Honeywell

Technical Information

Experion LX HMI Specifications

LX03-200-520

Release 520

February 2022, Version 1.0

Revision History

Revision	Date	Description
1.0	February 2022	Release version

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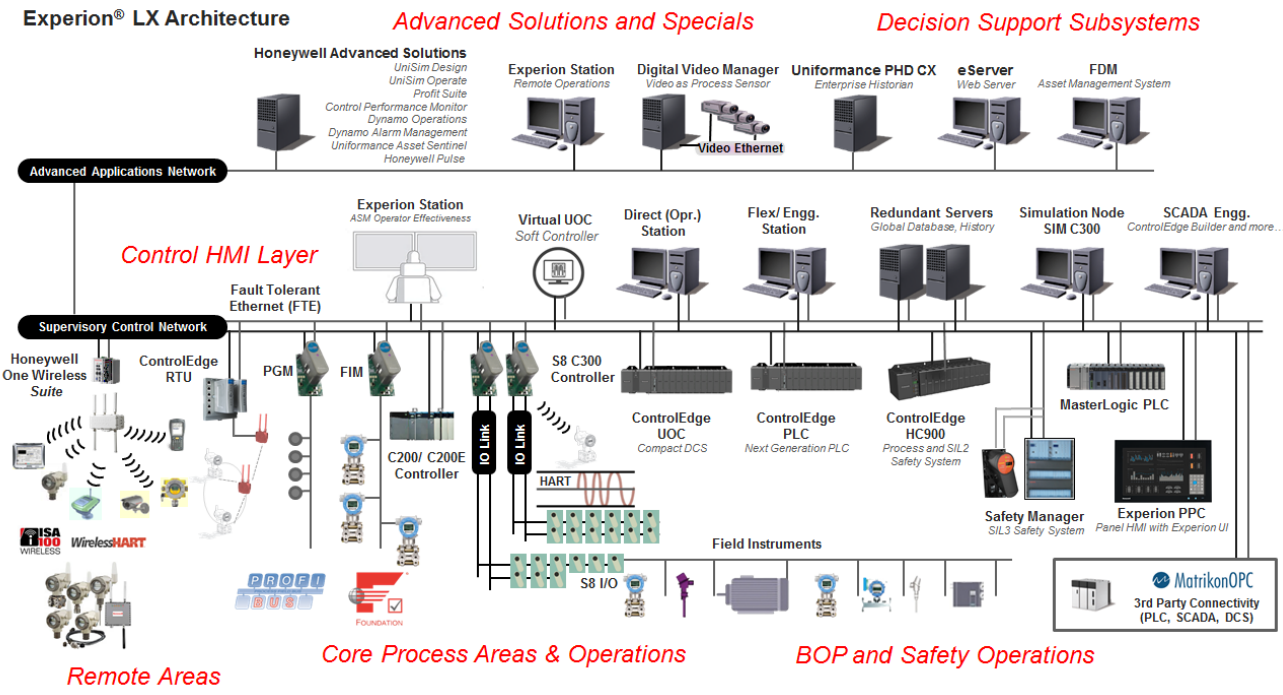
1. Introduction

1.1. Experion LX System

The Experion LX is Honeywell's unified control system for process, business, and asset management that helps industrial manufacturers increase their profitability and productivity and accessibility to local support without sacrificing quality and reliability in an increasingly competitive environment. Experion takes customers beyond distributed control system (DCS) functionality with an advanced automation platform solution and innovative application integration to improve business performance and peace of mind.

As a member of Honeywell's Experion family, Experion LX is designed to fit the varied application needs of customers across verticals through integrating state-of-the-art technology from the award-winning Experion Process Knowledge System (PKS) with innovative design of Series 8 I/O modules and cabinets. Validated wider range of COTS options, easier engineering and maintenance capabilities, and integrator-friendly programs and tools help Experion LX to provide lower total cost of ownership for customers.

1.2. Architecture Overview



The Experion LX system comprises several different integrated hardware and software solutions depending upon the needs of the application. The architecture above represents a subset of the possible nodes and controllers. Note that Experion LX architecture is highly scalable and not all nodes and controllers shown here are necessary or required.

1.3. Experion HMI Overview

The Experion LX HMI consists of an optionally redundant set of servers where each server or redundant server pair supports a number of connected Stations. Such Experion LX systems can be integrated with other Experion systems using Experion Distributed System Architecture (DSA).

Experion LX R520 supports major enhancements listed below (as compared with R511)-

- UOC enhancements- CAB, UIO HART diagnostics in Experion, OPC UA DA Server support
- Windows OS and SQL update (Windows 10 2019 LTSC, Windows Server 2019, SWL Server 2019)
- Batch Production Execution modules (Formula Sets, Campaign Manager, Electronic Work Instruction)
- Native Experion Batch reporting feature
- OPC UA HA Server and MQTT interface support

1.4. Experion LX Station

The Experion LX Station is the human-machine interface (HMI) that can be used for different functions around a process, plant or mill including operations, monitoring, maintenance, and engineering.

There are two types of Experion LX Station available to satisfy a broad range of architecture needs. A mix of Experion Station types can be implemented to provide the most appropriate, site-specific solution possible.

Both Experion LX Station types use the same operator interface and other features for consistent operation regardless of type. This also means that configuration is simplified as custom displays, trend sets, etc. are configured once and then available across the various types of Experion LX Stations. All types host the Configuration Studio Experion engineering tool. Each Experion Station type has additional functionality as described in the following tables.

Experion LX Station – Flex	
Description	Experion LX Flex Station is a versatile operator interface that uses an efficient caching mechanism to present process data to the operator. It is suitable for full-time operations and can also be used as engineering or wireless Stations
Details	• LX Flex Stations can be configured with a static or rotary connection. The static connection provides a permanent, dedicated link. The rotary connection provides an “as required” connection, enabling numerous casual users to access the Experion LX system as needed, which is advantageous from a licensing point of view. For example when 5 Station connections are configured, 5 connections can be established at one time but the software could be installed and be available for use by many more than 5 individuals.

Experion LX Station – Direct	
Description	Experion LX Direct Station provides direct access to process data, alarms and events from control sources such as Series 8 C300 controller, UOC, C200/C200E, Fieldbus Interface Modules (FIM), and IO Link Interface Modules (IOLIM). This provides a high-availability operations platform for critical processes.
Details	• The LX Direct Station connected to the Experion Server for communication to SCADA and DSA point sources, system history, the system event journal, and the system configuration file server. • The LX Direct Station supports the implementation of a “logical console”. This allows operators to fully respond to all alarms/events within their scope of responsibility regardless of operator actions on other consoles; providing a single work space for an operator for event handling, alarm acknowledgement, alarm silencing, display manipulation and other functions

1.5. Experion LX Server

A 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/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 LX Station–Flex. One or more Experion Servers are required for an Experion LX System.

Experion LX Server can also be used as an operator or an engineering station. For redundant Experion LX Server system it is recommended to use the backup Server as the engineering station.

2. Experion LX Specifications

2.1. Database and Station Sizing

Limits shown here apply to the number of Station supported for a single Experion LX Server. Multiple Experion LX Servers can be combined into a single operational system using DSA.

Items per Experion LX Server	Standard Capacity System	High Capacity System	Comments
Number of Flex Stations	5	15	
Number of Direct Stations	10	15	
Total Server Points	13,000	1,67,000	Sum of Process, SCADA, Equipment, DSA and non-CEE points
Number of Process Points	8,000	10,000	Any device that uses the Control Data Access (CDA) interface consumes process points, like S8 C300
Number of SCADA Points	4,000	50,000	Any points that are used to display data retrieved from SCADA Interfaces are classified as SCADA points. Examples of these devices include the Modbus TCP/IP, DNP3 Protocol Interface
Number of Analog Points (UOC)	8,000	10,000	For ControlEdge UOC using the Control Data Access (CDA). This limit includes total Analog points, Digital points, and Composite device points. Please refer LX03-370 UOC Specifications for detailed point definitions. Also in a mixed controller environment (S8 C300, UOC, C200/C200E), Experion LX can have maximum 8,000 and 10,000 process/UOC points respectively for Standard and high capacity system in any combination.
Number of Digital Points (UOC)			
Number of Composite Device Points (UOC)			
Number of Equipment Points	1,000	2,000	Other points and hardware items built as part of the equipment still contribute to their own relevant capacity constraints.

Number of DSA Points	0	1,00,000	DSA Points are created whenever a point that belongs to another server is accessed using DSA. DSA Points are not licensed on the server that is subscribing to the points.
Number of non-CEE Points	0	5,000	Total Non-CEE Points Published from SM to C300 Controller
System-wide Equipment Points	5,000	10,000	If a server is subscribing to other servers via DSA, the total of all remote equipment and local equipment points cannot exceed this number.
PSA (Point Server) Points	No overall limit		The PSA point count is an aggregation of points from point server interfaces such as SPS/Adv OPC /BMA etc. Each interface may have its own limits but the overall PSA count will count against the total point count limit for a server
EFM Meters	2,000	2,000	Used to collect and export custody transfer data. An EFM meter uses one SCADA point license.
SCADA Point Algorithms	50,000	50,000	Algorithm blocks can be linked to SCADA points
Maximum number of C300 controller per Server	50	50	
Maximum number of SCADA channels	20	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).
Maximum number of SCADA controllers	50	999	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

Maximum number of User Defined Scanned Parameters per Analog or Status SCADA Point2	200	200	Analog or Status type user defined scanned parameters (UDSP) may be added to Analog and Status SCADA Points in any combination up to a combined total of 200 UDSP per point. Alarming on user defined scanned parameters is not supported.
Maximum number of scanned parameters per server	100,000	100,000	This includes fixed scanned parameters (such as PV, SP, OP, A1 – A4), user defined scanned parameters (UDSP), and any parameters configured with a 0 second or DEMAND scan period
Maximum pps from all configured SCADA devices	Limited by device	Limited by device	

2.2. Alarm, Event, Alert, Message Lists

Items	Specification	Comments
Maximum number of active alarms	4,000	Every alarm and event that occurs is saved in the online event database for a configurable period.
Maximum number of active messages	1,000	Number of messages that appear in the Message summary. Messages can be generated to provide additional information to an operator; for example, when a point goes into alarm, a message can provide an explanatory note or a procedure.
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	1.2 million	• 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.
Maximum number of Printer connections	20	This is the total number of printers that can be configured as either report or alarm devices

2.3. Station Display Sizing and Performance

Station Display Performance Specifications	Specification
Display Parameters	
Number of dynamic parameters per display	700 or fewer
Number of dynamic parameters currently in view on a pan and zoom display [1]	700 or fewer
Maximum number of dynamic parameters on an overview display [2]	2,000
Number of parameters per second (pps) per Station computer [3]	1000/sec
Number of dynamic parameters per Station computer	1,200 or fewer
Display Updates	
Maximum Display Update Rate [4]	1 second
Typical field change to display update time with 600 or less parameters per display	< 2 seconds
Typical complex display call up time with 300 or less parameters [5,6]	< 1.5 seconds
Typical complex display call up time with 600 or less parameters [5,6]	< 2 seconds
Standard Faceplate Call Up Time	< 2 seconds
Equipment Display	
Maximum number of Equipment Summary Display tables expanded simultaneously in a cluster	50
Maximum number of System Status Dashboard shapes per Dashboard	48

Note 1 – A single overview display with a maximum size of 2000 dynamic parameters is supported if the High Capacity platform is used

Note 2 – A single overview display with a maximum size of 2000 dynamic parameters is supported if the performance platform is used

Note 3 – When more than 1,200 dynamic parameters are configured, the update rate must be greater than 1 sec. to not violate max pps

Note 4 – The recommended continuous display update rate is 4 seconds.

Note 5 – Call up time depends on display complexity: specification is based on a non-complex custom display using standard HMIWeb Display Builder objects with limited use of scripts. This excludes the first initial call up and is based on a client node running a single instance of Station.

Note 6 – Complex displays are defined by the number of data bound objects identified, large amount of total objects on the display, and some amount of scripting.

2.4. Enterprise Model Sizing

2.4.1. Assets

Items	Specification	Comments
Assets	1,000	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. Only 500 for Standard Capacity System
Nesting depth for asset hierarchies	10	
Children per asset	No Limit	These totals are still subject to the overall maximum number of events per second and maximum burst of events limit that the Experion LX Servers can support.

2.4.2. Alarm Groups

Items	Specifications	Comments
Alarm groups	1000	Alarm Groups present alarm state/status for a disparate group of points and assets that are not represented by a single asset in the asset model. Only 500 for Standard Capacity System
Children per alarm group	500	
Nesting depth for alarm group hierarchies	5	
Maximum number of system alarm groups defined in a system	200	

2.5. Station Multi-Window Functionality

Multi-window functionality is a purchased option for the Experion LX Flex Station and is standard for the Experion LX Direct Station. A multi-window Station uses SafeView to manage the placement of its windows.

Specification	Specification
Number of monitors	Up to 4
Number of windows [1]	Up to 16
Number of concurrent faceplates	Up to 8
Note 1 – Number of windows includes faceplates, custom displays, Experion System displays etc. For backward compatibility reasons, the multi-window option for ES-F supports the configuration of multiple instances of Station (Multiple Static Station Option) as an alternative to a multi-window implementation.	

2.6. Station Trends

Item	Specification	Comments
Trend pens per set	32	Trends can be preconfigured or configured online as necessary by browsing the database and selecting the desired point and parameter
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	Any of the standard history collection intervals may be used as the basis for the real-time and historical trends.
Number of operating groups	16,000	
Points per operating group	8	Each group has three standard views available including faceplate, group trend (with control parameters accessible) and numeric trend.
Number of Trend Sets	3000	Per Experion LX Server
Trends on custom displays performance specifications		
Item	**Specification**	
On a Single Display		
Maximum number of full trends [1]	1	
Maximum number of basic trends [2]	4	

On a Single Station	
Maximum number of trends	8
Maximum number of pens across all trends	64
Across all Stations	
Maximum number of trends	28
Maximum number of pens across all trends	224
Note 1 – A Limit Trend object with default view settings corresponds to a Basic Trend for the purpose of these capacity constraints. If any additional view options are enabled a Limit Trend object corresponds to a full trend. Note 2 – A basic trend is a much simpler object that only includes the plot area and axes. It is recommended to use the basic trend when adding more than one trend object to a single display	

2.7. History Sizing

2.7.1. Collection Rates

Items	Specifications	Comments
Standard history	• Predefined collection rates of 1, 2, 5, 10 and 30 minutes • 3 additional user defined collection rates can be defined.	• When you configure a point parameter for standard history collection, Experion also collects 4 different standard history averages, based on the standard history snapshot rate that you choose for standard history collection. • The default standard history snapshot rate is 1 minute and the collection rates for averages are 6-minute, 1-hour, 8-hour and 24-hour averages. • The averages are calculated using the 1-minute base interval. That is, 6-minute averages are calculated on six 1-minute values. If you change the 1-minute base interval the averages are still calculated from the base interval. For example, if you change the base interval to 30 seconds, 6-minute averages are calculated on twelve 30-second values.
Fast history	• Predefined collection rates of 5, 10, 15, 20 and 30 seconds. • 3 additional user defined collection rates can be defined.	• A maximum of 8 collection rates can be defined choosing from the default intervals on the left • Additional rates can be defined; however they must be in multiples of the base rates. • The 5 second base rate can be configured to 1 second. The 5 second default collection rate for Fast History can be changed to 1 second, and the 1 minute collection for Standard History can be changed to 30 seconds if necessary. Note, however, that changing the collection rates in this way can place an additional load on the process control network.
Average (based on Standard History rates)	• Predefined collection rates of 6, 60, 480 and 1440 minutes	• A maximum of 4 collection rates can be defined

Extended history	• 1-hour snapshot • 8-hour snapshot • 24-hour snapshot	• When a point is configured for extended history collection, all of these intervals are stored. • A maximum of 3 collection rates can be defined choosing from the default intervals on the left.
Exception history	• 5, 10, 15, 30, and 60 seconds • 5, 10, 15, 30, and 60 minutes • 2, 4, 6, 8, 12, and 24 hours	• Whereas standard, fast, and extended history collect and store point parameter values periodically, exception history collects values at the rate configured for that point parameter but only stores them if the value or quality of that point parameter has changed since it was last stored. • Note that exception history only collects and stores string values. • A maximum of 16 collection rates can be defined choosing from the default intervals on the left
To support daylight savings and time zones, all collected data is historized in Universal Time Coordinated (UTC) time.		

2.7.2. 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 2.7.4). 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, a, custom displays, applications, spreadsheets and ODBC compliant databases.				

2.7.3. Maximum Parameters Assigned to History

Items	Default [1]	Maximum [2]	Comments
Standard history	2,000	50,000 at 60sec	Double, Float, Integer and Time data can be stored.
Fast history	1,000	1,000 at 1sec, 2,000 at 2sec	Same as above
Extended history	2,000	40,000	Same as above
Exception history	2,000	5,000 2,000 with 1 second polling 2,000 OPC DA limit parameters	String maximum of 255 characters can be stored. A maximum of 100 exception history parameters can be stored per second.
Note 1 – Default limit that Experion is shipped with it can be changed by a database initialization up to a maximum. Note 2 – Maximum Limit can be achieved using High Capacity Computer Platforms. For SCADA only system, maximum limit could be 4-5 times higher than the specified limit.			

2.7.4. Calculating History Space Requirements

Items	Specifications	Comments
Maximum history file size	2000 MB	• 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 formula	If a customer wishes to collect P parameters for a particular history type and have a history file size in bytes of S then: Number of samples = ((S/2) / ((P*7) + 8)) - 1	Example: Standard history one minute (history1) file size is 432 611 536 bytes Number of parameters assigned to standard history is 50000 Number of samples = ((432611536/2) / ((50000 * 7) + 8)) - 1 = 617 history samples

2.8. Server Data Acquisition Performance

Items	Standard Capacity System	High Capacity System	Comments
Experion LX Controllers			
Maximum parameters per second (pps) from all controllers on FTE	3,700	4,700	This includes data access to all CDA devices such as C200, C200Es, S8 C300, UOC, PGMs, FIM, IOLIM, and Simulation environment.
Maximum number of CDA subscribed parameters from all controllers on FTE	8,000	25,000	This is the number of parameters that can be actively subscribed by a server at any one time. The Experion adds and removes items from the subscription list based on demand.
DSA			
Maximum pps from each configured DSA subscribing server	0	1,000	This information is duplicated in section 2.16, DSA.
SCADA			
Maximum pps from all configured SCADA devices	Limited by device		
OPC			
Maximum OPC pps from all configured OPC servers	See section 2.18, OPC		

2.9. Notification Performance

Items	Specification	Comments
Maximum number of events (burst condition)	1,500	The Experion LX Server alarm system will handle an event burst of up to 1,500 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	ΔT = BS/(60-ER) Where: ΔT = # of seconds required between bursts BS = Burst Size (number of events in the burst) ER = Event Rate between bursts	Examples: • 1,500 event burst and no events between bursts: ΔT = 1,500/60 = 25 seconds 500 event burst with 30 events/sec between: ΔT = 500/30 = 17 seconds
Maximum number of sustained alarms/second [1]	30/sec	
Maximum number of sustained events/second [1]	10,000/Hour	With peaks of up to 40/sec
Maximum duration of events in online events file	12 weeks	
Maximum number of events in online events database	1.2 million	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. Event archiving can be used to access older events. Approximately 60 MB of hard disk space is required for every 100,000 events archived.
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 LX Server includes the option to support OPC alarms and events in addition to native Experion LX notifications. When the Experion LX 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.		

2.10. Supervisory Control and Data Acquisition (SCADA)

2.10.1. Terminal Servers

The SCADA controller or RTU connection to the Experion Server depends on several factors, including the plant's layout, the type of interface used and the controller's communication port(s). For those using a serial interface, controllers can be directly connected to the server's serial ports but would typically only be used on small systems. For larger systems, more serial ports can be added through the use of a Terminal or Device server.

Terminal Servers also provide a means of connecting serial port SCADA controllers to redundant Experion Servers. They can be deployed on network topologies using single Ethernet, and dual Ethernet, (two subnets. There can be single or dual connections to controllers, (when supported). A dual connection would require two Terminal Servers and be configured as a redundant SCADA channel in Experion.

Items	Qualified Devices
Terminal Servers	• Systech NDS/5000 Series Network Device servers: Built for industrial requirements, these RJ45 based terminal servers come in a range of 8 and 16 port models, all with a built in 3 port Ethernet switch as well as rack mount versions. • Systech NDS/6000 Series Network Device servers: Built for industrial requirements, these DB9 based terminal servers come in a range of 2, 4 and 8 port models, some with a built in 4 port Ethernet switch and some rack mountable.
Note 1 – The above Terminal Servers are tested to reconnect ports under the different planned and unplanned fail over scenarios.	

2.10.2. Real Time Database SCADA Point Structures

Point Structure	Standard Parameter		
Common Parameters (Analog, Status and Accumulator)	Point Name	Point Description	Item Name
	Parent Asset	Associated Display	Point & Group Displays
	Scan Enable & Status	PV Last Processed Date/Time[2]	Data Quality
	PV Algo & Action Algo[3]	Alarm Enable & Status	Message Index
	Scan Address (PV SP MD Au)	Scan Period (PV SP MD Au)	Manual PV
	User Defined Parameters[4]	Non-scanned Parameters[5]	Point Script[6]
Analog (Used for continuous analog values)	Process Variable (PV)	Output (OP)	Setpoint (SP)
	Mode (MD)	Up to 4 Auxiliary inputs (Au)[7]	Engineering Units (EU)
	0% & 100% EU Range	Drift Deadband	PV Clamp
	PV Bias & Scale	Normal Mode	OP Low & High Limits
	SP Low & High Limits	Reverse Output	Operator Control Level
	Control Inhibit	Control Confirmation	Control Deadband
	PV Fail Alarm	PV Control Timeout	PV Control Fail Alarm
	External Change Alarms	Unreasonable PV Alarm	Up to 8 PV Alarm types[8]
	Alarm Deadband		
Status (Used for digital values. PV can range from 1 bit to 3 bits, allowing up to 8 states.)	Process Variable	Output	Mode
	Normal Mode	Number of Input States	Number of Output States
	State Descriptor 0 to 7	InState Flags	Target PV for OP States
	Reverse Output	Output Pulse Width	Operator Control Level
	Control Inhibit	Control Confirmation	PV Control Timeout
	PV Control Fail Alarm	Alarm States (0 to 7)	Re-Alarm between states
	External Change Alarms		
Accumulator (Used to totalize a pulsed input)	Process Variable	Engineering Units (EU)	100% EU Range
	Meter Factor	Scale Factor	Roll Over Value
	Raw PV	Up to 4 PV Alarm types[9]	

Point Structure	Standard Parameter		
OPC Advanced (to link complex OPC data structures)	Point Name	Point Description	Item Name
	Parent Asset	Associated Display	Point & Group Displays
	User Defined Parameters[4]	OPC Parameters[10]	Point Script[6]
Container (Collates many related points into 1)	Point Name	Point Description	Item Name
	Parent Asset	Associated Display	Template Type
	Contained Points[11]		

Note 1 – 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 2 – Each time the PV is polled from the RTU, Experion will track the time/date of when the value 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 3 Experion supports additional data processing through the use of standard algorithms that may be attached to analog, status or accumulator points. Functions provided by these algorithms include:
Arithmetic calculation; Boolean calculation; Maximum/minimum value; Integration; Run hours totalization; Group alarm inhibit; Report request; Application program request;

Note 4 – For each of the point types it is possible to add user-defined parameters to the existing pre-built parameters. This enables points 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.

Note 5 – Only relevant for OPC Client type controllers: Non-scanned parameters are similar to user defined parameters except they link to a controller OPC item. These parameters are only requested on demand, (not scanned). Usefull to access related information stored in the controller.

Note 6 – Point Script: Custom VBscript executed based on triggers. Available triggers: OnAlarm; OnNormal; OnAcknowledge; OnTimer; OnChange (by parameter); OnOperChange (by parameter). See server Scripting section below.

Note 7 – Auxiliary Inputs are typically used for PID tuning constants but may have other uses.

Note 8 – Supported alarms include: PV Hi, PV Lo, PV HiHi, PV LoLo, Deviation Hi, Deviation Lo, Transmitter Hi, Transmitter Lo, Rate of Change.

Note 9 – Supported alarms include: PV Hi, PV HiHi, Rate of Change.

Note 10 – OPC Parameters: Each OPC parameter has a parameter name and associated OPC item definition.

Note 11 – Each contained, (or child), point of a Container point has an alias that becomes the first part of the Container point parameter. E.g., <Container>.<Alias>.PV

2.10.3. Algorithm Blocks

Experion supports additional data processing through the use of standard algorithms that may be attached to analog, status or accumulator SCADA points. Functions provided by these algorithms include: Arithmetic calculation; Boolean calculation; Maximum/minimum value; Integration; Run hours totalization; Group alarm inhibit; Report request; Application program request; Some of these require the use of Algorithm Blocks.

Items	Specifications	Comments
SCADA Point Algorithm Blocks	50,000	This is the maximum number of algorithm blocks for a given server. Algorithms are optionally attached to SCADA points. Some algorithm types require the use of an algorithm block.

2.11. Equipment Templates

Equipment is a licensed point type that provides simplified engineering and enhanced Station visualization of similar pieces of physical equipment, (such as Gas Wellheads). Equipment is created in Quick Builder and automatically builds underlying SCADA points, Controllers and Station visualizations based on a configured template.

Item	Specification
Maximum Equipment Templates	200 (20 types with 10 variants each)
Maximum Equipment Template inheritance[1] depth	4
Note 1 – Inheritance is about a variation or specialization of a piece of equipment. For example: 1) Pumping Well and Flowing Well both inherit from Well – this is an inheritance level of 1 2) Turbo Pumping Well inherits from Pumping Well which inherits from Well – inheritance level of 2	

2.12. Server Scripting

2.12.1. General Server Scripting Specification

Items	Specifications	Comments
Description		
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.		
General Specifications		
Maximum script size	Short scripts only (typically less than 50 lines)	• 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 2.22 “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.

2.12.2. 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.

2.13. 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.

2.14. Distributed Systems Architecture (DSA)

Distributed System Architecture (DSA) is an option that enables multiple Experion Server systems to share data, alarms, events, alerts, messages, and history without the need for duplicate configuration on any server. DSA interoperability does not include interoperability of Configuration Studio engineering tools such as Control Builder, Quick Builder and Enterprise Model Builder.

2.14.1. General DSA Specifications and Performance

Items	Specification	
	Standard Capacity	High Capacity
Servers		
Maximum number of DSA connected servers [1]	11	
DSA Data Publishing		
Maximum number of parameters/s to all remote servers [2]	1,500	
Maximum number of remote servers that can be published to	10	
DSA Data Subscription		
Maximum number of parameters/s from each remote server [2]	0	1,000
Maximum number of remote servers that this server can subscribe to	0	10
Total number of parameters/s from all remote servers	0	5,000
DSA Request Response		
(Device read) Maximum number of list reads from DSA server per second	1	
(Device read) Maximum number of items/list supported [2,3]	1,000	
(Device read) Sustained read rate (items/second) [2,3]	250	
DSA Trend		
Maximum number of Trend pens published to all remote servers[2,3,4]	20	
Maximum number of Trend pens that this server can subscribe to from all remote servers [2,3,4]	100	

Note 1 – This is the total number of Experion Servers on the network. They do not all need to be connected to each other via DSA or be in the same Enterprise Model system. Experion LX can only publish to Experion PKS/ EIS (EBI). 11x DSA limit is applicable for R511 and onwards systems.

Note 2 – Ability to deliver published data rate depends upon throughput of underlying process control network.

Note 3 – Device reads should be used with caution. It is possible to overload the underlying process control network if too many device reads are done.

Note 4 – These values are based upon the standard history configuration settings

2.14.2. DSA Central Control Room

DSA Central Control Room Topology [1]		
Maximum number of remote servers that this server can subscribe to	0 (Standard Capacity)	5 (High Capacity)

Note 1 – The DSA Central Control Room (CCR) topology is a topology where an Experion Server is a subscriber to a large number of remote DSA servers. The key features of this topology are:

- The CCR server is not process connected and would have flex stations only
- The CCR server can be redundant
- The CCR server has its own EMDB. All remote servers are external servers in CCR server EMDB.
- The remote servers must obey the standard DSA performance limits (including the maximum number of remote servers that this server can subscribe/publish to)
- The CCR server must obey the standard DSA performance limits (except for the maximum number of remote servers that this server can subscribe to)

2.14.3. DSA Interoperability –Between Experion LX and Experion HS

Experion Release	Can interoperate with the following releases						
	Experion LX R520 (Subscribe)	**Experion LX R51x (Subscribe)**	**Experion LX R50x (Subscribe)**	**Experion LX R12x (Subscribe)**	**Experion HS R51x (Subscribe)**	**Experion HS R50x (Subscribe)**	**Experion HS R43x [1] (Subscribe)**
LX R520 (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LX R51x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LX R50x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LX R12x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HS R51x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HS R50x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HS R43x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note 1 – DSA subscription is not a supported feature in Experion HS R41x

2.14.4. DSA Interoperability –Between Experion LX-PC and Experion PKS

Experion LX-PC Release	Can interoperate with the following releases					
	Experion PKS R520 (Subscribe)	Experion PKS R51x (Subscribe)	Experion PKS R50x (Subscribe)	Experion PKS R43x (Subscribe)	Experion PKS R41x (Subscribe)	Experion PKS R40x (Subscribe)
R520 (publish)	Yes	Yes	Yes	Yes	No	No
R51x (Publish)	Yes	Yes	Yes	Yes	Yes	No
R50x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes
R12x (Publish)	Yes	Yes	Yes	Yes	Yes	Yes
R11x (Publish)	No	Yes	Yes	Yes	Yes	Yes
R10x (Publish)	No	No	Yes	Yes	Yes	Yes
Data flow	*LX-PC Can only Publish to Experion PKS.*					

2.14.5. DSA Interoperability –Between Experion LX-PC and Experion Buildings Integrator / Experion Industrial Security

Experion LX-PC Release	Can interoperate with the following releases				
	Enterprise Buildings Integrator and Experion Industrial Security R60x	Enterprise Buildings Integrator and Experion Industrial Security R500	Enterprise Buildings Integrator and Experion Industrial Security R43x	Enterprise Buildings Integrator and Experion Industrial Security R410.x	Enterprise Buildings Integrator R400.x
R520	Yes	Yes	No	No	No
R51x	No	Yes	Yes	No	No
R50x	No	Yes	Yes	No	No
R12x	No	Yes	Yes	Yes	No

R11x	No	No	Yes	Yes	No
R10x	No	No	Yes	Yes	Yes

2.15. OPC

OPC Component	Specifications
OPC Classic Client Interface (SCADA Client)	
Used for	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. The OPC Classic Client Interface (previously known as OPC Client Interface) is bundled with Experion LX base license.
Supported Version	1.0a and 2.05a
General OPC Client Interface Specifications	• Maximum number of third-party OPC DA servers supported: 5 • Time-stamping: Within the Experion Server • Alarming: Yes • Scannable parameters per point: (8 – Analog, 3 – Digital, 1 – Accumulator) • User Defined Scanned Parameters: 200 per point
OPC Groups and Items	• Maximum number of OPC controllers: 50 • Maximum OPC item name length: 80 character • Maximum number of items per OPC controller: 960 • Maximum number of OPC groups supported: 500 • OPC group update rates supported: 1 second and above
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 number of items per list supported (write): 10
OPC Advanced Data Client	
Used for	Facilitating 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. The Experion OPC Advanced Data Client is bundled with Experion LX base license.
Supported Version	2.05a

General OPC Client Interface Specifications	• Maximum number of third-party OPC servers supported: 5 • Redundancy Supported- Yes (Note- The OPC Advanced Data Client has no native redundancy like the OPC Client Interface; however, Redirection Manager can be used to provide redundancy support) • Alarming: No
OPC Performance and Throughput	• Maximum number of items per group supported: 2,000 • Display rates supported: 1 second and above
OPC Client Callback Support	Sustained callback rate from all OPC servers (values per second): 100
OPC UA Client Interface DA	
Used for	The Experion OPC UA Client allows information from an OPC UA data access server to be mapped into Experion SCADA points. This information can then be displayed, alarmed, historized and controlled. The Experion OPC UA Data Client is bundled with the Experion LX base license.
Supported Version	OPC UA v1.04
General OPC UA Client Interface Specifications	• Maximum number of OPC UA channels per server: 50 • Maximum number of OPC UA Controllers per Server: 500 • OPC Data Access Services: Read (Poll & Subscription) and Write (Note- In Experion R5xx the OPC UA Client interface does not support AE (Alarm and Events), HA (historical access), the 'Method' service set, or file access.) • Redundancy Supported: Yes (Note- Redundant channel configuration required in Experion. If supported Experion OPC UA client will attempt to transfer subscriptions between the two OPC UA Servers.) • OPC UA Data types supported- Numeric, Boolean, Date and String
OPC UA Client read/ write Support	• Sustained callback rate from all OPC Servers (values per second): 1,000 • Sustained callback rate per Channel (values per second): 400 • Subscription rates supported: 1sec and above • Experion Dynamic Scanning Support: Yes • Number of writes by OPC UA Client per second per OPC UA controller: 1
OPC UA Security Support	• Certificate Authority Topology Support: Experion or Customer provided CA • OPC UA Client certificate scope: Configurable to Server, Channel or Controller scope • Supported Security Modes: Sign and Encrypt, Sign Only, None • Supported Security Levels: BASIC256 SHA-256 or BASIC256 or BASIC128-RSA15 (Note- Certificates for OPC UA Security must be configured on both Servers in a redundant server pair.)

OPC UA Server Interface DA	
Used for	• The Experion OPC UA Data Access server provides OPC UA Data Access Clients with the capability to view Experion point data for the purposes of control and plant-wide historization.
Supported Version	• OPC UA v1.04
General OPC UA Server Interface Specifications	• Maximum number of OPC UA Data Access Client Application Instances (CAIs) per Experion Server: 3 • Number of instances of the OPC server supported per Experion Server: 5 • Maximum number of concurrent OPC UA DA connections across all OPC clients per Experion Server: 50 (including UA and Classic) • Redundancy Supported: Yes • (Note- Using Experion Server Selector installed on client nodes)
Subscriptions - OPC Monitored Item Lists	• Maximum number of OPC monitored item lists supported per Experion Server: 300 (Note- Including both UA monitored item lists and classic DA groups) • Monitored item lists update rates supported: 1 second and above
Subscriptions Data Reads - OPC Client Callback Support	• - Sustained callback rate from OPC server (items per second) to all OPC clients per Experion Server: 2,000 • (Note- includes both UA and Classic Data reads)
Synchronous Data Reads - OPC Client Read Support	• (Cache read) Maximum number of list reads from OPC server per second per Experion Server: 1 (Note- includes both UA and Classic Data reads) • (Device read) Maximum number of list reads from OPC server per second per Experion Server: 1 (Note- includes both UA and Classic Data reads) • (Device read) Sustained read rate (items/second) per Experion Server: 500 (Note- includes both UA and Classic Data reads, Device reads should be used with caution. It is possible to overload the underlying process control network if too many • device reads are performed.)
OPC Client Write Support	• Number of list writes to OPC server per second: 1 (Note- includes both UA and Classic Data writes) • Sustained write rate (items/second): 500
OPC UA History Access Server	
Used for	The OPC UA History 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. (Note- Numbers are not for the PHD Experion link. Experion link supports the same performance numbers as the history subsystem of the Experion Server.)

General OPC Client Interface Specifications	• Maximum number of History Data Access Client Application Instances: 20 • Redundancy supported: Yes (through Redirection Manager) • Maximum number of concurrent OPC UA DA connections across all OPC clients • Supported aggregates: Interpolated, average, minimum and maximum
OPC Performance and Throughput	• ReadRaw (average values per second): 3,500 (A minimum of 10 point.parameters per call are required to achieve this performance. The specification for value/second is across all clients.)
OPC Display Data Client	
Used for	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.
Supported Version	2.05a
General OPC Client Interface Specifications	• Maximum number of third-party OPC servers supported: 5 • Redundancy Supported- Yes (Note- The OPC Display Data Client has no native redundancy like the OPC Client Interface; however, Redirection Manager can be used to provide redundancy support) • Alarming: No
OPC Performance and Throughput	• Maximum number of data values per display: 40 • Display rates supported: 1 second and above
OPC Client Callback Support	Sustained callback rate from all OPC servers (values per second): 100
OPC Data Access Server	
Used for	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.
Supported Version	1.0 and 2.05a
General OPC Client Interface Specifications	• Maximum number of OPC Data Access Client Application Instances (CAIs): 20 • Maximum number of concurrent OPC DA connections across all OPC clients: 50 • Redundancy supported: Yes (through Redirection Manager)
OPC Client Callback Support	Sustained callback rate from OPC server (items per second) to all OPC clients: 2,000

OPC Alarm and Event Server	
Used for	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.
Supported Version	1.1
General OPC Client Interface Specifications	• Maximum number of Alarm & Event Client Application Instances: 15 • Redundancy supported: Yes (through Redirection Manager) • Event types supported: Condition, tracking and simple • 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: 15,000/hour
OPC Historical Data Access Server	
Used for	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.
Supported Version	1.2
General OPC Client Interface Specifications	• Maximum number of History Data Access Client Application Instances: 20 • Redundancy supported: Yes (through Redirection Manager) • Supported aggregates: Interpolated, average, minimum and maximum
OPC Integrator	
Used for	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.
Supported Version	2.05a
General OPC Client Interface Specifications	• Maximum number of OPC Integrator transfer groups supported: 40 • Maximum number of items per group: 1,000 • Transfer rates supported: 500ms and above

OPC Redirection Manager	
Used for	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.
Supported Version	• OPC DA versions: 1.0 and 2.05a • OPC A&E version: 1.1 • OPC HDA version: 1.2 Experion LX supports Standalone Redirection Manager Redirection Manager (RDM)

2.16. Interfaces

2.16.1. Honeywell Devices

Interface Software	Connection Type
Honeywell FSC and Safety Manager Integration [1]	Serial and Ethernet
Honeywell ControlEdge PLC Integration [4]	Ethernet (Modbus TCP/IP)
Honeywell RTU 2020	Ethernet (Modbus TCP/IP, DNP3 [3])
Honeywell S9000 Integration	Ethernet
Honeywell 620 LCS Serial and Ethernet Interface	Serial and Ethernet
Honeywell UDC 3000/5000/6300 Integration	Serial ASCII
Honeywell DPR Recorders (DPR 100, 180, 250, 3000)	Serial
Honeywell RM7800 Flame Safeguard	Serial (to Q7700 Network Interface)
Honeywell Universal Modbus Interface (HC900, UMC800, DPR180/250, UDC2300/3300, DR4300/4500, X-Series) [2, 3]	Serial and Ethernet
Honeywell MasterLogic Integration (ML200 and ML200R)	Ethernet

Note 1 – The Honeywell FSC and Safety Manager Serial and Ethernet Integration is standard included with the Experion base software.

Note 2 – Please refer to the Honeywell Universal Modbus Interface Reference for more details.

Note 3 – Comes with a history backfill option.

Note 4 – Standard Modbus interface is available in ControlEdge PLC using the Experion Modbus interface.

2.16.2. Industry Standard SCADA Interfaces

Interface Software	Connection Type
Modbus (RTU, ASCII & TCP) Interface [1]	Serial, (RTU or ASCII), and Ethernet
Enron Modbus Interface [2]	Serial through Terminal Server (RTU or ASCII) and Ethernet
OPC Client Interface [3]	Dependent on OPC server used
DNP3 Protocol Interface [4]	Serial and Ethernet (TCP/IP & UDP/IP)
IEC 60870 protocol Interface	Serial (IEC 60870-5-101) and Ethernet (IEC 60870-5-104)
IEC 61850 protocol Interface	Ethernet

Note 1 – Standard included with the Experion base software.

Note 2 – Comes with an EFM custody transfer data option. Requires the use of EFM meter points.

Note 3 – Numerous third party devices are supported using the OPC Client Interface in combination with MatrikonOPC drivers.

Note 4 – Requires separate license for the history backfill option.

2.16.3. Third Party Devices

Interface Software	Connection Type
Allen-Bradley (Serial Interface and RSLinx [1])	Serial, Ethernet, DH+ and ControlNet
Bristol Babcock RTU and OpenBSI [2] Interface	Serial and Ethernet, (using the OpenBSI API)
GE Fanuc Series 90 PLC	Ethernet

Note 1 – Includes the Allen-Bradley Serial Interface, the Allen-Bradley RSLinx interface and Allen-Bradley Integration. When the RSLinx interface is used, RSLinx is required and can be purchased from Honeywell or a Rockwell Automation distributor. Consider using the OPC Client Interface with the Allen Bradley OPC server from MatrikonOPC instead.

Note 2 – When OpenBSI is utilized, OpenBSI is required and can be purchased from an Emerson distributor. OpenBSI support is dependent upon third party OpenBSI software support of Windows 10 Enterprise 2019 LTSC.

2.17. Electronic Flow Measurement

Items	Specifications
Description	
This option enables collecting the following data from flow meters: • Historical flow logs (typically hourly and daily transaction records) • Meter configuration logs • Alarm/event/audit logs The data collected is automatically exported to text (CSV) / binary FLOWCAL® CFX file formats for use by third-party gas measurement and/or billing systems.	
Details	
Maximum number of EFM meters per server	2,000
Honeywell RTU2020 EFM collection and export support over DNP3 protocol is enabled by default. Any other EFM collection and export requires the EFM Export Option for each protocol to be used for EFM collection, including: • ABB Totalflow EFM Enabler • Enron Modbus EFM Enabler • Fisher ROC EFM Enabler • Omni EFM Enabler • FlowX EFM Enabler • Bristol Babcock OpenBSI EFM Enabler	

2.18. C200/C200E Controller Integration

Item	Specification
Description	
Starting R510, Experion LX provides native support for Honeywell's C200/C200E controllers. This enables migration from Experion LS and other Experion systems with C200 controllers using upgrade unit models[1] listed in section 4.16 • Special price upgrade from Experion LS R3xx/R4xx to LX R520 • Offline migration where logic and database(s) will be seamlessly imported using standard tool/processes • HMI peripherals namely Computer platforms, Operating systems, SQL etc would need to be upgraded as per LX R520 • Applicable and supported for Series A and RAIL-H IO types	
Details	
Maximum number of C200/C200E controllers per server	50
Note 1 – Additionally C200 Control Solver license needs to be purchased along with the upgrade units, see section 4.5.	

2.19. ControlEdge PLC Integration

Item	Specification
Description	
Experion LX R5xx provides integration with ControlEdge PLC in a fast, easy and secure way. Key integration features include- • Variable namespace addressing over OPC UA • Auto configuration of Experion Database for PLC points • Prebuilt PLC Diagnostics display and alarms • Secure IPSec based communication between CE PLC and Experion as per ISA99 Level 2 compliance (Optional) • DCS grade HMI integration- faceplates, detail displays and shape library • Use of Experion PPC (Panel PC) for field operations with consistent Experion HMI and tools	
Details	
Maximum number of addressed variables per ControlEdge PLC controller in Experion	3000 [1]
Maximum number of ControlEdge PLC controllers	As per maximum number of SCADA controllers defined in Section 2.1
Supported ControlEdge PLC releases for Advanced Integration over OPC UA	ControlEdge PLC R140 and later
Note 1 – Additional logical Experion controllers can be configured for each ControlEdge PLC if required	

2.20. Ethernet/IP Solution

Item	Specification
Description	
This is a licensed option for C300. An Ethernet/IP enabled C300 can communicate (over FTE Level-2) with Ethernet/IP compliant devices resident on Ethernet/IP networks. The C300 can accessed data (as data reads and writes) from the connected Ethernet/IP compliant devices. This data can then be used for control, indication, and historization. In terms of data access, the C300 Direct solution divides Ethernet/IP devices into two major categories, namely ControlLogix processors and Process Connected I/O Devices like Motor starters, drive controllers, and I/Os.	

2.21. 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 or Read/write access (configurable)
Access to historical point.parameter values	Read only
Access to database files (user tables)	Read or Read/write access (configurable)
Supported Microsoft Excel versions	MS Office 2019, MS Office 2016, MS Office 2013 SP1

2.22. Application Development Toolkit

2.22.1. 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.

2.22.2. 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.

2.23. Application Enablers

2.23.1. Alarm Pager

Items	Specifications	Comments
Protocols		
	• 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 whereas the UCP protocols are mainly used in Europe. The 2-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	

2.23.2. 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

2.23.3. Server Peer Responder

Items	Specifications	Comments
Description		
Provides the capability for CEE based controllers to form direct Peer-Peer data references to Experion Server resident points and parameters such as SCADA, OPC, OPC Advanced Points, Point server, and DSA (remote) point types. No Peer-Peer transactions can be initiated from the Experion Server.		
Details		
Maximum number reads points	1,200/second	Maximum number of read parameters by CEE’s per server of point type SCADA, OPC, point server and DSA
Maximum number writes points	400/second	Maximum number of write parameters by CEE’s per server of point type SCADA, OPC, point server and DSA
Redundant server Failover in minutes	1 minute	Maximum Time for CDA on the server to re-establish Peer-Peer connections to controllers after a backup server becomes primary server following failover

2.23.4. 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. Recipe management is not related to Experion Batch Manager.		
Details		
Maximum number of recipes	500	This is the default limit. This number can be increased to 32,000 if required.

2.23.5. 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. Batch reporting is not related to Experion Batch Manager. Refer to the Experion LX Batch Manager Specification for details on Experion Batch Manager. Refer to the Experion Batch Manager Specification for details.		
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.

2.23.6. Dynamic Alarm Suppression

Items	Specifications	Comments
Description		
Dynamic alarm suppression enables a user to reduce alarm floods or the number of standing alarms by removing an alarm or group of alarms from the summary when an initiating alarm has occurred.		
Details		
Maximum number of triggers across all groups per server	700 triggers	
Maximum number of suppressible alarms across all groups per server	3000 alarms	Suppression groups are configured at a system level and downloaded to all servers. Each server and console station applies the suppression to their alarms independently.

2.23.7. Gas Operations Suite with Pipeline Leak Detection

Item	Specification	Comments
Description		
Gas Operations Suite is an Experion license option that allows organizations in the gas transmission pipeline industry to monitor the quality and linepack of gas flow, as well as compressor performance.		
Details		
Core Suite	• Pipeline modeling	Maximum 75 PIPE Segments (3 bundles of 25 Pipe Segment each)
	• Flow meter reconciliation	Calculations supported: AGA 3 orifice flow meter; AGA 5 heating value; AGA 7 turbine flow meter; AGA 8 and NX-19 supercompressibility; AGA 9 ultrasonic; Wobbe Index;
	• Linepack calculation	
	• Compressor performance monitoring	
Options	• Leak Detection	Maximum 75 PIPE Segments (3 bundles of 25 Pipe Segment each)

2.23.8. DNP3 History Backfill

Items	Specifications
Description	
DNP3 History Backfill makes use of the time stamped values reported by the RTU after recovery from a communications failure to backfill data into Experion history. This functionality depends on the ability of the DNP3 controller to report time stamped values.	
Details	
Experion DNP3 History backfill functionality has been qualified for the following devices: • Honeywell ControlEdge RTU (Previously known as RTU 2020) • Foxboro SCADA RTU50 • Kingfisher CP21	

2.23.9. HC900 Universal Modbus History backfill

Items	Specifications
Description	
This option enables uploading the plant history data from HC900 controller into the Experion Server History Backfill functionality is initiated when the HC900 controller comes back online after it has been disconnected with the Experion Server for more than one minute. This disconnection could be due to: • The controller failing due to a communications failure • The controller being disabled (Out of Service)	

2.23.10. IEC 61850

Items	Specifications
Description	
This option enables support for IEC-61850 Edition 2 Protocol SCADA interface. This included support for new PRP and HSR communication protocols. It comes with history backfill feature for data and events stored at IEDs.	
Details	
Maximum number of IED devices that can be supported per Experion LX Server	100
Maximum number of IED's per System Interface	20

2.23.11. IEC 60870

Items	Specifications
Description	
The IEC 60870 protocol is prevalent in the energy and utilities sector. The protocol is used for real-time communication with telecontrol equipment and systems. The protocol is also used for monitoring and controlling geographically distributed processes.	
Details	
The IEC-60870 interface makes use of the IEC 60870-5-101 and 60870-5-104 protocols for connecting Experion to an RTU (Remote Terminal Unit). IEC 60870-5-101 is a protocol based on RS-232 while IEC 60870-5-104 is based on Ethernet. The Experion Server provides a software framework called the "point server" to integrate new devices with the Experion Server.	
Maximum number of RTUs	64 each for -101 and -104 networks

2.24. Experion Backup and Restore

Items	Specifications
Description	
Starting release R511, Experion LX supports using Experion Backup and Restore (EBR) for creating backup and restoring Experion HS nodes from the EBR created backup.	
Details	
• Experion LX is qualified with EBR R520 Physical Edition that is used for backup and restore of Physical platforms. EBR R520 package consists of Workstation and Server Agents, node-specific files, Recovery Disk, Management console, and a Manager component. • The EBR Management console is used to manage local and remote machines located in the same network. For installations with higher than 4-5 Experion LX nodes, it is recommended to run EBR management console on a separate server grade machine. EBR Management Console comes with the base EBR R501 media kit package and not separately licensed. • For more details, refer EBR Specification document- EP03-240-520 • EBR R501 and R520 both supports Experion LX R520. However we recommend users to use the latest EBR R520.	

3. Experion LX Hardware and Software Requirements

A computer platform must meet the following specifications to be used for Experion LX. These guidelines are intended to provide a minimum baseline. The actual hardware requirements will depend on the system configuration. Computers platforms should meet or exceed these specifications.

3.1. Experion LX Server

Experion LX Server Performance Sizing			
System Type	**Standard Capacity**	**High Capacity-I**	**High Capacity-II**
Capacity limits	Systems with up to: • 4000 SCADA points • 8000 Process Points[1] • 10 Direct Stations • 5 Flex Stations • Redundancy	Systems with up to: • 8000 SCADA points • 10000 Process Points[1] • 11 DSA Connected Servers • 15 Direct Stations • 15 Flex Stations • Redundancy	Systems with up to: • 50000 SCADA points • 10000 Process Points[1] • 11 DSA Connected Servers • 15 Direct Stations • 15 Flex Stations • Redundancy
Machine Type, OS	Workstation Grade[2], Windows 10 Enterprise LTSC 2019 OS	Server Grade, Windows Server 2019 OS	Server Grade, Windows Server 2019 OS
Examples	Dell Precision T5820XL, R7920XL, HP Z4 G4	Dell T340, Dell R240XL	Dell T340, Dell R240XL, R340 XL, HP DL360 G10
Note 1 – Starting R510, this includes ControlEdge UOC specific license types as well, namely Analog IO, Digital IO and Composite Device points. Note 2 – For workstation grade machines, Honeywell recommends using either Honeywell supplied computer platforms or Platforms that are compatible with Windows 10 Enterprise LTSC 2019 Edition OS supported with Experion R52x Note 3 – The example platform list is based Honeywell supplied computer platforms. This specification document may not be updated for every new computer platform introduced during Experion R520 product lifecycle. Please consult your Honeywell representative for latest compatible platform and use the same.			

3.1.1. Server Hardware Requirements (Minimum Specs)

System Configuration	Standard Capacity	High Capacity–I	High Capacity–II
Typical Processor	Single Intel 2.10GHz, Hex core processor or Equivalent		
RAM	8 GB	16 GB	20 GB
Minimum Available Memory	20%		
Networking	1 Gbps or 100 Mbps Ethernet or FTE		
Video Resolution	1024 x 768 65K colors		
Video RAM	8 MB	8 MB	16 MB
Operating System	Windows 10 Enterprise 2019 LTSC	Windows Server 2019 64-bit	

Browser type	Microsoft Internet Explorer 11		
Hard Drive	500 GB [2]	500GB	500 GB
Example Hardware for Experion LX Server[3, 4]	Dell Precision T5820XL, R7920XL, HP Z4 G4	Dell T340, Dell R240XL, Dell R340 XL, Dell R740XL, HP DL360 G10, Dell XR2	

Note 1 – The systems listed here are examples of platforms that will meet or exceed the recommended specifications.

Note 2 – 160GB drive space for Virtual Machine

Note 3 – For workstation grade machines, Honeywell recommends using either Honeywell supplied computer platforms or Platforms that are compatible with Windows 10 Enterprise LTSC 2019 Edition OS supported with Experion R52x

Note 4 – The example platform list is based Honeywell supplied computer platforms. This specification document may not be updated for every new computer platform introduced during Experion R520 product lifecycle. Please consult your Honeywell representative for latest compatible platform and use the same.

3.1.2. Network Hardware Accessories

Network Component	Comment
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 LX Direct Stations, C300 controllers, etc. Experion systems with CDA controllers (C300, UOC) must use Honeywell qualified FTE switches and approved NIC cards with server and workstation platforms.
Network Interface Cards	Workstations platform typically comes with single NIC port and following additional PCIe network cards are required for dual LAN or FTE use- • 2x Single Port Broadcom (for Dell OptiPlex XE3 workstations) • 1x Dual Port Broadcom 5720 NIC (For Dell Precision and HP Z series workstations) Server grade platforms (Dell T330, R330/R430 and HP DL360p G8) typically comes with dual port NIC card
Switches	• Cisco Catalyst C9200L/ C9300L • HP Aruba JL330A/ JL075A/ JL259A • Moxa EDS-G512E-T

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.

3.2. Experion LX Station

A computer must meet the following specifications to be used as an Experion LX Station. These guidelines are intended to provide a minimum baseline. Honeywell computer platforms meet these specifications but may not necessarily be the example platforms listed below. It's highly recommended that user select Honeywell qualified computers to avoid potential incompatibility. For installation information on computer platforms, including physical, electrical, corrosion, and other environmental requirements, please consult the Honeywell installation guides.

This platform specification is based on typical use of the system. To achieve satisfactory performance additional RAM or a higher performance CPU may be required in the following circumstances:

- If the recommended number of data bound objects per display or per station is exceeded
- Third party applications are used
- When purchasing a new platform or adding memory to an existing platform the strong recommendation is to use the higher memory configuration. This will provide optimal performance and could avoid the need to add more memory in the future.

For Standard capacity system, the maximum number of supported Direct Stations for each system is 10, and up to 5 Flex stations. For High-capacity system, the limit is 15 Direct Stations and up to 15 Flex Stations.

3.2.1. Station Hardware Requirements (Minimum Specs)

System Configuration[1]	Specifications
Typical Processor	Single Intel Xeon Processor E5-1620v3 3.50GHz (or equivalent)
RAM [1]	8GB
Networking [2]	1Gbps or 100 Mbps Ethernet or FTE
Operating System	Microsoft Windows 10 Enterprise 2019 LTSC [3]
Video resolution	1280x1024, 1600x1200, 1680x1050, 1920x1200, 1920x1080, 3840x2160; 65K colors
Video Memory	8MB VRAM
Browser type	Microsoft Internet Explorer 11
Hard drive	256GB[4] (130GB for Virtual Machine)
Example Hardware [5,6]	Dell OptiPlex XE3, Dell Precision T5820XL, R7920XL, HP Z4 G4

Note 1 – An additional 1GB of RAM is suggested for enhanced performance if the Control Builder client is used

Note 2 – For controllers, Direct Stations can only communicate directly with devices that reside in the same FTE Community

Note 3 – Experion Station must use Windows Server 2019 OS when running as a virtual machine

Note 4 – On physical platforms , the minimum practical storage is 256GB due to standard drive capacities. Additional storage may be required to accommodate third-party applications or other local file storage requirements.

Note 5 – For workstation grade machines, Honeywell recommends using either Honeywell supplied computer platforms or Platforms that must be compatible with Windows 10 Enterprise LTSC 2019 Edition OS supported with Experion R52x

Note 6 – The example platform list is based Honeywell supplied computer platforms. This specification document may not be updated for every new computer platform introduced during Experion R520 product lifecycle. Please consult your Honeywell representative for latest compatible platform and use the same.

3.2.2. Experion PPC as LX Station

For Standard capacity systems, Experion PPC can be uses as Experion LX Flex Station or Direct Connect Station. Here are some other important considerations

- Experion PPC comes bundled with Windows 10 Ent LTSB 2016 Operating system. Current part# MZ-PPCT01 can't be used with Experion LX R520. Check with you Honeywell representative for latest update.
- Regular Flex Station and Direct Connect station license and install method need to be used for LX station instance running on PPC
- PPC as LX station can be used in any mix of Flex and Direct connect station under the specified limit of maximum station count per server

3.3. Experion Raritan KVM Client

The Experion Raritan KVM client provides secure, high-definition access to computers on the business network from within Experion Stations. No network access is required, and no firewall ports need to be opened between the business network and the Process Control Network. Keyboard, video and mouse signals only are transmitted between the business computer and Experion Stations via Raritan KVM hardware and the Experion Raritan KVM client.

3.3.1. Sizing

The Experion Raritan KVM client requires use of a physical computer platform, virtual platforms are currently not supported.

Sizing per Raritan Honeywell Experion Station KVM switch	Specification
Max number of Business Computers	8
Max number of Experion Raritan KVM Clients	8

Experion Raritan KVM Clients per Station	High Capacity	Standard Capacity
Clients with No Scaling enabled	2	2
Clients with Scale to fit enabled	1	0
Clients streaming video	1	0
Note 1 – Network bandwidth must also be considered when determining the total number of clients. Each 1080p@30fs Experion Raritan client requires ~4 Mbps. Higher bandwidth is required if streaming video.		

3.3.2. User Experience

The Experion Raritan KVM client provides near real time interaction with business network computers suitable for accessing business content such as documents, email, and web applications from the Operator's Station.
Video, keyboard, and mouse signals are captured, compressed, encrypted, and securely communicated between the business computer and Experion Stations. Factors such as available bandwidth and network latency between the KVM switch and Experion Stations may reduce image quality and responsiveness.

4. Model Numbers

4.1. Experion Server Database Software

Model Number	Description
LX-DBASE1 [1]	Experion LX Base Software
LX-DME520 [2]	Experion LX Media Kit – Standard
LX-DME520-ESD	Experion LX Media Kit – Electronic

Note 1 – Experion LX bases software includes 100 Process Points, 100 SCADA points, 100 Analog IO point, 300 Digital IO point, 2 Flex Station license, 1 Direct Station license, 1 Control Builder Client License, 1 Display Builder license, 1 Quick Builder license, Display Versioning Control, Control Builder Template Support, CDA Subsystems Interface, C300 Control Solver- 50ms, 127 PCDI, Enterprise Model Builder, History Collection/Archiving, Events Collection/Archiving, Chart Monitoring, Reporting, Alarm Event Report, Alarm Duration Report, Alarm Metrics, Alarm Group, Excel Report, Free format report, Multiple Display Support, DSA Publish enabling License, Recipe Management, Network Server, User Scan task, Batch Report, Honeywell Universal Modbus Interface and Backfill, Allen-Bradley integration, Allen Bradley Serial Interface, Allen Bradley RSLinx Interface, Modbus interface, Honeywell S9000 interface, Honeywell 620 LCS interface, Honeywell RM7800 Flame Safeguard, Honeywell DPR Recorders interface, DNP3 interface, Honeywell Safety Manager and FSC interface, Interface to various EFM controllers/ protocols (Enron Modbus Interface, ABB Totalflow, Fisher ROC, Omni, FlowX, and Bristol Babcock OpenBSI), GE Fanuc Series 90 PLC via Ethernet, Server peer responder, cross reference report, alarm groups, OPC Redirection Manager, OPC Classic Client Interface, OPC Display Data Client, OPC UA Client Interface, OPC Advanced Data Client Interface,1 Excel Data Exchange Users.

Note 2 – The media kit doesn't include hardware security key (dongle). The Hardware security key is required only for select countries and this can be purchased separately using following models. EP-DONUSB (Hardware Security key) and EP-DONENB (Software Protection Enabler).

Note 3– When selected, this option will enable electronically distributed media kit in place of physical media kit delivery. Recipients (as specified in ordering instructions) will receive e-mail with web links to download the media ISOs.

4.2. Database Size Expansions

Model Number	Description
Process Points	
LX-DPR100	Experion LX 100 Process Points Adder to Database Size
LX-DPR01K	Experion LX 1,000 Process Points Adder to Database Size
LX-DPR02K	Experion LX 2,000 Process Points Adder to Database Size
LX-DPR05K	Experion LX 5,000 Process Points Adder to Database Size
LX-DPR10K	Experion LX 10,000 Process Points Adder to Database Size

Model Number	Description
SCADA Points	
LX-DSC100	Experion LX 100 SCADA Points Adder to Database Size
LX-DSC01K	Experion LX 1,000 SCADA Points Adder to Database Size
LX-DSC02K	Experion LX 2,000 SCADA Points Adder to Database Size
LX-DSC05K	Experion LX 5,000 SCADA Points Adder to Database Size
LX-DSC08K	Experion LX 8,000 SCADA Points Adder to Database Size
LX-DSC10K	Experion LX 10,000 SCADA Points Adder to Database Size
LX-DSC25K	Experion LX 25,000 SCADA Points Adder to Database Size
LX-DSC50K	Experion LX 50,000 SCADA Points Adder to Database Size
Note 1 – The base software includes 100 Process and 100 SCADA points.	

4.3. Server Redundancy

Model Number	Description
LX-RBASE1 [1]	Experion LX Redundancy Base Software
Process Points	
LX-RPR100	Experion LX 100 Process Points Redundancy Adder
LX-RPR01K	Experion LX 1,000 Process Points Redundancy Adder
LX-RPR02K	Experion LX 2,000 Process Points Redundancy Adder
LX-RPR05K	Experion LX 5,000 Process Points Redundancy Adder
LX-RPR10K	Experion LX 10,000 Process Points Redundancy Adder
SCADA Points	
LX-RSC100	Experion LX 100 SCADA Points Redundancy Adder
LX-RSC01K	Experion LX 1,000 SCADA Points Redundancy Adder
LX-RSC02K	Experion LX 2,000 SCADA Points Redundancy Adder
LX-RSC05K	Experion LX 5,000 SCADA Points Redundancy Adder
LX-RSC08K	Experion LX 8,000 SCADA Points Redundancy Adder
LX-RSC10K	Experion LX 10,000 SCADA Points Redundancy Adder

LX-RSC25K	Experion LX 25,000 SCADA Points Redundancy Adder
LX-RSC50K	Experion LX 50,000 SCADA Points Redundancy Adder
Note 1 – Redundancy software follows the same methodology as selecting the database size from the previous step. Start by selecting the redundancy base software, LX-RBASE1. This option includes server redundancy for 100 Process and 100 SCADA points. This option does not include an additional Experion Station connection license. Next, choose the equivalent point adders for redundancy that were chosen for the database. The point count has to exactly match that of the database point count.	

4.4. ControlEdge UOC Specific Models

Model Number	Description
LX-SWCS90	ControlEdge UOC Process Solver (Valid for either Embedded or Virtual UOC)
LX-AIO100	100 Analog IO Point Adder
LX-DIO100	100 Discrete IO Point Adder
LX-DEV010	10 Composite Device Point Adder
LX-UDV100	100 Composite Device Point Adder
LX-REG100	100 PT Regulatory Compliance Adder
LX-PROF01	PROFINET usage license, per UOC instance
Note 1 – Refer LX03-370, the ControlEdge UOC Specifications for detailed point definitions and references.	

4.5. C200/C200E Specific Models

Model Number	Description
LX-SWCS11	C200/C200E Control Solver License- 50ms
Note 1 – Equal to number of logical C200/C200E controllers being used post migration from Experion LS/ Other releases to Experion LX R52x.	

4.6. Station Expansions and Multi-window

Model Number	Description
LX-STAD01 [1, 2]	Experion LX Direct Station
LX-HSTA01 [1,3]	Experion LX Flex Station
LX-SMWIN1 [4]	Multi-window Support, per computer platform

Note 1 – Experion LX Base software includes 1x Direct Station and 2x Flex Station instances

Note 2 – Up to 14 additional Direct Stations can be ordered for a maximum of 15 Direct Stations per Server.

Note 3 – Up to 13 additional Flex Stations can be ordered for a maximum of 15 Flex Stations per Server.

Note 4 – LX-SMWIN1 is a purchased option for the Experion LX Flex Station and is standard for the Experion LX Direct Station. The Multi-Window option can be implemented as Multiple Static Stations (up to 4 static station instance) or as Multiple Windows (up to 4 native windows or 16 using Experion Safeview) per computer while consuming only a single station license.

4.7. Distributed System Architecture

Model Number	Description
LX-XRESR1 [1]	DSA Remote Server Enabler (DSA Subscribe)

Note 1 – Each Experion LX Server is enabled to publish data in a DSA design. LX-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 10 servers.

4.8. Engineering Tools

Model Number [1]	Description
LX-COBLDR [2]	Experion LX Control Builder
LX-QKBLDR [2]	Experion LX Quick Builder
LX-DSBLDR [3]	Experion LX Display Builder

Note 1 – One of each of Control Builder, Quick Builder and Display Builder are included with the Base Server Software. Additional licenses can be ordered when a base software license is present. These tools can be used off-line.

Note 2 – Concurrent use of Control Builder and Quick Builder is supported starting Experion LX R500, with a maximum limit of 4 instances.

Note 3 – Includes HMIWeb Display Builder and Display Builder

4.9. Microsoft Windows Operating System

Model Number	Description
MS-OSLW19 [1]	Windows 10 Enterprise 2019 LTSC
EP-COAS19	Windows Server 2019 64-bit OS

Note 1 – Experion LX R520 uses Long Term Servicing Channel (LTSC) based Windows 10 operating system. Experion LX systems must use Windows 10 Enterprise LTSC 2019 Edition operating system.

4.10. Microsoft SQL CAL

Model Number	Description
MZ-SQLCL4	Microsoft SQL Server 2019 Runtime CAL
EP-S08CAL	Windows Server 5 Device CAL
EP-T09CAL	Windows Terminal Services (RDS) CAL

4.11. Experion Virtualization CAL

Virtualization is the creation of a virtual version of an Operating System / Server / Storage Device / Network Resource. There are many different types of virtualization. With Experion LX, Honeywell uses a type called Platform Virtualization. Platform virtualization refers to the abstraction or separation of computer hardware resources from one or more operating systems. Refer Virtualization Planning and Implementation Guide for Experion LX. To read more about our use of virtualization technology, refer to Experion Virtualization Spec document: EP03-700-100

Following Virtualization CALs are needed for Experion LX Server and Station nodes when running in a Virtualized environment.

Model Number	Description
LX-EPCVMS [1,3]	Experion LX Virtualization Server CAL
LX-EPCVMC [2,3]	Experion LX Virtualization Client CAL

Note 1 – Enables Virtual deployment of Experion Server

Note 2 – Enables Virtual deployment of Experion Flex Station, Experion Direct Station

Note 3 – Doesn't include VMware software

4.12. SCADA Interfaces, OPC and Data Exchange Options

Below list covers various licensed interface and data exchange options. This is in addition to the interfaces and options that are included in Experion LX base software LX-DBASE1, please refer section 4.1 for more details.

Model Number	Description
Industry Standard Interfaces	
LX-IDNPHB [1]	DNP3 History backfill functionality
LX-I60870	IEC 60870 Protocol SCADA Interface
LX-I61850	IEC 61850 Protocol SCADA Interface
Honeywell Device Interfaces	
LX-IHWMLS	Honeywell Master Logic Integration
LX-IADDVM	DVM Integration (Via Point Server)
Third Party Devices (EFM)[5]	
LX-IEMBOE	Enron Modbus EFM Export Option
LX-IOMNEF	LX OMNI SCADA, EFM Export Option
LX-ITFLEF	LX ABB TOTALFLOW SCADA, EFM Export Option
LX-IROCEF	LX FISHER ROC SCADA, EFM Export Option
LX-IBBREF	LX BRISTOL BABCOCK OPN BSI, EFM Export Option
LX-IFLXEF	LX FLOW-X FLOW COMPUTER, EFM Export Option
OPC and Data Exchange [4]	
LX-OPCINT	OPC Integrator SAI [3]
LX-OPCDA1	OPC Data Access Server CAI [2]
LX-OPCHDA	Experion LX OPC Historical Data Access CAI [2]
LX-OPCSAE	OPC Alarm & Event Server CAI [2]
LX-OPCUDA	OPC UA DA Server, per client
LX-OPCUHA	OPC UA HA Server, per client
LX-XLDE01	Microsoft Excel Data Exchange, per user
LX-IMQT00	Experion PC MQTT Sparkplug SCADA interface

Model Number	Description
Note 1 – DNP3 interface is included in the LX database license	
Note 2 – CAI stands for Client Application Instance	
Note 3 – SAI stands for server Application Instance	
Note 4– Refer section 4.1 for various OPC options included with LX database license	
Note 5– The device interface of the supported EFM devices is included in the LX base software	

4.13. Application Development Tools and Application Enablers

Below list covers various licensed interface and data exchange options. This is in addition to the interfaces and options that are included in Experion LX base software LX-DBASE1, please refer section 4.1 for more details.

Model Number	Description
Application Development Tools	
LX-AESHED	Experion LX Point Control Scheduler
LX-AEAPD1[1]	Honeywell Application Development Toolkit
LX-CADL02 [2]	CAB Developer
LX-BKCF00	Enhanced Bulk Configuration Tools for Control Builder
LX-DEMOSW [3]	Experion LX Demo Software
Application Enablers	
LX-ESIG01 [4,5,6]	Experion LX Electronic signature option
LX-DEQ100 [7]	100 Equipment Point Adders to Database Size
LX-SMCS30	C300 Simulation Environment, per controller
LX-SVPWFB	Power Function Blocks

Note 1 – Enables ODBC driver and ODBC data exchange and server automation object features.

Note 2 – Enables the configuration of custom algorithm blocks (CAB) in the C300. This package includes Microsoft Visual Studio 2012 and adds 1 CAB developer. Requires control builder license.

Note 3 – This license is sold for demonstration purposes and is not intended for on-process use. Security is provided by a 5 hour time-out. No hardware security key (dongle) is required when using this license.

Note 4 – Provides Electronic Signatures on SCADA points, Electronic Signatures on Point Scheduler and the ability to securely enable and disable Electronic Signatures by asset.

Note 5 – 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.

Note 6 – Applicable for S8 C300, C200/C200E controllers, ControlEdge UOC has a different license type (regulatory compliance license) that needs to be used.

Note 7 – Up to 10 x LX-DEQ100 can be ordered per server after which it becomes unlimited, (to the point capacity listed in section 2.1, Maximum Point Counts.

4.14. Qualification and Version Control System (QVCS)

Model Number	Description
LX-QVC0BS	QVCS Base Software
LX-QVC100	100 Point QVCS
LX-QVC01K	1000 Point QVCS
LX-QVC02K	2000 Point QVCS
LX-QVC05K	5000 Point QVCS
LX-QVC10K	10000 Point QVCS

Note 1 – QVCS simplifies FDA validation by defining and enforcing a user-defined development life cycle for Experion CDA devices in addition to the version control which includes version management, a version repository, and supports an audit capability.

Note 2 – QVCS support licensing is directly related to the Server Process Point count. The user must choose a base option first, and then the appropriate option identical to the Process Point count.

Note 3 – Applicable for S8 C300, C200/C200E controllers, ControlEdge UOC has a different license type (regulatory compliance license) that needs to be used.

4.15. Experion LX Batch Solutions

Model Number	Description
LX-1BP100	100 T1 Batch Point Adder [1]
LX-2BP100	Advanced Batch Point Adder [2]
LX-CBR010 [3,4]	Class Based Recipe Running 10 Instances
LX-CBR025	Class Based Recipe Running 25 Instances
LX-CBR100	Class Based Recipe Running 100 Instances
LX-CBR300	Class Based Recipe Running 300 Instances

Model Number	Description
Note 1 – A new batch licensing structure based on point count now covers all batch functionality. This includes Batch functionalities for the associated IO points, including • Recipe Control Modules (RCMs) • Class Based Recipe Control Modules (CBRs) • Batch API (for MES Integration) • Procedure Analyst • Experion ODBC Connection • Formula Sets • Batch History and Reporting Batch Points are ordered per server. The number of Batch Points should match the total number of Points (I/O and Process) contained in all of the Batch Units (Assets). This would include the total of points included for those assets including IO Points and Process Points as this new functionality works across all Experion controllers (C200/C200E, S8 C300, UOC, and Virtual UOC). Note 2 – Advanced Batch Points are ordered per server. The number of Advanced Batch Points should match the total number of Points (I/O and Process) contained in all of the Batch Units (Assets). Advanced Batch Points contain the following functionality: • Campaign Management • Work Instructions Note 3 – A class-based recipe is configured to run on any batch unit of a certain type, or class, such as reactor or blender and therefore is more generally applicable to multiple units which can carry out the same processing actions. A class based recipe, also known as a Master Recipe (MR), for a reactor can run on any reactor of the same type. Note 4 – Experion CBR licenses are replaced by Experion Batch points starting R51x. However, CBR licenses are available with R520 and will be phased out later.	

4.16. Field Device Usage License

Model Number	Description
LX-FFLX01	Fieldbus Usage License, 1 FIM
LX-FFLX05	Fieldbus Usage License, 5 FIM
LX-EPLX01 [2]	EtherNet/IP License
Note 1 – LX-FFLX0x enables the use of Fieldbus interface module in an Experion LX system. Applicable for both FIM-4 and FIM-8 modules. Note 2 – Starting Experion LX R120, EtherNet/IP is implemented as a licensed option for the C300 controller. A single license is required (per C300 or redundant pair) to enable the C300 EtherNet/IP functions and features.	

4.17. Advanced Alarm and HMI Features

Below list covers various licensed interface and data exchange options. This is in addition to the interfaces and options that are included in Experion LX base software LX-DBASE1, please refer section 4.1 for more details.

Model Number	Description
LX-AEPAGE	Alarm Pager
LX-DASENB	Dynamic Alarm Suppression
LX-ALMTND	Alarm Tracker
LX-SVALGP	Alarm Shelving
LX-PZE000	Station Pan and Zoom, Per Server
LX-ADSP01	Advanced HMIWeb Solution Pack
LX-SVALDS	Alarm DSA Report

4.18. Experion Backup and Restore (EBR)

Below list covers various licensed EBR components.

Model Number	Description
EP-BRSE06 [1]	Experion Backup-Restore R520 Server License
EP-BRWE06 [2]	Experion Backup-Restore R520 Workstation License
EP-BRM520	Experion Backup-Restore R520 Media Kit [3]
EP-BRM520-ESD	Experion Backup-Restore R520 Media Kit (Electronic Delivery – Default)

Note 1- One Server License is required for each computer with a server operating system that will be backed up in Physical environment. When using workstation for LX server node under ‘standard capacity’ systems, use EBR workstation license.

Note 2- One Workstation License is required for each computer with a workstation operating system that will be backed up in Physical environment

Note 3- One EBR Media Kit (physical or electronic delivery) is required with each EBR system.

Note 5- Both EBR R501 and R520 versions are supported with Experion LX R520. However we recommend all new systems to buy EBR R520.

4.19. Migration Paths and Upgrade Options

Experion LX offers off-line migration path from previous Experion LX releases. Below list covers various upgrade units that are required for upgrading any previous LX release to LX R520. These upgrade units are required in appropriate quantities along with necessary Experion Media kit(s) [depending on number of migration steps], Operating System and Microsoft SQL licenses. Please contact your Honeywell account manager for more details.

Model Number	Description	Used for
LX-UPANR1	Experion LX Upgrade Unit – Release minus 1	Upgrades from Experion LX R51x to R520
LX-UPANR2	Experion LX Upgrade Unit – Release minus 2	Upgrades from Experion LX R120, R110, R500 and Experion LS^3 R3xx, R4xx to R520

Note 1 – Upgrade units based fee structure is introduced with Experion LX R500 onwards. Upgrade to LX R120 and previous releases don't require upgrade units.

Note 2 – Experion LX R10x systems require two step migration path, first from LX R10x to R11x system and then R11x to R520 using upgrade unit fee structure.

Note 3 – Experion LS to LX R520 upgrade would also need purchase of C200 control process solver license, see section 4.5

5. Glossary

Term or Acronym	Description
C300	A specific type of Honeywell Process Controller based on the series 8 form factor
UOC	Unit Operations Controller, a specific type of Honeywell Process Controller based on the compact ControlEdge Rack form factor
C200/ C200E	A specific type of Honeywell Process Controller based on HPM rack form factor
CDA	CDA Control Data Access is the Experion LX system communication infrastructure and data access interface schema that provides application integration with Experion LX system objects.
DCS	Distributed Control System
DSA	Distributed System Architecture
Experion LX Server	The node (optionally redundant) at the heart of Experion LX. The servers encompasses a wide range of subsystems including history collection, SCADA interfaces, alarm/event, etc.
FTE	Fault Tolerant Ethernet, the Experion LX control network
HMI	Human machine interface
HMIWeb	Human machine interface based on Web Technology
HTML	Hypertext Markup Language
OPC	Series of standard specification for open connectivity in industrial automation originally based on Microsoft's OLE COM and DCOM technologies.
ControlEdge PLC	Honeywell's new PLC for fast logic applications supporting IEC 61131 programing language
FSC	Fail Safe Controller
pps	Parameters per second
RTU	Remote Terminal Unit
SCADA	Supervisory control and data acquisition
SM	Honeywell Safety Manager
HC900	Honeywell process automation controller
LAN	Local area network based on Ethernet technology
SQL	Structured Query Language
ODBC	Open DataBase Connectivity
UTC	Universal Coordinated Time

For More Information

Learn more about how Honeywell's Experion LX can improve your HMI and SCADA experience, visit process.honeywell.com > Experion LX or contact your Honeywell Account Manager, Distributor or System Integrator.

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LX03-200-520
February 2022