企業建築物自動化管理系統

Honeywell



SymmetrE[™]

SymmetrE R500



Figure 1 SymmetrE Architecture

The SymmetrE R500 Architecture emphasizes the BACnet communication protocol. The LonWorks interface with connectivity via LON Routers or Adapters and the C-Bus interface through the BNA or CBNA* are still fully supported.

* Note that CBNA is used for the Americas, while BNA is used in Europe and Asia Pacific

Product Data Summary

System Architecture

Client/server architecture

Microsoft Windows 2012 Standard R2

Windows Server 2012 Standard R2, Windows 10 (64 bit) and Windows 7 (64 bit) for clients

Real-time database

Points: Analog, digital, totalizer, , flexible and container

Architectures

Single server

Networking

Uses industry-standard TCP/IP networking over Ethernet

Flexible station licensing based on the number of simultaneous connections

Controllers may be connected via Ethernet

Remote connections via WAN

Open Systems Support

HTML graphics

LonWorks - LonMark standard (ANSI/CEA 709.1)& IzoT 4.02

BACnet - ASHRAE BACnet standard (SSPC 135-2012) B-OWS Profile

OPC - OLE for Process Control

- OPC Data Access 2.0
- OPC Alarm and Event 1.02

Modbus, Modbus RTU, Modbus TCP ODBC database access

Operator Interface

Station and HMIWeb Browser

Windows Server 2012 Standard R2, Windows 10 (64 bit) and Windows 7 (64 bit)

Internet Explorer 11

Use Station Client software or Internet Explorer Browser

- Over 300 preconfigured standard displays
- 1000 Standard Trends
- User configurable object-based custom displays
- Designed for display resolution of 1280 x 1024 or higher
- Embed live video
- Embed SafeBrowse™ for secure Internet/intranet integration
- ActiveX animation using VB Scripts
- 3rd Party document integration
- Launch Windows applications directly from displays
- Easy point search with wildcard support
- Cut, copy, and paste facilities for easy editing of text
- User input devices include keyboard, mouse, trackball (optional), touchscreen (optional)
- Using Windows Terminal Services support for up to 5 mobile Stations on PDAs

Easy Mobile

Designed to support unlimited connections and tested to support over 300 concurrent users.

- AJAX base client, with no ActiveX/JVM to install
- Designed for GPRS 2.5 and 3G. Operable over any LAN and WAN IP connection
- Zero footprint. Compatible with all Ajax compatible browsers (safari, IE, Firefox, Nokia, Blackberry)
- Wildcard Point search return first 60 matching points
- Support for 40 most recent alarms
- Integrated operator security

- Point Faceplate allows live updates, Point control and alarm acknowledgement
- Point faceplate links to trend widget showing SymmetrE historical data in simple convenient trend with fast, recent and shift historical data displayed

Mobile tablet access

- Full remote SymmetrE Station access with tablet device
- iPad®, Android®, Windows® compatible
- Optimized mobile productivity & situational awareness & faster response time

Operator Security

- Six levels of access to system functions:
- View Only
- Acknowledge Only
- Operator
- Engineer
- Supervisor
- Manager
- Up to 255 control levels for operator-initiated actions
- Automatic idle time logout
- Prompt for periodic change of passwords
- Events logged by operator ID or full operator name
- Individual operator profiles including Scope of Responsibility (SOR)
- Effective data partitioning of facility into different locations
- Command assignment to control different output states

- Operator sign-on can be restricted to certain Stations and certain times
- Automatic change of Scope of Responsibility by time
- Use Windows operator accounts or Windows Group Accounts for authentication in SymmetrE

Real-time Database

- Database partitioning into a hierarchy of locations (up to 10 levels deep)
- Point groups

Event-initiated programs include:

- Arithmetic calculations
- Logic calculations
- Composite hierarchical point alarming
- Report, task or display request activated by access card or status change
- Group point control
- Location or group alarm inhibit

Alarm Management

Configurable color-coded alarm summary display page with filtering by alarm priorities and area

- 2000 concurrent alarms in alarm list, each with a count available for number of times occurred since last acknowledgement
- Four levels of alarm priority with fifteen subpriorities
- Sort and filter alarms, add comments to alarms
- Alarm segregation through database partitioning
- Location tree summary of alarms
- Alarm parameters can be adjusted on-line
- Dedicated alarm zone displays most recent highest priority alarm

- All alarm and return-to-normal conditions logged in event summary
- Individual or page acknowledgment of alarms
- Automatic link to optional alarm instruction page or associated display page
- Alarm handling responses logged into event summary
- Additional messages can be attached to an alarm
- Alarm acknowledge (writes through to controller)
- Individual alarm prioritization of different input states for the same point
- Single line alarm processing (recurring individual alarms can be displayed as a single alarm with a count)
- Alarms and events can trigger reports
- Alarm annunciation can use custom sound files (*.wav)
- Automatic alarm priority elevation if alarm unactioned
- Alarm shelving to temporarily prevent distracting alarms

Analog point alarm types include:

- PV High
- PV Low
- PV High High
- PV Low Low
- Deviation High
- Rate of Change
- Transmitter High
- Transmitter Low

Alarm Pager

- Transmits alarms to pagers using PET, TAP or UCP protocols. This enables SMS alerts to be sent to Mobile Phones.
- Transmits alarms to email using SMTP
- Transmits alarms to SNMP managers as SNMP traps.

Events

System events created for all:

- Operator changes
- Point state changes
- Alarms
- Alarm acknowledgment
- Manual controls
- And for many other system activities
- Event file limited only by disk space available
- Simple archiving of events to off-line storage media
- Simple retrieval of off-line events for reporting

Historization

Virtually unlimited historical record of both live and derived data can be stored.

Intervals include:

- 1, 2 or 5 second snapshots
- 1 hour snapshot
- 8 hour snapshot
- 24 hour snapshot
- 6 minute average
- 1 hour average
- 8 hour average
- 24 hour average

Collection is configured per point

Composite point parameters can all be put in history Archive to off-line local or network attached storage

Trends

Multiple formats include:

- 1000 trend displays
- Multi Line (points and events)
- Multi-Line (trend with events)
- Single (bar graph)
- X Y Plot (point plot)
- Numeric (tabular)
- On-line change of trend type
- Up to thirty-two parameters on one trend
- Configurable sample densities
- Configurable sample periods
- Time of interest entry
- Individual pen enable/disable
- Rubber band zoom
- Hairline cursor readout
- Copy and paste trend data to Microsoft Excel
- Embed trends in custom displays

Reports

- Periodic, demandable, or event driven reports
- SymmetrE Standard Reports

Report	Description	Туре
After	Lists all points changing	Crystal
Hours	state matching a certain	
	search criteria occurring	
	over a specified range of	
	time.	
Alarm/Ev	Lists all alarms or events	Crystal
ent	matching a certain search	

	criteria occurring over a	
	range of time.	
All points	Lists all points which match	Crystal
	a specified search criteria.	
Microsoft	Runs a Microsoft Excel	Custom
Excel	spreadsheet.	Report
Point	Lists all information about	Crystal
State	Time Periods matching a	
Changes	specified search criteria.	

Application Development

- Enterprise Web Services collection of APIs that allow custom interfaces, queries or web pages to openly interface with SymmetrE
- Microsoft Excel Data Exchange: Wizard for getting point and history data into Microsoft Excel from SymmetrE
- User Scan Task Kit: allows development of loosely integrated controller interfaces

Quick Builder

- Graphical engineering tool
- Preconfigured typical system databases
- Easy creation of point, hardware, Stations and printers
- Hierarchical system modeling
- Multipoint edit
- User defined fields
- Import/export facility

HMIWeb Display Builder

Object-based display building package with dynamic display objects such as:

- Shapes
- Live Video
- Alphanumerics

- Checkboxes
- Card Image
- Comboboxes
- Pushbuttons
- Charts

Many standard drawing features including:

- Tool Palette
- Color palette
- Alignment
- Group/Ungroup
- Snap to grid
- Zooming
- Resizing objects
- Horizontal and vertical spacing
- Library of commonly used symbols
- Remote engineering support

Internationalization

Support for operator interface in localized languages

Controller Support

Software Options

- Alarm Pager
- Microsoft Excel Data Exchange
- EasyMobile Service

Product Specifications

Server Platform

- Processor: Intel Xeon Quad-Core 1.8GHz (E5-2403 v2 or equivalent)
- Memory: Minimum of 8 GB RAM
- Keyboard: with 12 function keys
- Display Resolution: 1280 x 1024 x 65K colors
- DVDROM Drive
- Network Protocols: TCP/IP
- Pointing Device: Mouse
- Hard Disk: 250 GB drive (NTFS)
- Operating system: Windows 2012 Standard R2
- Browser: Internet Explorer 11

Operator Station (Client) Platform

- Processor: Intel® Core™ i5-4460S 2.9 GHz or higher
- Memory: 4 GB minimum
- Display Resolution: 1280 x 1024 x 65K colors
- Hard Disk: 50 GB drive (NTFS)
- Keyboard: 12 function keys
- Pointing Device: Mouse
- Operating systems: Windows 2012 Standard R2, Windows 10 (64 bit), Windows 7 (64 bit)
- Network Protocol: TCP/IP
- Browser: Internet Explorer 11

Database Sizing:

The SYMMETRE base package includes licensing for 250, 500 or 1000 points.

Additional licensing for points can be purchased in quantities of 250 Point to a maximum of 30,000 points per single SymmetrE Server.

SymmetrE Interfaces

SymmetrE LonWorks Interface

The SymmetrE LonWorks Interface uses the SymmetrE Lon Point Server (LPS) to communicate to LON devices via Echelons' LNS Server. The SymmetrE Lon Point Server can be installed on either the SymmetrE Server PC or on a separate PC and it controls the communication between SymmetrE and LNS and the LonWorks network. See the diagram below for a visual representation of all these components.

SymmetrE showing LonWorks Interface via SymmetrE Lon Point Server (LPS) and Echelon LNS server



Figure 4 SymmetrE Server with SymmetrE Lon Point Server, LNS database showing SymmetrE LonWorks Interface

The SymmetrE LonWorks Interface allows devices based on LonWorks technologies to be interfaced to a SymmetrE Server. The interface allows data to be read from or written to a LonWorks device. This data is read/written as LON Network Variables (NVs) or Configuration Properties (CPs are read only).

If you are using LonWorks Point Server or Excel 5000 via LON, you will need an Activation Key for the Echelon IzoT Network Server (i.e. LNS) software for each machine that will connect to a LonWorks Network. The process for purchasing these keys is documented in the 'LNS Server' section on page 37, but please <u>NOTE that these keys will have some lead time so should be purchased well in advance.</u>

The new IzoT server no longer needs device credits.

The SymmetrE LonWorks interface supports the following Honeywell devices.

- XL10 Variable Air Volume (VAV II) Controller
- XL10 Unit Vent (UV) Controller
- XL10 Constant Volume Air Handling Unit (CVAHU) Controller
- XL10 Fan Coil Unit (FCU) Controller
- XL10 Hydronic (HYD) Controller
- XL10 Chilled Ceiling (CHC) Controller
- XL12
- XL500 (no templates, no alarms, no schedules)
- XL50 (no templates, no alarms, no schedules)

For each of these devices there is a standard template file that defines the device's parameters, and a set of standard detail displays that can be used to graphically display information about the device. Having the standard template and graphic display greatly reduces the engineering effort required to integrate a LonMark device.

SymmetrE R500 is shipped with XML templates and device displays which support the full functionality of these Honeywell devices. In addition, XML templates and device displays that support only the standard set of LonMark functionality (a subset of Honeywell functionality) are also provided.

The SymmetrE LonWorks interface is also able to integrate 3rd party devices that conform to other LonMark functional profiles. Generally these devices should be of a similar complexity to the Honeywell XL10 family of devices e.g. lighting controllers, sunblind controllers, or power meters. To support 3rd party devices a field engineering effort may be required to generate the device description (XML template) and the device detail display however there is a utility called the LonWorks Template Wizard provided by SYMMETRE that converts from LonWorks device profiles (*.xif files) to SymmetrE Template files (*.xml files).

LonWorks Interface Physical Connections

The following physical connections from a SymmetrE Server to a LON Network are supported:

• PCLTA-10 and PCLTA-20 are PC Cards that communicate with the LON Network via a free topology transceiver connection (FTT-10).

SymmetrE Server with PCLTA



Figure 5 SymmetrE Server and Lon Network connected via PCLTA

• Ethernet to LON Bus router, such as the Echelon i.LON 600 router or Loytec L-IP router. This is the recommended way to connect SymmetrE to a LON network.

SymmetrE with i.LON Ethernet to LON Router



Figure 6 SymmetrE Server and i.LON router

LonWorks Interface Limitations

- Dial-Up to LonWorks networks is not supported
- Points in the XL50-LON and XL500-LON are accessible directly through this interface if they are apped to NV's. This access is only for points mapped onto LON NV's and would only be a subset of the information available via the normal Excel 5000 Interface. Other functionality such as Alarming, Scheduling and trending via LON is not supported directly by the LonWorks interface. It is possible to communicate via the Excel 5000 Interface across the LON bus and access the full range of Excel 5000 functionality by using the Excel 5000 Interface. Please see the section on the Excel 5000 Direct Interface (Point Server) below for more information on how to do this.
- There are no standard mechanisms for alarming and scheduling defined by LonMark. In each project please consider whether these are required and how they would be achieved. The SymmetrE LonWorks interface supports alarming definitions in the XML template for each device.
- The SymmetrE LonWorks interface in SymmetrE R500 is provided by the SymmetrE LonWorks Point Server and LNS server. Only one logical LON network can be connected to a single LNS database, but many physical segments can be created by using multiple Ethernet routers. If multiple LON Networks required then multiple LonWorks Point Server / LNS Servers are required. The LonWorks Point Server can be configured to run on a different PC to the SymmetrE Server if required.
- It is possible to segregate a LonWorks system into logical groupings and manage the networks separately. For Example, one LON network representing one office/shop but, manage all remote offices from a single LonWorks Point Server.
- Standard device template files need to be localized to handle local engineering unit conventions and also local language conventions. This may also impact the device detail displays.

Excel 5000 Direct Interface (Point Server)

The Excel 5000 Direct Interface is a newer interface developed using the Point Server technology. The point server communicates to the Excel 5000 controllers and then passes this information up to the SymmetrE core software. The point server only updates information in SymmetrE when the field values are being trended or when they are being viewed on a display. This means that the traffic on the C-bus is much reduced. The Excel 5000 Direct Interface in SymmetrE is designed to perform the same as XBS on a bus designed with the same limitations as XBS system. Unless the system is being upgraded from previous SymmetrE releases, this will be the standard (default) C-bus interface in the base package.

Note: The Excel 5000 Direct Interface and the Excel 5000 (scan task) Interface cannot coexist on the same system.

Excel 5000 Direct Advantages

- Controller based alarming alarms need only to be configured within the Excel 5000 controllers and they will then report their alarm conditions up to SymmetrE. No alarm limits need to be defined in SymmetrE.
- Easy Engineering most of the point engineering is done in CARE. You only need to engineer specific SymmetrE parameters for points within SymmetrE or QuickBuilder.
- Native data point representation points in Excel 5000 controllers are represented in their native format

• Easy upgrade of XBS or XBSi – no bus engineering changes are necessary when upgrading from an XBS or XBSi system to SymmetrE if you use the Excel 5000 Direct interface

Controller Support

The Excel 5000 Direct Interface supports the following controllers:

- XL50 (including XL50 LON)
- XL80
- XL100
- XL500 (including XL500 LON)
- XL600
- O-link
- XL800
- Zone Manager

The Excel 5000 Direct Interface allows SymmetrE to download schedules to the Excel 500, Excel 800 and Excel 50 controllers. This is done through Global Schedules. A Control Location is created for Excel 5000 schedules. When this control location is included in a SymmetrE Global Schedule and downloaded, the schedule will update the relevant schedule within the controllers.

The Excel 5000 Direct Interface, because it is a point server interface, can reside on a PC other than the SymmetrE Server PC. It is also possible to have multiple Excel 5000 Direct Point Servers on the one single SymmetrE system. This is similar to the way Networked XLNet Nodes operate with the older Excel 5000 (scan task) interface.

Up to 10 Excel 500 (or 800) Point Servers can connect to a single SymmetrE Server.

Excel 5000 Direct Physical Connections

The following types of physical connections are supported from a PC running the Excel 5000 Direct Interface:

- LON Connection via i.LON router or PCLTA for controllers which support a LON connection
- Ethernet-connected Building Network Adaptor (BNA-1CS or BNA 2CS) to C-bus
- XPC500 card to C-bus (existing systems only)

LonWorks Connection

It is possible to communicate to the Excel 500 and Excel 50 controllers via a physical LON bus. The communication still uses the SymmetrE Excel 5000 Direct Interface and the C-bus protocol but the physical connection to the devices is via a LON bus. In this way, SymmetrE can access schedules and alarms as well as point values in these controllers i.e. do anything that was possible across a C-bus directly excluding firmware downloads. This communication is achieved by "tunnelling" C-bus protocol messages through a physical LON communications bus. This functionality is part of the Excel 5000 Direct Interface. However, the devices and LON network must still be configured through a LON tool such as LonMaker or CARE that has an LNS database. In order to configure the LNS database, you will need LNS device credits. These can be purchased as part of LonMaker (they are included in LonMaker device credits) or when you purchase CARE or you can purchase them through the SYMMETRE specifier by selecting the "LNS and 1 LNS device credit" option. You only need

LNS to define the physical LON network: devices and routers. You do not need to define any LON NVs or CPs if you are accessing the Excel 5000 devices through the SymmetrE Excel 5000 Direct Interface only.

You can also communicate to the XL500-LON and XL50-LON devices via the SymmetrE LonWorks Interface (through the SYMMETRE LON Point Server) as described in the previous section. The SymmetrE LonWorks Interface is a licensed option in SymmetrE R500. You can install the SymmetrE LON Point Server if you already have LNS installed. This allows you to bind data in the controllers to NVs or CPs and bind data between different LON controllers. It is not possible to access alarms or schedules in the controller through the SymmetrE LonWorks Interface.

In summary, if the system is only communicating with Excel 5000 controllers and is only using the LON bus as the physical transport, then you only need the Excel 5000 Direct Interface. If, however, you are mapping Excel 5000 points into LNS for the purposes of using them as part of a LON system, then you need the SymmetrE LonWorks Interface as well (which comes as part of the SymmetrE base software).



SymmetrE Excel 5000 Direct interface via LON

Figure 8 SymmetrE with Excel 5000 Direct Interface connecting via LON

BNA Connection

Honeywell produces a device called the Building Network Adaptor (BNA) that allows a C-bus to be connected directly to Ethernet. The BNA acts as a kind of terminal server allowing an Ethernet connected SymmetrE system to communicate with Excel 5000 controllers on a C-bus.

SymmetrE R500

Two models of Honeywell Building Network Adaptor (BNA) are now available to connect Excel 5000 controllers to SymmetrE via Ethernet: the BNA-1CS, which has a single C-bus connection (Q7055C1009), and the BNA-2CS (Q7055C1017) that has two C-bus connections. These devices are capable of C-bus communications up to 76,800 baud. Currently, there is a nominal limit of 20 BNAs per Excel 5000 Direct Point Server or NXN PC. By adding an additional PC running the Excel 5000 Direct Point Server, you can effectively add another 20 BNA connections. The C-Bus BNA is listed for use in a UL Smoke Control System provided all networking guidelines for UL systems are met.



SymmetrE and Excel 5000 Direct via BNA

Figure 9 SymmetrE with Excel 5000 Direct Interface connecting via BNA

XPC500 Connection

This has been withdrawn from sale with SymmetrE R500. It is only available with upgrades

Serial connection

This old legacy interface has been removed from SymmetrE R500.

Excel 5000 Dialup

Warning! Projects that require Dialup functionality must use the new Excel 5000 Direct Dialup feature. Excel 5000 (scan task) Dialup connections are no longer available in SymmetrE R500.

Dialup via Excel 5000 Direct

The Excel 5000 Direct Dialup interface is used where Excel 5000 controllers are geographically remote from the SymmetrE Server and the LAN or WAN it connects to. With Excel 5000 Direct Dialup, the SymmetrE Server and the Excel 5000 controller communicate with each other via modem and the Public Switched Telephone Network (PSTN).



Figure 10 SymmetrE Excel 5000 Direct Dialup Architecture

Benefits of using Excel 5000 Direct Dialup vs. Excel 5000 Scan Task Dialup:

- The XPC500 card is no longer required
- Windows modems are supported (example: COM port or USB modems)
- Possible to use wider range of communication mediums (examples: PSTN, ISDN, GSM, or Radio)

LNS Server

In order to configure LON devices for use with the SymmetrE LonWorks Interface, an Echelon LNS Server is required.

The Echelon IzoT Net Server replaces LNS Turbo (3.2) that was used in the previous release of Symmetre. Symmetre R500 will automatically install the IzoT Net Server.

The IzoT Network Server (i.e. LNS) software is being used for each machine that will connect to a LonWorks Network. An Activation Key is required. This key comes with one or more product licenses. Activation Keys can be purchased via the Echelon website. Click the BUY NOW link at <u>http://www.echelon.com/products/net-server/izot</u> and use their eStore to purchase an OPENLNS SERVER STANDARD KEY (part number 38200-400).

The process for purchasing these keys is also documented in the SymmetrE R500 Software Release Bulletin. Please <u>NOTE that these keys will have some lead timeso should be purchased well in advance.</u>

For systems with LNS Server upgrading to SymmetrE R500, the LNS server will be removed with a note to remind the user that they need to purchase a copy of IzoT Net Server locally.

Note: If using LNS Server, you are bound by the license agreement for LNS Server from Echelon. This is shown at the end of your SymmetrE license certificate.

Open Systems Interfaces

Microsoft Excel Data Exchange

Excel Data Exchange is a Wizard provided to work in conjunction with Microsoft Excel to retrieve information from the SymmetrE database. The information that is available from SymmetrE is point value information.

Microsoft Excel Data Exchange supports the following:

- Read/write access to point data, user tables and history
- The use of Wizards to help the user set up the data to be accessed from the SymmetrE Server
- Point IDs can automatically be displayed
- The Point Parameter can automatically be displayed
- Historical records can be selected by date and time as well as an offset
- Data can be updated either periodically or as a snapshot
- Data can optionally be displayed either vertically or horizontally

BACnet Direct Client

Starting with SymmetrE R500 the BACnet Direct Client is included in the base packages for free. For systems upgrading to R500 it can be ordered as an additional option. SymmetrE BACnet support provides extensive BACnet Operator Workstation functionality (BACnet Direct Client) and enhanced BACnet Gateway functionality (BACnet Server). The BACnet Direct Client enables SymmetrE to provide a "view" into a system with a number of BACnet devices or gateways. SymmetrE can be used to present this information on graphics displays or consolidate information into reports. The BACnet Direct Client in SymmetrE R500 provides support for an increased range of BIBBs (BACnet Interoperability Building Blocks) including support for intrinsic alarms.

The BACnet Direct Client is a Point Server interface. This enables BACnet objects to be "discovered" automatically by the SymmetrE. By entering the name of the BACnet object, SymmetrE will then scan the network for an object matching that name. This greatly reduces engineering effort when configuring a BACnet system.

If you order the BACnet Direct Client, you will be licensed to use both the BACnet Direct Client (point server) and the existing BACnet Client (scan task) (as used on SYMMETRE R110 and SYMMETRE R100). It may be useful to use the old BACnet Client with devices that do not support intrinsic alarming since you can then use standard SymmetrE point alarming. The BACnet Direct Client supports the setting of command priorities.

For details about BACnet conformance, please obtain a copy of the latest BACnet PICS statement from your local Product Managers.

BACnet Direct Client



Figure 12 SymmetrE BACnet client

BACnet Server

A BACnet Gateway (BACnet Server) is a system or device that can provide status, value and alarm information in a BACnet format to other systems. The SYMMETRE BACnet Server can act as a BACnet Gateway and provide information about all its controllers to another BACnet client in the BACnet format. This enables other BACnet compliant systems to see all point data in SymmetrE as the SymmetrE BACnet Server can make this available.

BACnet Conformance

The ASHRAE BACnet standard defines a Protocol Implementation Conformance Statement (PICS) that defines the BACnet capabilities for a product.

The latest BACnet PICS statements for both the SymmetrE BACnet Direct Client and SymmetrE BACnet Server are available. For details about BACnet conformance, please contact your local product manager for the latest BACnet PICS statement.

When using BACnet to communicate with other devices or systems, you will need to review the SymmetrE PIC statement in conjunction with the PIC statement about the other devices or system to ensure compatibility. Please review these statements carefully for exact BACnet compliance.

Both the SymmetrE BACnet Direct Client and BACnet Server support BACnet over IP.

Note: 1) BACnet has been successfully used to communicate with the Webs (Tridium) JACE V controller.

2) SymmetrE Excel 5000 Direct interface automatically creates BACnet Server representations of Excel 5000 Direct points. For other point server points, you need to create derived points in SymmetrE manually before BACnet Server can see these points.





OPC Client

The SymmetrE OPC (OLE for Process Control) Client allows cost effective and easy integration to a large and growing number of previously unsupported devices and systems. In many cases where SymmetrE device support once required development of a dedicated SymmetrE interface, an OPC Server is now available.

OPC Servers are typically written by the device manufacturer or a 3rd party software house, and can be easily integrated to the SymmetrE OPC Client. It is recommended that this method of device integration be investigated before considering a dedicated SymmetrE interface. Both OPC 2.0 and OPC 1.0a for data access are supported. This provides read/write access to standard analog and status point information. This does not support alarming.

Note: The SymmetrE OPC client supports OPC Item names up to 64 characters.

OPC Server

The SymmetrE OPC Server complements the Open Systems abilities of SymmetrE. It makes all SymmetrE point parameter data available for use in other systems that act as OPC Clients. The OPC Server can also communicate to other SymmetrE systems using the OPC Client. The OPC Server supports all mandatory OPC interfaces, including an automation interface for application development in Visual Basic. Both OPC 1.0a and OPC 2.0 are supported.

Note: For point server points, you must create derived points in SymmetrE before the OPC server can expose these points to other systems.

For more information about OPC, contact the OPC Foundation at http://www.opcfoundation.org/

OPC Data Transfer

OPC Data Transfer is the new data transfer mechanism in SymmetrE that utilizes the OPC framework. In legacy systems, such as XBS, this functionality was called Global Data transfer. OPC Data Transfer is used to transfer

point details between controllers as well as point servers (Example: EXCEL 5000 Direct to BACnet Direct). The advantages of the OPC Data Transfer mechanism are that it supports redundant SymmetrE Servers, is easier to setup than a value transportation algorithm or point script, and is more reliable with an optional trace logging functionality.

Modbus interface license

Provides serial interface to Modbus controllers such as the Modicon 584 and 984 PLC's using Gould MODBUS protocol. Consult the Gould Modbus Protocol Reference Guide (PI-MBUS-300 Rev B, January 1985) for more information. Only functions 01 to 06 are supported. One Modbus interface is required for each SymmetrE syst connected to Modbus controller or emulating devices.

Modbus is a defacto industry standard for communicating with controllers. Many suppliers provide MODBUS compatible controllers, which accept MODBUS cards – allowing easy interface to SYMMETRE.



SymmetrE Serial interface to a Modbus-compatible controller

Figure 14 SymmetrE connecting to Modbus compatible controller via serial connection

Technical Notes

- 1. The interface is based on the addressing structure of a Modicon 984. Not all controllers with a Modbus interface follow this convention. Some PLCs start their addressing at 0, and others start at 1. Different bit arrangements may also be encountered. In any of these cases, it is still possible to successfully engineer a solution using the SymmetrE Modbus interface.
- 2. Four different types of floating point numbers are supported.
- 3. SymmetrE R500 supports configurable data formats for Modbus devices.
- 4. Additional information is on the SymmetrE CD or SymmetrE Help File Documentation under Interface and Controller Reference > Modbus Interface Reference.

Additional Options

Alarm Pager

The Alarm Pager option allows alarms from configured points to be sent to external systems as follows:

- To alphanumeric pagers or digital mobile phones with text message (SMS) support, as supported by the local pager provider
- To an internet email address in the format "name@domain"
- As an SNMP message to be sent to an SNMP manager (client)

The system is very flexible. If alarms from a few critical points are required, a point list can be set up via a configuration display. For complete unmanned operation, area assignments can be assigned to individual pagers so that all alarms in a particular area are sent to the appropriate pager. Both the alarm line and the alarm message can be sent.

A system-wide 'Page Delay' of up to 60 minutes can be set, which can be used to allow the operator time to handle the alarm on-site before the alarm details are sent externally.

Each pager's schedule of operation (days of the week, and hours during the day) can be configured so that alarm paging can operate 24 hours a day, or only on after hours shift, and weekends. There are 100 logical devices in the system.

In addition, each paging device can be configured to have an 'escalation' or backup device, allowing an alarm that remains unacknowledged to be sent to another device after a configurable period of time. Using this mechanism, with its associated priority threshold, allows sophisticated 'chains' of escalation to be easily created.

For paging to the telephone system, a standard modem is all that is required, as the Alarm Pager option uses an available COM port on the SymmetrE server. Please note that Alarm Pager cannot be connected to SymmetrE via a Terminal Server. Alarm Pager supports the PET PG1 / TAP and UCP paging protocols for telephone paging.

For SNMP support, SymmetrE provides its own SNMP message format. You will need to configure the name of the SNMP manager and the community to which the SymmetrE alarms will belong.

For email paging, you must have IIS (Internet Information Server) installed on your SymmetrE Server with SMTP enabled.

Note: The alarm pager's email functionality only works with a pre-established TCP/IP connection (i.e. a permanent office LAN). It does not work with a dial up Internet connection, as there is no way for SymmetrE to manage dial ups and disconnects.

Honeywell EasyMobile Client

The EasyMobile client is a text based interface to the SymmetrE system that allows monitoring, control, basic trending, alarming, and alarm acknowledgement of points. Operators use the same login as station, are bound to Operator Scope of Responsibility, and all control actions are logged to SymmetrE events log. The

EasyMobile client is browser agnostic, meaning it will work with any modern browser interface, that supports HTML 5, and has been tested on Firefox, Safari, iPhone, Windows Phone, Google Chrome and Internet Explorer 9 or higher. No 'app' required. Zero Install.

The EasyMobile client is designed for both spec compliance and also to support after hours remote access for Honeywell Field support personnel needing to login and monitor / control key plant information from their mobile tools.

EasyMobile is licensed as a 1 off per server option. Easy.

Enterprise Web Services (EWS)

Extending the power of EBI is much simpler using the new Enterprise Web Services (EWS). These modern web services provide a simplified collection of APIs that allow custom interfaces, queries, web pages or business systems to openly interface with EBI. EWS Basic, which is an orderable option in SymmetrE R500 is similar to Web Toolkit and allows to read and write point parameters.

Platform support permanently removed in SymmetrE R500

This section lists operating systems and Microsoft Internet Explorer versions no longer supported with SymmetrE R500.1. Refer to the Compatibility Matrix for the complete list of supported operating systems and Internet Explorer versions.

SymmetrE Server Operating Systems: Windows XP Windows Server 2003 Windows Server 2008 R2 Windows 7

SymmetrE Point Servers and Client Operating Systems: Windows XP Windows Server 2003 Windows Server 2008 R2 Windows 7 (32 bit)

Microsoft Internet Explorer: Microsoft Internet Explorer 7 Microsoft Internet Explorer 8 Microsoft Internet Explorer 9

ExcelWeb is a registered trademark of Honeywell Inc.

Microsoft, Windows 2012 R2 Server, Windows 10, Windows 7, Microsoft SQL Server and Internet Explorer are registered trademarks of Microsoft Corporation

BACnet® is a registered trademark of ASHRAE.

LONMARK®, LONWORKS® and the LONWORKS® logo are registered trademarks of Echelon Corporation.