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The BACview Interfaces

The BACview is a Human-Machine Interface (HMI) that interfaces with the FHP controllers, enabling the user to view and change property values, and/or control parameters, to match a corresponding application. It also provides a means of accessing and modifying the controller’s schedule and real time clock in applications where a system server or Building Automation System (BAS) is not available. The interface is offered in two forms: as a hand-held BACview module or in the form of an application called Virtual BACview.

BACview Hand-held Module

The BACview module (Figure 1) is a combination keypad/display unit that connects to the controller either via the onboard serial port, or via a port under the RS Sensor, if one is available and connected to the controller. The module can be purchased as a kit (641-K31) that includes the hand-held device (641-231) and connecting cable (641-236); each of these components can also be purchased separately. The contrast of the LCD display can be adjusted by turning the contrast screw (see Figure 1) clockwise or counterclockwise with a small screwdriver.

Figure 1 – BACview Module
Virtual BACview

Virtual BACview provides the end-user an interface to a controller by way of a laptop and a purchased USB-L cable (641-261). Once the cable is purchased, the corresponding driver will need to be downloaded and installed before using the software. The USB end of the cable is connected to the laptop, and the serial end is connected to the controller or RS Sensor. The BACview program, cable driver, and instructional manual are all available for free download at the FHP website (http://fhp-mfg.com/?p=controls_support). The Virtual BACview software interface provides the same functionality as the hand-held module when connected to a controller, with some additional benefits such as: the flexibility of using a mouse or keyboard to modify control parameters, and the added convenience of changing the screen size (rows only) to display more information at the same time.

NOTE: All screen shots of BACview used in this manual are from Virtual BACview and may not represent the screen viewed on an actual BACview module, which is limited to four (4) rows of text. This manual shows only screen shots for software version 7.03.06. For other software versions please visit our website at www.fhp-mfg.com.

Figure 2 – Virtual BACview Window
Using the BACview Interface

Activating the BACview
By default, the BACview goes into screensaver mode after 1 minute of inactivity. Pressing any key reactivates the screen to the Home Screen.

Navigating the BACview Screens
To navigate a screen or move within a selected field, use the up, down, left or right arrow buttons.

To move to another screen, maneuver the cursor to the desired link and press the enter key as shown below:

Changing Parameter Values
Use the navigation keys to highlight the point or parameter that needs to be changed and press enter.

Press the arrows to navigate to the character requiring modification:

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

IMPORTANT:
Certain parameter changes are subject to password verification before proceeding, if the user has not previously provided one during a session. See the “Logging in to the BACview” section for further details.
Once a parameter is highlighted, the value can be modified in one of three different ways, depending on the type of parameter:

1. If the parameter is numeric, pressing a number on the numeric keypad will replace the highlighted character with the corresponding value selected:

2. If the parameter is numeric, the soft-keys can also be utilized to increase (INCR) or decrease (DECR) the variable to the desired value.

3. If the parameter is a binary or multistage value, the selected field will start to flash, indicating that its value is ready to be modified. The soft-keys (INCR/DECR) can be used to toggle through the available options and select the desired value.

If at any time the user decides not to change a parameter, or not to keep any changes made, pressing the CANCEL soft-key will restore the variable to its original value.

Repeat the steps detailed in this section to modify any additional points or variables.

**IMPORTANT:**

Modifications made using the BACview will be saved solely to the control module, until the changes are uploaded to a Building Automation Server.

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

**Using Hotkeys**

Hotkeys allow a user to access certain pages within the program with fewer keystrokes than usual; they are to the BACview as shortcut keys are to computers. The BACview can support up to 10 hotkeys. Table 1 shows the hotkey assignments for the 7.03.06 software.

To access a page using a Hotkey, simultaneously press the FN key and the desired numeric key and release. The corresponding page will then become active on the BACview screen.
In the preceding example, the View/Set User Password screen will pop up when the “FN + 2” key combination is executed.

<table>
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<td>Unassigned</td>
</tr>
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<td>Function 1</td>
<td>Admin or User Password</td>
</tr>
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<td>Function 2</td>
<td>View/Set User Password</td>
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<td>Function 4</td>
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<td>Function 8</td>
<td>Calibration</td>
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<tr>
<td>Function 9</td>
<td>Checkout/Overrides</td>
</tr>
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</table>

Table 1 – Standard Hotkeys

**Logging in to the BACview**

Certain BACview screens and/or parameters are password protected to prevent modification of some critical values by unqualified personnel.

If the user is prompted for a password while accessing a particular screen or variable, the default four-digit password could be one of the following:

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

BACview screens are programmed with different access restrictions or access levels as shown in Table 2.

<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 Administrator password.</td>
</tr>
<tr>
<td>User / Customer</td>
<td>An operator logged in with the User/Admin password.</td>
</tr>
<tr>
<td>Technician</td>
<td>An operator logged in with the Administrator 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.
The BACview screens

BACview screens can be accessed and navigated using the various methods discussed in the Using the BACview Interface section.

This section uses a combination of all these methods (e.g. using soft-keys, navigation keys, hotkeys, etc.) to illustrate how various pages of the 7.03.06 software can be assessed and modified.

From the HOME screen, use the arrow keys to highlight and access the different fields and menus as described in previous chapters. Use the soft-keys to access sub-screens that are assigned to the main menu.

HOME Screen

The HOME screen shows the main categories of the software the user can interface with on the BACview. Most pages contain parameters that can be configured to suit a particular application.

Figure 4 shows the Home screen for a standard, zone control application. The eight (8) links depicted in Figure 4 appear on the Home screen as a standard, regardless of the application(s) selected. These are for:

- **Unit Operation** – main unit operation status and set-point adjustment
- **Temperature** – status and set-points for all available temperature sensors
- **Fan** – fan operation status and setup including VFD and smoke/fire alarm response
- **Heat/Cool** – view and modify parameters for heating and cooling operations
- **UPM Faults** – basic UPM alarm status information including unit reset
- **Schedule** – set daily and holiday schedules for heat pump operation
- **Alarm Configuration** – set alarm trip points and differentials for applicable sensors
- **User Password** – modify user/admin password

Based on the parameters enabled during Setup, however, some additional menus may or may not be displayed on the Home screen. These include menus for:
- Outside Air Reset
- Mixed Air
- Zone CO₂
- Humidity
- Economizer/Boilerless

For example, the Humidity menu only shows up on the Home screen when Humidity Control or Discharge Air Control (using modulating HGRH) is enabled (see Figure 6). Figure 7 shows a screen with all available options enabled.

Figure 4 – HOME Screen – Zone Control

Figure 5 - HOME Screen - Showing Relative Humidity Readout
Home Screen Soft-Keys

The Home screen has four (4) main soft-keys that provide quick access to the most used categories of the software including:

- **Alarm** – view 100 most recent alarms (see *Alarm Screens* for more information)
- **Clockset** – set the time
- **Setup** – main parameter configuration (see *Unit Setup Screen*)
- **Help** – software and contact information
Unit Setup Screen

This screen can be accessed via the home screen through the soft-key labeled “SETUP”, or through the Unit Operation screen by selecting “Stpt” (see Figure 14). The screen allows the commissioning agent to setup or modify the following parameters of the unit:

- Software Enabled By
- Zone Sensor Type
- Compressor Stages
- Compressor Control
- Fan Operation
- Heat/Cool Options
- Ventilation Options
- Reheat Sensor/Valve Selection
- Input 5 Functionality
- Coil Configuration
- Mixed Air Control

The unit is normally configured at the factory to match the configuration requested by the customer, however, there are cases where additional onsite changes need to be made and this screen will allow the qualified technical or commissioning agent to incorporate such changes (without having to download a different software application) via the commissioning tool.

Figure 8 - Unit Operation Set-point - Setup Screen
**Software Enabled By**
Under the Unit Operation Set-point screen, this parameter is used to define the entity that will be providing the occupancy command to the unit. The options for this variable are the following:

**Keypad Schedule:**
The unit factory default is set to `Keypad_schedule` as this will allow the unit to run in an 8:00 AM to 5:00 PM default schedule everyday if the unit is to be started up during the construction phase of the project.

**Manual On:**
If the unit is intended to run all the time it can be set to `Manual_On`, which will override the schedule and set the unit into occupied mode all the time.

**Digital Input (DI):**
If the unit occupancy is needed to be controlled remotely via a switch (dry contact) or a relay while it is integrated into the BAS, the user can set the variable to `Digital_Input`, which will allow the unit to be set to occupied once IN1 is shorted to ground and unoccupied while it is open.

**BAS Command:**
The qualified technical agent can also change this parameter to be `BAS_Command`, which will enable the unit to be commanded from the BAS Server. The unit is ready for BAS integration once this parameter is set up, and it can then be commanded to occupied or unoccupied via the BAS by writing to the `Occupancy Status` integration point.

**Zone Sensor Type**
This parameter provides the user an opportunity to select the corresponding zone sensor for the user’s application.

**BAS Sensor:**
Allows the user to acquire temperature values from an existing Building Automation System (BAS). This option is also used, when the application does not require a zone sensor, to turn off the zone sensor connection and allows temperature readings from an outside air temperature probe.

**IMPORTANT:**
This feature is disabled when the unit has a sensor terminated in IN1. For instance, when the unit requires CO2 or Humidity sensors the user will not be able to configure the unit for DI occupancy command.
**Remote Sensor:**
Allows the user to choose a zone sensor, (that is not RS), for zone temperature readings. Examples of this can be a “bullet” type thermistor for reading zone temperature.

**RS Sensor:**
Allows the user to choose a RS Wall Mount Sensor in the zone as the primary source of zone temperature readings.

**Compressor Stages**
This parameter allows the user to choose the number of compressors and stages for the application.

**2 Compressor 2 Stages:**
This is chosen when unit has 2 compressors and each compressor will operate as an independent stage.

**1 Compressor 2 Stages:**
The is chosen when a unit has 1 compressor that has two independent stages.

**1 Compressor 1 Stage:**
This is chosen when a unit has 1 compressor with only 1 stage of operation.

**Compressor Control**
This parameter will provide the user the ability to determine where the temperature values are acquired to achieve compressor control.

**Discharge Air Control (DAC):**
This is chosen when the application requires the temperature to be read from the supply duct to control compressor operation.

**Zone Control:**
This is chosen when the application requires the temperature to be read from a space/zone using a sensor mounted in that space.

**Fan Operation**
This parameter allows the user to what will control the fan.

**Start/Stop:**
This is chosen when the application is not using a VFD to control the fan.

**Start/Start (S/S) + VFD:**
This option is selected when the application involves using a Variable Frequency Drive (VFD) to control the fan.
Heat/Cool Options
From the **Unit Operation Set-point** screen the user will be able to configure the unit to match the intended application. The following list includes (but is not limited to) the most common water-to-air applications:

- Standard Heat Pump (HP)
- Heat Pump Aux Electric Heat
- Heat Pump with Hot Gas Re-Heat
- Straight Cooling
- Straight Cooling with Aux Electric heat
- Straight cooling with Hot Gas Re-Heat

The application profiles have been designed to allow the user to have some features enabled in the field without major down time. For example: adding an electric heater to a unit will not require any additional software shipped to customer, but instead will just require unit re-configuration via the BACview tool to meet the new specifications.

Some of the features are mutually exclusive as the controller has a fixed number of physical Inputs and Outputs.

For example if the unit is ordered with Humidity Control, an additional stage of Electric Heat or a ventilation damper cannot be added.

FHP has the ability to provide customized solutions to meet the project/customer requirements; however, due to the complexity that some systems require FHP will manage them under the custom programming category which may require a controller with a greater I/O capacity.

If special unit requirements are needed, please contact a member of the Applications Team.

**Ventilation Options (feature not available if using Mixed Air Control)**
This parameter allows the user to choose the manner in which the Indoor Air Quality is managed.

**Fan On – Damper Open:**
This option is selected if the user requires a constant recirculation of outside air by keeping an installed damper open while the fan is in operation.

**CO2 + Mod Damper (feature only available on FHP-583 models):**
This option is selected when the user employs a hardwired CO2 monitor and a modulating damper to control CO2 levels.
CO2 Monitor:
This option is chosen when a hard-wired CO2 sensor is connected to the controller in IN-1, and used to monitor the CO2 levels in the space.

BAS CO2 Monitor:
This option is selected when the values for the CO2 level readings are supplied by a BAS and not a CO2 sensor hardwired to the controller.

BAS CO2 Monitor + Damper:
This option is selected when the application involves damper control and the values for the CO2 level readings are supplied by a BAS and not a CO2 sensor hardwired to the controller.

None:
This option is selected if no ventilation systems is used.

ReHeat Sensor/Valve Selection (not applicable if unit does not have reheat):
This parameter is used to select how the reheat valve is activated.

DAC Mod Valve:
This options is selected when the DAC parameter is selected for Compressor Control, to modulate the reheat valve to achieve a set discharge air set-point.

RH + DAC Mod:
This options is selected when the DAC parameter is selected for Compressor Control, to modulate the reheat valve to achieve a set discharge air set-point, and in addition, monitor relative humidity.

BAS Mod Valve:
This options is selected when the DAC parameter is selected for Compressor Control, to modulate the reheat valve to achieve a set discharge air set-point, but the command to modulate the reheat valve is provided by a BAS.

RH Mod Valve:
This option is selected when the Zone Control parameter is selected for Compressor Control, to modulate the reheat valve to achieve a set relative humidity set-point.

RH Sensor S/S:
This option is selected when the Zone Control parameter is selected for Compressor Control, to turn the reheat valve
on or off (not modulating) to achieve a set relative humidity set-point.

**BAS Sensor S/S:**
This option is selected when the Zone Control parameter is selected for Compressor Control, to turn the reheat valve on or off (not modulating) to achieve a set relative humidity set-point, but the command to turn the reheat valve on or off is provided by a BAS.

**Input 5 Functionality**
The controller software may be configured for single option input (IN-5) or for multiple inputs with the addition of an input expander module. The input expander module is connected to IN-5, providing three binary inputs at the port.

**Single Option Inputs**
- **Filter:** used if a switch/dry contact is used to monitor a dirty filter.
- **Economizer:** used if application involves a water-side economizer.
- **DPS:** used if the application requires a Differential Pressure Switch (DPS).
- **Secondary Drain Pan:** used if the application requires an additional condensate drain pan safety.

**Multiple Option Inputs**
These selections are used if the Input Expansion Module (IEM) is connected to IN-5. The available selections are shown in Appendix 1.

The following screens show the different steps to take in selecting the different options for IN-5:

1. Move the cursor to the Input 5 Function parameter setting to indicate this field is read for modification:

   ![Figure 9 – Input 5 Modification Screen](image)

2. Hit the ENTER button on the BACview module to activate the parameter modification soft-keys:

   ![Figure 10 - Input 5 Modification Screen](image)
3. Use the INCR and DECR keys to toggle through the available options for IN-5:

![Figure 11 - Input 5 Modification Screen](image1)

4. Select OK using the corresponding soft-key to accept the changes:

![Figure 12 - Input 5 Modification Screen](image2)

**Coil Configuration**

This parameter allows the user to choose the evaporator coil configuration setup of the unit.

**Series:**

This option is selected if the evaporator coil on the heat pump unit are not adjacent to each other, but rather stacked, one in front of the other.

**Parallel:**

This option is selected if the evaporator coils on the heat pump unit are arranged adjacent to each other, either side-by-side, or one on top of the other.

**Mixed Air Control (feature not available with ventilation option)**

This parameter enables or disables damper control for applications involving mixed air between outside air and return air.

**Archiving**

Once all parameters are set in the SETUP menu, select the ARCHIVE menu and change the Initiate Field Archive value from [No] to [Yes].

This will write the settings to the controller RAM so that in the event of the battery being removed or dying, your settings will be preserved along with the software.
**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.

![Unit Operation Screen](image)

This screen allows the user to check the current status of both unit configuration and unit operating modes.

The user can change these parameters by selecting the _SETUP_ link from the home screen or by selecting the _stpt_ link on the bottom of the screen.

**NOTE:** The example configuration above does not allow the user to use DI1 for occupancy command as all the physical inputs on the DDC have been used, and therefore does not show the status of it.
Temperature Screen
The Temperature screen can be accessed by selecting its link on the Home screen.

If needed, use the navigation keys to scroll down and see all parameters available on this screen.

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

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

The set points can be access via the soft keys as shown in Figure 15.

IMPORTANT:
The user will not be able to change the heating and cooling set points below the high and low limits.

In order to change heating and cooling set points below the limits, the limits will have to be changed on the Tuning parameters screen FN + 7.

IMPORTANT:
The user should never overlap the High and Low set points for heating and cooling operation, as this may cause the unit to be trapped in a dead band and will try to cool and heat at the same time.

Example:
Occupied cooling set point 69 °F
Occupied heating Set point 71 °F
**Fan Screen**

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

The fan screen allows the user to view fan runtime hours, in addition to accessing the *Fan Set-points* screen which allows the user to set the fan to run continuously or to run only when the compressors are operational.

From the Fan screen the user can access the service screen (Stpt) on which the fan runtime hours are displayed. This parameter is normally utilized as a reminder for filter change.

On the Set-point screen, the user can reset the timer to start a new count after replacing the filter.

The Stpt page can be accessed via the soft-keys as shown in Figure 16.
STATIC PRESSURE (VFD)

When the Heat Pump application involves a Variable Frequency Drive (VFD) for fan control, and the option is selected at setup, the Static Pressure menu becomes visible under the Fan Setpoints screen.
Figure 16 shows the same screen without this menu, when the VFD option is NOT selected.

Once selected, this screen provides a duct static pressure reading, as well as the option to modify the Static Pressure set-point, and the minimum fan speed percentage.
Heating and Cooling screen

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

As explained in the previous sections the soft-keys 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 illustrate 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 17.

The service screen is accessed by pressing “Stpt” the runtime hours and counters for the compressors are displayed as shown in figure 18 and can be reset by navigating selecting and changing the particular value.

---

**IMPORTANT:**
The user will not be able to change the heating and cooling set points below the high and low limits.

In order to change heating and cooling set points below the limits, the limits will have to be changed on the Tuning parameters screen.
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.
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 different daily schedules, providing flexibility in case the end user has different occupied/unoccupied settings depending on time of day, day of week, or both.

Example:

Customer operates as follows:
Mon – Wed – Fri 8:00AM – 5:00PM
Tue – Thu 10:00AM – 4:00PM
In this case the system can be configured for each day to reflect the following:
Mon: 8:00AM On
5:00PM Off
Tue: 10:00AM On

4:00PM Off
Wed: 8:00AM On
5:00PM Off
Thu: 10:00AM On
4:00PM Off
Fri: 8:00AM On
5:00PM Off

The following screens show how to create a daily schedule for Monday:

Figure 20 - Daily Schedule
Holiday Schedule (Exceptions)
The user will have the ability to configure different Holiday schedules as exceptions to the daily schedules. This provides flexibility to override the daily schedule during these days.

The following screens show how to create these exceptions by Date, a Date Range, a Week and Day combination, or a Calendar Reference.

Date:

Select type of exception:
[Date] [Date Range] [Week-N-Day] [Calendar Reference]

[Cancel]

Date Range:

Year [Select] 2009 Select 2009
Month Select Jan Select Jan
Day Select 1 Select 1
DOW ANY ANY

[Cancel][Continue]

Week/Day Combination:

Month [Select] Jan
Week ANY
DOW ANY

[Cancel][Continue]

Calendar:

Calendar: [ ]

[Cancel][Continue]

Figure 21 - Holiday Schedules (Exceptions)
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 OK.

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

1. Highlight “Weekly Schedule” as shown in figure 20, once highlighted press

“View and Edit Daily Schedule” will appear. Select the day for which the schedule is to be modified and press

To program Holiday schedules, highlight “Exceptions”, and select “Add” with the corresponding soft-key. Follow the program prompts in the ensuing screens to set exceptions for individual days or a range of days. Refer to the screen shots in Figure 20.

This brings the user to a new screen that will provide the means to change the on/off time schedule for the particular day chosen (see Figure 22).

Once the schedule has been updated, save the schedule using the save soft-key button.

To save any of the changes made the user must press “OK” before the BACview is removed or is timed out.
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 is connected, this information will be asked whenever technical support is contacted or will be needed to download the correct manuals or integration point list files from our website.

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:

- Figure 10 - Help Screen

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.

- Figure 11 - User password

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.

- Figure 12 - Key pad Configuration
**Tuning parameters**

Tuning parameters are a very important feature as they provide the high and low limits of the different modes occupied and unoccupied heating and cooling respectively. This can be accessed through the hot keys by pressing:

![Hot keys](image)

In addition, on this screen the unit heating and cooling percentage demands are shown.

Based on these values the unit will determine when to initiate a cooling or heating operation.

See figure on the right for a **Tuning Parameters** screen snap shot.

If the unit is configured for cooling only operation, this screen will not show the points associated with heating controls and demands.

---

**IMPORTANT:**

The user should never overlap the High and Low limits for heating and cooling operation, as this may cause the unit to be trapped in a dead band and will try to cool and heat at the same time.

**Example:**

Occupied cooling Low Limit 69 °F
Occupied heating Hi Limit 71 °F
**BACnet® 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.

**Set Time Screen**

This screen can be accessed by pressing the following:

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 retuned to normal as well as the ones that have been manually cleared.

Figure 30 illustrates the Alarm screen with no alarms registered in the system.
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, in addition, if the unit has the RS-Pro sensor connected to the Rnet port it will display the bell that indicates alarm condition and show error code 20 when pressing the info button. (See RS-pro sensor section of this manual for additional information)

<table>
<thead>
<tr>
<th>Module Event History (100 most recent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>******/ ACTIVE ALARMS *********</td>
</tr>
<tr>
<td>None in buffer.</td>
</tr>
<tr>
<td>******/ ACTIVE FAULTS *********</td>
</tr>
<tr>
<td>None in buffer.</td>
</tr>
<tr>
<td>******/ RETURNED-TO-NORMAL (RTN) *********</td>
</tr>
<tr>
<td>Low Heating Supply Air Temp Alarm</td>
</tr>
<tr>
<td>07/22 05:47:47p RNB 07/23 08:35:35a</td>
</tr>
<tr>
<td>General High DA Temp Alarm</td>
</tr>
<tr>
<td>07/22 05:47:47p RNB 07/23 08:35:35a</td>
</tr>
</tbody>
</table>

**Overrides Screen**

This screen can be accessed by pressing the following:

![Figure 30 - Alarms screen]
Unit Configuration: [2 Comp 2 Stages]

Digital Outputs
Lock Fan (DO1) Off ? No
Lock REV VALVE (DO2) Off ? No
Lock COMP1 (DO3) Off ? No
Lock COMP2 (DO4) Off ? No
Lock AUX HEAT (DO5) Off ? No

Analog Outputs

Analog Inputs
Zone Temp (RNET) 75.2° OK
OA Temp (IN2) 74.4° OK
DA Temp (IN6) 64.6° OK
LVG Water (IN3) 44.4° OK
UPM Fault (IN4) 0 pulse(s) No_Fault
UPM Fault (IN4) wired Normally Open
Reset UPM now? No

Binary Inputs
DI Unit Enable (IN1) Off
DI Filter Switch (IN5) Clean-Open
Lock Ctrl Temp input to 0.0 °? No

"Help" phone number: 866 - 642 - 3198
2 Comp 2 Stages

[→Prev] [→Alarm] [→Tuning] [→Calibrate]
Figure 32 - Override/Checkout – HP with Re-Heat

Note: These screens will change depending on the user configurations, the two shown above on figures 26 and 27 are just two examples of commonly used unit configurations.
**Calibration Screen**

This screen can be accessed by pressing the following:

![FN + 8 buttons](image)

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.

![Calibration Screen](image)

**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.

**Alarm Configuration Screen**

The Alarm Configuration screen can be accessed from the Home screen. If the user is not logged in the system he/she may be prompted to log in.

In this screen the user can set the alarm trip limits and differential points for the different sensors installed in the unit.

In addition the user can set the fan runtime hours for the filter alarm as well as enable or disable this feature.

Factory defaults are shown below

![Alarm Configuration Screen](image)
**Outside Air Reset Screen**

The Outside Air Reset screen can be accessed from the Home screen. This screen is typically active on the Home screen when Discharge Air Control (DAC) is selected at setup. The screen is unavailable for Zone Control applications.

This screen allows the user to view the Outside Air Temperature (OAT), select the source of the sensor, select how often to reset the temperature when the Outside Air Temperature Reset feature is selected, and view the OAT Heating, Part Cool, and Full Cool Trip points.

---

**Discharge Air Temperature Screen**

The Discharge Air Temperature screen can be accessed from either the Outside Air Reset screen, or from the Humidity Setpoint Adjust screen (see Figure 41). On this page the DAT set point as well as the DAT sensor offset can be modified. The effective DAT set point can also be viewed on this page.

For applications involving DAT Reset, this feature can be enabled or disabled from this page by selecting DAT Rst soft-key. Once in this page the limits for the reset feature can be accessed and modified.
If it becomes necessary to adjust the PID values for reheat and DAC cooling, this can be achieved from the DAT screen as well by selecting **RH-PID** or **CLG-PID**.

The screen provides information on the zone Relative Humidity (RH) if an RH sensor is present, and the corresponding input jumpers are set correctly. The screen also provides information on the status of the HGRH valve, and the zone dehumidification set point value.

**Humidity**

The Humidity screen is only activated on the Home screen when a corresponding application is enabled in Setup; i.e. Hot Gas Reheat (HGRH) for humidity control.

To change the dehumidification set point, select the Dehum Stpt soft-key and proceed to make the necessary changes.
MIXED AIR

For Mixed Air (MA) applications, the output from the PID controller is used to modulate the pre-heat air such that the entering air is not below the operation limits of the unit. The MA selection is enabled or disabled in the Unit Operation Setpoint screen (see Figure 8). Once this is activated the menu becomes available on the Home screen.

The Mixed Air Control screen provides the user the ability to select the input temperature source, the amount of offset to be applied to that temperature, and the MA set point.

If it becomes necessary to adjust the PID values for the MA PID controller, the values can be accessed by selecting the PID soft-key.

ECONOMIZER/BOILERLESS

For applications involving a Water-Side Economizer or Boilerless Electric Heat Control, this menu becomes accessible on the Home screen if this feature is selected at Setup.

This screen provides the status of the Entering Water Temperature (EWT), as well as the ability to set the water temperature for the Economizer valve, or the EWT set-point for Boilerless applications.
The CO2 screen can be accessed from the Home screen when the option is selected at SETUP. The screen provides the zone CO2 level, which can also be viewed on the Home screen (see Figure 7).

In addition to viewing CO2 levels, the user can set the zone CO2 trip value in order to receive notification when CO2 levels are above a certain value.

If the application involves CO2 monitor as well as an outside air damper control, the CO2 level at which the damper is open (On/Off or Modulating) can also be adjusted through this screen.
The RS-Pro Sensor interface

The RS-PRO Wall Sensor (8733800500) is a combination keypad/display unit that attaches to a control module to let you view and change temperature and set points values. It also allows the user to view the controller’s components status. The following features only apply to the software version covered on this manual:

**ICONS**

- **Alarm Bell**: Indicates Alarm Condition (see INFO button for more information)
- **Cooling**: Indicates unit enabled in cooling mode
- **Heating**: Indicates unit enabled in heating mode
- **Occupied**: Indicates unit in occupied mode
- **Unoccupied**: Indicates unit in unoccupied mode
- **Fan**: Indicates fan output energized

**BUTTONS**

- **MANUAL ON**: Places unit into occupied mode. Allows for incremental increase in override time (60min, 120min, 180 min, 4hrs, 5hrs, 6hrs, 0 min) each time button is pressed
- **WARMER**: Allows for increase in zone temperature set-point (+1° to per push to a maximum of +5° or as configured at DDC through BAC view6) from default set-point value
- **COOLER**: Allows for decrease in zone temperature set-point (-1° to per push to a maximum of -5° or as configured at DDC through BAC view6) from default set-point value.
INFO BUTTON

PRESS 1 time – Displays outside air temperature (in degrees F)
PRESS 2 times – Displays occupancy override time (in minutes)
PRESS 3 times – Displays actual heating set-point (in degrees F)
PRESS 4 times – Displays actual cooling set-point (in degrees F)
PRESS 5 times – [1] - Displays discharge air temperature (in degrees F)
PRESS 6 times – [2] - Displays leaving water temperature (in degrees F)
PRESS 7 times – [3] - Displays active alarm code

0 Indicates NO ALARM
1 Indicates UPM fault code for active HP alarm
2 Indicates UPM fault code for active LP alarm
3 Indicates UPM fault code for active water coil freeze alarm
4 Indicates UPM fault code for active condensate overflow alarm
5 Indicates UPM fault code for active brownout alarm
6 Indicates UPM fault code for active air coil freeze alarm
20 Indicates input/out in MANUAL lock position. It is not in AUTO
30 Indicates RS zone, CO2, Relative humidity discharge or leaving water sensor failure.
40 Indicates high or low leaving water temperature condition
50 Indicates high or low zone temperature condition
60 Indicates high or low discharge air temperature condition
70 Indicates filter or compressor runtime alarm
80 Indicates high or low zone humidity condition
90 indicates high zone CO2 condition

PRESS 8 times – [4] - Displays relative humidity (in %)
PRESS 9 times – [1] – Displays status of compressor 1 output (ON/OF)
PRESS 12 times – Displays fan status (fan icon=fan ON), unit condition (AU=auto)
PRESS 13 times – Displays unit mode (AU=auto)
PRESS 14 times – Goes back to default screen display

RS – Sensor
FHP 560 CONTROLLER
BACview Termination details

BACview WIRING TERMINATION DETAILS

BLACK AND GREEN WIRES CONNECTED TOGETHER

12 Vdc
Red +
Red - or Grey
Troubleshooting and help tips

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.

A Question marks in a square parenthesis [?] means the program has detected a feature but needs jumper setting configuration to work properly.

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.
BACview help screens [?]

When the user configures the unit for a particular setting there may be some hardware settings that are required for the new configuration to work for instance jumper settings. The program has self diagnostics capability to inform the user of such as setting, A question mark [?] means the program has detected a feature but needs jumper setting configuration to work properly.

![Figure 50 - Help link [?] on screen](image)

![Figure 51 - Help description example](image)

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
Appendix 1

<table>
<thead>
<tr>
<th>SINGLE INPUT OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-5</td>
</tr>
<tr>
<td>FILTER SWITCH (AIR)</td>
</tr>
<tr>
<td>ECONOMIZER (WATER)</td>
</tr>
<tr>
<td>DIFFERENTIAL PRESSURE SWITCH</td>
</tr>
<tr>
<td>SECONDARY CONDENSATE PAN (SAFETY)</td>
</tr>
<tr>
<td>BOILER-LESS (w/ELECTRIC HEAT CONTROL)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INPUT EXPANSION MODULE OPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN-5</td>
</tr>
<tr>
<td>TERMINAL AA</td>
</tr>
<tr>
<td>DIRTY FILTER SWITCH</td>
</tr>
<tr>
<td>SMOKE DETECTOR SWITCH</td>
</tr>
<tr>
<td>DIRTY FILTER SWITCH</td>
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<td>SMOKE DETECTOR SWITCH</td>
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<tr>
<td>DIRTY FILTER SWITCH</td>
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<td>SMOKE DETECTOR SWITCH</td>
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</table>

Table 1. Input 5 Configuration Map