Technical Information

Honeywell

Experion Station Specification

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Revision History

Revision	Date	Description
0.1	June 2006	Preliminary publication
1.0	July 2006	Release publication
1.1	November 2006	Minor updates
2.0	April 2007	Updated for R301

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1. Product Introduction

1.1. Experion System

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

1.2. Architecture Overview

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

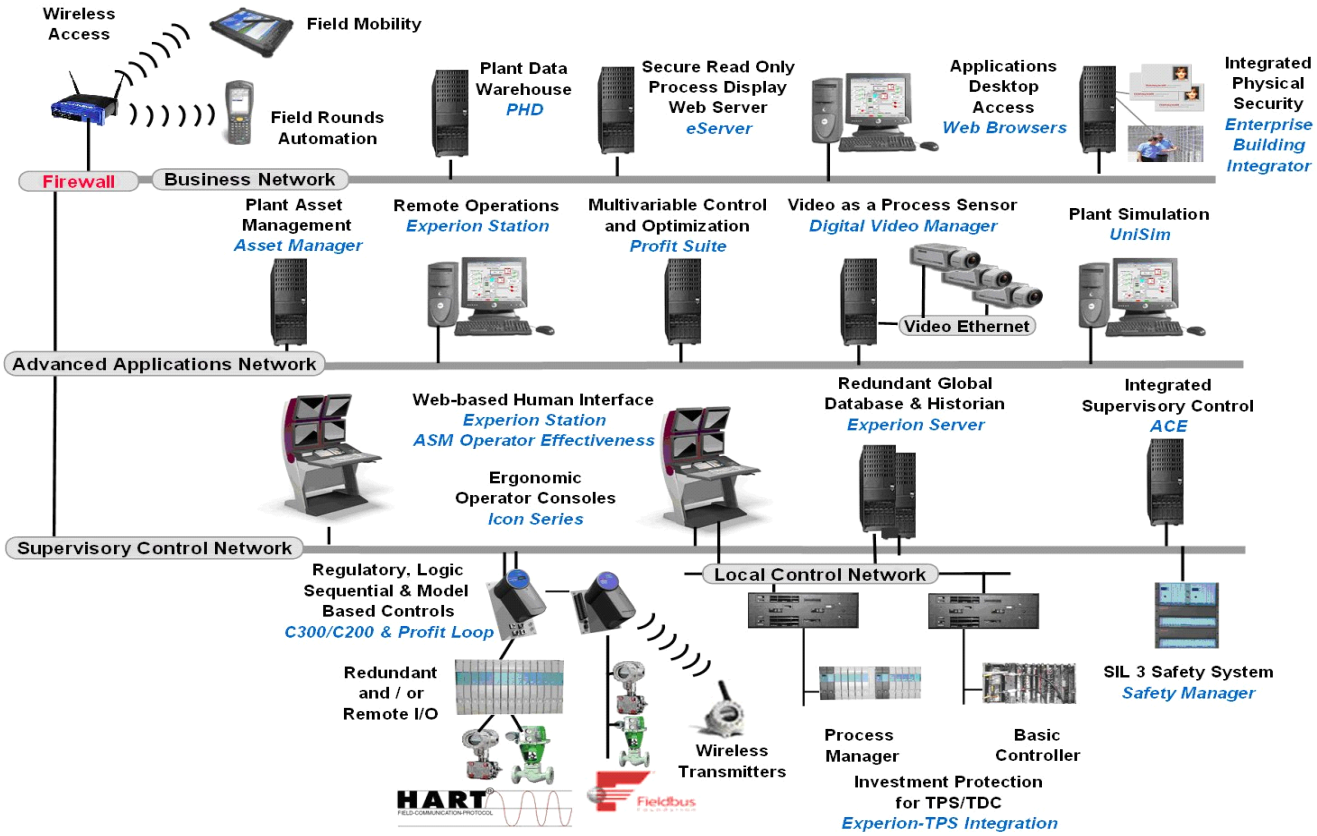

Figure 1. Sample Experion architecture

1.3. Experion Station Overview

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

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

All Experion Station types use the same operator interface and share the general feature set for consistent operation regardless of node. 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 Stations. All types can be implemented as desktop models or fitted in Icon legacy furniture (such as Z or classic styles) or custom furniture. All types host the Experion engineering tools that comprise the Configuration Studio application. Each Experion Station type includes additional functionality as described in the following tables.

Experion Station – Flex	
Abbreviation	ES-F
Description	The ES-F is a versatile operator interface that uses a client-server relationship to present process data to the operator. It is suitable for full-time operations in a large percentage of applications and can also be used as engineering or wireless Stations.
Details	• The ES-F can be configured with a static or rotary connection. A static connection provides a permanent, dedicated link. A rotary connection provides an “as required” connection, enabling numerous casual users to access the Experion system as needed, which is advantageous from a licensing point of view. For example when 40 Station connections are configured, 40 connections can be established at one time but the software could be installed and be available to many more than 40 individuals. • Casual users can view Station displays using Microsoft’s Internet Explorer (IE).

Experion Station – Console	
Abbreviation	ES-C
Description	The ES-C provides direct access to process data, alarms and events from control sources such as C200 and C300 controllers, Fieldbus Interface Modules (FIM), IO Link Interface Modules (IOLIM), and ACE nodes. This provides a high-availability operations platform for critical processes.
Details	• The ES-C is 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 ES-C 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.

	Experion Station – TPS
Abbreviation	ES-T
Description	The ES-T provides direct access to process data, alarms and events from Honeywell's TPS LCN in addition to direct access to the control sources supported by the ES-C. This provides a high-availability operations platform for critical processes, unifying the TPS and Experion systems.
Details	• Information from TPS is supported on Experion Alarm, Event, and Message Summary system displays and HMIWeb custom displays, providing a fully integrated operating environment. • Native Window and GUS graphics are supported allowing the ES-T to be used as both a Universal Station and GUS replacement. • ES-T and ES-Cs cannot be combined on one server. • The ES-T requires an Experion server – TPS (ESVT). The exception is if Universal Station Native Window-only functionality is used: in this case an ESVT is not required. • The ES-T is 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 ES-T 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. ES-Ts can operate in a logical console with GUS and Universal Stations.

Experion Station – Console Extension	
Abbreviation	ES-CE
Description	The ES-C can have low cost Station clients connected to it called Experion Station–Console Extensions. The ES-CE inherits the console functions of its parent ES-C and receives all of its data, alarm, and events from its parent ES-C.
Details	• Users can configure operator consoles with at least one ES-C (two is recommended for redundancy reasons) and fill out the remaining Stations with ES-CEs to achieve cost savings while maintaining robustness requirements. • Like the ES-C, the ES-CE supports the implementation of a "logical console". A combination of ES-Cs and ES-CEs connected to the same server can be grouped together to form a logical console.
TPS Integrated	• Even though no direct LCN connection is available with the ES-CE, the ES-CE can connect to an ES-T and be used with LCN-based systems. • Only one (1) Native Window is available for sharing between the ES-T and the ES-CEs that are connected to it.

2. Specifications

2.1. Station Sizing

Limits shown here apply to the number of Station types available for a single Experion server. Multiple Experion servers can be combined into a single operational system.

Station and Server Type	Maximum
Experion Server	
Total Experion Stations (ES-F + ES-C + ES-CE)	40[1]
ES-C	11
ES-C + ES-CE	20
ES-CE	0 to 3 per ES-C
Experion Server – TPS (ESVT)	
Total Stations (ES-F + ES-T + ES-CE)	40[1]
ES-T	20[2]
ES-T + ES-CE	30[3]
ES-CE	0 to 3 per ES-C

Note 1 – The number of ES-F nodes that can be supported is limited by the Experion server data access performance (parameter per second that can be supplied by the server). The total number of parameters per second (pps) for all ES-F nodes for any data source should not exceed the limits in the Server Data Access Acquisition Performance table in the Experion Server Specification.

Note 2 – Up to 20 ES-T nodes are supported when no C200 or C300 controllers are connected, otherwise the limit of 11 ES-T (consistent with number of ES-C per server) applies.

Note 3 – Up to 30 ES-T + ES-CE are supported when no C200 or C300 controllers are connected, otherwise the standard limit of 20 ES-T + ES-CE applies.

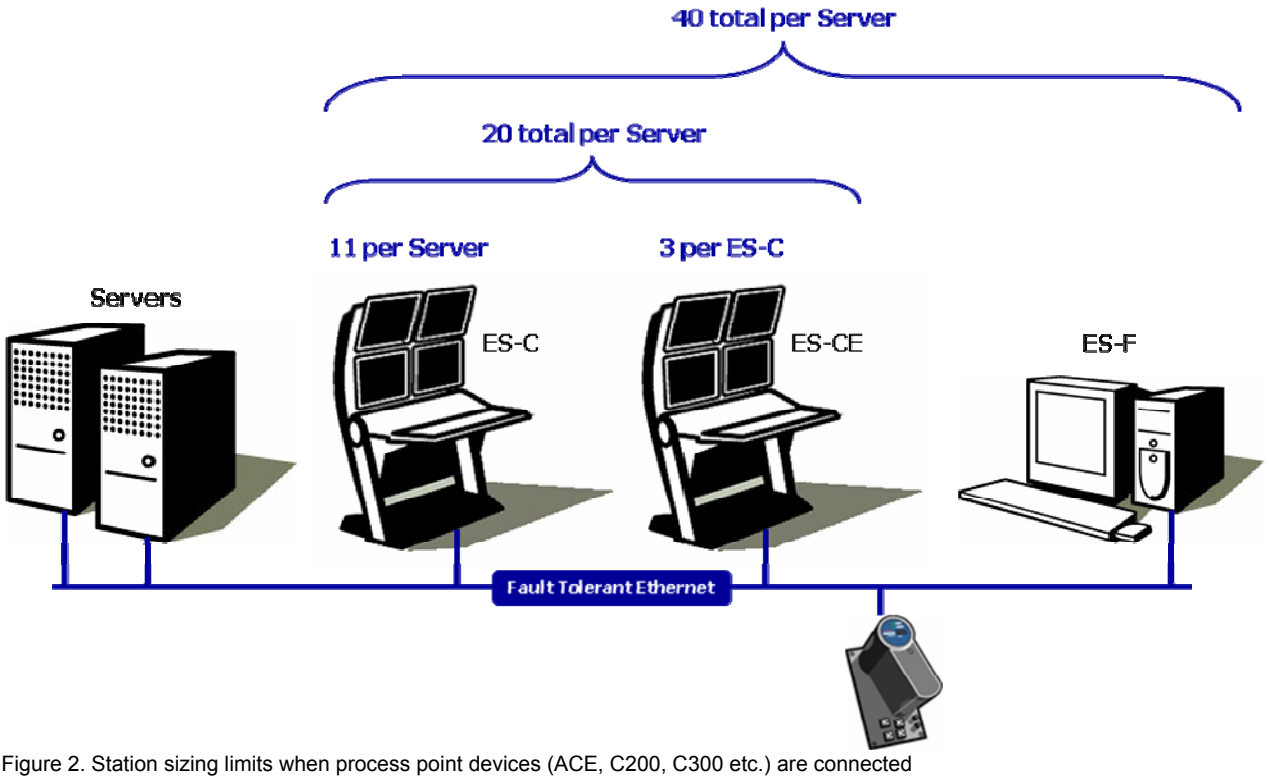

Figure 2. Station sizing limits when process point devices (ACE, C200, C300 etc.) are connected

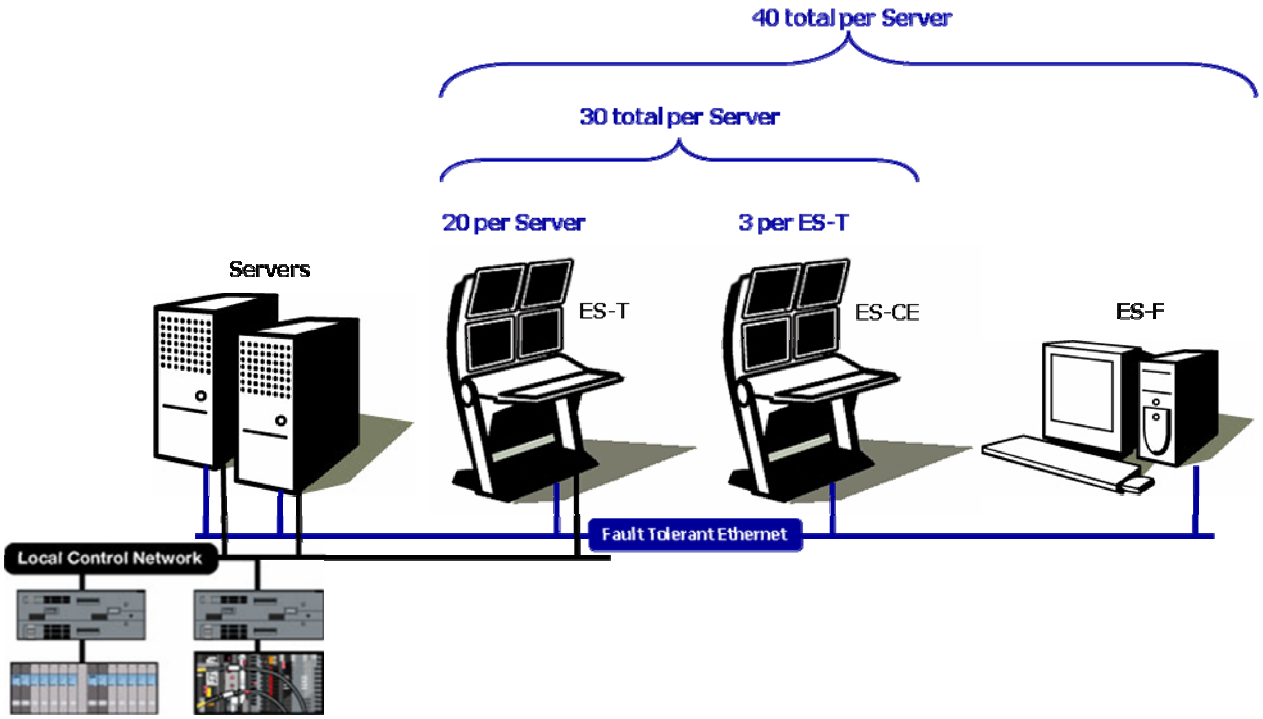

Figure 3. Station sizing limits for the ES-T when no C200 or C300 controllers are connected

2.2. Station Display Performance

Station Display Performance Specifications	Specification
Display Parameters	
Number of dynamic parameters per display[1]	700 or fewer
Number of parameters per second (pps) per Station computer[2]	1,000/sec
Number of dynamic parameters per Station computer[3]	1,500 or fewer
Display Updates	
Maximum display update rate[4]	1 second
Typical field change to display update time with 700 or less parameters per display	< 2 seconds
Typical non-complex display call up time with 100 or less parameters[5]	< 1 second
Typical complex display call up time with 200 or less parameters[5, 6]	< 2 seconds

Note 1 – For displays above 300 dynamic parameters, Honeywell recommends the Performance Station computer (see section 3.1 “Experion Station Computer Requirements” on page 10).

Note 2 – An ES-T can support a maximum of 1600 pps from the LCN including the data supplied to any connected ES-CEs.

Note 3 – When more than 1,000 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; a non-complex display uses standard HMIWeb Display Builder objects with limited use of scripts; this excludes the first initial call up.

Note 6 – Complex displays are defined by the number of data bound objects identified, large amount of total objects on the display, and a significant amount of scripting; includes custom faceplates and popups; assumes performance platform; this excludes the first initial call up.

2.3. Multi-Window Functionality

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

Description	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 an ES-T, the number of windows includes faceplates, custom display, Experion System displays, GUS, and up to 1 Native Window display. 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.

3. Hardware and Software Requirements

3.1. Experion Station Computer Requirements

A computer must meet the following specifications to be used as an Experion 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. Honeywell computers carry full support as a qualified offering. For installation information on computer platforms, including physical, electrical, corrosion, and other environmental requirements, please consult the Honeywell installation guides.

Minimum Experion Station computer – This is the minimum computer platform capable of running Experion Station components. This platform should only be used for single screen monitoring scenarios involving low complexity graphics.

Typical Experion Station Computer – This is the typical computer platform capable of running Experion Station components. This platform typically has a single or dual screen arrangement and uses graphics that are of medium complexity (up to 300 data bound objects, limited use of display scripting, etc.) to large complexity (up to 700 data bound objects, heavy use of display scripting, etc.). However, if operators expect intensive periods of switching displays in a rapid fashion (calling up more than 2 displays in 5 seconds), the performance computer platform is recommended.

Performance Experion Station Computer – This computer platform is used for demanding applications involving complex graphics (up to 700 data bound objects, heavy use of display scripting, etc.) that were built within documented guidelines. This platform may use single, dual, triple or quad screen configurations. This computer platform is recommended when operators expect intensive periods of switching displays (particularly large, complex displays) in a rapid fashion (calling up more than 2 displays in 5 seconds).

ES-F and ES-CE Requirements			
System Configuration	**Minimum**	**Typical**	**Performance**
Processor	3.0 GHz Pentium IV or faster	3.4 GHz Xeon or faster	2.66 GHz Xeon dual core or faster
RAM	512 MB	1 GB	1 GB
Networking[1]	100 Mbps Ethernet or FTE		
Video resolution	1024 x 768 or 1280 x 1024 (standard) 65K colors		
Video memory (VRAM) per channel	32 MB	32 MB	32 MB
Operating system	Windows XP SP2 Professional (32-bit)		
Hard drive	20 GB	40GB	80 GB
Example platforms[2]	MZ-NTPC63 (based on Dell Precision WS470) MZ-NTPC31, MZ-NTPC32 (based on Dell Precision WS360, WS370)	MZ-PCWS30 (based on Dell Precision WS490) MZ-NTPC63 (based on Dell Precision WS470)	MZ-PCWS30 (based on Dell Precision WS490)
Note 1 – 10 Mbps Ethernet Network between servers and Stations is not officially supported, although it may perform acceptably on small systems. Note 2 – For further information on Honeywell computer platforms, see their respective specifications..			

ES-C and ES-T Requirements			
System Configuration	**Minimum**	**Typical**	**Performance**
Processor	3.0 GHz Pentium IV or faster	Dual 3.4 GHz Xeon or faster	Dual 2.66 GHz Xeon dual core or faster
RAM	1 GB		
Networking[1]	FTE		
Video resolution	1024 x 768 or 1280 x 1024 (standard) 65K colors		
Video memory (VRAM) per channel	32 MB	32 MB	32 MB
Operating system	Windows XP SP2 Professional (32-bit)		
Hard drive	80 GB (IDE/ATA)		
Optional LCN connection[2]	LCNP4 interface board		
Example platforms[3]	MZ-NTPC63 (based on Dell Precision WS470) MZ-NTPC31, MZ-NTPC32 (based on Dell Precision WS360, WS370)	MZ-PCWS30 (based on Dell Precision WS490) MZ-NTPC63 (based on Dell Precision WS470)	MZ-PCWS40 (based on Dell Precision WS490)
Note 1 – For CDA devices, ES-Cs can only communicate directly with devices that reside in the same FTE Community. Note 2 – ES-T is only qualified with Honeywell computer platforms. Performance platforms are recommended for ES-T implementations because of the multiple displays and additional TPS components running on the platform. Minimum and Typical platforms are adequate for low graphics complexity or “Native Window only” usage. Note 3 – For further information on Honeywell computer platforms, see their respective specifications.			

3.2. Minimum TPS System Specifications for ES-T

Parameter	Specification
Minimum APP	APP R230 if APP exists on target TPN
Minimum GUS	GUS R340 if GUS exists on target TPN
Minimum TPN release	TPN R641.2 or later

4. Model Numbers

4.1. Experion Station – Flex

Model Number	Description
EP-STAT01	Experion Station – Flex (1 connection)
EP-STAT05	Experion Station – Flex (5 connections)
EP-STAT10	Experion Station – Flex (10 connections)
EP-SMWIN1	Multi-window support, per computer platform
One ES-F license is delivered with the Experion base software license.	

4.2. Experion Station – Console

Model Number	Description
EP-STAC01[1]	Experion Station – Console (1 connection)
EP-STAC05[1]	Experion Station – Console (5 connections)
EP-STAC10[1]	Experion Station – Console (10 connections)
EP-CONTPS[2]	Experion Station TPS Enabler, per Console Station

Note 1 – Includes multi-window support. Requires an FTE network.

Note 2 – This option plus an Experion Station – Console license creates the Experion Station – TPS (ES-T). The computer must be a Honeywell computer platform with a Honeywell LCN interface (TP-LCNP02). An ES-T can optionally be used without an ESVT for “Native Window only” functionality. ES-Ts, when used with Experion require an ESVT. An ESVT does not support ES-Cs.

4.3. Experion Station – Console Extension

Model Number	Description
EP-STACEX	Experion Station – Console Extension
Includes Multi-window Support. ES-CEs can connect to ES-C or ES-T.	

4.4. Experion Station – TPS (ES-T) and ES-CE Options

Model Number	Description
EP-DSS000[1]	GUS display runtime for Experion
EP-MDS000[2]	GUS multiple displays for Experion
EP-GPT000[3]	GUS Display Builder for Experion
EP-RNW000[4]	Remote Native Window client for Experion
EP-FLT000[5]	File transfer for Experion
EP-RGC000[6]	GUS remote displays client for Experion

Note 1 – One required for each ES-T where GUS displays are used; it includes one GUS display, the HMI client add-in package that allows GUS displays to act as an OPC data access client and remote GUS server.

Note 2 – One required for each ES-T or ES-CE where multiple GUS graphics are used. On an ES-T with no remote GUS display clients up to 8 GUS displays can be shown concurrently. On an ES-T with remote GUS display clients up to 4 GUS displays can be shown concurrently. On an ES-CE connected to an ES-T up to 4 GUS displays can be shown concurrently.

Note 3 – One required for each computer. Can run both online and offline.

Note 4 – One required for each computer. The Native Window is not available on the host computer when being used remotely.

Note 5 – One required for each ES-T, ESVT and ACE-T where file transfer is used. The file transfer client can be used on any computer; no license is required for the client.

Note 6 – One required for each ES-CE where GUS displays are used.

4.5. Experion Station Hardware

Model Number[1]	Description
MZ-PCWS30	Operator Station with Windows XP, single processor
MZ-PCWS40	Operator Station with Windows XP, dual processor
MZ-PCEM03	1 GB memory expansion module
TP-LCNP02	Honeywell LCN connection - required for LCN-connected ES-C (ES-T)
NE-NICS01	FTE dual port communication board, 100 Mbps
MZ-PCEB23	Ethernet communication board, 100 Mbps for Station
MZ-QUAD04	Quad display video card, 32 MB per channel
TP-DFP191[2]	Desktop 19” flat panel display
TP-DFP202[2]	Desktop 20.1” flat panel display
TP-DFT202[2]	Desktop 20.1” flat panel display with touch screen
TP-FPD211[2]	Desktop 21.3” flat panel display
TP-DSOEP1[2]	Desktop Operator Entry Panel
TP-DIKBNA	Desktop Integrated Keyboard w/o trackball
TP-DIKBTA[2]	Desktop Integrated Keyboard with trackball
TP-OPADP1[2]	Operator Entry Panel adapter to com port
TP-DUIKBN[2]	Desktop Integrated Keyboard w/o trackball, USB interface
TP-DUIKBT[2]	Desktop Integrated Keyboard with trackball, USB interface
MZ-PCDD06[2]	Trackball with PS-2 connector
TP-ICEKB1[2]	Industrial CE-Mark QWERTY keyboard
TP-ICEMS1[2]	Industrial CE-Mark mouse
EP- EPKY01[2]	Experion keyboard overlay

Note 1 – For further information on Honeywell computer platforms, see their respective specifications.

Note 2 – These models are for desktop operator interfaces. Honeywell Z, EZ, Classic, and Icon Series Consoles are also available.

5. Glossary

Term or Acronym	Description
ACE	Application Control Environment. Experion controller node hosted on a server-grade computer platform. The ACE node is ideally suited for supervisory control solutions and integration with third party control systems.
C200	A specific type of Honeywell Process Controller
C300	A specific type of Honeywell Process Controller based on the series C form factor
CDA	Control Data Access is the Experion system communication infrastructure and data access interface schema that provides application integration with Experion system objects.
DCS	Distributed Control System
DSA	Distributed System Architecture
ES-C	Experion Station – Console
ES-CE	Experion Station – Console Extension
ES-F	Experion Station – Flex
ES-T	Experion Station – TPS
ESVT	Experion Server – TPS
Experion server	The node (optionally redundant) at the heart of Experion. The server encompasses a wide range of subsystems including history collection, SCADA interfaces, alarm/event, etc.
FIM	Foundation Fieldbus Interface Module
FTE	Fault Tolerant Ethernet, the Experion control network
GUS	Global User Station
HMI	Human-machine interface
HMIWeb	Human-machine interface based on Web technology
HTML	HyperText Markup Language
Icon Series	Flat screen technology hardware console
IKB	Integrated Keyboard
IOLIM	IO Link Interface Module. Services and processes all communications between the Experion Controllers and Process Manager I/O (PMIO)
LCN	Local Control Network
pps	Parameters per second
SafeView	SafeView is used to control the characteristics of and access to windows within the Microsoft Windows workspace. It is used in conjunction with Station to provide a multi-window Station.
SCADA	Supervisory control and data acquisition
TPN	TotalPlant® Network
TPS	TotalPlant Solution (TPS) system

For More Information

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Automation & Control Solutions
Process Solutions
Honeywell
2500 W. Union Hills Dr.
Phoenix, AZ 85027
Tel: 877.466.3993 or 602.313.6665
www.honeywell.com/ps

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