Honeywell

SymmetrE
Overview

Release 410

Honeywell

Release	Issue	Date
410	0	August 2009

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For technical assistance, call your nearest Honeywell office.

Training classes

Honeywell holds technical training classes on SymmetrE. These classes are taught by experts in the field of building control systems. For more information about these classes, contact your Honeywell representative.

Contents

About this guide

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This guide provides an overview of SymmetrE. It describes the concepts behind SymmetrE, and describes the ways in which SymmetrE can be configured to meet your specific requirements.

The SymmetrE documentation set

The SymmetrE documentation set includes the following documents in addition to this guide. (“Document availability” on page 8 describes the ways in which each document is supplied.)

Installation Guide

The *Installation Guide* describes how to set up server and client computers and install the SymmetrE components.

Building Management Guide

The *Building Management Guide* is primarily designed for engineers and system administrators responsible for configuring and supporting an SymmetrE building management system.

Configuration and Administration Guide

The *Configuration and Administration Guide* describes configuration tasks and administration procedures. It is designed to be read in conjunction with the Building Management guides.

HMIWeb Display Building Guide

The *HMIWeb Display Building Guide* describes how to use HMIWeb Display Builder, the tool used to create custom HMIWeb displays. (HMIWeb displays are based on Web standards.)

Display Building Guide

The *Display Building Guide* describes how to use Display Builder, the tool used to create custom DSP displays. (DSP displays use a proprietary format.)

Quick Builder Reference/Help

The Quick Builder Reference/Help describes how to use Quick Builder, the tool used to configure controllers, Stations and other system items.

Operator’s Guide

The *Operator’s Guide* describes how to use Station to monitor and control your SymmetrE system.

The Backup and Restore Guide

The *Backup and Restore Guide* documents the recommended procedure for backing up and restoring an SymmetrE system using Acronis True Image.

Application Development Guide

The *Application Development Guide* describes how to write custom applications for SymmetrE.

Server Scripting Reference

The *Server Scripting Reference* describes how to extend the functionality of your SymmetrE system by writing scripts for the server, points and other items. (A script is a mini-program that performs a specific task.)

Hardware and Point Build Reference

The *Hardware and Point Build Reference* is a reference for engineers who want to understand the syntax and structure of the hardware and point definition files created by Quick Builder.

Diagnostic Guide

The *Diagnostic Guide* is a troubleshooting reference. It describes common problems, diagnostic checks and solutions.

Interface and Controller References

There is a separate reference for each type of interface and controller supported by SymmetrE. Each reference describes how to set up and integrate the controller with SymmetrE.

Document availability

The documents are supplied in one or more of the following formats:

- **Documentation Set**—a help file that contains all SymmetrE documents.

  You can access the Documentation Set from Station, or from the **Start** menu by selecting **Programs** > **SymmetrE** > **SymmetrE Documentation**.
- **PDF**—supplied on SymmetrE DVD. (If necessary, you can load them on any computer.)
- **Context-sensitive help**—supplied with client applications such as Quick Builder and Display Builder.

The following table shows the formats in which each document is supplied.

Title	Documentation Set	PDF	Context-sensitive help
Overview	Yes	Yes	
Installation Guide	Yes	Yes	
Configuration and Administration Guide	Yes	Yes	
Building Management Guide	Yes	Yes	
HMIWeb Display Building Guide	Yes	Yes	Yes
Display Building Guide			Yes
Quick Builder Reference	Yes		Yes
Operator's Guide	Yes	Yes	Yes
Backup and Restore Guide	Yes	Yes	
Diagnostic Guide	Yes		
Server Scripting Reference	Yes		Yes
Application Development Guide	Yes	Yes	
Hardware and Point Build Reference	Yes	Yes	
Interface and Controller References	Yes	Yes	Yes (If configured in Quick Builder.)

Introduction to SymmetrE

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The versatility of SymmetrE

SymmetrE provides tools and data to better manage the environment, resulting in energy efficiency and significant cost savings. Maintenance staff have, at their fingertips, the functionality and information they need to minimize maintenance costs, including:

- Scheduling
- Detailed HVAC information
- Alarm Pager
- HVAC reports

SymmetrE is used in a wide range of applications including:

- Large commercial buildings
- Telecommunications
- Industrial sites
- Casinos
- Education
- Healthcare
- Government
- Prisons
- Airports

Of course, SymmetrE can also be tailored to suit other specialized applications, and it is compatible with controllers from all the major providers. The philosophy behind SymmetrE is to provide an open standard for integration and to embrace open technology.

It is fully integrated with Microsoft Windows with industry networking standards and works seamlessly with BACnet and Echelon LONmark devices. Standard TCP/IP network topologies include LAN, WAN, serial, and dial-up access.

Architectural flexibility

The philosophy behind SymmetrE is to provide an open standard for integration and to embrace open technology. SymmetrE supports TCP/IP networking standards, and industry-specific standards such as BACnet and Echelon LONmark. SymmetrE also supports standard LAN and WAN network topologies, as well as serial and dial-up connections.

SymmetrE is based around a client-server architecture. A high-performance real-time database is maintained by the server. This provides real-time information to local or network-based (LAN or WAN) clients such as Stations, or other applications such as spreadsheets or relational databases. And because it is modular in design, SymmetrE is an extremely cost-effective and scalable solution.

The modular design of SymmetrE makes it an extremely cost-effective and scalable solution. The following examples show typical configurations that range from small single-node systems to multi-server integrated systems.

Point servers

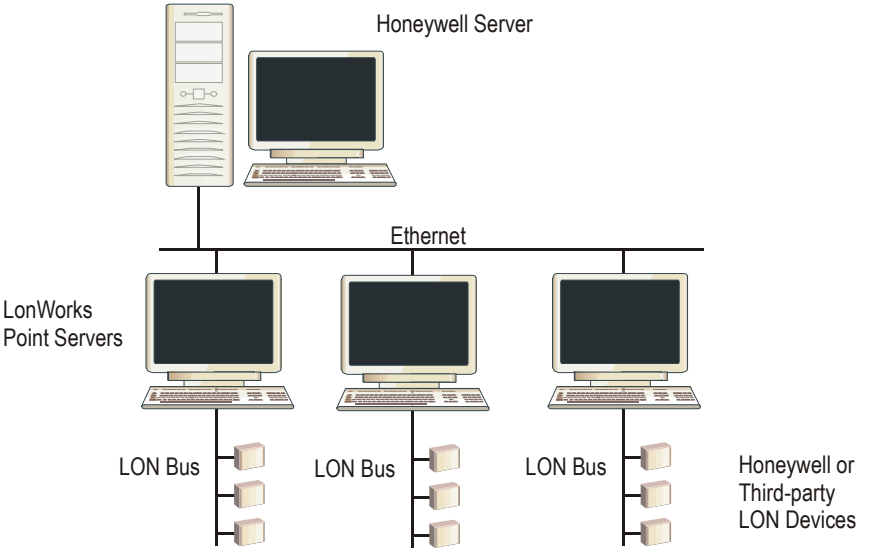
A *point server* is a high-level interface that allows SymmetrE to exchange data with other applications or sub-systems, such as LON and BACnet, without the need for individually configuring points in SymmetrE.

Point servers read data directly from the field when requested by SymmetrE. The structure of each data set (called a *flexible point*) is determined by the application or sub-system, rather than by SymmetrE.

The LonWorks point server option, for example, gives SymmetrE access to Honeywell EXCEL 10 devices without the need for complex point-building configuration tasks. It also includes pre-built point detail displays for EXCEL 10 devices so that operators can monitor their HVAC system.

The following figure shows a system that uses three LonWorks point servers to integrate three LonWorks networks.

Figure 1 An SymmetrE System with LonWorks Point Servers



Controller interfaces

Controller interfaces enable SymmetrE to exchange data with controllers by individually mapping memory locations in the controllers to *standard points* in SymmetrE. (SymmetrE provides interfaces for most types of controllers used in building management.)

To learn about standard points, see “About standard points” on page 31.

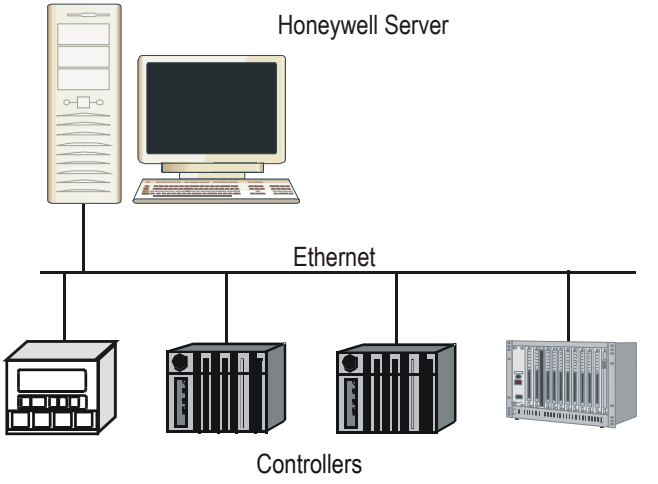
Controller-to-server connections

The way in which you connect a controller to the server depends on several factors, such as the physical layout of your site and the controller's communication ports.

Network connections

If a controller has a network port, you can connect it directly to the network, as shown in the following figure.

Figure 2 Controllers Connected Directly to the Network



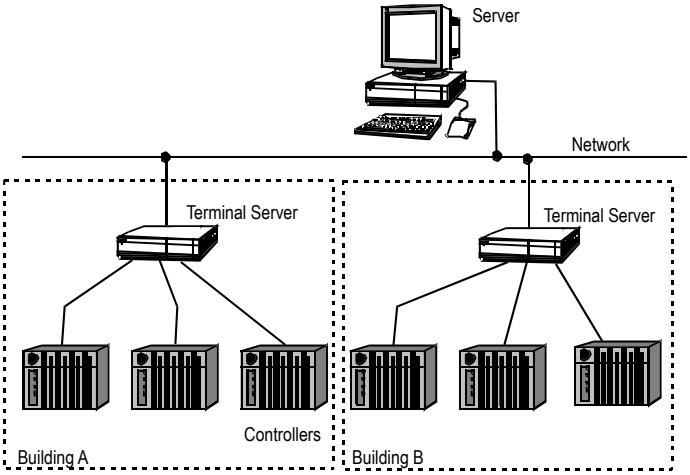
Indirect serial (terminal server) connections

You can connect controllers to the network through a *terminal server*. (A terminal server allows you to connect several controllers to the network even though they only have serial or parallel ports.) Most terminal servers also provide a range of serial connection options, such as RS-232, RS-422 and RS-485.

Terminal servers are particularly useful if you have a:

- Site-wide network, and you want to connect controllers to the LAN—as shown in the following figure
- Geographically-dispersed controllers on a WAN

Figure 3 Typical System with Terminal Servers



Direct serial connections

If you have a small system, you can connect controllers to the server's serial ports.

Note that you can add more serial ports to the server with a *serial adapter*. An advantage of serial adapters is that they provide a choice of interfaces, such as RS-422 and RS-485, which are suitable for medium-distance links.

Modems

You can use modems to connect controllers located at remote sites.

If you only require infrequent scanning, you could use a dial-up modem. If you require more frequent scanning, you could use a modem in conjunction with a leased line.

Stations

Station is SymmetrE's user interface that presents information in a graphical, user-friendly manner.

In general, Station runs on standard computers that are connected to the server through the network. However, Station supports most Windows-compliant peripherals such as touch-screens with dedicated function keys. (If you have an entry-level system, you can even use Station on the server computer.)

Related topics

"Displays" on page 17

"Multiple static Station" on page 19

"Mobile Stations" on page 20

"Accessing displays using a browser" on page 22

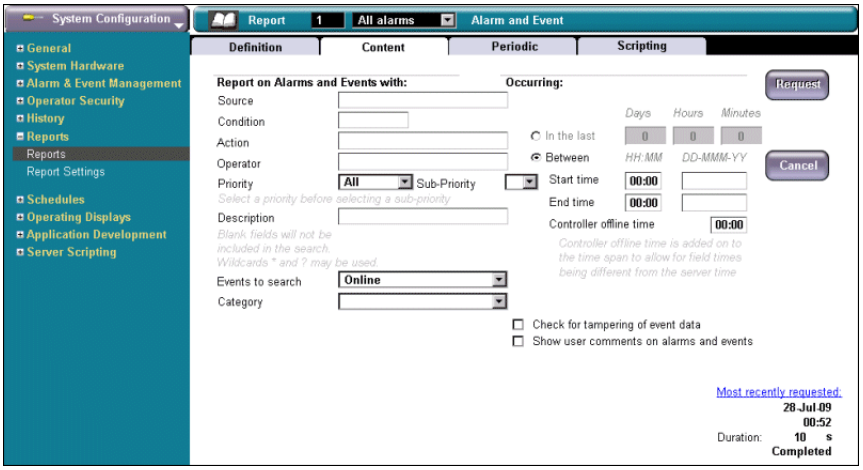
Displays

Station uses *displays* to present information. Each display is, in effect, a control panel that shows information about a particular part of the system, and contains appropriate controls such as buttons and scroll bars.

System displays

SymmetrE is supplied with a comprehensive set of *system* displays that present information in a standardized manner.

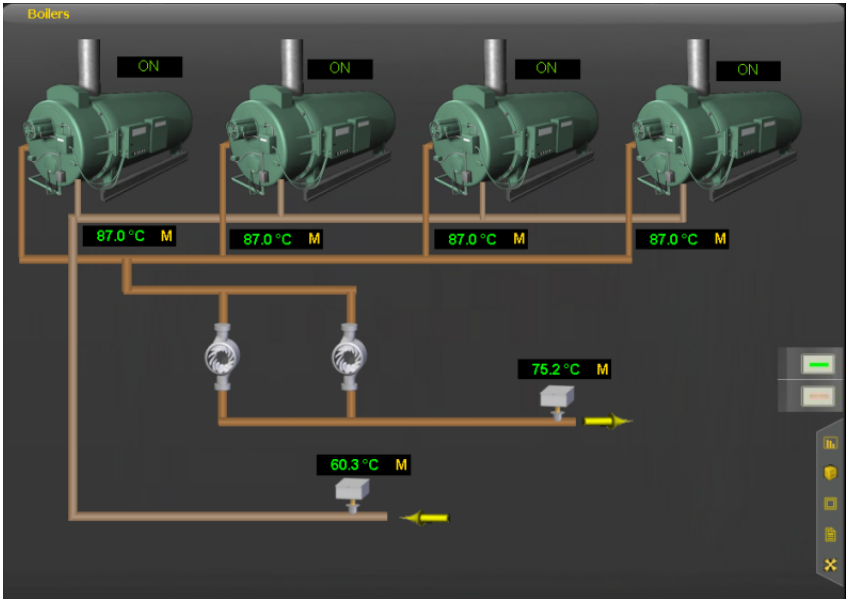
Figure 4 A Typical System Display



Custom displays

You can make it much easier for operators to supervise your facility if you create suitable custom displays, such as the one shown in the following figure.

Figure 5 A Typical Custom Display



You use HMIWeb Display Builder, a specialized drawing tool supplied with SymmetrE, to create custom displays. HMIWeb Display builder is supplied with clip art libraries that cover building management. You can also insert your own graphics, such as photographs and floor layouts.

Multiple static Station

With *multiple static Station*, you can have up to four instances of Station running simultaneously on the one computer.

From a licensing point of view, all instances of Station on the same computer are treated as one Station connection. For example, if you have a license for two static Stations and two client computers, you can run up to eight instances of Station (four on each computer).

You can configure the way in which the instances of Station interact. For example, when operators call up trends and groups from STN01 (the master Station), you can direct trends to STN02 and groups to STN03. If you have several monitors, you can also direct each instance of Station to a specific monitor.

Mobile Stations

If you have a wireless network you can use handheld devices, typically a tablet PC, (*mobile Stations*) to access your SymmetrE system.

Mobile Stations provide users with full Station capabilities—they provide the same level of control as Station on a desktop computer.

Mobile Stations connect to a *Mobile Station Server* which, in turn, connects to the SymmetrE server. (A Mobile Station Server is loaded with both Station and Microsoft Terminal Services.)

Up to five mobile Stations can connect to a Mobile Station Server.

Honeywell EasyMobile

Honeywell EasyMobile is a solution allowing the basic operations of SymmetrE from most mobile browser interfaces such as smartphones.

Honeywell EasyMobile can assist with maintenance tasks. For example, a field technician can make adjustments to HVAC equipment and use Honeywell EasyMobile to connect to SymmetrE to see the affect on the HVAC system.

Honeywell EasyMobile is designed as a complimentary tool to Station and therefore the full Station functionality is not available on Honeywell EasyMobile. For example Honeywell EasyMobile provides text-based information and does not support graphic displays.

Accessing displays using a browser

The *SymmetrE Web Server* is SymmetrE's inbuilt Web server that enables users to access displays using Internet Explorer, instead of using Station. The SymmetrE Web Server is especially useful to casual users remotely accessing Honeywell Building Manager.

The SymmetrE Web Server treats each Internet Explorer session as a rotary Station connection. Consequently, you need to ensure that your license includes enough rotary Stations to cater for Internet Explorer users.

Operator security

You can configure operator security using:

- Facility Model and scope of responsibility
- Station security
- Point control restrictions

Facility Model and scope of responsibility

You can control access to your SymmetrE system by creating a Facility Model (previously called areas). This model provides a method of organizing your points in a way that reflects the building and tenants you are managing.

By creating locations in the Facility model, you can then assign access to these locations to operators or Stations; this is known as scope of responsibility. Scope of responsibility allows you to provide or restrict access to the parts of the SymmetrE system as appropriate for each operator or Station.

A Facility Model is particularly useful in buildings that have several tenants and in large facilities where different operators have responsibility for different parts of a facility.

Locations and organizations allow you to restrict operator/Station access to:

- Alarms
- Points
- Custom displays

Station security

You can restrict access to Station using either *operator-based* or *Station-based* security.

Operator-based security

With operator-based security each operator has an operator ID and a security level, and logs on to Station using the operator ID and password.

Operator-based security provides six security levels, each with different privileges: `View Only`, `Ack Only` (Acknowledge only), `Oper`, `Supv`, `Engr`, and `Mngr` (shown in order of increasing security level).

You can use operator-based security to restrict:

- Control of points
- Access to specific locations
- Access based on day and time
- Access to specific Stations

You can also specify an "inactivity time", which, if exceeded, automatically logs off the operator.

Station-based security

Station-based security does not require an operator ID or password to log on to Station with `Oper` security level. However, passwords are required to change to higher security levels in order to perform configuration and administration tasks.

Security is managed on a Station-by-Station basis, enabling a particular Station to access designated parts of the database.

Point control restrictions

By defining each operator's point control rights you can prevent certain operators from intervening or overriding automatic point control, or even prevent them from viewing the detail displays for points.

You can use the following techniques to restrict an operator's point control rights:

- **Control Level**. Only operators with a control level equal to or higher than the point's control level are able to control the point. (The point is assigned a particular control level when it is configured.)
- **Locations**. Only operators who are assigned to the same location as the point are able to view the point. (The point is assigned to a particular location when it is configured.)
- **Command segregation**. Each operator is permitted to perform specified commands in each location on status points in that location.

Exchanging data with other applications

SymmetrE includes a number of options for exchanging data with other applications.

Microsoft Excel Data Exchange

Microsoft Excel Data Exchange allows you to capture real-time point parameter and history data, and display it in a Microsoft Excel spreadsheet. The captured data can be static or dynamically updating.

You can capture the data using either the Microsoft Excel Data Exchange Wizard, or through cell formulas. After capturing the data, you can create charts to display and analyze data with Microsoft Excel's toolset. You can also link the values into other OLE-enabled applications.

Microsoft Excel Data Exchange provides:

- Read/write access to point parameter values
- Read access to history data
- Read/write access to server database files (user files)

ODBC Data Exchange

ODBC Data Exchange enables two-way exchange of data between the SymmetrE database and an ODBC-compliant database (either local or remote). It is typically used to periodically transfer data for billing customers. ODBC-compliant databases include Microsoft SQL Server, Oracle 7, Microsoft Access and Sybase 10.

ODBC Driver

The ODBC Driver is primarily intended for reporting, and enables an ODBC-compliant application to access data in the SymmetrE database, such as history, event, access, and point parameter values. ODBC-compliant applications include Microsoft Access and Microsoft Excel.

OPC

SymmetrE provides the following OPC options, each of which has been optimized for a particular purpose.

SymmetrE OPC Client Interface

The SymmetrE OPC Client Interface is primarily designed for integrating low-complexity subsystems, such as controllers. Configuration involves individually mapping OPC items to standard points. If you require alarming for an item, you must configure the associated point's alarm properties.

SymmetrE OPC Data Access Server

The SymmetrE OPC Data Access Server gives an OPC client read/write access to SymmetrE point parameters. It is compliant with the OPC 2.0 Data Access specification, and can accept connections from either OPC 1.0 or 2.0 clients.

SymmetrE OPC Alarm and Event Server

The SymmetrE OPC Alarm and Event Server allows an OPC alarm and event client to receive alarm and event information from SymmetrE. It is compliant with the OPC Version 1.02 Foundation Alarm and Event Specification.

SymmetrE OPC Data Transfer

SymmetrE OPC Data Transfer is designed to allow fast and efficient transfer of data within an SymmetrE system. You can use SymmetrE OPC Data Transfer, instead of the value transportation algorithm, to transfer data between point servers as well as controllers.

Advanced customization capabilities

This section describes SymmetrE's advanced customization capabilities.

Server scripts

You can add extra functionality to your system with *server scripts*. For example, you could create a script that emailed a report to relevant staff each time it was generated.

A server script runs when the associated event occurs—for example, when:

- A point changes state
- An operator acknowledges an alarm
- The server starts
- A report is generated

Server scripts can also include:

- *Periodic* scripts, which run at specified intervals while the server is running
- *Library* scripts, which perform specialized functions when called by other server scripts

Server scripts don't block point processing, and don't impact other server functions because they run at a low priority.

Note that server scripting has been optimized for relatively short scripts (less than 30 lines), and is not designed for implementing control strategies (which should be done in the controller).

About standard points

This section describes how *standard points* are used to exchange data between controllers and the server database.

Attention

This section is not applicable if you use point servers to integrate field devices.

Mapping controller memory addresses to standard points

You use Quick Builder, a specialized configuration tool supplied with SymmetrE, to map controller memory locations—which contain field values—to standard points in the server database. (You also use Quick Builder to configure the communications link between the controller and the server.)

Tip

There is a separate reference for each interface/controller that describes configuration tasks, including how to map memory locations to standard points.

Types of standard point

SymmetrE includes the following types of standard point, each of which is designed to map a particular type of field value.

Type	Description
Accumulator	Represents total values. For example, the volume of water that has flowed into a tank or the total number of cars that have entered a car park over a period of time.
Analog	Represents continuous values. For example, pressure in a boiler or temperature in an office.
Container	A point that ties together a set of related standard points so that you can manage them as if they were one point. A container point is, in effect, a user-defined point type that matches your data requirements for a particular device type or scenario.
Status	Represents digital inputs or outputs. For example, the on and off states of a pump or light.

Database structure of standard points

Standard points have a composite data structure that allows each point to represent multiple field values. (The individual data items within a point are called *parameters*.)

For example, an analog point contains the following parameters which enables it to represent the variables in a control loop for room temperature:

- Present value (PV) to record the current room temperature
- Output variable (OP) to change the temperature of the room
- Setpoint (SP) to specify the desired room temperature
- Mode (MD) to change the loop from manual to automatic control (In automatic mode, the controller logic automatically switches the output

variable on and off. In manual mode, the output variable is switched on and off by the operator.)

This composite data structure also makes it much easier for operators to monitor related information.

Scanning

Scanning is the process by which SymmetrE exchanges data between memory addresses in the controllers and the standard points to which those addresses have been mapped.

SymmetrE supports the following scanning techniques. You can use several scanning techniques on the same controller, providing they are supported by that controller.

Scanning technique	Comments
Periodic	The server scans a point parameter at the specified interval. For example, if a parameter's scan period is 15 seconds, the server scans the associated controller every 15 seconds for the parameter's value. You can choose from a range of standard scan periods, ranging from seconds to minutes, and you can assign a different scan period to each parameter. Periodic scanning: • Is supported by most controllers • Is simple to implement • Places a predictable, but potentially heavy, load on the server
Demand	The server only scans a point parameter when requested by an operator, a report, or an application.
Exception	The server polls the controller for any change-of-state data. Exception scanning is thus triggered by events, not time. Exception scanning is: • Not supported by all controllers • More difficult to implement than periodic scanning because it usually requires additional logic in the controller, additional configuration in SymmetrE, or both

Unsolicited messaging

Some controllers support *unsolicited messaging*, where the controller, rather than the server, initiates a communications session. Unsolicited messaging can substantially reduce communications traffic, especially if the values do not change frequently.

Check the manufacturer's documentation to determine whether a controller supports unsolicited messaging.

Point algorithms

A *point algorithm* extends the functionality of a standard point by performing additional processing on the point or executing a specific action (such as printing a report) based on the point's value, or both.

There are two types of algorithm:

- **PV**. The algorithm is used every time the point is scanned. For example, to monitor average temperature, you would use a PV algorithm that calculates the average (based on the temperature at all the sensors). You would attach this algorithm to a point so that the average temperature is re-calculated each time the point is scanned.
- **Action**. The algorithm is only used when the point value changes. For example, suppose you need to print a report when a particular digital value in a controller changes state. You would attach an *Action* algorithm to the point in order to do this.

Using SymmetrE

3

This chapter describes the basics of using SymmetrE.

Responding to alarms and events

SymmetrE generates alarms and events when it detects specified changes in the field.

Alarms indicate unusual conditions, such as an unexpected change in temperature that require operator action. The alarm remains until the condition that triggered the alarm returns to normal and someone acknowledges the alarm.

All changes in the system, for example, alarm changes, operator changes, and security level changes, are logged as events.

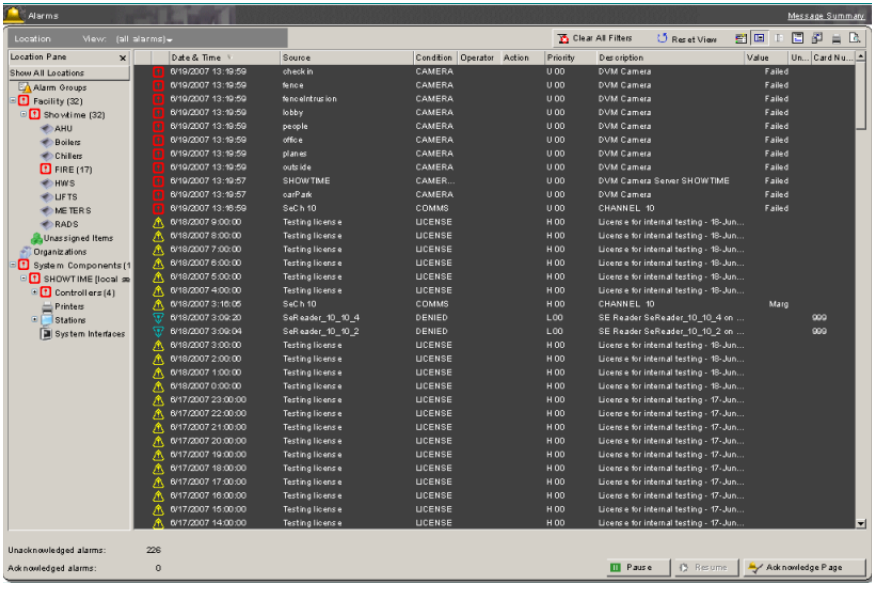
All alarm conditions are recorded in the event log, including when an alarm is generated, when it returns to normal, and when it is acknowledged.

Alarms are generally assigned different priorities to help you view critical alarms first. The priorities are: `Urgent`, `High`, `Low`, and `Journal`. Journal alarms are not shown on the Alarm Summary but are recorded as events.

Operators can:

- View events and alarms on Stations. The Status Zone, beneath the display, always shows the most recent (or oldest) and highest priority alarm that has not been acknowledged.
- Print a summary of alarms and events to an alarm/event printer. All alarms and events are recorded in an alarm/event journal.

Figure 6 A Typical Alarm Summary Display



Alarm groups

By using alarm groups, you can create an arbitrary group of points for the purposes of monitoring alarms on those points. For example, you might want to group together all points that represent the fire doors in your building. As a result of doing this, you can easily monitor any alarms on any of these doors.

Analyzing system data

You can use reports and trends to analyze system data.

Reports

SymmetrE includes a comprehensive set of standard reports that are useful for analyzing and monitoring alarms, events, points, and so on. If necessary, you can create your own custom reports using tools such as Microsoft Access.

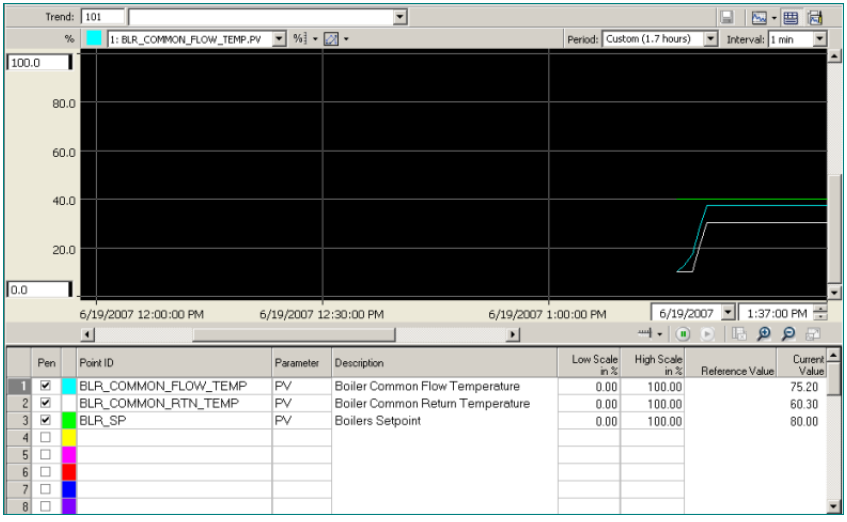
You can request reports when you need them, or produce them automatically at pre-defined times. You can also specify a report's destination: either a printer or display.

Trends

You can use *trends* (specialized displays) to analyze changes in point values over time. You can include an Event Summary in your trend to investigate any correlation between changes in points to specific events.

Trends can present information in several forms (such as lines or bars) and can show values for up to 32 points.

Figure 7 A Typical Trend Display



Storing point history

SymmetrE can store the values of points over time to create a history of the operations of your site. There are three types of history:

- **Fast**. Stores snapshots of a point parameter at the fast history interval (configurable between 1 and 30 seconds, the default being 5 seconds).
- **Standard**. Stores the following snapshots and averages:
  - 1-minute snapshots
  - 6-minute averages of the 1-minute snapshots
  - 1-hour averages of the 1-minute snapshots
  - 8-hour averages of the 1-minute snapshots
  - 24-hour averages of the 1-minute snapshots
- **Extended**. Stores the following history snapshots:
  - 1-hour snapshots
  - 8-hour snapshots
  - 24-hour snapshots

Archiving point history and events

Point history archiving

SymmetrE stores point history data in the server for a limited time, which is determined by the default retention periods for the history interval being used.

If you want to keep point history data for longer periods, you must archive the data to off-line media, such as tape or removable disk.

Event archiving

SymmetrE stores every event, such as point status changes or operator actions, in an event database for a specified time.

Event archiving enables you to archive these events to disk or tape, where they can be stored for future retrieval. For example, you can restore event archives so that they can be included in standard reports.

Event archiving can be scheduled automatically, or an alarm can be generated to alert the operator to archive the events.

Troubleshooting SymmetrE

SymmetrE includes the Diagnostic Framework, a stand-alone application that provides a unified interface for running tests, collecting diagnostic information and viewing logs.

The Diagnostic Framework contains a set of pre-defined tests that are applicable to your system and the current environment—that is, the tests vary depending on whether the Diagnostic Framework is installed on a server as opposed to a client computer.

If you have a problem that you can reproduce—for example, you cannot start the server—you can record relevant system activity as you reproduce the problem.

You also use the Diagnostic Framework to create diagnostic packages for TAC, which include log, recordings (captured when reproducing a problem) and other files that may help diagnose the problem.

Using SymmetrE for Building Management

4

This chapter describes how SymmetrE is used for building management. It includes the following topics:

- Accessing HVAC information
- Scheduling
- Alarm paging

This chapter supplements “Using SymmetrE” on page 37.

Accessing HVAC information

The point detail displays provide easy and fast access to point values and point control.

You can incorporate live point data into custom displays, such as floor plans and schematics for optimal representation of the building's HVAC performance. You can also trend and archive all point parameters.

SymmetrE includes point server interfaces for LonWorks and BACnet, popular HVAC networking standards. LonWorks is, for example, used by Honeywell's EXCEL 5000 system. (As described in "Point servers" on page 12, point servers speed up configuration tasks because they provide direct access to field values.)

If you have EXCEL 5000 controllers, you can view and modify the configuration parameters that control your HVAC system.

If you use the EXCEL 5000 Dial-up Interface, you can also monitor, control, and acquire data from remote sites containing EXCEL 5000 series controllers, as if each site was locally connected.

You can also use Easy Mobile to access HVAC information on a mobile device. For more information about EasyMobile, see "Honeywell EasyMobile" on page 21.

Scheduling

SymmetrE's scheduling capabilities enable you to control points on both a one-off and periodic basis.

Global Schedules

Global Schedules enable controls to be carried out on predetermined days and at predetermined times. SymmetrE Global Schedules provide an integrated means of configuring and viewing schedule information.

With Global Schedules you can define schedules, calendars and holidays once and then propagate them to all supported controllers. The current release of SymmetrE Global Schedules supports schedules for:

- Honeywell Server points
- Excel 5000 controllers
- BACnet controllers

Key concepts related to Global Schedules are:

- Resources
- Control items
- Calendars

A resource is a way in which you can represent the real control entities of your site by grouping point parameters or control items. After creating a resource you can start to define new schedules for that resource, or you can assign an existing schedule that was created for another resource. As you define the schedules for a selected resource, summary schedule information is added to the Microsoft Outlook-style Global Schedules display.

Control items are the actual control parameters that will perform the control that you need to schedule. So, after you have decided on how you want to structure your resources, you then need to define which control parameters on which controllers will perform the required controls for each resource.

Calendars are generally a way of creating exceptions to normal daily (recurring) control schedules. For example, if an office building is open every day of the working week (except for public holidays), you would set up a system calendar that includes all public holidays to ensure that the standard recurrent schedule is not in operation on those days when the building is not open for general access.

Point Control Schedules

A Point Control Schedule allows you to control a point at a specified time on either a periodic or one-off basis. In the case of a building, for example, you could

have one schedule switch the lights on at 7 am each day and another schedule to switch them off at 9 pm.

Alarm paging

The Alarm Pager option pages specified alarms to a number of pagers.

You can use two techniques to specify which alarms are paged:

- Individually define each point and the minimum alarm priority that results in a paged alarm
- Specify the operators whose alarms are paged—that is, alarms assigned to locations for which operators are responsible are paged (Only applicable if you use operator-based security.)

If the paging service provider allows, the Alarm Paging system sends multiple message blocks at the same time, thus reducing the amount of times it has to ring up the provider.

The Alarm Paging system supports the following protocols:

- Paging Entry Terminal (PET) protocol
- Telocator Alphanumeric Protocol (TAP)
- Universal Computer Protocol (UCP)

The Alarm Paging system also supports sending messages as:

- Email
- SNMP messages

Glossary

accumulator point

A point type used to represent counters. Information contained in the accumulator point can include: the raw value, a process value, a rollover value, a scale factor, and a meter factor.

action algorithm

One of two types of algorithm you can assign to a point in order to perform additional processing to change point parameter values. An action algorithm performs an action when the value of the PV changes. Contrast with *PV algorithm*.

alarm

An indication—visual and/or audible—that alerts an operator at a Station of an abnormal or critical condition. Alarms can be assigned either to individual points or for system-wide conditions, such as a controller communications failure

alarm/event journal

A file that records all alarms and events. It is accessed to generate reports and can also be archived to off-line media.

alarm priority

The severity of the alarm, these being, from least to most severe:

- Journal
- Low
- High
- Urgent

algorithm

See *point algorithm*.

analog point

A point type that is used to represent continuous values that are either real or integer. Continuous values in a facility could be: pressure, flow, humidity, or temperature.

API

Application Programming Interface.

application program

A user-written program integrated into SymmetrE using the Application Programming Interface (API).

area

See Location.

client software

An umbrella term covering SymmetrE applications such as Station, HMIWeb Display Builder and Quick Builder.

channel

A communications port used by the server to connect to a controller.

control level

A security level (a number from 0 to 255) assigned to a point. Only operators who have been assigned a control level equal to, or higher than, a point's control level can control that point.

controller

A device that is used to control and monitor field equipment. The most common control and monitoring device in a security and access control system is an access control panel. Other devices include security monitoring panels, elevator controllers, and fire monitoring devices.

default

The value that an application automatically selects if the user does not explicitly select another value.

display

Station uses displays to present information to operators in a manner that they can understand. The style and complexity of displays varies according to the type of information being presented.

event

A significant change in the status of an element of the system such as a point or piece of hardware. Some events have a low, high, or urgent priority, in which case they are further classified as alarms. Events can be viewed on displays and included in reports.

Event Archiving

Event Archiving allows you to archive events to disk or tape, where they may be retrieved if needed.

extended history

A type of history collection that provides snapshots of a point at a designated time interval that can be:

- 1-hour snapshots
- 8-hour snapshots
- 24-hour snapshots

fast history

The type of history that collects snapshots of point parameter values at regular intervals. (The interval, between 1 and 30 seconds, the default being 5 seconds.)

flexible point

A point on a point server. The database structure of a flexible point is determined by the point server, rather than by SymmetrE.

floor point

A status point that represents a particular floor in a building served by elevators. A floor point restricts access to a floor through control of the elevators.

group

A group of up to eight arbitrarily chosen points that can be viewed by an operator on the same display.

history

Point values stored to enable tracking and observation of long-term trends. Analog, status, and accumulator point PVs can be defined to have history collected for them.Three types of history collection are available:

- Standard
- Extended
- Fast

HMIWeb Display Builder

The Honeywell tool for building custom displays.

HVAC

Heating, Ventilation and Air Conditioning.

location

(Previously called area). A database placeholder for an entity in an organization. A location can be assigned to an operator or Station for the purposes of scope of responsibility, that is, for the purposes of controlling what an operator or Station can view or control in your SymmetrE system. Locations are generally aligned with physical locations of a building.

MD

The abbreviation for the Mode parameter of a point.

Microsoft Excel Data Exchange

A network option. This can be used to capture the most recent point and history information in the server and display it in Microsoft Excel spreadsheets.

Mode

A point parameter which determines whether or not the operator can control the point value. For example, in a status point, the mode determines whether the operator can control the output value, and in an analog point the mode determines the control of the setpoint. If the mode is set to manual, the operator can change the value.

ODBC

See *Open Database Connectivity*.

ODBC driver

A driver that processes ODBC (Open Database Connectivity) calls, queries the database, and returns the results. See also *Open Database Connectivity*.

OP

The abbreviation for the Output parameter of a point.

OPC

OLE for Process Control. OPC is a set of standards to facilitate interoperability between applications within the Process Control Industry. These include automation/control applications, field systems/devices or business/office applications.

Open Database Connectivity

A standard set of function calls for accessing data in a database. These calls include the facility to make SQL (Structured Query Language) queries on the database.

operator ID

A unique identification assigned to each operator. If operator-Based security is enabled, the operator must use this ID and a password to sign on to a Station.

operator password

A character string (not echoed on screen) used with the operator ID to sign on to Station.

operator-based security

Operator-based security comprises an operator ID and password, which must be entered in order to access Station.

OP

The abbreviation for the Output parameter of a point.

parameter

A point data item, such as its present value (PV) or its setpoint (SP).

periodic scan

A defined regular interval in which the server acquires information from the controller and processes the value as a point parameter. The scan period must be defined in Quick Builder for each point source parameter value.

PLC

See programmable logic controller.

point

A data structure in the server database, usually containing information about a field entity. See flexible point and standard point.

point algorithm

A set of rules that enhance a point's functionality by operating on point data either before or after normal point processing. There are two types of point algorithms: action algorithm and PV algorithm.

point detail display

A display that shows the current point information.

point server

A high-level interface that allows SymmetrE to exchange data with another application or sub-system without the need for separately defining points in SymmetrE. The database structure of a point on a point server (called a flexible point) is determined by the application/sub-system, rather than by SymmetrE.

present value (PV)

The point parameter that represents an actual value in a process: a temperature, flow, pressure, and so on. Present values may be sourced from another parameter and may also be calculated from two or more measured or calculated variables using algorithms.

programmable logic controller (PLC)

A control and monitoring unit that connects to a field device and controls low-level plant processes with very high-speed responses. A PLC usually has an internal program that scans the PLC input registers and sets the output registers to the values determined by the program. When connected to the server, the input and output values stored in the PLC registers can be referenced, and the server can read and write to these memory addresses.

PV

The abbreviation for present value parameter of a point.

PV algorithm

One of two types of algorithm you can assign to a point in order to perform additional processing to change point parameter values. The result of a PV algorithm is stored in the PV parameter of the point. Contrast with *Action algorithm*.

Quick Builder

The tool used to configure and integrate controllers with SymmetrE. It is also used to configure Stations and printers.

report

Information collected by the server database that is formatted for viewing. There are several pre-formatted reports, or the user can customize a report. Reports may be generated on demand or at scheduled intervals. Reports can be printed or displayed on a Station.

scan

The technique used to read data from a controller. Scans are conducted for point parameters with source addresses (for example, PV, SP and OP).

scan packet

A group of point parameter source addresses assembled by the server and used as the basic unit of server data acquisition. The server groups points into scan packets based on the controller address that they reference and the scan period defined.

scan period

The time interval that specifies the frequency at which the SymmetrE server reads input values from the memory addresses of controllers.

scheduler

A facility used to schedule the control of a point on either a periodic or once-only basis.

script

A script is a mini-program that performs a specific task. In displays, for example, scripts are often used to produce animations.

security level

Access to SymmetrE functions is limited by the security level that has been assigned to each operator. SymmetrE has six security levels. An operator is assigned a security level and may perform functions at or below the security level that has been assigned to that operator.

server

The computer on which the SymmetrE database software and server utilities run.

Server software

An umbrella term used to refer to the database software and server utilities installed on the SymmetrE server computer.

setpoint

The point parameter that represents the desired value of a PV (present value) parameter.

SP

The abbreviation for set point parameter of a point.

standard history

A type of history collection for a point that provides one-minute snapshots and the following averages based on the one-minute snapshots:

- 6-minute averages
- 1-hour averages
- 8-hour averages
- 24-hour averages

Station

The main operator interface to SymmetrE. Station presents information as a series of displays—each display is a “control panel” that shows a particular set or type of information, and has an appropriate set of controls.

standard point

An SymmetrE inbuilt point that is used to map memory locations in controllers, so that the server can exchange data with the controllers. SymmetrE includes the following types of standard point:

- accumulator point
- analog point
- status point

status point

A point type used to represent discrete or digital field values. The point can have input, output, and mode values.

supervisory control

The action of writing information to a controller. SymmetrE enables both automatic and manual supervisory control. See *Mode*.

task

A task is any of the standard server programs or an application program that can be invoked from a *display*.

TCP/IP

Transmission Control Protocol/Internet Protocol. A standard network protocol.

terminal server

A device on the local area network (LAN) that connects to a controller by way of a serial connection and enables the controller to “talk to” the SymmetrE server on the LAN.

trend

A set of point parameter historical data, usually shown as a graph on a trend display.

Unreasonable High and Unreasonable Low alarms

Alarms configured for an unreasonably high value and an unreasonably low value for the PV of an analog point.

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