms ² | MZ-PCSV10 (based on Dell PE1430SC dual CPU) MZ-NTPC51 -81 (based on Dell PE1800, dual CPU) MZ-NTPC05 (based on Dell PE 1800, dual CPU) | MZ-PCSV10 (based on Dell PE1430SC dual CPU) MZ-NTPC51, -81 (based on Dell PE1800, dual CPU) MZ-NTPC07 (based on Dell PE 2600, dual CPU) | MZ-PCSV20, -30 (based on Dell PE2900 dual CPU) MZ-PCSV50 (based on Dell PE2950 dual CPU) MZ-NTPC71 (based on Dell PE2850, dual CPU) |
| Comments | | Suggested computer for a Remote Engineering and Station Server | |

Note 1 – For better performance, additional RAM can be added, up to a maximum of 3 GB.

Note 2 – For specifications and further information on Honeywell computer platforms, please contact your Honeywell representative.

Networking Requirements

| Network | Comments |
|--|--|
| Fault Tolerant Ethernet ¹ | Honeywell's patented Fault Tolerant Ethernet (FTE) network uses off-the-shelf networking hardware to allow Ethernet to provide "DCS network" functionality. FTE provides a robust and high availability network infrastructure for communicating to Experion Stations, C200 controllers, ACE Nodes, etc. |
| Ethernet | Experion servers also support an Ethernet network infrastructure to communicate to nodes throughout the system. |
| ControlNet ² | As an option, ControlNet can be used to communicate between C200 controllers and the Experion server. |
| TPN (LCN) ² | A connection to Honeywell's TPN (also called LCN) is optionally supported. This is via an LCNP4 card installed directly in the Server, this is known as an Experion server TPS or ESVT. A maximum of 1 redundant ESVT can be connected to each TPN (LCN). |
| <p>Note 1 - The FTE solution employs a single logical network over redundant media. By providing more communication paths between nodes, FTE also tolerates more faults, including all single faults and many multiple faults. In addition, FTE is transparent to higher-level applications, which benefit from the high network availability that FTE provides, without requiring any additional software configuration. Normal Ethernet nodes (non-FTE) can also connect to an FTE network and benefit from a more available communications environment than conventional Ethernet redundancy schemes offer.</p> <p>Note 2 - A ControlNet and TPN connection on a single Experion server is not supported.</p> | |

4.2. Minimum TPS System Specifications for ESVT

| Item | Specification |
|---------------------|--|
| Minimum APP | APP R230 Release if APP exists on target TPN |
| Minimum GUS | GUS R340 Release if GUS exists on target TPN |
| Minimum TPN Release | TPN R641.2 or later |

5. Model Numbers

5.1. Server Database

| Model Number | Description |
|--|---|
| EP-DBASE1 ¹ | Database Base Software |
| EP-DPR100 | 100 Process Point Adder to Database Size |
| EP-DPR01K | 1,000 Process Point Adder to Database Size |
| EP-DPR02K | 2,000 Process Point Adder to Database Size |
| EP-DPR05K | 5,000 Process Point Adder to Database Size |
| EP-DPR10K | 10,000 Process Point Adder to Database Size |
| EP-DSC100 | 100 SCADA Point Adder to Database Size |
| EP-DSC01K | 1,000 SCADA Point Adder to Database Size |
| EP-DSC02K | 2,000 SCADA Point Adder to Database Size |
| EP-DSC05K | 5,000 SCADA Point Adder to Database Size |
| EP-DSC10K | 10,000 SCADA Point Adder to Database Size |
| <p>Note 1 – Every Experion server requires base software at a minimum. The base software includes the following items: 1 Experion Station-Flex (client-connected HMIWeb-based human interface), 50 SCADA points, 50 process points, 1 Quick Builder License, Redirection Manager, OPC Display Data Client, Honeywell FSC and Safety Manager Integration, Batch Reporting, 1 Display Builder License and 1 Control Builder Client License (enables the configuration of control strategies for CDA devices such as the C200, C300 and ACE). The base license also includes other options and interfaces as listed in the Experion server License Specification.</p> | |

5.2. Experion Server TPS Enabler

| Model Number | Description |
|---|-----------------------------|
| EP SRVTPS ¹ | Experion server TPS Enabler |
| <p>Note 1 – A Database Base Software (EP-DBASE1) license is required with this options. The server must be a Honeywell computer platform with a Honeywell LCN Interface (TP LCNP02). Point Adder licenses are not required for TPS points. One or a redundant pair of ESVTs is supported per LCN. All Console Stations that connect to an ESVT must be TPS-enabled (that is, have an LCN connection).</p> | |

5.3. Server Redundancy

| Model Number | Description |
|---|--|
| EP-RBASE1 ¹ | Redundancy Base Software |
| EP-RPR100 | 100 Process Points Redundancy Adder |
| EP-RPR01K | 1,000 Process Points Redundancy Adder |
| EP-RPR02K | 2,000 Process Points Redundancy Adder |
| EP-RPR05K | 5,000 Process Points Redundancy Adder |
| EP-RPR10K | 10,000 Process Points Redundancy Adder |
| EP-RSC100 | 100 SCADA Points Redundancy Adder |
| EP-RSC01K | 1,000 SCADA Points Redundancy Adder |
| EP-RSC02K | 2,000 SCADA Points Redundancy Adder |
| EP-RSC05K | 5,000 SCADA Points Redundancy Adder |
| EP-RSC10K | 10,000 SCADA Points Redundancy Adder |
| Note 1 – Includes On-Process Migration Support. Redundancy software must equal the licensed SCADA and Process points mix. | |

5.4. Distributed System Architecture

| Model Number | Description |
|---|---------------------------|
| EP-XRESR1 | DSA Remote Server License |
| Note 1 – Each Experion server is enabled to publish data in a DSA design. EP-XRESR1 is required once for a server or redundant server pair that needs to subscribe to data. One DSA remote Server license is required to subscribe to up to the maximum number of 14 servers. | |

5.5. OPC

| Model Number | Description |
|--|--|
| EP-OPCCLI ¹ | OPC Client Interface |
| EP-OPCINT | OPC Integrator Server Application Instance |
| EP-OPCDA1 | OPC Data Access Server, per connection |
| EP-OPCSAE | OPC Alarm & Event Server CAI |
| EP-OPCHDA | OPC History Data Access CAI |
| Note 1 – Includes the OPC Advanced Client. | |

5.6. TDC3000 Data Hiway Integration

| Model Number | Description |
|--------------|---|
| EP-IHWTDC | Honeywell TDC 3000 Data Hiway Integration |
| MZ-PCDB22 | Data Hiway Ethernet Bridge (DHEB) |

5.7. Honeywell Device Integration

| Model Number | Description |
|--------------|---|
| EP-IHWS9K | Honeywell S9000 Integration |
| EP-IHW620 | Honeywell 620 LCS Serial and Ethernet Interface |
| EP-IHWUDC | Honeywell UDC 3000/5000/6300 Integration |
| EP-IHWMXX | Honeywell Micromax LPU & Video Paperless |
| EP-IHWDPR | Honeywell DPR Recorders (DPR 100, 180, 250, 3000) |
| EP-IHWFSG | Honeywell RM7800 Flame Safeguard |
| EP-IHUMB | Honeywell Universal Modbus Interface |

5.8. SCADA Interfaces

| Model Number | Description |
|------------------------|--|
| EP-IDNP3P | DNP3 Protocol Interface |
| EP-IMDBUS | Modbus (RTU, Plus, ASCII, & TCP) Interface |
| EP-IABRI1 ¹ | Allen-Bradley Interface |
| EP-IRSL24 ¹ | Allen-Bradley RSLINX Software, Ver. 2.4 |
| EP-IGES90 | GE Fanuc Series 90 PLC via Ethernet (requires EP-IGEAPI) |
| EP-IGEAPI | GE API License |
| EP-ISMNS5 | Siemens S5/S7 & TI PLC Via H1 / TF API |
| EP-IGEM80 | GEC GEM80 PLC Interface |
| EP-IYTMA5 | Yamatake MA500 Interface |
| EP-IBRTU | Bristol Babcock RTU Interface |
| EP-IMR35X | Moore 351, 352, 353, 383 Interface |
| EP-IHTCHI | HITACHI Interface |
| EP-IASEAI | Asea Interface |

Note 1 – Includes the Allen-Bradley Serial Interface, the Allen-Bradley RSLinx interface and Allen-Bradley Integration. When the RSLinx interface is utilized, RSLinx is required (EP-IRSL25). RSLinx is available in a variety of packages with varying degrees of functionality. One feature of RSLinx is the exposure of underlying device data via an OPC Data Access Server. RSLinx OEM, the package provided with this model number only allows non-remote (OPC client resident on the same PC as RSLinx) OPC clients to connect to the OPC Server. If the OPC Data Access Server of RSLinx is required and must be accessed by remote OPC clients, please purchase the RSLinx Gateway version directly from Rockwell Automation or a distributor.

5.9. Microsoft Excel Data Exchange

| Model Number | Description |
|--------------|---|
| EP-AEED1 | Microsoft Excel data Exchange, per user |

5.10. Application Toolkit

| Model Number | Description |
|--------------|---------------------------------|
| EP-AEAPD1 | Application Development Toolkit |

5.11. Application Enablers

| Model Number | Description |
|--------------|-------------------------|
| EP-AERMGR | Recipe Manager |
| EP-AESHED | Point Control Scheduler |
| EP-AEPAGE | Alarm Pager |

5.12. Engineering Tools

| Model Number | Description |
|---|--|
| EP-TQBLDR | Quick Builder – SCADA database builder, per user |
| EP-TDSPBD ¹ | Display Builder, per user |
| Note 1 – Includes HMIWeb Display Builder and Display Builder. | |

5.13. Electronic Signature

| Model Number | Description |
|--|-----------------------------|
| EP-ESIG01 | Electronic Signature Option |
| Provides the necessary functions, such as Electronic Signature support, for regulated industries. The Experion server provides enhanced capabilities to support the Pharmaceutical industry and other FDA regulated industries and their unique requirements related to regulations such as 21 CFR Part 11. These features may be employed in any industry but are specifically designed to meet the guidelines of 21 CFR Part 11. | |

5.14. Experion Server Platforms

| Model Number | Description |
|--|---|
| MZ-PCSV10 | Tower Server Platform, dual 2.66GHz Xeon dual core, 1GB RAM, 80GB HD |
| MZ-PCSV20, -30 | Tower/Rack Server Platform, dual 2.66GHz Xeon dual core, 1GB RAM, 210GB (effective) RAID5 |
| MZ-PCSV50 | 2U Rack Server Platform, dual 2.66GHz Xeon dual core, 1GB RAM, 210GB (effective) RAID5 |
| MZ-PCEM03 | 1 GB RAM expansion module |
| MZ-PCEM05 | 1 GB RAM expansion module for MZ-PCSV10 only |
| MZ-PCEM03 | 2 GB RAM expansion module for MZ-PCSV10 only |
| NE-NICS01 | 100Mbps dual port FTE interface |
| MZ-PCEB32 | 100Mbps single port Ethernet interface for server platforms |
| TP-LCNP02 | Honeywell LCN connection – required for LCN-connected Server (ESVT) |
| TC-PCIC02 | ControlNet interface for server platforms |
| TP-DFP191 | Desktop 19" flat panel display |
| TP-DFP202 | Desktop 20.1" flat panel display |
| TP-DFT202 | Desktop 20.1" flat panel display with touch screen |
| TP-FPD211 | Desktop 21.3" flat panel display |
| MZ-PCDT03 | Terminal Server-8 RS232 ports, RJ45 |
| MZ-PCDD06 | Trackball w/PS-2 connector |
| Note 1 – For further information on Honeywell computer platforms, see their respective specifications. | |

6. Glossary

| Term or Acronym | Description |
|-----------------|--|
| ACE | Application Control Environment. Experion controller node hosted on a server computer platform. The ACE node is ideally suited for supervisory control solutions and integration with third party control systems. |
| APP | Application Processing Platform. Application node for the Honeywell TotalPlant Solution (TPS) system. |
| C200 | A specific type of Honeywell Process Controller |
| C300 | A specific type of Honeywell Process Controller based on the series C form factor |
| CDA | Control Data Access is the Experion system communication infrastructure and data access interface schema that provides application integration with Experion system objects. |
| ControlNet | Real-time control-layer network. |
| DCS | Distributed Control System |
| DSA | Distributed System Architecture |
| EBI | Enterprise Building Integrator. Suite of integrated facility management applications. |
| ES-C | Experion Station – Console |
| ES-CE | Experion Station – Console Extension |
| ES-F | Experion Station –Flex |
| ES-T | Experion Station –TPS |
| ESVT | Experion Server – TPS |
| Experion server | The node (optionally redundant) at the heart of Experion. The servers encompasses a wide range of subsystems including history collection, SCADA interfaces, alarm/event, etc. |
| FIM | Foundation Fieldbus Interface Module |
| FTE | Fault Tolerant Ethernet, the Experion control network |
| HMI | Human machine interface |
| HMIWeb | Human machine interface based on Web Technology |
| HTML | Hypertext Markup Language |
| IOLIM | IO Link Interface Module. Services and processes all communications between the Experion Controllers and Process Manager I/O (PMIO) |
| LCN | Local Control Network |
| OPC | Series of standard specification for open connectivity in industrial automation originally based on Microsoft's OLE COM and DCOM technologies. |
| pps | Parameters per second |
| RTU | Remote Terminal Unit |
| SCADA | Supervisory Control and Data Acquisition |
| TPN | TotalPlant Network |
| TPS | TotalPlant Solution |
| Uniformance PHD | Flexible environment for the collection, storage and analysis of process data. A Process History Database (PHD) database may be centrally configured and managed, gathering data from many systems including Honeywell Experion PKS and TotalPlant Solution (TPS), OPC Servers, and other third-party sources. |

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