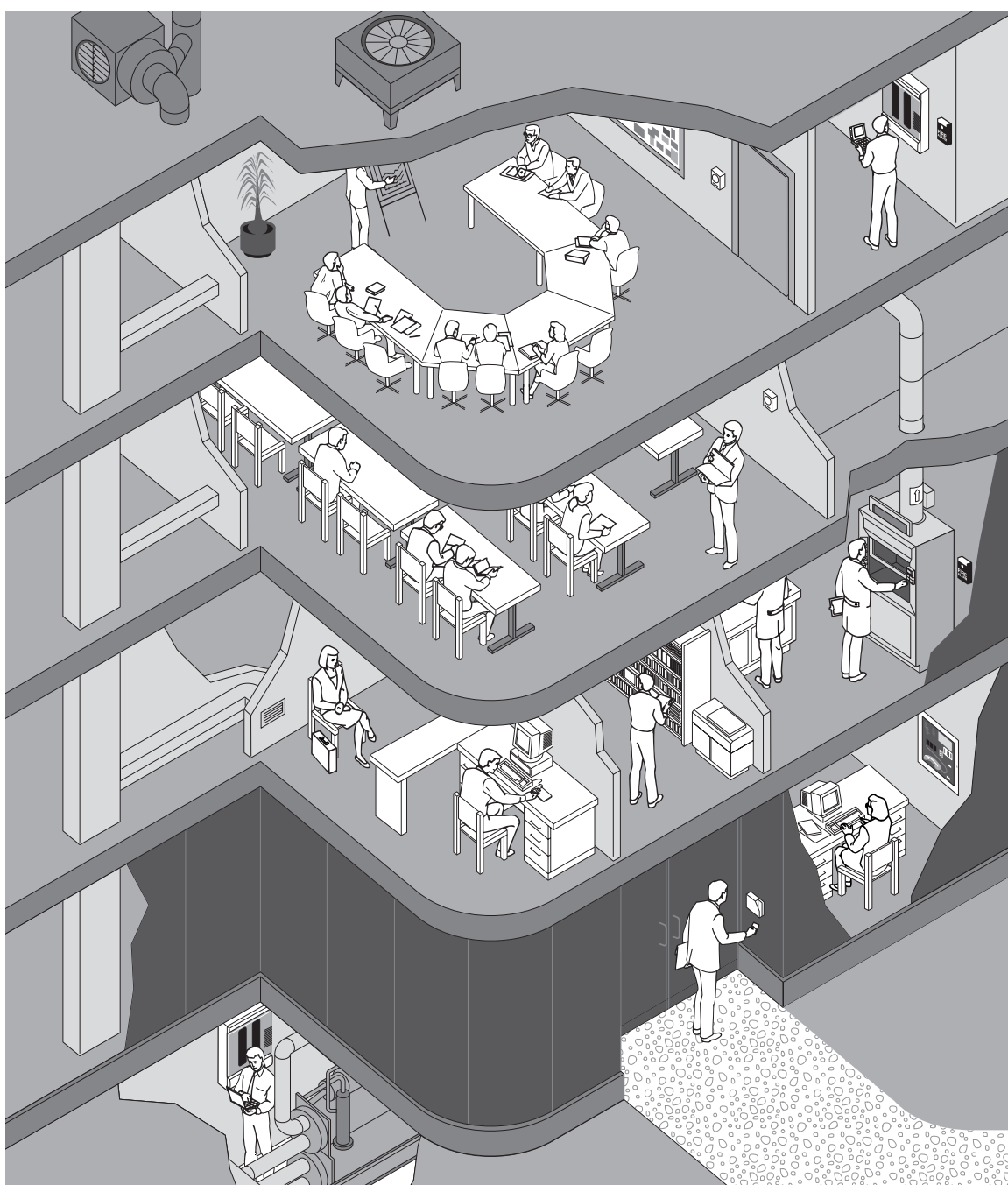


## Communicating With Your System 600 APOGEE Field Panel



# Communicating With Your System 600 APOGEE Field Panel

Rev. 2 (03/99)

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## **Training Expectations**

Your instructor should understand what you want to learn during your training session. Write down five or more topics you would like to learn about.

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## Unit Training Objectives

At the end of this unit, you should be able to perform the following tasks using a field panel operator interface:

1. Log on and off your system.
2. Correct errors using the <BACKSPACE> and # (<SHIFT - 3>) keys.
3. Explain the purpose of the following reports:
  - point log
  - point monitor
  - point totalization
  - point trend
  - point definition
4. Define the components of a point log.
5. Run a point log for:
  - one point in your building
  - a group of points using wildcards
6. Pause, resume, and cancel the scrolling of a report.
7. Command points, including logical points and subpoints.
8. Return commanded points to system control.
9. Add points to the point monitor.
10. Run a point monitor report.
11. Remove points from the point monitor.
12. Run a point totalization report.
13. Reset totalized point values ( if applicable).
14. Determine when to trend a point by time and when to trend a point by Change of Value (COV).
15. Add points to trending.
16. Run a point trend report.
17. Remove points from point trending.
18. Run a point definition report.
19. Define and explain the use of Powers Process Control Language (PPCL).

---

## **Introduction: Communicating with your System 600 APOGEE Field Panel**

Communicating with your System 600 APOGEE system involves gathering information from your system and giving information to it.

When you communicate with your System 600 APOGEE field panel you can perform a variety of tasks, such as:

- checking the operation of building controls
- requesting a variety of system and status reports
- changing or overriding field panel programs
- directly controlling building functions

Each field panel has a simple yet powerful menu-driven English language Operator Interface Program. To access the Operator Interface Program, a laptop computer which you plug directly into the field panel, or another type of terminal which is permanently located in an office can be used. The operator interface terminal is usually connected to the nearest field panel, but you may also communicate with your system over telephone lines using a modem. With a modem, you can dial into the system from your home, and also call up remote sites from your operator interface.

These methods of communicating with your system provide convenience and flexibility. For example:

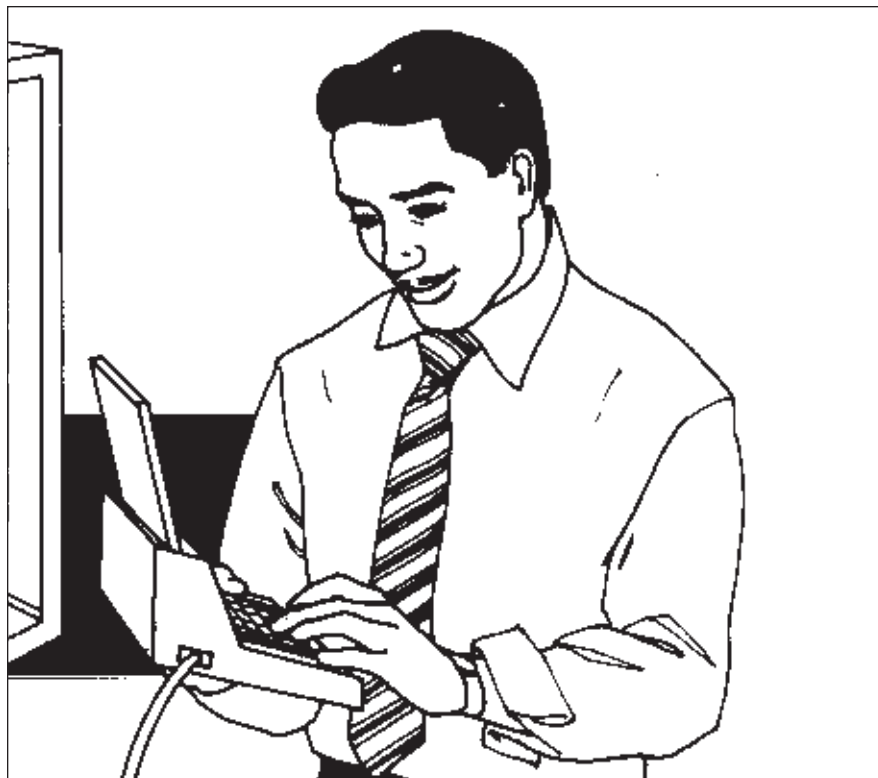
You are walking around your facility and want to quickly check the status of a particular area. You plug a laptop computer into the nearest field panel and view what is happening at your facility.

You are in the building engineer's office and want to check building status. You use the operator terminal to view what is happening in your facility.

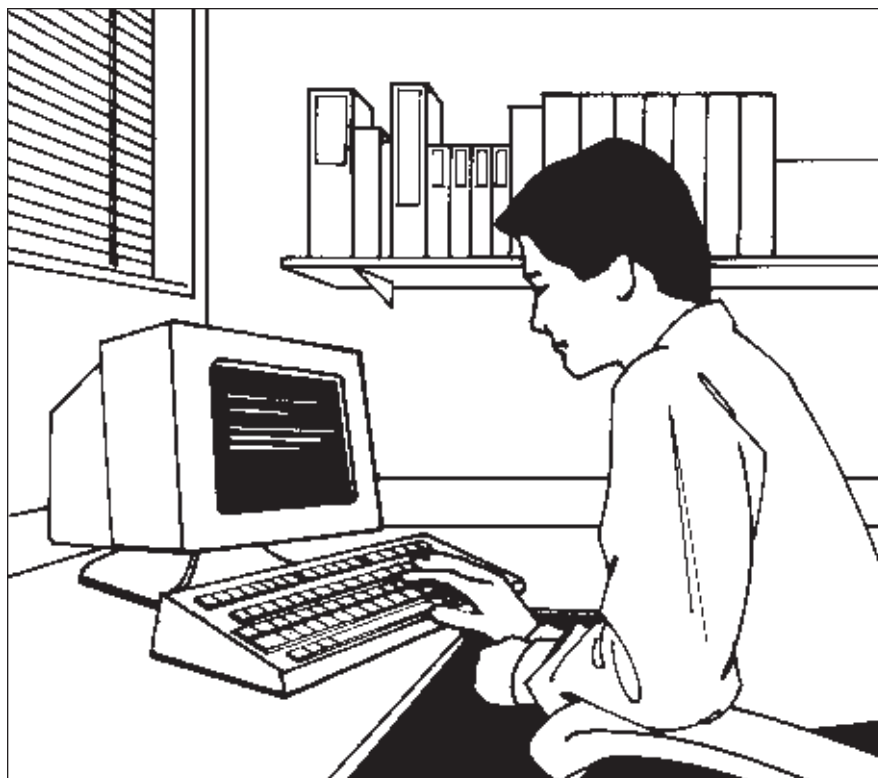
When you use a laptop computer or an operator interface terminal you can plug into any field panel and view the entire network. This means that if you are on the first floor of your building you can communicate with a field panel on the third floor, and can view third floor reports at your location.

You communicate with your network of field panels through a system of menu questions, called prompts. Each prompt line lists valid entries. By entering one letter from the prompt line you will be given additional entries.

**Communicating at a field panel  
with a portable computer.**



**Communicating in an office with  
an operator terminal.**





# Operator Access: Access Groups and Privilege Levels

The tasks which you can perform with your System 600 APOGEE are based on two things:

- access groups
- privilege levels

An access group is a custom-built collection of points and other objects. Access groups can be created at the field panel operator interface as well as at an APOGEE Insight workstation, if there is one of those at your site. (Note: If Insight is part of your system, operator access should be set up using that workstation.)

When setting you up as a user, your system administrator will assign access groups to your account based on the points and other objects to which you should have access.

Access groups consist of points or other objects organized by location or function.

Access Groups  
(Menu: System - Users - Access Groups)

1 - Maintenance Points: BLD54.FL10.AHU01.SAT BLD54.FL10.AHU01.SAF ⋮	2 - Labs BLD54.Lab4temp BLD54.Lab5temp ⋮
3 - Offices ⋮	4 - Cafeteria ⋮

Points assigned to access groups in the Point Editor.

In the Point Editor:  
(Point-Edit)

Name: BLD54.FL10.AHU01.SAT

⋮

Access Group: 1, 2, 4

When users are created, they are assigned access groups, and privilege levels to various field panel functions.

Accounts (Users)  
Menu: System - Users - Accounts

User Initials: RFD

Password: Bob

Name:

Access Groups : 1, 2, 3

Point privilege : Edit

Alarm privilege : Edit

Trend privilege : ⋮

⋮

You will then be assigned a privilege level for a variety of field panel functions, including access to point information, trending, alarms, FLN devices, PPCL, etc. The privilege levels which can be assigned are:

- No access – prevents access of any kind
- Read only – allows you to look at and print information
- Command – gives you the ability to command points and other objects, as well as view
- Edit – full editing capabilities

The combination of access groups and privilege levels determines what each user will be able to do with the system. The table below shows an example of how users can be assigned to different access groups and have different privilege levels for field panel functions.

User	Access groups	Privilege levels
Bob	1-10 (entire facility)	Edit capability for all privileges. (Bob is the system administrator for the facility.)
Mary	1-10 (entire facility)	Command capability for all privileges. (Mary can command all points, but does not have privilege to configure the system.)
Bill	1-5	Bill has command capability for all points in his access groups. He has read-only privilege for PPCL programs, alarms, scheduler, and other field panel functions.

For this module, we will assume you have the ability to command some points (no edit privileges are required for this module).

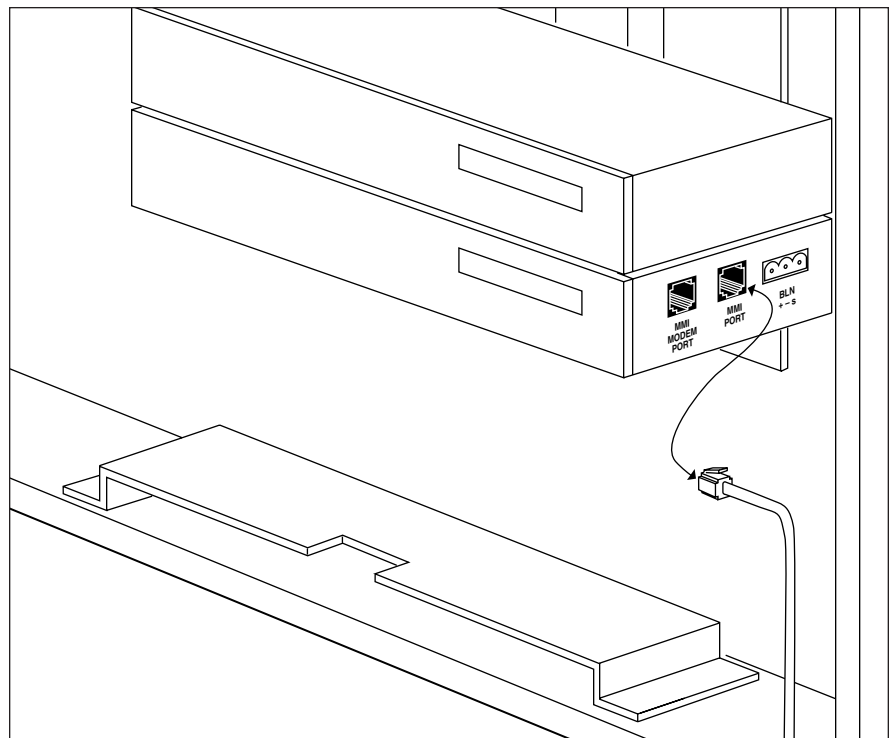
The field panel supports up to 50 user accounts.

## Communication Hardware

If you are using an operator terminal in a designated work area, such as the building engineer's office, your Siemens Building Technologies, Inc. representative has set up your workstation for you.

If you are using a laptop computer, you must connect the computer to the field panel before you can begin communication. You must also have some type of terminal emulation software installed on your computer. There are a number of these programs available. Your Siemens Building Technologies, Inc. representative can discuss the types with you.

To connect your laptop to the field panel, plug the computer's communication cable into one of the field panel MMI ports.



Connecting a portable computer to a Modular Building Controller (MBC) or Remote Building Controller (RBC).

---

## Logging Onto Your System

On the first prompt line which appears, you see the following items:

```
>Time, Message, Cancel, Hello ?
```

Remember that the prompt line is asking for a one letter response to select an option from the menu. The appropriate letter is whichever letter is capitalized in that option. Usually the first letter of the option will be the capitalized letter.

To log on, press **H** for Hello.

```
>Time, Message, Cancel, Hello ? H  
>Enter user initials      :  
>Enter user password    :
```

The system then prompts you for your user initials and password. Enter your initials first and press RETURN. Then enter your password and press RETURN again. Both of these will be set up by your system administrator or your Siemens Building Technologies, Inc. representative. Your password will not appear on the screen.

Then this line appears:

```
> Point, Application, Time, Message, Cancel, System, Bye ?
```

This is the main menu. When you see this line, you have signed onto the system. Now you can perform the tasks which have been assigned to you based on your access groups and privilege levels.

This training guide focuses on options available under the Point prompt. This menu option is where you will do most of your work. See the Appendix for a definition of all main menu command selections.

---

## Logging Off of Your System

There are two ways to log off of your system. You can log off manually, or you can let the system do it for you. The system automatically logs you off if your keyboard has been inactive for a specified period of time. This time period is established for each user in User Accounts. The default is five minutes. This automatic log off feature is called Autobye, and can be disabled if you desire.

To log off manually enter **B** for Bye at the main menu.

> Point, Application, Time, Message, Cancel, System, Bye ? **B**

The system double checks to make sure you want to exit. Since you do, enter **Y** for Yes and press **ENTER**.

> Ok to sign you off (Y/N) ? **Y**

The system logs you off.



### Practice

Log onto and off of your system.

---

## Correcting Errors

You can easily delete any incorrect entry and return to the main menu to restart your command sequence.

To delete information when the cursor is on the same line as the mistake, press the BACKSPACE key. This erases mistakes one character at a time.

To return to the main menu press the # key (Hold down the SHIFT key and press the 3 key.)

There are also a number of keystrokes which are known as accelerator keys. These key sequences help you when entering and displaying prompts and text from a terminal interface. In the Appendix of this training guide there is a list of all the accelerator keys. As you become more proficient communicating with your System 600 APOGEE, you will find the accelerator keys helpful. To display the accelerator keys, type a question mark at any main level prompt.

### Using Help

There is also a help, or query feature in the field panel which uses the question mark to display information. At many prompts you may simply type the question mark to have displayed a list of possible entries.



### Practice

1. Log onto your system.
2. At the main menu choose any prompt except "Bye."
3. Return to the main menu.
4. From the main menu enter:  
P for Point.  
L for Log.  
At the point name prompt enter an incomplete point name like DAT.  
Exit this command sequence and return to the main menu.
5. From the Main Menu, enter a question mark to display the accelerator keys.
6. Have your instructor show you a situation appropriate for your site in which the question mark can be used to query for helpful information.

# Point Logs

Checking the status of your building is one of the most frequent tasks you will perform. There are many ways to check building status, but one of the most common ways is to run a point log. A point log displays important point information on your screen. You can print or display point logs for a single point or a group of points, as well as for all points in your system.

Here is a sample point log:

09/22/97	POINT LOG REPORT	14:33
-----		
Search for <BLD2.AHU01.*>		
Point name		
:Suffix (Description)	Value/State	Status Priority
-----		
BLD2.AHU01.DSP (AHU01 Setpoint)	60 DEG F	-N- NONE
BLD2.AHU01.SFN (SUPPLY FAN)	OFF	-N- OPER

---

## Point Log Terminology Definitions

<b>Point Name:</b>	The name the point or other object was given in the database. Can be up to thirty alphanumeric characters long. Each point (and object) must have a unique name within the field panel and across the Building Level Network (BLN). The point log shows only one point name, either the user name or the system name. Which name you see as a user is determined when your password is established by your system administrator. In some cases the two names are identical.
<b>Value/State:</b>	The current value or state of the point. If the point is an analog point, the value and unit of measurement are displayed (such as 72 DEG F). If the point is a digital point or an enumerated point, the state is displayed (such as ON, OFF, CLEAN, DIRTY, WARMUP).
<b>Status:</b>	The current status of the point. Can be Normal, Alarm, Failed, Proofing, Operator Disabled, PPCL Disabled, Alarm Failed, or Alarm By Command (put into alarm by the operator). See the chart in the Appendix for specific descriptions of each condition.
<b>Priority:</b>	The current priority of the point. The two most common priorities are NONE (the field panel is controlling the point) and OPER (the operator is controlling the point). Other priorities (PDL, SMOKE, EMER) are less common, and will not be discussed in this module.
<b>Suffix (Description):</b>	<p>The description that was entered in the database. Can be up to 16 characters long, not counting the parentheses. The parentheses are added by the system. The descriptor helps identify the point.</p> <p>Suffix refers to subpoints in an application: TEC subpoints, scheduling zone subpoints, and PPCL subpoints.</p>



---

## Running A Point Log for One Point

To view the status of just one point, perform the following steps.

At the main menu, enter **P** for Point.

```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
>
```

At the Point menu, enter **L** for Log.

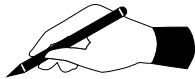
```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? L
```

At the point name prompt, enter the point name you want the log for and press <RETURN>. In the example below, we want to see the log for the point BLD2.AHU03.SAT.

```
> Point name   : BLD2.AHU03.SAT <ENTER>
```

A log for the BLD2.AHU03.SAT point appears.

09/22/97	POINT LOG REPORT	14:33
-----		
Search for <BLD2.AHU03.SAT>		
Point name		
:Suffix (Description)	Value/State	Status Priority
-----		
BLD2.AHU03.SAT (Supply Temp)	60 DEG F	-N- NONE
End of Report		



### Practice

Run a point log for a single point in your building. Your instructor will supply you with the point name.

What is the point descriptor? \_\_\_\_\_

What is the point value/state? \_\_\_\_\_

What is the point status? \_\_\_\_\_

What is the point priority? \_\_\_\_\_

# Running a Point Log Using Wildcards

Many times you will want to run point logs on groups of related points. For example: you want to check the status of all the supply fans in your building. You know all the fan point names end with the letters SAF, and in front of that character sequence there are different numbers and letters (AH1, AH2, etc.) You can use a wildcard to run a log for all points that end with the letters SAF.

There are two wildcard characters you can use: the asterisk (\*) and the question mark (?).

The asterisk is used more often than the question mark. The asterisk takes the place of one or more characters. The question mark takes the place of a single character. For example: you want to list points that end with the letters FAN and have any other combination of letters and numbers in front of the letters FAN. You enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? L
>Point name      : *FAN <ENTER>
```

09/22/97	POINT LOG REPORT	15:38
-----		
Search for <*FAN>		
Point name		
:Suffix (Description)	Value/State	Status      Priority
-----		
BLD2.AHU01.FAN (SUPPLY FAN)	ON	-N-      NONE
BLD2.AHU02.FAN (SUPPLY FAN)	OFF	-N-      OPER
BLD2.AHU03.FAN (SUPPLY FAN)	ON	-N-      NONE
End of Report		

\*FAN lists all points that end with the letters FAN. They may have any variety of characters in front of that sequence.

Wildcards can also be used at the beginning and in the middle of point names. For example, entering BLD2\*FAN will give you all the supply fans in Building 2.

You can also use more than one wildcard in a statement. For exam-

ple, entering \*AH3\* will give you all the points related to air handler 3, such as BLD2.AH3.SAF, BLD2.AH3.SAT, etc.

To pause the scrolling of a long log, hold down the <CTRL> key and press S. To resume scrolling, press any key, such as the space bar.

You can cancel a scrolling point log at any time. If scrolling is paused, first resume scrolling. Then hold down the <SHIFT> key and press the 3 key. You will return to the main menu.



### Practice

Run a point log for points in your system using one or more wildcards. Your instructor will tell you what points to display.

Use the control key to pause and resume the scrolling of a long log.

In the blanks below enter the wildcard sequence to display the following:

All points that begin with BLD3. \_\_\_\_\_

All points that end with SAT. \_\_\_\_\_

All points that relate to Chiller 3 (CLR3). \_\_\_\_\_

Your instructor can discuss how points are named at your site and how to best use wild cards to display your points.

---

## Commanding Points

Your System 600 APOGEE field panels contain programs which control points under normal operating conditions. There will be times, however, when you need to command points from the keyboard.

Commanding a point puts the point into Operator priority. (A point log would say OPER.) Operator control overrides system control (NONE). The program in your field panel cannot take action on the point once it is in Operator priority.

For example: You get a call from someone in your building saying an area is too hot, and when you run a point log for that area you see that it is indeed too hot. To provide the fastest solution to the problem, you want to command the damper (BLD2.AHU02,DMP) to 100 percent open to provide more cool air. (After getting cool air to the space, you can troubleshoot to find out why the space was too hot in the first place.)

To command the damper, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? C  
> Value, resetTotal, Quit ?
```

At the Point Command line, choose **V** for Value.

```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? C  
> Value, resetTotal, Quit ? V  
> Point name   :
```

Type the name of the point and press ENTER. You must enter the exact point name. No wildcards are allowed.

The system will tell you the current value of the point, and provide a place for you to enter the new value of the point.

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? C
> Value, resetTotal, Quit ? V
> Point name   : BLD2.AHU02.DMP
> Current value = 0           New: 100 <ENTER>
BLD2.AHU02.DMP commanded to 100
```

Type the new value for the point, in the case of our example 100 for 100 percent open, and press **ENTER**.

The system will tell you that the point has been commanded to the new value. The damper will stay at 100 percent open until you take the point out of Operator priority.

It is usually not a good idea to use the point command feature to make permanent changes to your system. If your program needs permanent changes, your Siemens Building Technologies, Inc. representative will be happy to make them for you.

### Practice



Command a point or points in your building. Your instructor will tell you which points to command and what options to enter.

Run a point log for the points you commanded.

What is the priority of the commanded points?

---

What is the value of the commanded points?

---

---

## Returning Commanded Points to System Control

After you have commanded points, you should at the appropriate time return the point to system control, which means return the point to NONE priority. Failure to return a point to system control is the most common cause of system malfunction. A point that is in OPER priority (Operator priority) will remain at the value to which it has been commanded. Returning the point to NONE priority allows the system to once again take control of the point. In most cases the field panel program should be controlling your points.

To return the damper we commanded wide open to NONE priority, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? O
> Priority, Enable, Disable, Alarm, Normal, Trouble, norMal, enaLm, dlsalm ? P
> None, Pdl. Emer, Smoke, Oper : N
> Point name   :      BLD2.AHU02.DPR <ENTER>
> Are you sure (Y/N)?   : Y
Point BLD2.AHU02.DPR commanded priority to NONE
```

You may use wildcards to command more than one point to a priority.



### Practice

Return the points you commanded in the previous exercise to system control.

Run a point log on the points to check for the priority change.

---

## Commanding Subpoints

Subpoints in Terminal Equipment Controllers (TEC's), Unitary Controllers (UC's), and Fumehood Controllers can be commanded in a manner which is similar to commanding other points. You enter the FLN device name, a colon, and after the colon the subpoint name (suffix).

For example:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? C
> Value reset Total, Quit ? V
> Point name   : BLD2.FLR01.RM101.TEC:HEAT.COOL
> Current state = COOL           New state: HEAT <ENTER>
BLD2.FLR01.RM101.TEC:HEAT.COOL commanded to HEAT
```



---

## Releasing Subpoints

When subpoints have been commanded, they go into override priority (OVRD), which is similar to Operator priority for logical points. To return the subpoint to TEC control, you must release the point.

To release a subpoint, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? O  
> Priority, Enable, Disable, Status, Release, Quit ? R  
> Point name : BLD2.FLR01.RM101.TEC:HEAT.COOL <ENTER>  
> ARE YOU SURE (Y/N) : Y
```

```
Point BLD2.FLR01.RM101.TEC:HEAT.COOL commanded priority to NONE
```

The subpoint will return to TEC control.

# Point Monitor

The point monitor allows you to look at points as they change value over a period of time, instead of a snapshot like the point log. The values you see on the screen are the actual values for that moment in time. Point values are updated every four seconds and scroll up on the screen.

The point monitor updates point information until you stop it. This is why the message “delaying. . .” appears at the end of each report. This message tells you that the point monitor is still active.

Here is an example of a point monitor display for two points:

010/6/97	POINT MONITOR REPORT	17:21
-----		
Point name		
:Suffix (Description)	Value/State	Status Priority
-----		
17:21:10 10/6/97 MON		
BLD2.AHU03.SAT (Supply Temp)	60.1 DEG F	-N- NONE
BLD2.AHU03.CWV (CW Valve)	65 PERCENT	-N- NONE
Delaying . . .		
17:21:14 10/6/97 MON		
BLD2.AHU03.SAT (Supply Temp)	60.5 DEG F	-N- NONE
BLD2.AHU03.CWV (CW Valve)	65 PERCENT	-N- NONE
Delaying . . .		
17:21:18 10/6/97 MON		
BLD2.AHU03.SAT (Supply Temp)	60.9 DEG F	-N- NONE
BLD2.AHU03.CWV (CW Valve)	65 PERCENT	-N- NONE
Delaying . . .		
17:21:22 10/6/97 MON		
BLD2.AHU03.SAT (Supply Temp)	61.4 DEG F	-N- NONE
BLD2.AHU03.CWV (CW Valve)	66 PERCENT	-N- NONE
Delaying . . .		

Note the changes in the supply temperature and that the valve position changed slightly in the final display.

Any other output to the screen, such as alarms or messages, interrupts the point monitor. The monitor continues after the interruption has finished.

When you monitor some points you will notice that for the point descriptor there are only dashes displayed. The dashes mean that the point you are monitoring is not contained in the field panel your terminal interface is connected to. The descriptor does not travel across the network, and the point will update based on its Change of Value (COV) limits.



### **Practice**

What types of points in your building would be appropriate to enter into the point monitor?

---

---

Why?

---

---

What kinds of points in your building would not be appropriate to enter into the monitor ?

---

---

Why?

---

---

---

## Adding Points to the Point Monitor

Before you can display the point monitor you must build it by placing points in it. This is accomplished using the Point-Monitor-Add sequence.

You enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? M  
> Listpoints, Start, Add, Delete, Quit ? A  
> Point name      :      BLD2.AHU03.SAF <ENTER>  
> Command successful
```

A message appears telling you your command was successful.

Repeat this sequence for every point you want to add to the monitor.



### Practice

Add two points to the point monitor. Your instructor will tell you which points to add.

---

## Running the Point Monitor

Once you have entered points into the monitor you can run the monitor.

Enter:

> Point, Application, Time, Message, Cancel, System, Bye ? **P**  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? **M**  
> Listpoints, Start, Add, Delete, Quit ? **S**

The point monitor begins, and information is updated every four seconds.

To exit the point monitor, hold down the SHIFT key and press the 3 key (#). You will return to the main menu.



### Practice

Run a point monitor report.

Are the values changing? \_\_\_\_\_

After the points have updated a few times, cancel the monitor and return to the main menu.

---

## Removing Points from the Point Monitor

You should remove any unnecessary points from the point monitor when you are finished looking at them and will not need to look at them again.

To remove a point from the monitor, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? M
> Listpoints, Start, Add, Delete, Quit ? R
> Point name          : BLD2.AHU03.CWV <ENTER>
  Command successful
```



### Practice

Remove the two previously added points from the point monitor.

# Running a Point Totalization Report

The point totalization report can tell you how long a piece of equipment has been on. Points are totalized in hours, minutes, or seconds. The point totalization report can help you plan for servicing, maintenance, and estimating part replacement costs.

For example: A fan needs its belts changed every 500 running hours and the bearings in a hot water pump need to be greased every 700 running hours. Running a totalization report on this equipment allows you to keep track of their run times so you can determine when to perform preventive maintenance.

Your Siemens Building Technologies, Inc. representative has determined which points are totalized. Totalization is set when points are first entered into the system.

You can tell the system which point you want to see the total run time for by point name.

Let's say you want to see the totalized value for all supply fans. You want the information to display on the screen.

You enter:

> Point, Application, Time, Message, Cancel, System, Bye ? **P**

> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? **D**

> Here or Printer ? **H**

> Value, Total, Definition ? **T**

> Point name : **\*SAF <RETURN>**

> Field panel : **<RETURN>**

> Here, Printer : **H**

Command successful

23-Oct-97 MON TOTALIZED POINT VALUE REPORT 11:15

-----

Search for <\*SAF>

Point name (Description)

Totalized value

Reset time

(Reset value)

-----

BLD2.AHU02.SAF (Supply Fan)

54:23:13 OFF

10/20/97 16:33 pm

0

113:36:47 ON

10/20/97 16:33 pm

0

BLD2.AHU02.SAF (Supply Fan)

23:39:42 OFF

10/24/97 08:00 am

0

72:21:18 ON

10/24/97 08:00 am

0

Your supply fans have run 113 and 72 hours between October 20 and the date of this report, October 23rd. October 20 was when the point began to totalize.

The 0.0 in the last field of the report is the initial totalized value. You would change this value if you wanted to add hours to the totalized value of the point. You might do this if you purchased a used piece of equipment, for example. You could enter the previous run-hours of the piece of equipment so you will have an accurate record of total run hours, not just the run time in your building.



### **Practice**

For what kinds of points would you want to use point totalization ?

---

---

Run a point totalization report for a totalized point in your building. Your instructor will tell you which point to choose.

What is the totalized value for the point?

---

Is the point totalized in hours or minutes?

---



---

## Resetting Totalized Point Values

If you are using point totalization, you may want to reset the totalization time for some points. Recall the example of the fan we looked at, whose belts you replace every 500 hours. After replacing the belts you want to reset the totalization of the fan so the run-time returns to zero to start the counting over.

To reset the total run time to zero for the fan, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? C
> Value, resetTotal, Quit ? T
> Point name           : BLD2.AHU02.SAF
> Reset total for all states ? (Y/N) : Y
> Reset total value     : 0
Command successful
```

The run time for the point is reset to zero. You may choose not to reset all states for the point. This allows you to reset the counter for a specific point state.



### Practice

If appropriate, reset the totalized value of a point in your building to zero. Get your instructor's approval before proceeding.

---

## Point Trending

Trending keeps a record of a point's value or state over time. Use trending to see how equipment has operated over a period of time or to monitor different value and state changes.

Points can be trended in two ways: by time interval and by Change of Value (COV).

**Trending by time interval:** You can trend the temperature in a room for a given time interval, such as every fifteen minutes or every hour. Trending also allows you to trend by more than one time interval, so you can record the value of that room temperature every fifteen minutes and every hour.

**Trending by COV:** You can trend the same room temperature point so that the system records the value and time whenever the temperature changes by a specific amount, such as one degree. This is trending by COV. (This COV can be different from the one assigned to the point in the point database.)

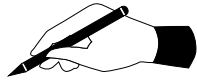
Trending a digital point by COV allows you to record all the times that the point turns on and off. For example, a fan may turn on and off several times in an hour, so trending the point by one-hour intervals would not let you see the cycling of the fan. Trending the point by COV would record each change of state (from OFF to ON and ON to OFF).

When you add a point to trending you are asked to specify the number of samples to be stored at the field panel. If trending by time, you are also asked to specify the time interval. For example: if you want to trend the outdoor air temperature for the next 24 hours, you would tell the system you want 24 samples taken in 60 minute intervals.

Trending samples are constantly updated , so you see the latest information. In the example above, if the trend report lists hourly samples from 12 A.M. to 11 P.M., when the next sample comes in at 12 A.M., the previous 12 A.M. sample is erased because there are only 24 samples saved.

If you are trending and enter wildcard characters in the point name to designate a group of points, the maximum number of samples allowed is 100. If you list a single point name you can designate up to 2500 samples.

**Caution:** Trending with wildcards can use a lot of memory. Use wildcards sparingly.



### Practice

What kinds of points in your building are being trended? Why?

---

---

Which points are trended by time, and which by COV?

---

---

## Adding Points to Trending

You must add points to trending before you can run trend reports.

Let's say you want to trend the point BLD2.AHU02.SAT. You want to see the temperature fluctuations (or COV's) for the point and want to take 50 samples. You enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? T
> Log, Display, Edit, Quit ? E
> Add, Modify, Copy, Delete, Look, Quit ? A
> Point Name   : BLD2.AHU02.SAT <ENTER>
> Cov, Time           : C
> Maximum number of samples      : 50 <ENTER>
Tend point by COV limit (Y/N) ? : Y
BLD2.AHU02.SAT now trended by Change-of-Value
```

If you answer no to the question, "Trend point by COV limit?," you may enter a customized COV value.

To also trend the point at one minute intervals, enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? T
> Log, Display, Edit, Quit ? E
> Add, Modify, Copy, Delete, Look, Quit ? A
> Point Name   : BLD2.AHU02.SAT <ENTER>
> Cov, Time           : T
> Maximum number of samples      : 50 <ENTER>
> Minutes between samples      : 1 <ENTER>
BLD2.AHU02.SAT now trending every 1 Minute
```

The point is added to trending. It will be trended by COV and time.



### Practice

Add two points to trending. Trend one by time and one by COV. Your instructor will tell you which points to enter, the maximum number of samples, and the number of minutes between samples.

---

## Running Point Trend Reports

Once points have been added to trending, you can run reports on them to display and print the information gathered. You can run a report for a single point or for up to six points at one time.

You want a trend report for the BLD2.AHU02.SAT point, and want to display the report on your screen. You have trended this point both by time and by COV, but you just want to see a report on the COV changes. You want a report for today, November 12, from 1 P.M. to now (it is about 1:30 P.M.).

You enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? T
> Log, Display, Edit, Quit ? D
> Point Name   : BLD2.AHU02.SAT <ENTER>

> 1)   COV           50 samples
> 2)   1 minute      50 samples

Enter option # or <C> for Cancel: 1 <ENTER>
```

The system tells you if the point you entered is trended by time, COV, or both. If the point is trended by time and COV, the system asks which trend report you want to see. In this example, we want a COV trend report. Since COV is the first trend the system lists, we **enter 1** and press **<ENTER>**.

The system then asks if you want a trend report for any other points. Since we do not, press **<ENTER>**. It also asks for the start date and time for your report.

```

> Next point name      : <RETURN>
> Start date (MM/DD/YY) : 11/12/97
> Start time (HH:MM:SS) : 13:00:00
> Here, Printer        : H

```

```

11/12/97 WED          TREND SINGLE DATA   REPORT 13:30

```

```

-----
BLD2.AHU02.SAT      DEG  F

```

13:00:34	56.0	-N-	P:NONE
13:02:56	57.0	-N-	P:NONE
13:05:12	58.0	-N-	P:NONE
13:08:43	59.0	-N-	P:NONE
13:10:04	58.0	-N-	P:NONE
13:12:56	59.0	-N-	P:NONE
13:15:31	58.0	-N-	P:NONE

```

End of report

```

A COV report for the point appears. Note the temperature changes.

When you trend a point it takes up memory in the field panel. You must be careful not to leave unneeded points in trend or to trend too many points with very large numbers of samples.



### Practice

Run a point trend report for one of the two points you put into trending in the previous exercise.

## Removing Points from Trending

When you remove a point from trending you stop any further collection of data for that point. Any existing trend data associated with that point is not saved at the field panel.

For example: You have trended point BLD2.AHU02.SAT by time and COV. You want to remove the point from trending by time. You enter:

```
> Point, Application, Time, Message, Cancel, System, Bye ? P
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? T
> Log, Display, Edit, Quit ? E
> Add, Modify, Copy, Delete, Look, Quit ? D
> Point Name : BLD2.AHU02.SAT <ENTER>
>
> 1) COV 50 samples
> 2) 1 minute 50 samples

Enter option # or <C> for Cancel : 2 <ENTER>

> Are you sure (Y/N) : Y

BLD2.AHU02.SAT Command successful
```

The time trend is deleted, but the COV trend remains.



### Practice

Remove the points you previously added to trend.

## Running a Point Definition Report

A point definition report tells you how a point was defined, or set up, in the system. When your system was set up, your Siemens Building Technologies, Inc. representative defined all the points in your building.

You would run a point definition report to see how a point is set up and to help diagnose problems with points. You can run a point definition report based on point name or point address.

Let's say you want to know if the point BLD3.AH1.SAF was set up for totalization when it was defined. You enter:

> Point, Application, Time, Message, Cancel, System, Bye ? **P**  
> Log, Display, Command, Edit, Operation, Monitor, Alarm, Trend, Quit ? **D**  
Value, Total, Definition ? **D**  
Name, Address ? **N**  
Point name : **BLD3.AH1.SAF**  
Field Panel : **\***  
Here, Printer : **H**

11/14/97 FRI POINT DISPLAY DEFINITION REPORT 09:21

Search for <BLD3.AH1.SAF>

Field panel &lt;\*&gt;

Field	Value
-------	-------

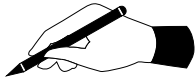
```

Point system name      : BLD3.AH1.SAF
Point name             : BLD3.AH1.SAF
Point type             : L2SL
Descriptor             : Supply fan
Value                  : OFF
Condition              : -N-
Priority               : NONE
State text table       : Default L2SL
Access groups          : <all>
Point enabled for alarming
    Print alarms       : YES
    Alarm count 2      : NO
    Normal ack enabled : YES
Totalize               : YES      : in hours
Field Panel            : 2
On/off point address   : 002 0 06 01
    Invert value       : NO
Proof point address    : 002 0 07 02
    Normally closed    : NO
    Proof delay (seconds) 10
End of report

```

The definition report tells you that the fan was set up to totalize in hours.





### Practice

Run a point definition report for two points in your building. Your instructor will tell you which points to use.

1. What are the values of the two points?

\_\_\_\_\_

2. What are the priorities of the two points?

\_\_\_\_\_

3. Are the points alarmable?

\_\_\_\_\_

4. Are the points totalized? \_\_\_\_\_

If yes, in what increment? \_\_\_\_\_

---

## **Powers Process Control Language**

You may have heard about Powers Process Control Language (PPCL). This is a powerful programming language made up of various types of statements. Each statement performs a specific task and is written in a specific format. When your system was set up, your Siemens Building Technologies, Inc. representative wrote PPCL programs to tell the system exactly how to control your building.

Do not try to write PPCL without some advanced training or experience. Formal instruction in PPCL programming by a qualified Siemens Building Technologies, Inc. representative is recommended.

PPCL is a powerful programming language that uses BASIC language-type statements to perform PID loop control, equipment operation scheduling, and control sequencing. The PPCL programs can be accessed and modified from the operator interface at the field panel provided the operator has the appropriate access level.

---

## Wrap-up Exercise

Log on to your system.

Run a point log for two different groups of points in your system. Use a wildcard to specify the groups. If the list is long enough, pause and resume scrolling during the display of the logs.

For two points in each of the point logs you ran, list the following information:

Point name	Value/State	Status	Priority
_____	_____	_____	_____
_____	_____	_____	_____

Command a point on and off.

Command a point to a new value.

Release the points you commanded to None priority.

Run a point log to verify the priority changes.

Add two points to the point monitor.

Start the point monitor and watch to see if the points update.

Remove the points from the monitor.

Run a point totalization report for two points. What is the totalized value for the points? \_\_\_\_\_

If appropriate, reset the totalized value of a point. Your instructor will provide you with the point.

When would you trend a point by time? \_\_\_\_\_

When would you trend a point by COV? \_\_\_\_\_

Add two points to trending.

Point1: \_\_\_\_\_

Trended by \_\_\_\_\_ Number of samples: \_\_\_\_\_

Hours/minutes \_\_\_\_\_

Point2: \_\_\_\_\_

Trended by \_\_\_\_\_ Number of samples: \_\_\_\_\_

Hours/minutes \_\_\_\_\_

Run a point trend report for one point in your system. Point name: \_\_\_\_\_ Use today's date as the start date. For start time, enter a time about a half hour before the current time. (For example, if it is now 10 A.M., enter 9:30.)

Remove the points you previously added to trending.

Run a point definition report for a specific point.

Point name: \_\_\_\_\_

What is the point type? \_\_\_\_\_

What is the value? \_\_\_\_\_

Is the point totalized? \_\_\_\_\_

Is it alarmable? \_\_\_\_\_

Log off of your system.

Define and explain the use of PPCL: \_\_\_\_\_  
\_\_\_\_\_

List two ways to correct errors when communicating with your System 600 APOGEE system:

\_\_\_\_\_

How do you ask the system for help?

\_\_\_\_\_

What does it show you? \_\_\_\_\_

What are the purposes of the following reports:

point log \_\_\_\_\_

point monitor \_\_\_\_\_

point totalization \_\_\_\_\_

point trend \_\_\_\_\_

point definition \_\_\_\_\_

---

## Appendix

---

## Main Menu Options (high level), with definitions

### Choose this option: If you want to:

Point	Enter or remove point database information, monitor points, command points, trend points, change point information.
Application	Work with PPCL programs, FLN devices, and Schedules.
Time	Check the time, date, and field panel number kept by the field panel.
Message	Send typed messages to other network terminals.
Cancel	Cancel reports sent to the printer.
System	Add/remove field panels, set up users and passwords, set up printers, etc.
Bye	Log off the system.

## Point Condition Types

Display	Condition	Definition
-N-	NORMAL	No non-normal (e.g., alarm, failure) conditions exist.
*A*	ALARM	<p>A point will alarm if:</p> <p>An analog point's value is outside its assigned alarm limits.</p> <p>A point's commanded value does not match its proof state.</p> <p>For example: You would get an alarm if the system commanded a fan on but the fan proof showed that the fan was still off.</p> <p>You define an LDO point as alarmable. (It will alarm when it is on.)</p>
*AC*	ALARM-BY-COMMAND	A point has been commanded into alarm by the operator. This is used for troubleshooting or testing a point.
*F*	FAILED	The field panel cannot command or read the point. Usually the result of a hardware failure.
*O*	OPERATOR DISABLED	The operator has disabled the point.
*P*	PROOFING	A temporary condition that follows after the commanding of a point with a proof (like a fan). After the delay time has elapsed the point will go into normal or alarm condition.

More than one abnormal condition can occur at the same time, such as \*AF\*, \*AFO\*, etc. For example, if a point is in the alarmed state and is then disabled by the operator, the \*AO\* condition will appear for that point.

## Accelerator keys and the “?” Used for Help

There are a number of key sequences called accelerator keys which can help you edit text more easily. To get a list of these keys, all you need to do is enter the question mark character from the main menu. The list will be displayed. The question mark character serves as a Help key when used at the beginning of a menu prompt.

Action	Keystrokes	Explanation
Next line		Accept default or selected entry
Previous line		Move to previous prompt.
Cancel		Cancel current operation.
HELP		Get user help.
Single wild		Single character wildcard.
Multiwild		Multi-character wildcard
Home field.		Move cursor to start of current field.
End		Move cursor to end of current field.
Cursor left		Move cursor one character left in current field.
Cursor right		Move cursor one character right in current field.
Delete left		Delete character to the left of cursor.
Delete right		Delete character to the right of cursor.
Delete to EOL		Delete from current position to end of line.
Delete field		Delete current field's input.
Redisplay		Redisplay current line
Toggle overstrike		Toggle overstrike
Define string		Define string in paste buffer
Insert string		Insert paste buffer at current position
Pause		Pause screen
Resume	<anykey>	Resume screen scrolling
Hold alarms		Stop alarms for 30 seconds
Autodial bye		Disconnects from Autodial
Autodial extend		Extend autodial timeout to 20 minutes



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