IMPORTANT: This manual is for use with controller ZONE I/O 560 FHP part number 641-224 with software version 2.01 on factory installed equipment. See controller label as shown in figure on page 24 to verify correct part number.

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The BACview Interface

The BACview module (as shown in figure 1) is a combination keypad/display unit that attaches to a control module to let you view and change property values and the controller’s real time clock in application where a system server is not available.

Figure 1 – BACview – 641-231

The contrast of the LCD display can be adjusted by using a screw diver and turning the contrast screw counterclockwise or clockwise, see figure 1 to locate this feature on the BACview display.
BACview screens

Screens can only be accessed if the BACview programmer created links to them, screens shown in this manual have been custom programmed at FHP to support the different Zone controller applications and this manual shows only the ones for the software version 2.01; for other software versions please visit our website at www.fhp-mfg.com.

Alarm

On this screen the user could see the 100 most recent alarms received by the controller

Clockset

This screen allows the user to set the controller real time clock, however when operating on a network with a server and a gateway the controller will take the time of the gateway and it will always take precedence over the one set by the keypad/display.

Keypad

This screen allows the user or operator to define:

- The period of inactivity required before the Display dims out
- The priority (1-16) the BACview uses to write BACnet® properties. 1 being the highest priority. 16 is the default.

BACnet®

This screen allows the user to see the controller’s BACnet® name and ID.

Comm

This screen allows the user set the communications protocol and parameters for the port to which a third party device is connected to.
Symbols that may appear in the Display

If the operator selects a screen that requires a password, the LOGIN screen is displayed. How to log in will be covered in detail in the login in section.

Question marks (?????) indicate a programming error that must be fixed by the BACview6 programmer.

Pound signs (#####) indicate that a value has too many digits to display in the existing field.

User may be able to navigate the available screens using pre-programmed “Hotkeys” or “Highlighting Links”.

These terms will be covered in detail in the navigating the BACview screens section.
Using the BACview

How to Activate the BACview

The BACview screen goes dim after 1 minute of inactivity. Press any key except MUTE or FN, to activate the screen.

TIP: The inactivity time can be changed by accessing the keypad screen pressing FN + 6.

In the BACview control section, change the number in the Keypad Inactivity timeout field.

How to Activate the BACview

Press any key except MUTE or FN, to activate the screen located above the enter button.

To navigate

To navigate or move within selected screen press the up, down, left and right arrow buttons.

Changing a point value

Use the navigation keys to highlight the point or property that needs to be changed and press enter.
Press the arrows to navigate to the character that will have a change in value.

Once selected, three different scenarios can be presented depending on the type of point is being changed as follows:

1. If the value is a decimal number, one of the numbers available in the keypad can be pressed to change its value.
2. The point has a binary or multi stage value; in this case, the softkeys can be utilized to increase (INCR) or decrease (DECR) the variable value or to navigate through the different multistage values available.
3. The user can press the CANCEL softkey to restore the variable to its original value.

If additional points or variables need to be changed, repeat the “changing a point value” procedure for every point required.

IMPORTANT:
If you have not previously logged in the system, the system will prompt you to do so before starting the activity or at some point during the process. See Log in section for further details on the login process.

IMPORTANT:
Information edited on the BACview will affect only the control module until they are uploaded to the Building Automation Server.

If a gateway module is on the network, the time set in the gateway takes precedence over a time entered in the BACview.

Using Hotkeys

Hotkeys are to BACview as to shortcuts are to computers, the BACview can support up to 10 hotkeys, FHP has programmed the following as standard as shown in table 1.
<table>
<thead>
<tr>
<th>HOTKEY</th>
<th>SCREEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td>Admin or user password</td>
</tr>
<tr>
<td>Function 2</td>
<td>View/Set User password</td>
</tr>
<tr>
<td>Function 3</td>
<td>Set Current Time</td>
</tr>
<tr>
<td>Function 4</td>
<td>Alarm</td>
</tr>
<tr>
<td>Function 5</td>
<td>BACnet (Exec B)</td>
</tr>
<tr>
<td>Function 6</td>
<td>Keypad Configuration</td>
</tr>
<tr>
<td>Function 7</td>
<td>Tuning Parameters</td>
</tr>
<tr>
<td>Function 8</td>
<td>Calibration</td>
</tr>
<tr>
<td>Function 9</td>
<td>Checkout/Overrides</td>
</tr>
</tbody>
</table>

Table 1 – Standard Hotkeys
To Activate the Hotkey press FN + Number:

In the example above the BACview will jump to the View/Set user password screen

**Muting Alarms**

Alarms are displayed and broadcasted through the network and usually indicate equipment malfunctioning or maintenance required.

To mute or silence an alarm press MUTE key on the BACview:

Once the mute key is pressed the alarm will be silenced, however it will not be removed from the active status window, the user will be required to press FN+MUTE to silence an alarm and remove its active status in the BACview6.

**NOTE:**
The alarm is moved from the Active Alarms category to the Manually Cleared category on the Alarms screen
Logging in to the BACview

The BACview has the capability for password protecting some of the screens that the user will be interacting with; this is done to prevent critical parameters changes by non qualified personnel in a particular unit.

If while accessing a particular screen or variable a login is required the user needs to enter the four (4) digits password FHP has preprogrammed these to be the following:

**Technician password:** 1111  
**User/ Customer password:** 0000

BACview allows screens to be programmed with different access restrictions or access levels as shown in table 2.

In some cases the screen is not password protected, however some of the parameters or variables within the screen may be, a common indication that the variable or parameter is password protected that the user is prompted to log in to change a particular value.

<table>
<thead>
<tr>
<th>Restriction Level</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Anyone can access, but to edit a field in this screen, the operator must log in with either the User or Admin password.</td>
</tr>
<tr>
<td>User or Customer</td>
<td>An operator logged in with the User or Admin password.</td>
</tr>
<tr>
<td>Technician</td>
<td>An operator logged in with the Admin password.</td>
</tr>
</tbody>
</table>

Table 2 – Screens’ access levels

**IMPORTANT:**

Critical set points such as High/Low cooling and heating limit set points should only be changed by qualified personnel and/or as directed by test and balancing agency.
Navigating the BACview screens

BACview screens can be accessed and navigated using three methods as mentioned in Using the Bacview section.

This section uses both concepts combined so that the user is familiar with both as most real applications need the combination of the arrow keys and soft keys methods to access the different screens.

From the HOME screen use the arrow key to highlight and access different properties in screen as shown.

Use the Soft Keys to access screens that are assigned to them.

HOME

The HOME screen shows the major categories the user can interface with; most of them along with the parameters within them can be configured via the BACview.

--- HOME ---
Status: Normal/Heat/Neutral
Load: 0000.0°
[→Unit Operation] [→Temperature]
[→Pump(s)] [→Heat/Cool]
[→UPM Faults] [→Schedule]
[→Alarm Config] [→USERPW]
[→ALARM] [→CLOCKSET] [→LOGIN] [→Help]

Figure 4 – HOME screen – Soft keys
Unit Operation screen

The unit operation screen can be accessed by selecting its link on the Home screen.

Use the navigation keys to scroll down and see all parameters available on this screen.

This screen allows the user to select the software mode. Default Schedule is the factory default.

User can change this to be:
- Manual On
- BAS Command
- Digital Input (IN1)
- Keypad Schedule

Note:
The Softkeys will allow the user to access other frames/screens as shown.

Figure 5 – Unit operation screen
**Unit Operation Setpoint Screen**

The unit operation setpoint screen allows the user to control the unit in many different ways. The first point refers to the unit occupancy to be enabled by:

- Digital input (DI 1 ON = Occupied)
- Keypad Schedule (Schedule built-in the controller)
- Building Automation System (BAS)
- Web CTRL (Automated Logic front end only)
- Override (Always on)

The second point refers to the control mode of the unit and it is normally used by the BAS to command the unit to a particular mode as follows:

- Off
- Heat
- Cool
- Auto change over
- Digital Input (DI6 On=Cool/ Off =Heat)

NOTE: See page 13 changeover termination details.

---

**Figure 6 - Unit Operation Setpoint**

-------- UNIT OPERATION SETPOINT --------
Software enabled by: Keypad_Schedule
Mode selection method: Digital Input
Night Setback allowed? Yes
[→Prev]
Temperature screen

The Temperature screen can be accessed by selecting its link on the Home screen.

Use the navigation keys to scroll down and see all parameters available on this screen.

This screen allows the user to see all the current values of the temperature variables.

From the Temperature screen the user can access the temperature set points values which allow the user to set up the occupied and unoccupied set points to which the unit will operate on the daily basis.

The set points can be accessed via the soft keys as shown on below.

**IMPORTANT:**
The auto change over setpoint is only used when the unit has been configured to auto changeover.

For this feature to operate correctly a 10K @ 77 °F thermistor needs to be installed in the zone and terminated on DI5.
**Pump screen**

The **Pump** screen can be accessed by selecting its link on the Home screen.

Use the navigation keys to scroll down and see all parameters available on this screen. This screen allows the user to see all the current values of the fan variables and points.

From the **Pump** screen the user can access the service screen (stpt) on which the pump runtime hours are displayed. This parameter is normally used to schedule maintenance on the pumps.

Once on the Set point screen the user can reset the timer to start a new count after servicing the pump.

The **stpt** can be accessed via the soft keys as shown on below.

---

**Figure 8 – Pump Screens**
Heating and Cooling screen

The **Heating/Cooling** screen can be accessed from the Home screen.

As explained in the previous sections the softkeys will allow the user to access other frames/screens by pressing the navigation arrows.

To navigate and or change properties on this screen the user may follow the same steps as illustrated in the **changing a value** section of this manual.

From the **Heating/ Cooling** screen the user can see the actual state of the different points that are involved and needed for the cooling and heating operation respectively as shown in figure 11.

The heating/cooling setpoints are accessed by pressing "Stpt" the runtime hours and counters for the compressors are displayed as shown in figure 12 and can be reset by navigating selecting and changing the particular value.
Lead Lag Screen

Lead Lag screen allows the user to define how the unit will perform its lead lag operation or in other words when and how to switch from one compressor to the other.

By default if compressor one fails compressor two will immediately be commanded on.

In addition, this screen shows which compressor is the lead and the status of the other compressor in the following format:

- Lead
- Lag
- Fault

The unit can be set to do the compressor rotation as follows:

- Manual
- Daily
- Weekly
- Monthly
- Runtime

If runtime is chosen the user must specify the time in hours, the default is 360 hours of run operation for the lead compressor.
## UPM Faults Screens

The UPM FAULT screen can be accessed from the Home screen.

To navigate on this screen the user may follow the same steps as illustrated in the changing a value section of this manual.

Once an alarm is received via pulse feedback from the UPM board, it is displayed in the screen as shown below.

From this screen the user may reset the UPM board after it has enter the lockout mode by navigating to “Reset UPM now?” selecting yes and pressing the enter key.

![Figure 13 - UPM Faults Screen](image-url)

---

<table>
<thead>
<tr>
<th>Fault Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Fault: HP1 Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>HP1 Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>LP1 Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>LP1 Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>*HP2 Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>*HP2 Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>*LP2 Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>*LP2 Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>FRZ Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>FRZ Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>CON Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>CON Faults (Last hr):</td>
<td>00000</td>
</tr>
<tr>
<td>BRN Faults (Total):</td>
<td>00000</td>
</tr>
<tr>
<td>BRN Faults (Last hr):</td>
<td>00000</td>
</tr>
</tbody>
</table>

Reset counts now? [Yes]
Enable UPM Alarms? [Yes]
*Indicates Optional Equipment

[←Prev] [←ALARM]
Schedule Screens

The Schedule screen can be accessed from the Home screen.

To navigate and or change properties on this screen the user may follow the same steps as illustrated in the changing a value section of this manual.

The user will have the ability to configure and set up different operation schedules for the particular system.

Daily Schedule

The user will have the ability to configure up to four (4) different daily schedules this provides flexibility in case the end user has a different occupied/ unoccupied times depending on time of day or day or week or both.

Example:

Customer operates as follows:
Mo – We – Fr 8:00AM – 5:00PM
Tu – Th 10:00AM – 4:00PM
In this case the system can be configured as follows:
Daily 1 for Mo – We – Fr
Daily 2 for Tu – Th
Daily 3 for Saturday and Sunday

Holiday Schedule

The user will have the ability to configure up to twelve (12) different Holiday schedules this provides flexibility to override the daily schedule during these days.

Override Schedule

The user will have the ability to configure up to two (2) different override schedules this provides flexibility to override the daily and holiday schedule.
Modifying the Schedule

The Schedule screen can be accessed from the Home screen if the user is not logged in the system it may be asked to log in.

If prompted enter the four digit password and press O.K.

**NOTE:**
The user and admin passwords can be found in the logging in to the BACview section of this document.

1. Highlight Daily as shown in figure 15, once highlighted press

   ![ENTER](image)

   “Schedule number” will appear with

   ![Use? [YES]](image) Property highlighted.

   This means the user will enable the Daily schedule that has been selected and with the particular hours as shown in figure 15.

Once finish please use the arrow keys or the softkeys “Next” or “Prev” to go to the next Daily schedule available.

2. From this screen the user may highlight a character and change:
   - Start and End times
   - Days
   - Blank day

3. To **save** any of the changes made the user must press “OK” before the BACview is removed or it is timed out.

   ![Figure 17 - Daily Schedule](image)

   To program “Holiday” or “Override” schedules; repeat steps 1 through 3 changing step 1 and highlighting “Holiday” or “Override” all other steps to configure these schedules are the same.

   ![Figure 18 - Schedule Screen](image)
Help Screens

The Help screen can be accessed from the Home screen.

To navigate on this screen the user may follow the same steps as illustrated in the changing a value section of this manual.

From the Help screen the user is able to access the software version of the controller to which it is connected, this information will be asked whenever technical support is contacted.

![Help Screen](image1)

The technical support phone numbers can also be found in this screen as shown in the figure above.

Changing the Password

The user or administrator can change the user password by pressing the soft key “LOGIN”. This screen can also be accessed by pressing:

![User password](image2)

Make sure the new user password is recorded in an accessible place otherwise user will have to use the administrator password to reset it and/or retrieve it

Keypad Configuration

The user or administrator can change the amount of time the Key pad is kept lit by pressing the function key and number six and then changing the number of minutes the key pad is to remain lit.

![Key pad Configuration](image3)

Stand by Screen

This screen is what will be normally shown in the BACview before any key is pressed.
**BACnet® Screen**

This screen can be accessed by pressing the following:

On the screen the BACnet® ID will be displayed, it can be changed however FHP does not recommend changing it arbitrarily as it may cause network problems.

Always consult with Network Administrator (Front End company) before changing the controllers BACnet® ID as it may interfere with other devices in the network.

---

**Set Time Screen**

This screen can be accessed by pressing the following:

Once in this screen move with the arrow keys until the parameter that needs change is highlighted, press enter to selected and press the desired value.
**Alarm Screen**

This screen can be accessed by pressing the following:

![FN + 4]

The Alarm screen allows the user to up to 100 events starting with the most recent.

It also allows user to see which points have gone into alarm and returned to normal as well as the ones that have been manually cleared.

Figure 36 illustrates the Alarm screen with no alarms registered in the system.

![Figure 24 - Alarms screen](image)

**Overrides Screen**

This screen can be accessed by pressing the following:

![FN + 9]

The checkout/overrides screen allows the user to start up the unit by overriding its outputs.

The user can also use this screen as test procedure to ensure the low voltage components are working according to the unit wiring diagram.

When overriding inputs or outputs the alarm LED of the BACview will lit up indicating an override condition.
Figure 25 - Override/Checkout

---------- CHECKOUT/OVERRIDES ----------

Unit Configuration: [0] compressor(s)

Digital Outputs
Lock Pump(s) (DO1) [Off] ? [Yes]
Lock REV VALVE (DO2) [Off] ? [Yes]
Lock COMP1 (DO3) [Off] ? [Yes]
*Lock COMP2 (DO4) [Off] ? [Yes]

Analog Inputs
LOAD Temp (IN2) 0000.0° ALARM
LVG Water (IN3) 0000.0° ALARM
UPM Fault (IN4) 0000 pulse(s) ALARM-OPEN
UPM Fault (IN4) wired [Normally Closed]
Xovr Temp (IN5) 0000.0° ALARM

Reset UPM now? [Yes]

Binary Inputs
DI Unit Enable (IN1) Off
DI Mode Select (IN6) Off
Lock Load Temp input to [000.0]°?[Yes]

"Help" phone number: [000]-[000]-[0000]
If DUAL, [Lock_Out] second stage
*Indicates Optional Equipment

[→Prev] [→ALARM] [→Calibrate]
Calibration Screen

This screen can be accessed by pressing the following:

Once in the calibration screen the user may change the offset points for the different temperatures as shown in figure 25.

From this screen the user can also access the calibration parameters and offset the sensors readings in order to test the unit prior or during the commissioning process.

Figure 25 – Calibration

IMPORTANT:

The BACview red LED is normally lit during an alarm condition (in normal operation mode). It will turn on once the user overrides a variable in order to alert or remind the user that the system is not operation according to its programmed sequence of operation but in overridden mode.
DDC – ZONE I/O 560

I/O ZONE 560

FHP ORDER #
LINE # - MODEL #
FHP PART #
SW VERSION

BT485
Rx

Net +
Comm

Net -
Shield

Batt

Gnd

Rnet +

Rnet -

+12V

IN-1

Gnd

Inputs 1 & 2
0-5V, Therm. or dry

IN-2

Gnd

IN-3

Gnd

Inputs 3 & 4
Therm or dry

IN-4

Gnd

Class 2
24Vac, 0.0031uA
150V, 0.063A
Therm Copper Conductors Only

IN-5

Gnd

Inputs 5 & 6
Therm, dry, or LStat

IN-6

CAUTION
To Reduce The Risk of Fire
or Electric Shock. Do Not
Interconnect the Outputs of
Different Class 2 Circuits.

LED

Power for D.O.s

Outputs
24V Max
1A Max

DO-5
DO-4

DO-3
DO-2

DO-1
BUS

COMMUNICATIONS SELECTION

EIA-485
BACnet
over ARC156
Comm Selector
DIP Switch

RECORD

Format
Short pins
LStat =
or IN-5 =

Power

Error

IN-1
Thermistor dry contact
0-Vdc

IN-2
Thermistor dry contact
0-Vdc

24V ac