

HMI Display

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I – Getting Started with the HMI Display

Introduction

This guide provides an overview of the HMI Display (BAC-DIS) product features, first time configuration, and set up instructions, as well as information on how to use the HMI Display to view or adjust Calendars, Alarms, Multi-Trend Logs, Schedules, and set values of specified objects.



This guide was developed with the administrator and the display operator in mind, emphasizing use of the widescreen LCD and the site graphics to view chosen operations and make adjustments.

Overview

The HMI Display (BAC-DIS) is an interactive touch screen with a 7-inch, widescreen format LCD display that sits within typical system architectures and provides a way for operators to monitor and manage the HVAC system without using a Operator Workstation (OWS).

It allows operators to monitor and manage building HVAC systems by using custom real-time graphics that are created using HMI Configurator. The HMI Display can be wall or panel mounted in mechanical rooms or public spaces, making it easy to view or edit authorized system objects.

The HMI Display's full color, wide-screen format LCD display communicates via links to the database graphics, which allows for monitoring and setting schedules for air handlers, boilers, chillers, and other mechanical equipment.

The HMI Display uses BACnet over Ethernet, BACnet/IP, or BACnet MSTP to communicate with controllers on a local area network, making it simple to do things such as change occupancy schedules, adjust temperature setpoints, and view floor layouts.

Hardware Components

A typical system consists of the following components:

- Operator Workstation with HMI Configurator software
- HMI Display
- Communication network
- Controllers
- Sensors and actuators

Operator Workstation (OWS)

The Operator Workstation (OWS) consists of a computer running the HMI Configurator application. The OWS combines an intuitive Graphic User Interface (GUI) with powerful facilities management and control capabilities. The operator typically uses floor plans and equipment site graphics with dynamic links and buttons for routine monitoring of the building. The HMI Display uses graphics created with the OWS Configuration application and then downloaded to the HMI Display.

HMI Display (BAC-DIS)

The HMI Display is a stand-alone wall mount touch screen used to display real time graphics similar to the OWS Illustrator. The HMI Display uses graphics such as floor plans or equipment overlaid with interactive touch controls to adjust setpoints and occupancy schedules and monitor a building's mechanical equipment.

Communication Network

The HMI Display communicates over networks with controllers using BACnet® data and communication structures. The HMI Display supports BACnet communications on Ethernet and BACnet/IP networks. Controllers connected to these networks routed through UDP/IP, EIA-232 (RS-232), and EIA-485 (RS-485) connections can also communicate with the HMI Display.

Controllers

Controllers perform building control and communicate over networks. The controller has a processor and operating system that is fully programmable and stands alone.

All the programs that actually control the mechanical systems reside in the controllers. The controller accepts input/output expansion boards for sensors and actuators. The controller may also have sub-networks of unitary controllers.

Sensors and Actuators

A control system uses sensors to make measurements and actuators to perform control actions. Sensors send a signal to the controller that is controlling the system. Some examples of sensors are temperature sensors, current sensors, carbon monoxide sensors, and push button switches.

An actuator (or other type of controller) is a controller that is controlled by an output control signal from the controller. Actuators include valve or damper actuators: variable speed drives and relay contacts that may control equipment such as fans, pumps, and lights.

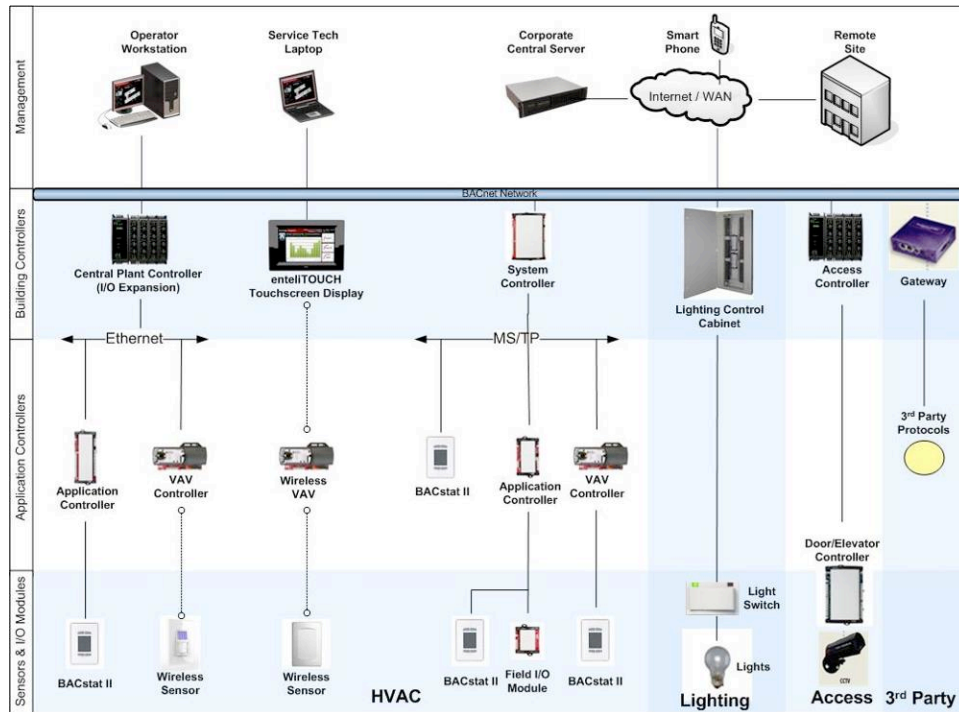
Typical HMI Configurator Network

A network is the communication path that joins the HMI Display, HMI Configurator OWS, and controllers and allows network devices to interact with each other. The HMI Configurator OWS allows setup and operation of various network protocols. Network communication occurs over multiple networks using protocols including BACnet, Ethernet, UDP/IP, RS-485, and RS-232.

The HMI Display sits at the same level as the OWS and through graphics can access any controller connected to the network.

The following diagram illustrates the use of HMI Display hardware in typical network architecture.

System Architecture Diagram



Product Features

The HMI Display allows operators to monitor and manage building systems via custom real-time graphics. These customized graphics make the HMI Display easy to use for any given application. The following chapter describes the basic features of the HMI Display, set up options, and other key information.

The current HMI Display features include:

- Touch screen interface, no stylus required
- Attractive modern design
- Can be mounted on a wall, in a panel, or in a new or retrofit building
- Changing setpoints and monitor inputs and outputs
- Adjustable controller schedules and calendars
- Alarm enunciation, automatic alarm pop-up, email alarms (optional)
- Display and acknowledge alarms
- Active alarm list,
- Trend Logs and Multi-Trend
- Multiple users and passwords to restrict access
- Remote access through a PC web browser (optional)
- Support for BACnet over Ethernet and BACnet/IP communication
- Configurable as a BBMD (optional), Foreign or Regular BACnet/IP device
- Firmware that can be flash loaded over the network or via USB drive
- USB flash drive database upgrades
- Customizable company splash screen
- Saving and loading graphics with a database via HMI Configurator
- Multi-language interface
- Optional built-in temperature, humidity, and occupancy sensors
- Dimmable display screen
- Photo Slide Show from USB or SD Card storage

Optional Product Features

Using the Delta Flashloader and flash credits, optional features can be added to the HMI Display. When “Web Features” are added to an HMI Display device, the HMI Display will have the following optional features enabled:

- Remote Web Access: the HMI Display screens can be accessed via a remote Web Browser.
- Email Alarms: alarms can be routed to email addresses using the EVR object in the HMI Display.
- BBMD: the HMI Display is able to be configured as a BBMD device on the BACnet network.

Introduction

This chapter covers procedures for powering on the HMI Display for the first time. Once turned on, there are some initial procedures to follow before using the HMI Display:

- Set the HMI Display Address
- Set the HMI Display Name
- Set the Time



On subsequent power ups the HMI Display displays the user login page, and these initial connection settings are retained in the unit.

Powering on the HMI Display

The HMI Display screen needs to be calibrated on first use to ensure each button responds as expected.

To power on the HMI Display:

1. Connect to a 24V power source to turn the unit on.
2. When prompted, follow the on-screen instructions to calibrate the screen.
3. You are then prompted to enter an HMI Display Address.

HMI Display Address and Naming Conventions

When prompted to enter an HMI Display Address, each unit must have a unique address throughout the BACnet network. The HMI Display name defaults to "HMI Display Device <device number>". This can be changed later by the administrator via the HMI Display Setup menu.

Setting the HMI Display Address

To set the HMI Display Address:

1. From the HMI Display Setup page, enter an address that is:
 - Different than any other HMI Display number
 - Different than any other controller number
 - Between 1 and 4194302



2. Press OK.

Setting the HMI Display Name

1. From the Settings page, press HMI Display Setup.
2. Press the Edit button beside HMI Display Name.
3. Use the touch keyboard to enter a unique HMI Display Name that:
 - Is a maximum 255 characters



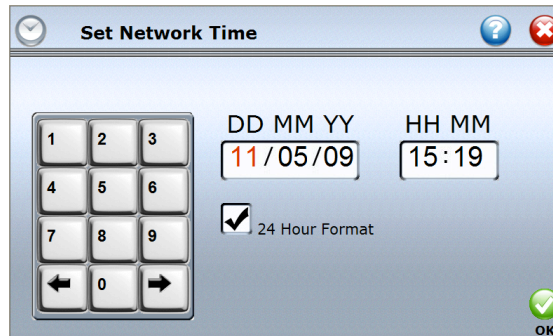
4. Press OK and the HMI Display moves to the Settings page so you can set the date and time.

HMI Display Date and Time

Each HMI Display unit has a real-time clock with 72-hour battery backup in case of power failure. When you set the HMI Display time, the time is set on all connected network controllers.

Setting the HMI Display Date and Time

1. From the Settings page press Time Setup.
The Set Network Time page displays.



2. Press on the desired field to change. The field in focus will be red.
3. Use the number keypad to enter the correct date.
4. Use the numerical keypad to enter the correct time.
5. Press OK.



Note: All controllers in the same network are updated with the time that is entered on the HMI Display.

HMI Display Security

All HMI Display units come with user access enabled by default. To secure your unit, it is important that you log in as the administrator and change the password during the first time setup.

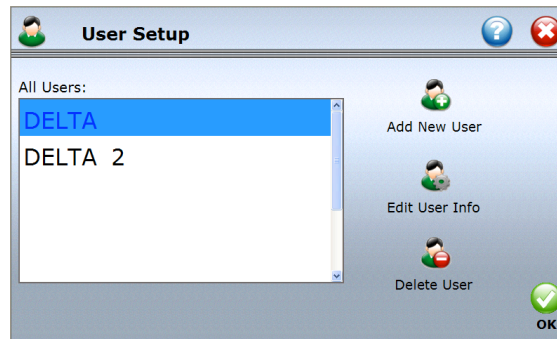
There is only one administrator on the HMI Display, and they have full access. They can add, edit or delete users, provide access limits, monitor and set schedules for air handlers, boilers, chillers and other mechanical equipment, change occupancy schedules, adjust temperature setpoints and view floor layouts.

Administrator Name and Password

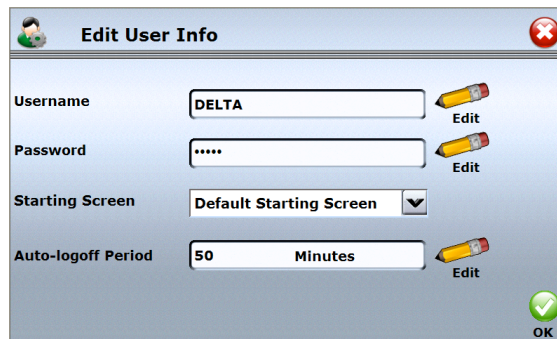
The default user name is **DELTA** and the password is **LOGIN**.

Modifying the Administrator ID

1. From the Settings page, press User Setup.
2. Select the default name (DELTA), and press Edit User.



3. Press the Edit button to the right of the Username.



4. Using the touch keypad enter a new name and press OK.
5. Press the Edit button to the right of Password.
6. Enter a new password and press OK.
7. Press the Edit button for the Starting Screen and select which graphic to display on Start up, and press OK.
8. Press the Edit button and adjust the Auto-Logoff* period (default is 10 min.), and press OK.



* Auto-Logoff determines how long the HMI Display stays logged in when no buttons are pressed. A value of 0 means that the user is never logged off.

HMI Display Volume

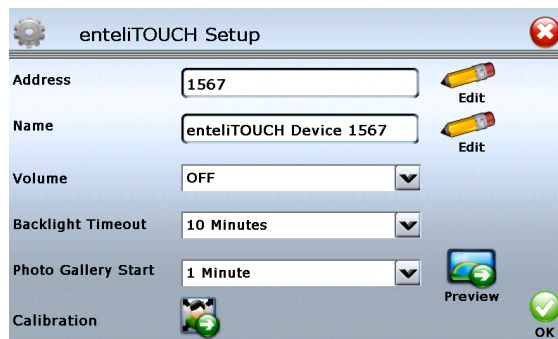
The volume of the HMI Display can be set at low, medium, high, maximum, or off. The default setting is medium.

Setting the HMI Display volume

1. From the Settings page, press HMI Display Setup.



2. From the HMI Display volume list, select the volume.



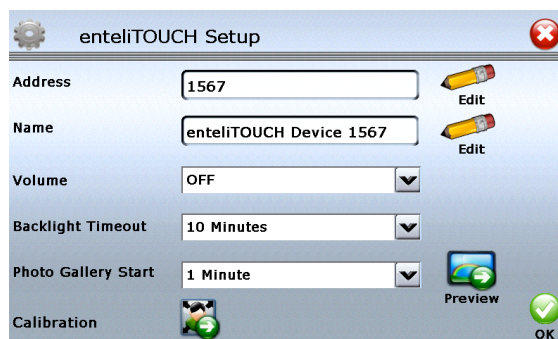
3. Press OK.

Backlight Timeout

The backlight on the HMI Display keeps the touch screen lit when not in use. It is set to a default time of 10 minutes. This can be changed to a longer or shorter time based on individual requirements.

Setting the Backlight Timeout

1. From the Settings page, press HMI Display Setup.
2. From the Backlight Timeout list, select a time.



3. Press Ok.

Photo Gallery

The Photo Gallery feature allows users to display a slide show of photographs. These photos scroll across the display after the HMI Display is not touched for a period of time (default is 5 minutes). This default can be adjusted based on individual requirements. The slide show loops back to the beginning once all photos are displayed. If interrupted, the slide show will restart where it left off, after the default time has passed.

The only file formats accepted are JPEGs and GIFs. Photos can be a maximum 4MB, and no smaller than 1KB. Photos with a landscape layout that are taller than the HMI Display screen are automatically cropped to fit. Photos with a portrait layout are scaled to fit the HMI Display height. Photos that are smaller than the HMI Display screen are centered.

Setting up the Photo Gallery

To set up the photo gallery all photos must be stored on a USB drive or a SD card. If both a USB and SD card are connected, only the photos on the SD card will be used in the slideshow. SD cards must be 2GB or less.

1. Plug the USB drive or SD card into the HMI Display .
2. From the Settings page, press HMI Display Setup.
3. From Photo Gallery Start, select a time.
4. Press Preview to preview the slide show. (not available when using remote access).



Note: The Photo Gallery Start time must be shorter than the Backlight Timeout for the Photo Gallery to be displayed.

Recalibration

The HMI Display calibrates the screen on first use to ensure each button responds as expected. Over time the unit may need to be recalibrated.

Recalibrating the screen

1. From the Settings page, press HMI Display Setup.
2. Press Calibrate Screen.
3. Follow the on screen instructions.
4. Press OK.

Graphic Download (remote access only)

Graphics saved to the HMI Display can be downloaded using remote access and a PC web browser.

Downloading graphics

5. From the Settings page, press HMI Display Setup.
6. Press Graphic Download.
7. Click on the names of any graphics that are to be downloaded.
8. Press OK.

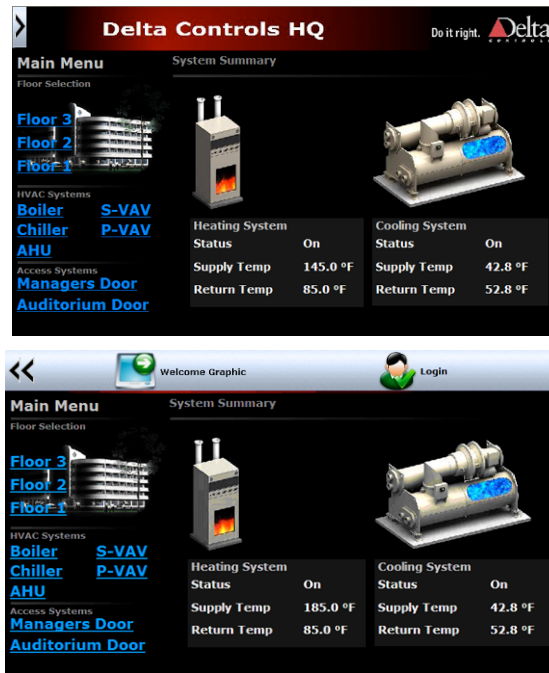
3 – Configuring the HMI Display

Introduction

This chapter covers setting up the HMI Display for daily use. It also covers configuring HMI Display Access, configuring user access, adding, editing and deleting users, and how to set the default graphics. As the Administrator, you need to configure the initial HMI Display access. This HMI Display Access area sets the defaults for each unit. The Administrator also selects the starting graphic for each user. You need to log in as an Administrator to get started.

Login

1. Touch the LCD screen to light the screen.
2. Press the corner menu, and then press the login key.



3. From the User list, select the Administrator name.
4. In the Password field, enter your password.
5. Press OK.

Configuring HMI Display Access

From the Access Setup page you can:

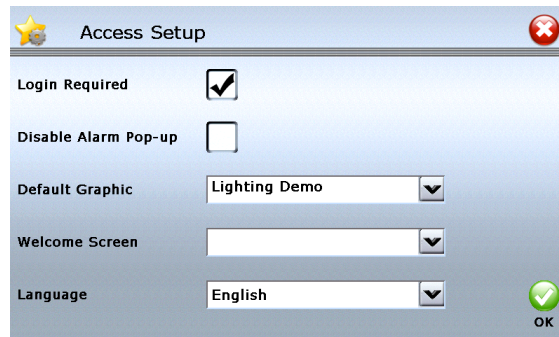
- Specify the language displayed for admin pages and intrinsic object pages
- What Welcome screen to use
- What default graphic to use
- If a user login is required
- If alarm pop-ups are disabled

To configure user access for the HMI Display, you need to log in as the Administrator.

1. Go to the Settings page, and press Access Setup.



2. On the Access Setup page, select or clear the Login Required* checkbox.



3. From the Default Starting Graphic drop-down box, select which graphic displays by default if a specific Starting screen is not defined for a user.
4. From the Welcome Screen drop-down box, select a graphic that displays on start up or when a user is logged out.
5. From the Language drop-down box, select the language. **
6. Press OK.



*User Login is enabled by default. The HMI Display unit requires that all users have a password to log in. If you want the HMI Display to be openly accessible, clear this checkbox. Administrative functions still require Administrator login and password.

** To change graphics to use with selected languages:

1. From HMI Configurator Illustrator, go to Tools -> Setup -> Current User.
2. From the User Data tab, select the language to match the HMI Display.
3. Save the page as an HMI Display graphic.

Configuring HMI Display Network Settings

The enabled networks on the HMI Display can be configured using the Network Setup screens. Ethernet and IP networks can be enabled or disabled (at least one must be enabled at all times. These settings can not be configured using remote access.

Configuring Remote HMI Display Access

Remote web browser access to the HMI Display can optionally be enabled. The pages viewed from the remote web browser are essentially the same as viewed from the HMI

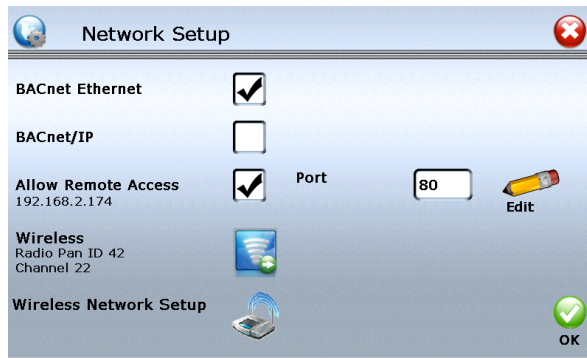
Display, however some configuration settings such as device address, and device name are only editable from the local touch screen. Also, the login will be enforced even if Login Required is unchecked in the HMI Display Access Setup page.



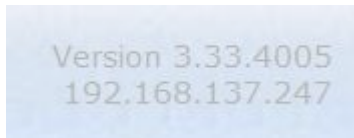
Remote access is supported on the following web browsers: Internet Explorer 7, Internet Explorer 8, Internet Explorer 9 and Firefox 3.x.

To configure remote web browser access for the HMI Display, you need to log in as the Administrator.

1. Go to the Settings page, and press Network Setup.
2. On the Network Setup page, select or clear the Allow Remote Access checkbox.



3. Configure the port number that should be used for remote access (port 80 is the default for web browsers).
4. Press OK and you will be prompted to reset the HMI Display.
5. Log back into the HMI Display and observe on the top right of the Settings page. This is also repeated on the Network Setup page below the Allow Remote Access checkbox.



6. The IP address displayed is the address that would be typed into a browser to access the HMI Display, for example <http://192.168.137.247>

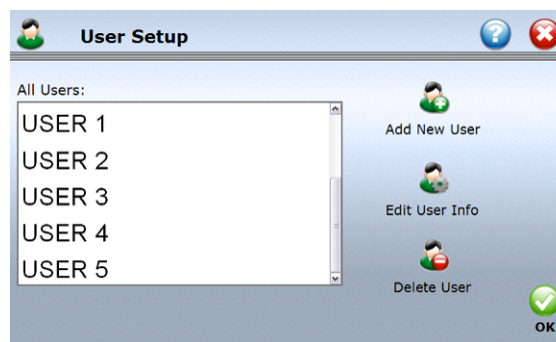
For the HMI Display to serve up web pages, the HMI Display must be on a TCP/IP network and configured through the Internet tab on the HMI Display DEV object. The default setting is to be assigned a dynamic IP address (Use DHCP is checked) from a DHCP server. If Use DHCP is unchecked, the IP settings must be manually configured. These settings are on the HMI Display DEV object Internet tab and are also duplicated on the HMI Display UNS object.

Use DHCP	<input checked="" type="checkbox"/>
IP Address	192.168.137.247
Subnet Mask	255.255.255.0
Gateway	192.168.137.1
User-Defined DNS	

Configuring Users

The User Setup area gives the Administrator the ability to add, edit or delete users.

1. From the Settings page, press User Setup.



2. From the User Setup page, Add, Edit, or Delete users.

Adding New Users

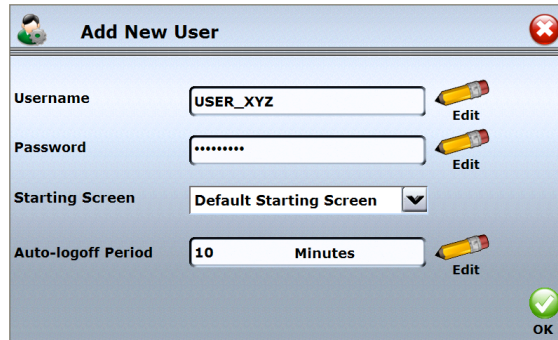
Only the Administrator can add, edit, or delete users. They also choose what graphics a user can view within the HMI Display environment.

To add a new user:

1. From the Settings Page, press User Setup.
2. From the User Configuration page, press Add User.
4. Use the touch keypad to enter the New User Name and press OK.



5. Use the touch keypad to enter the user's Password and press OK.
6. On the Add User page, press Edit to select the graphic this user views on login.



7. If required, edit the Auto-Logoff Period*.
8. Press OK.



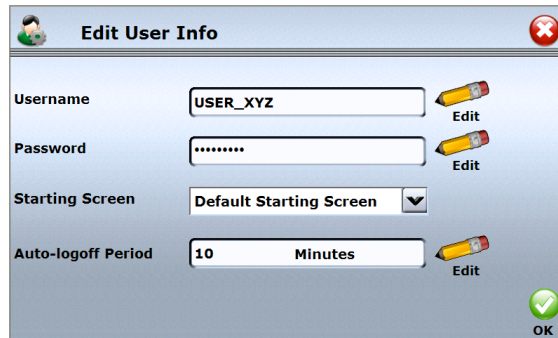
*Auto-Logoff Period: By default the system automatically logs users out if there is no screen activity for 10 minutes. You can change this time by pressing the Edit button.

Editing Users

The Edit User area allows you to change the user name, password, start graphic or the automatic logoff time.

To edit a user:

1. From the Settings page, press User Setup.
2. From the User Configuration page, press to highlight the user name.
3. Press Edit User.



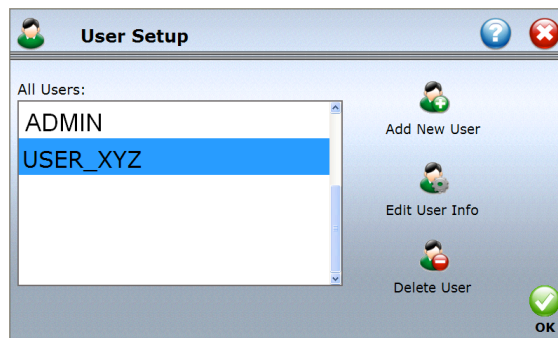
4. Press any of the Edit buttons beside the area where you need to make changes, and then press OK.

Deleting Users

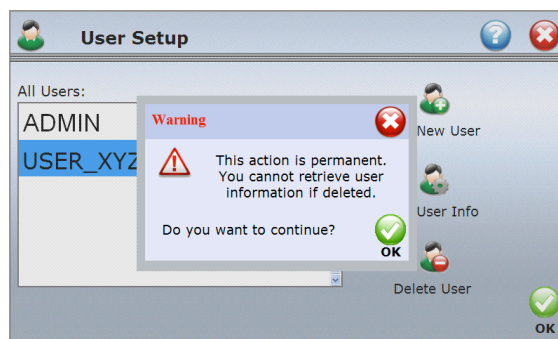
Deleting users is a permanent action. Any profile deleted no longer exists within the HMI Display. The only exception is the Administrator, who cannot be deleted. Use caution when this action is required.

To delete a user:

1. From the Settings Page, press User Setup.
2. On the User Configuration page, highlight the name.



3. Press the Delete User button. A warning displays to inform that this action is permanent, and asks if you want to continue.

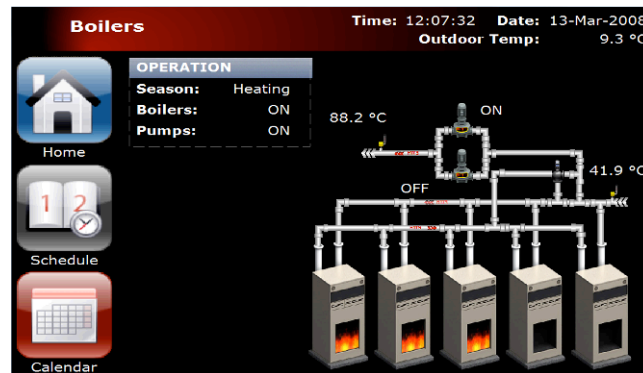


4. Press OK to continue or Cancel to go back.

Introduction

Within the daily HMI Display operating environment most users only see the graphic display. These graphics have a similar look to the screens shown in this section of the HMI Display User Guide. Keep in mind that graphics are custom designed in HMI Configurator software to reflect the unique needs of each organization and may not look exactly like the ones shown here.

HMI Display Screens: Graphic Mode

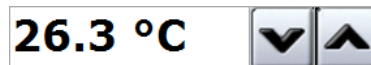


Using Controls to Change Values in Graphics

There are five types of controls that can be used to adjust a value within a system directly from a graphics page: the spin box, the checkbox, the drop-down box, the list box, and the slider.

Spin Box

The spin box is used to adjust analog values such as temperature setpoints. Pressing the up arrow increases the value, and pressing the down arrow decreases the value.



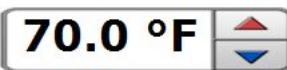
To change a value slowly, press an up or down button repeatedly. To change a value quickly, press and hold the button down. Any value changes are applied to the system within 2 seconds after the up or down button is released.

There are five custom styles that can be used to change the appearance of the Spin Box. Use Illustrator to access Advanced Properties for the Spin Box and assign value 1, 2, 3, 4, or 5 to the "HelpContext" property. Custom styles are only displayed after it is converted to an HMI Display graphic.



HelpContext = 1

HelpContext = 2



HelpContext = 3

HelpContext = 4

HelpContext = 5

The default increment can be changed by using Illustrator to access the Advanced Properties for the Spin Box and writing “increment=0.5” in the “HelpContext” property. In order to use this feature, DecimalPlaces must be set to 1. Increments can be used in conjunction with the custom styles.

MousePointer	Default	↓
HelpContext	4 increment=0.5	✎
MethodArrayCount	4	
Method		

Checkbox

A checkbox is often used to change binary values such as the On/Off state of equipment. Selecting a checkbox changes the value, and a tick displays in the box.



Selecting the checkbox a second time changes the value back to the original state and the tick no longer appears.

Drop-Down

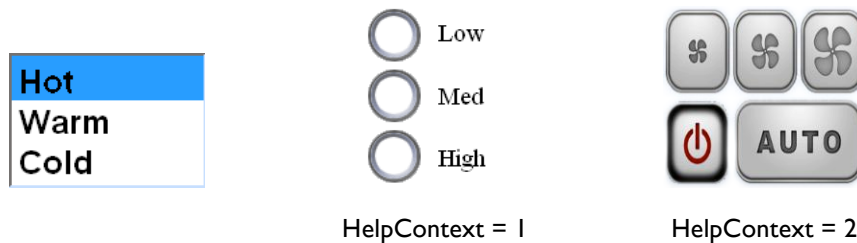
The drop-down is used to change the state of values such as the On/Off state of equipment or the Heating/Cooling/Standby mode of a system.



Press the drop-down menu to open a list of options. Changes are applied when one of the options is selected.

List Box

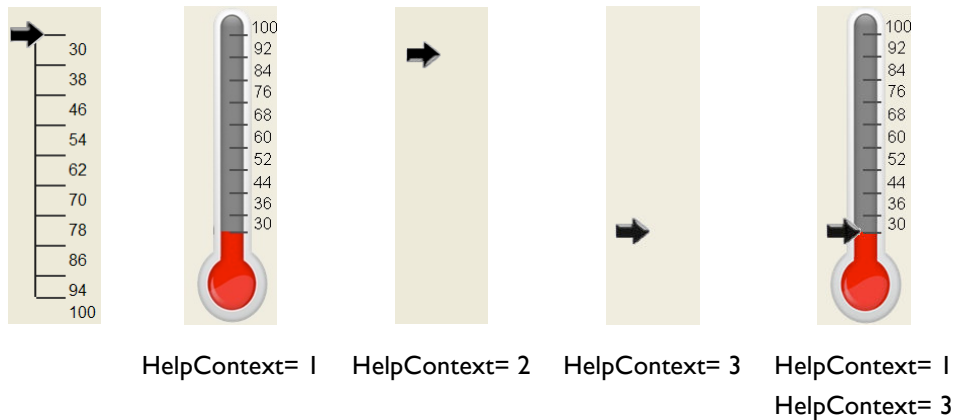
The list box is used to change binary or multi-state values. Select the desired option from the list.



There are two custom styles, radio buttons and fan control. Use Illustrator to access Advanced Properties for the List Box and assign 1 for radio buttons or 2 for fan control to the “HelpContext” property. The fan display only works with multi-state variables and can have 2, 3, or 4 states. Custom styles are only displayed after it is converted to an HMI Display graphic.

Slider

The slider is used to adjust analog values. Slide the arrow along the bar or press on the desired value to change it.





There are three custom styles: thermometer, arrow only, and thermometer setpoint. Use Illustrator to access Advanced Properties for the Slider and assign 1 for thermometer (read only), 2 for arrow only, or 3 for thermometer setpoint to the “HelpContext” property. Two sliders overlapping can produce a thermometer with a setpoint. Examples are included in the HMI Configurator Illustrator HMI Palette. Custom styles are only displayed after it is converted to an HMI Display graphic.

Set Value

Set Value provides operators with the ability to switch between Auto and Manual mode and to change values. This pop up option displays on the HMI Display screen over top of a graphic. Read/Write links from a graphic to the objects listed in the following table activate the Set Value page.

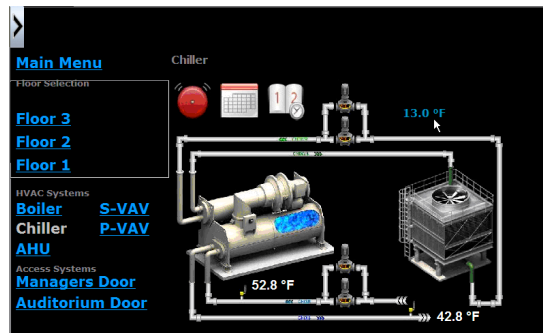
Only objects that have been designed within Illustrator as Read/Write allow for changes. Typically, if a value can be changed there is an indication via a different color or a different style of icon.



Value:	Typical Use:
Analog Variables (AV)	to adjust setpoints
Binary Variables (BV)	to start and stop equipment
Multi-state Variables (MV)	to change modes of operation
Analog Outputs (AO)	to change equipment position
Binary Outputs (BO)	to start and stop equipment

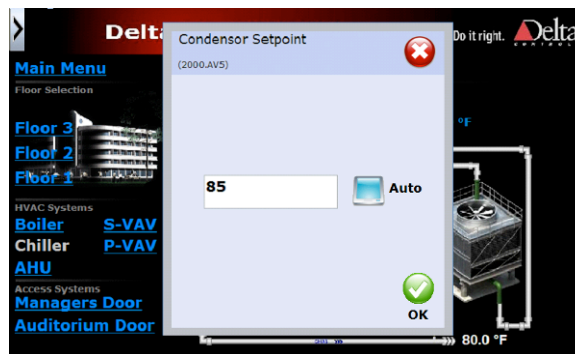
When adjusting a value you need to switch it from  Auto to  Manual.

Adjusting a Value

1. Press the Value or icon displayed on a site graphic.



2. On the Set Value page, press the computer icon  Auto to put the object into  Manual mode.



3. Make any adjustments, using the lists, arrows or keypad.



4. Press OK.

Returning a Value to Auto

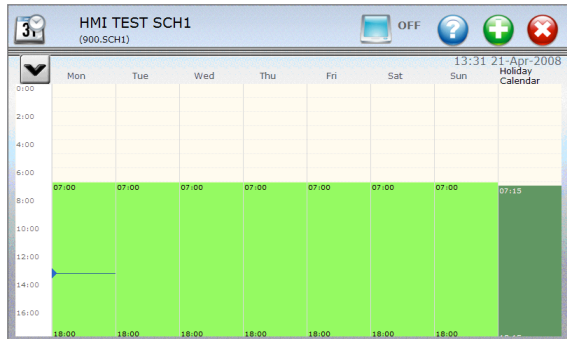
1. Press the Hand button to put the object back into Auto.
2. Press Ok.

Schedule (SCH)

Schedules are used to define normal weekly operation of facility equipment or occupancy hours. A Schedule object contains seven weekdays, and can link to two Calendars. Calendars define the exceptions to the normal daily operations and are used for special events, holidays, or extended operation.

Schedule View

- From a graphic, press the Schedule icon and the Schedule displays.



Note: If a User Login is required on the HMI Display, you must log in before you can edit a schedule.

Adding a New Time Range

- Press the green (+) button to add a new time range to the schedule.
- In the Hour portion of the Time field, press the up or down arrows to set the start hour.
- Press the Minute portion of the Time field, and then press the up or down arrows to set the start minutes.
- Repeat the same steps to set the end time.
- In the Days checkboxes, select which days this schedule time applies to, and then press OK.

Editing a Time Range

- In the shaded portion of the Schedule, press the day to edit.
- Press in the Hour portion of the Time field and hold the up or down arrow to set the start hour.
- Press in the Minute portion of the Time field and hold the up or down arrow to set the start minutes.
- Do the same two steps to set the end time.
- Press OK.

Deleting a Time Range

- Press in the shaded portion of the day you want to delete.
- On the Edit Schedule page, press delete.

Simple Schedule (SCH)

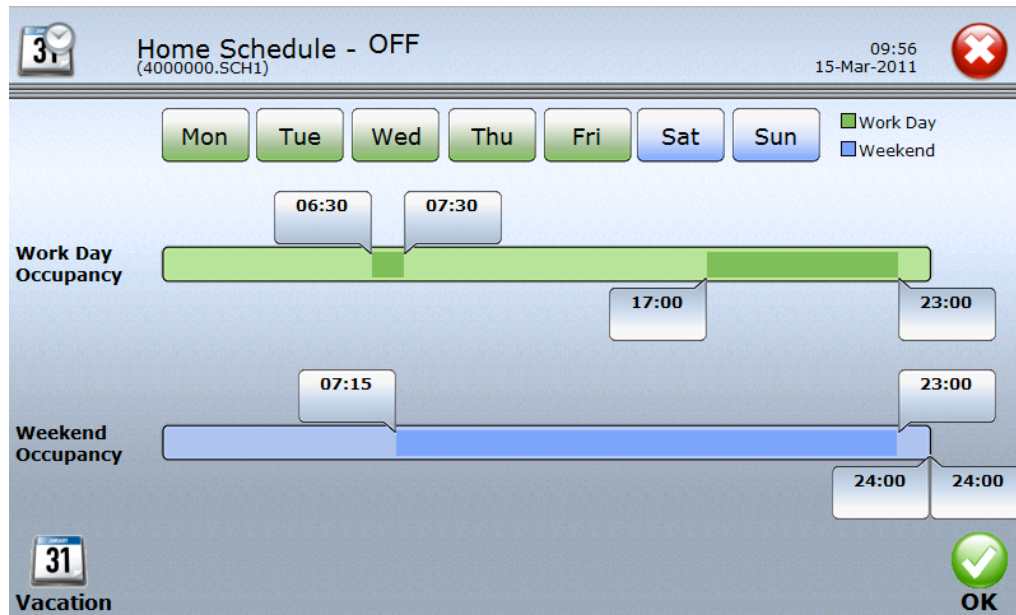
The Simple Schedule page is a view of the schedule object that is designed to be much easier to use for basic scheduling needs. Residential, light commercial and small office scheduling can usually be handled with this interface.

Using the Simple Schedule

The Simple Schedule presents the weekdays as a row of buttons that can be toggled between Work Day (green) and Weekend (blue). Work Days are controlled according to the Work Day Occupancy schedule, and Weekends are controlled according to the Weekend Occupancy schedule.

The Work Day and Weekend time blocks can be adjusted to 15 minute increments by dragging the time button left or right. If the end of one time block meets the start of another, it will be combined into a single block the next time you view the schedule.

If a Calendar (CAL) object is linked to the Schedule a Calendar link will appear in bottom left of the Simple Schedule page, allowing users to pick days for unoccupied override. Calendar entries are assumed to be for scheduling unoccupied periods, so whenever the Calendar object is ON, the Schedule will be OFF. Note that only one Calendar object is accessible from the Simple Schedule interface.

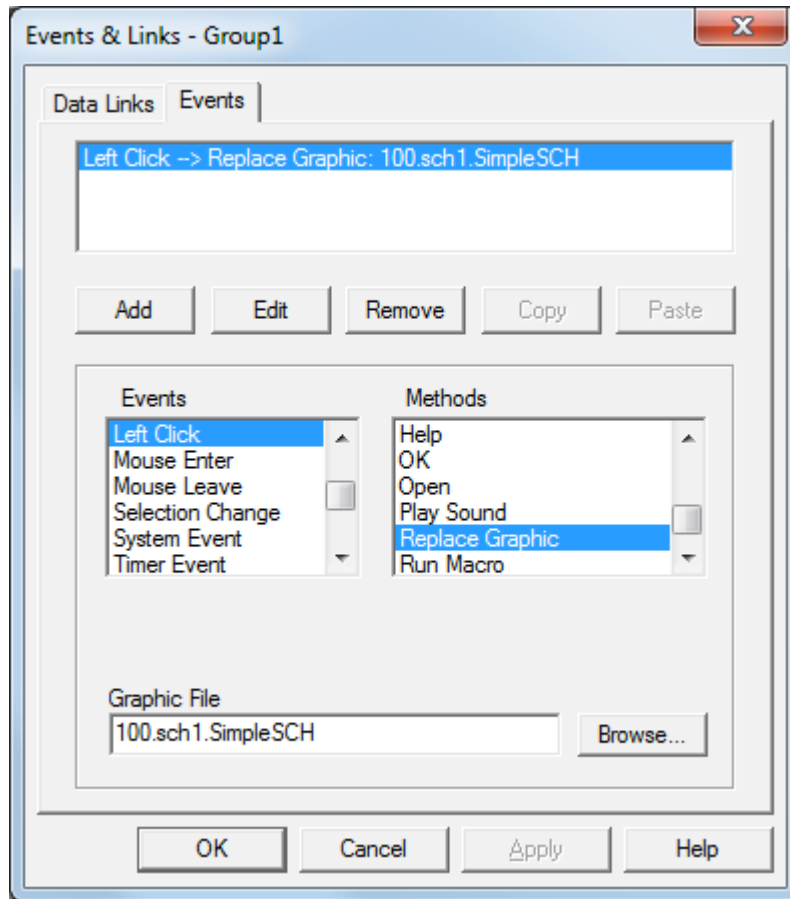


Enabling the Simple Schedule

The Simple Schedule page is a different way of viewing the Schedule object, but can only be viewed if a specific command is embedded into the link from the HMI Display graphic.

To enable the Simple Schedule view, append “.SimpleSCH” to the end of the link in the Illustrator Events and Links dialog.

For instance, Left Click > Replace Graphic: I00.SCH.I.SimpleSCH



Calendar (CAL)

Calendars define days that are outside of normal day-to-day operations. You can adjust a Calendar to change operations for any day, date, or month, in any current or future year. Up to two Calendar exceptions can be linked to any one Schedule.



When a Calendar defines special days of the year it overrides the normal weekly operations specified in the Schedule.

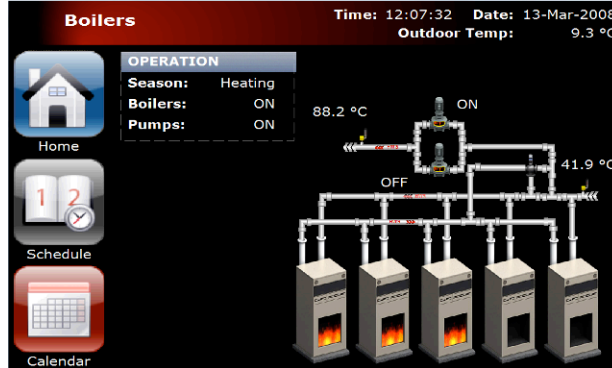
This section explains how to add the following types of entries:

- Single date
- Date Range
- Recurring date

Calendar View

In the Calendar, each date type is defined with a different color. The Calendar page displays a legend on the right side explaining what each color means. To view a Calendar:

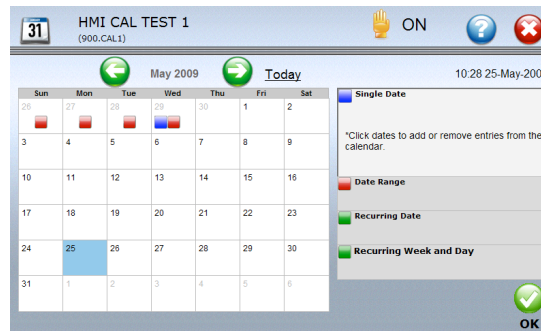
1. From a graphic, press the Calendar icon and the current month displays.



2. Use the forward and back arrows in the Title Bar to scroll through the months.

Adding A Single Date

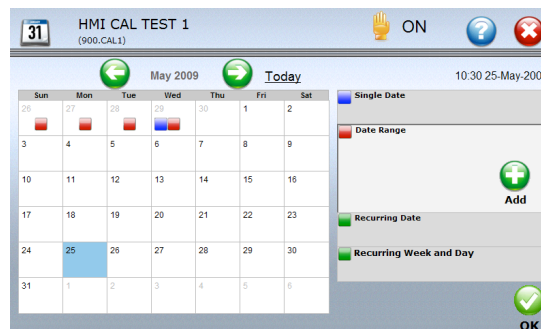
1. From the Calendar page, scroll the month and year of the Calendar you need using the arrow keys.
2. On the right side of the page, press Single Date.
3. In the Calendar, select the date you want to add.



4. A blue square displays.
5. Press OK to apply the changes.

Adding A Date Range

1. From the Calendar page, scroll the month and year of the Calendar you need using the arrow keys.

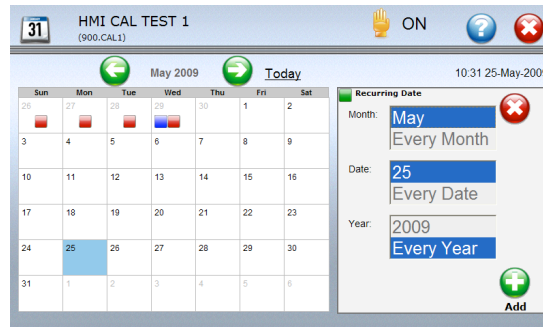


2. Press Date Range, and then press the Add (+).

3. In the Calendar, press the Start date and then the End date.
4. Press OK.

Adding a Recurring Date

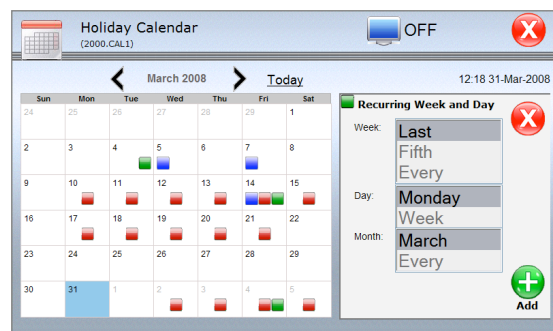
1. From the Calendar page, scroll the month and year of the Calendar you need using the arrow keys.
2. Press Recurring Date, and then press Add (+).
3. In the Calendar, press the Start date.
4. Select how you want the date to recur.



5. Press the Add (+) button.
6. Press OK.

Adding a Recurring Week or Day

1. From the Calendar page, scroll the month and year of the Calendar you need using the arrow keys.
2. Press the Recurring Week/Day button, and then press Add (+).
3. In the Calendar, press the Start date.
4. Select how you want the date to recur.



5. Press the Add (+) button.
6. Press OK.

Deleting Calendar Entries

1. From the Calendar page, scroll the month and year of the Calendar you need using the arrow keys.
2. In the Calendar, select the date/range/recurring date you want to delete.
3. Select the correct option from the right-side menu. (Single Date, Date Range, etc.)

From the menu, press the Delete (-) button. (Or, if it's an individual date, press the date to remove.)

4. Press OK.

Alarms (EV) and Active Alarm List

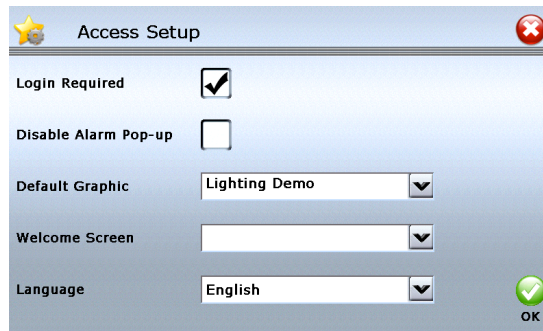
Operators respond to alarms during normal day-to-day operations of a site. Alarms (EV) occur when a monitored value is outside of a defined operating range or condition. When an Alarm occurs, a predefined sound file can play. Operators can acknowledge the notification, which lets the event management system know you are aware of the problem. The three values that display are: Alarm, Return to Normal, and Fault.

Local alarms and alarms received from other controllers can be tracked on the HMI Display. They are stored in an active alarm list. The maximum number of alarms the HMI Display will track is stored in the EVS object, accessible from HMI Configurator navigator, the default size is 100 alarms. When there are greater than 100 active alarms, the oldest will be purged as new alarms are stored.

Alarm Pop-up

Alarm pop-ups are configured on the HMI Display, you need to log in as the Administrator.

1. Go to the Settings page, and press Access Setup.
2. Check or uncheck the Disable Alarm Pop-up checkbox. Default settings is unchecked to allow pop-ups.



When Alarm Pop-up is enabled and the HMI Display receives notice of an alarm or an alarm changes status, a pop-up bar will be displayed across the bottom of the current screen. The bar will display more information about the alarm.



If there are multiple alarms active, the five most recent will be displayed and can be scrolled through using the green arrows on the bar. Press on the red X to dismiss or press elsewhere on the bar to open up the Active Alarm List.

Active Alarm List

Pressing on the Alarm Pop-up or on the alarm icon in the graphic menu will open up the Active Alarm list. If the Alarm Pop-up is disabled, the graphic menu will not contain an option to go to the active alarm list. The Active Alarm list displays a scrollable list showing all alarms the HMI Display has received.



Note: The Active Alarm page can also be opened through a clickable object on a graphic by linking to a non-existent graphic named EV*:

Left Click → Goto Graphics: EV*

Object	Time	Alarm	Event Class	Status	Ack
ows - bv1	13:10:46 13-Jan-2011	ows - ev2 ows alarm test. bv1 is ON.	Notification	Alarm	
	15:24:07 21-Dec-2010	ows ev2 normal. BV1 is Off.		Normal	
TOTAL RESETS Test Completed			Notification		
	09:54:02 13-Jan-2011			Normal	
	17:40:14 12-Jan-2011	Test Completed. Device has been reset 30 times and No Errors are f...		High Limit	
eTCH status Reset Error Alarm			Notification		
	15:47:52 11-Jan-2011	Reset Error. Check MV1.		Alarm	

The Active Alarm page has two dropdown boxes used to limit what alarms are viewed. The Active Alarms list may be filtered on type (All States, Alarm, Normal, Fault, Need ACK) and/or time period (All Dates, Today, 7 Days, 15 Days, 30 Days)

Alarms can be acknowledged by pressing on an alarm row, then pressing on the flag icon. Alarms that have transitioned back to Normal and have also been acknowledged will be removed from the Active Alarm list.

Alarms (EV)

An individual alarm (EV) can be opened directly from a graphic if an object has a Data Link to a particular EV instance:

1000.EV1.Value ↔ Visible

The Alarm Notification may look similar to the following:

Object	Alarm	Event Class
dsc1 - av10 (900.AV10)	dsc1 <ev#1 <alarm test (900.EV1)	Notification
14:45:46 14-Jan-2011	DSC1 (900).dsc1 - av10 (50.6) has returned to normal Alarm is cleared.	Normal
14:45:20 14-Jan-2011	DSC1 (900).dsc1 - av10 (105.3) has exceeded its HIGH LIMIT (90.0) <H1 ALIGN=CENTER>Demo</H1> <P> <A abcd12345 /> </P> useful	High Limit

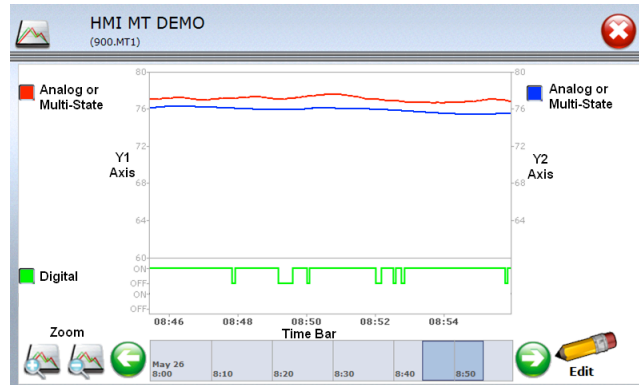
Acknowledging an alarm

1. When the Alarm Notification displays, press Alarm Link to open the Alarm Notification page.

2. Press ACK and notification is sent to the alarm source (could be a panel, OWS, etc.).
3. Press the X button to go back to Graphic Mode.

Multi-Trend (MT)

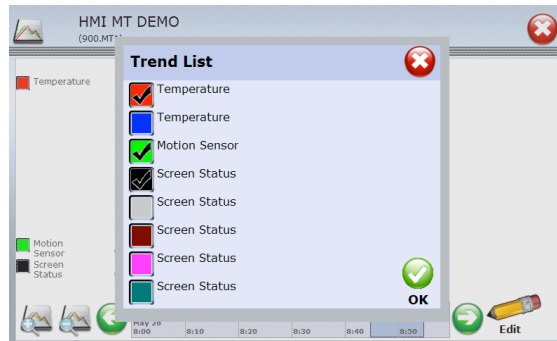
A trend log displays data for a single variable. Multi-Trends display a graph of up to eight trend logs and are used to monitor the everyday operation of the building site.



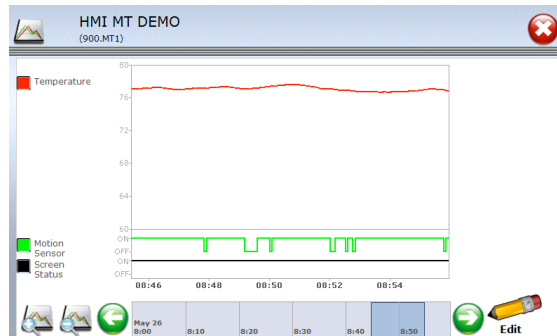
The Multi-Trend time bar displays up to a maximum of 6 months of data, and the default displays the current time frame. The left and right arrows move the current view over by one screen.

Viewing Trend Log Data

1. From a graphic, press Multi-Trend.
2. To make Trend logs visible or hidden, press Edit and select or clear the checkboxes.



3. To adjust the view time, press the desired time on the time bar at the bottom of the screen or use the left and right arrows.



4. To view a longer or shorter time frame, press the zoom buttons.



Note: New trend logs can only be assigned in the OWS.

Introduction

Graphics for HMI Display HMI are created within the HMI Configurator Illustrator program. This chapter covers supported graphics and limitations, the HMI palette library, and transferring to the HMI Display unit. It does not cover how to use Illustrator. If you need information about using this program, refer to the *Illustrator Technical Reference Manual* on the HMI Configurator installation CD. The rest of this chapter covers:

- Unique requirements when creating graphics for an HMI Display
- Supported graphics and limitations
- Supported controls and the HMI palette objects
- Alarm Enunciation
- Time set for users
- Local HMI Display references in graphics
- Dynamic device references in graphics
- Dynamic instances in graphics
- IP security camera monitoring
- Transferring graphics to an HMI Display
- Adding a custom splash screen
- Temperature, motion, and humidity sensors
- Dimmable display
- Menu disable
- Save/load graphic files
- Clearing the flash
- USB upgrades
- BACnet/IP support and Emailing Alarms

Design and Usability Guidelines

HMI Display graphics need to be substantially different than standard HMI Configurator graphics. Loading standard graphics may result in a poor or unusable interface. The screen of the HMI Display is much smaller than a standard computer monitor, and the finger touch zone needs to be big enough to ensure user accuracy. The following guidelines can help you design efficient, user friendly graphics for the HMI Display.

Recommended Graphics Size

The screen display resolution for the HMI Display is 800 x 480 pixels, an aspect ratio of 5:3. It is recommended that the HMI Configurator window be set to the same aspect ratio of 5:3 when making graphics so that images do not become distorted when transferring them to the HMI Display.

The recommended window size for the HMI Display palette is a

- Width of 25000
- Height of 15000

Using this size, the palette objects display at a reasonable size on the HMI Display screen.

Designing for Finger Touch Zone

Design the HMI Display graphics to be used with a finger touch, not a stylus. The recommended minimum size for a button or link is 1cm x 1cm. Larger than this is even

better. The bigger the buttons, based on available space, the more accurate the touch zone, and the more confident a user will be with the system.

Fonts

Font size and style affect how easy it is to read the HMI Display graphics. Stick to the use of standard fonts recommended for web use such as Arial, Tahoma (Illustrator default), and Verdana. Avoid using all capitals when possible, except for short headings. Capital letters are difficult to scan and take up more space on the screen. It is recommended that you use one font style whenever possible and a maximum of three different sizes.

Buttons and Links

Buttons work best for links to other HMI Display pages because they appear more touchable. When the graphic element is not clear, provide a text label to enhance usability. For elements that need to be linked and are not buttons, use an underline. Do not underline text or create buttons without links as this may confuse users.

Colors and Contrast

Use colors with high contrast to make the information on the screen as easy to read as possible. Do not use color alone to convey information. Some users may not be able to distinguish between certain colors. Use text, numbers, or symbols along with color for best results.

Home Page and Navigation

Display any major page links on the home page. Group common navigation elements together, and provide left-side of the screen navigation because this is recognized by users as a common web page standard. Provide user feedback on their current location by using repetitive page elements, logical page titles, and a breadcrumb trail (see example) if space allows.

Home page → Section page → Subsection page

Placing Elements Consistently

Place items such as navigation buttons, current time, system status, etc. consistently on each page so the user always knows where to look. When provided this way, each page looks connected to the others and users quickly learn where to find things.

Aligning Page Items

When possible use a grid to align items on each page to make the screen appear more organized and efficient to use.

Making User Tasks Efficient

Reduce the number of clicks a user must carry out to complete the most common tasks. One example is to use Controls such as the spin box, drop-down box, and checkbox to reduce a user's need to open the Set Value dialog.

Performance and Screen Loading Time

Design pages to load quickly. Reduce the page loading time by minimizing the number of images and animations on each individual page.

Reducing Screen Clutter

Use a moderate amount of unused space to enhance reading and usability on every page. Remove or reduce any meaningless graphic elements. Unused navigation buttons or data points reduce usability. Pages should have only the needed information for the purpose of that page. If the screen looks cluttered and all items are important, consider using two pages. For example, a boiler system could be broken into primary and secondary loops.

Supported Graphic Objects

The HMI Display supports the following graphic objects.

- Rectangles, circles, triangles, polygons, lines, and polylines
- Custom graphics (Rectangles with wallpaper). This includes most of the 3D palette objects, built using .jpg and .bmp wallpapers
- Digital and Analog Animation

The HMI Display supports the following control items.

- Text boxes
- Edit boxes
- Spin boxes
- Drop-down lists
- Checkboxes
- Buttons
- List boxes
- Sliders



The items listed above do not have all the same functionality on the HMI Display as they do in HMI Configurator. Please see the additional notes in the Supported Controls and Palette Objects section for any limitations.

Graphics Limitations

HMI Display graphics do not have the same capabilities as Illustrator graphics. It is important to note the following:

- The HMI Display only supports the use of a limited number of circles and lines.
- Many Illustrator palette objects, such as ducts and pipes, are built using groups of lines and polygons. Some items cannot be converted to an HMI Display graphic.
- Arc and pie are not supported.
- Fill properties only support solid colors.
- Gradients are not supported; use wallpapers with gradients in them if needed.
- The HMI Display displays color in 16 bit color. Any images with higher color depth are converted to 16 bit.
- Illustrator Macros are not supported.
- The following fonts are supported. Any others are converted to Tahoma, which is the default.
 - Arial
 - Courier New
 - Georgia
 - Times New Roman
 - Verdana
 - Tahoma

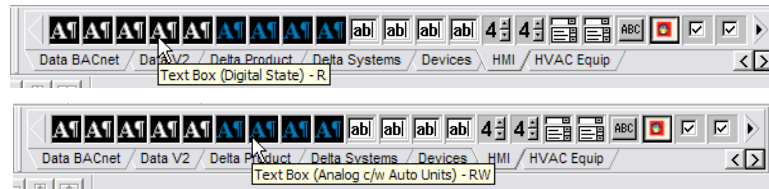
Wingdings

Supported Controls and HMI Palette objects

The Illustrator Object palettes are toolbar libraries of predefined graphic objects capable of embedding real-time data via drag and link options. Only some features within Illustrator are supported on the HMI Display. This section covers the HMI palette objects, supported controls, and any limitations when creating graphics for the HMI Display.

Schedule, Calendar, Multi-Trend, and Event Pages

Graphic objects on the HMI Display are either read only or both read and write. The HMI palette in Illustrator has two styles, making it easy to see what can be modified. Text boxes in the HMI palette are white for read only (R) and blue for read/write (RW).



If a graphic object contains a data link to a CAL, EV, MT, or SCH object Name or Value property, pressing the object displays the details for the linked object. If the data link is a read/write link, users can change the properties of the linked object. If a data link is read only, the object details open for viewing only.

In addition to this, an image or button can be used to open a CAL, EV, MT, or SCH dialog. To do this, use a Left Click Event: Left Click --> Goto Graphic: I00.SCH1. The HMI palette has Calendar, Alarm, Multi-Trend, and Schedule icons containing predefined links.

Set Value Objects

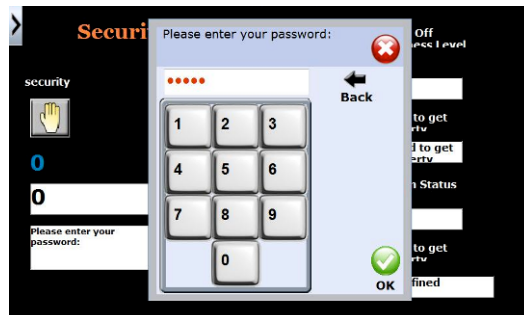
The AV, AO, BV, BO, MV, and MO support changes to Value and the Auto/Manual properties only. Blue links (read/write) identify which Values can be adjusted.

For example, a text box linked to Analog Variable AV1 might have the following, I00.AV1.Value <--> Value.

When the text box displaying the object value is pressed, the Set Value page opens.

Security Pad

Graphic objects on the HMI Display screen can be linked to a security pad which requires a password to access. The password can be up to 7 digits long, and the first digit cannot be 0.



To setup a Security Pad:

1. A writeable datalink or event is added to an analog AV or AO object. Pressing on this object would normally open up the Set Value dialog, ie:

Left Click → Goto Graphic: %99.av2

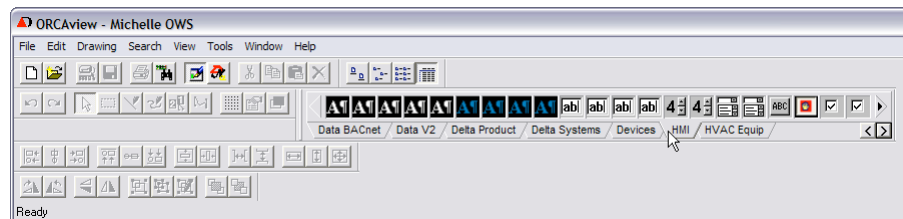
2. To enable the Security Pad rather than Set Value, enter “SecurityPad” into the HelpContext field of the object with the link. Also enter “UseDescription” into the HelpContext field to use the description field instead of the object name for the title on the set value page.

MousePointer	Default	
HelpContext	SecurityPad UseDescription	
MethodArrayCount	1	
Method		

When a user enters a value through the Security Pad, it is written to the linked analog database object. Custom GCL code is required to check the analog object value and compare it to a security ‘code’.

Supported Controls

The HMI Palette includes most of the basic controls supported on the HMI Display. The following is a list of supported controls and any limitations.



Text Boxes - with predefined links to Analog Values, Analog Values with Units, Binary Values, and Multistate values.

Write functionality is available for data links to a Value property. In the HMI palette, text boxes that have a Write data link display in a blue font so users know if they can make changes to the Set Value page.

Property Exceptions

- Lines Style: Solid, dashed, dotted bumped edge, etched edge, raised edge, and sunken edge are all supported.
Note: this property is not supported in HMI Configurator. However, it displays on the HMI Display.
- SuffixStyle: Forced to 1 space when converted to HMI Display

Edit Boxes - with predefined links to Analog Value, Analog Value with Units, Binary Value, and Multi-state Value.

Edit Boxes are converted to text boxes with a white background. An edit box on the HMI Display behaves similar to a text box.

Property Exceptions

- SuffixStyle: Forced to 1 space when converted to an HMI.

Spin Box - with predefined links to Analog Values and Analog Values with Units. If a Spin box is not tall enough, when the graphic is converted to the HMI Display the spinner buttons display side-by-side to allow for more touch area.

Modifying the Set Value using a spin box happens on the touch screen rather than opening a popup Set Value page.

Drop Down Boxes - with predefined links to Digital Value and Multi-State Value.

Checkboxes – with predefined links to digital values display with or without caption text.

List Boxes – with two custom styles, radio buttons and fan control, these are not available for the OWS graphics.

Sliders – with three custom styles: thermometer, arrow only, and thermometer setpoint. These are not available for the OWS graphics.

Sticky Buttons - with a predefined link to the Auto/Manual control of an object. Up and Down button images are used with the button.

Note: Items in the Illustrator Auto/Manual BACnet palette page *are not supported* on the HMI Display. These are the groupings that will display an Edit or Spin Box when the Auto/Manual sticky button is pressed.

Push Button – there are no data links associated with this button.

Supported Events

The following left click event methods are supported.

- Replace Graphic
- Goto Graphic
- Goto Previous Graphic
- Command Auto
- Command Manual
- Command OFF
- Command ON
- Command Reset

For example: Left Click --> Goto Graphic: AHUI.gpc

The replace Graphic and Goto Graphic do the same thing; a current graphic is replaced by the graphic file supplied by the user. If the graphic file is a linked to a CAL, EV, MT, or SCH, the object dialog opens.

Property exceptions

- UpButton / DownButton FileName: only UpButton Filename is supported.
- UpButton Style: only stretched is supported.
- Caption: hot keys are not supported.

Shapes – there are no data links associated with shapes.

Property Exceptions

- ShapeType: rectangles are supported; rounded rectangles are not.

- Fill Style: none and solid are supported; gradients are not.
- Line Style: solid, dashed, dotted bumped edge, etched edge, raised edge, and sunken edge are all supported.

Supported Events

Similar to Push Buttons, only the following Left Click Event methods are supported.

- Replace Graphic
- Goto Graphic
- Goto Previous Graphic
- Command Auto
- Command Manual
- Command OFF
- Command Reset

Digital and Analog Animation

Digital and Analog animations function the same on the HMI Display as they do in HMI Configurator. However, the number of animations and frames per animation should be limited to prevent performance issues.

Using Alarm Enunciation

An object on a graphic can be set up to play a sound on the HMI Display when an alarm is active.

1. Open the HMI Display graphic in HMI Configurator.
2. Create an object on the graphic.
3. Open Events & Links.
4. Switch to the Events tab.
5. Under Events, select System Event.
6. Under Methods, select Play Sound.
7. In the DataRef field, enter the Alarm to be monitored (for example, 100.EV1).
8. In the Sound field, enter the filename* of the sound to play.
9. The sound will be played in the HMI Display when the alarm becomes active.



Note: the sound file must be a WAV file and must be smaller than 150KB.

Repeating Alarm Enunciation

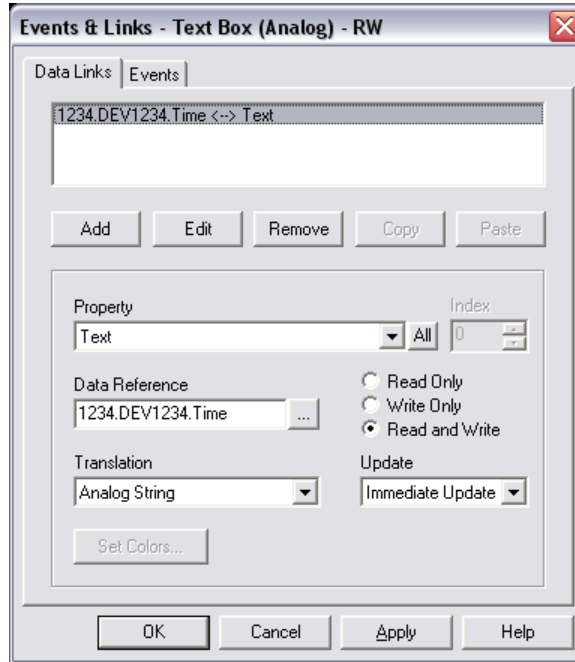
Alarm sound can be repeated approximately every five seconds by adding "RepeatGraphicSounds=1" in the HelpContext property of a graphic rectangle. The repetition of the alarm sound stops when the value becomes false or the graphic is closed.

Creating a Time Set Link

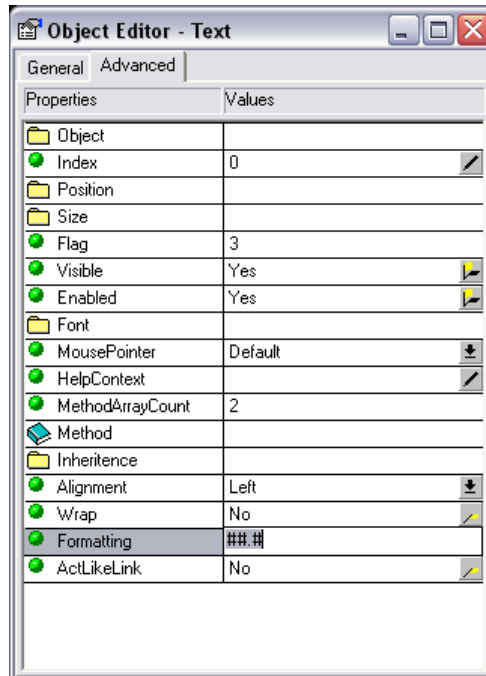
Normally only the administrator can set the HMI Display time using the HMI Display setup, but graphics can be created that allow any user to adjust the time. A user must be logged in or login must be disabled for the user to adjust the time. Please note that changing the time on the HMI Display changes the time for the entire network.

To create a time setting graphic:

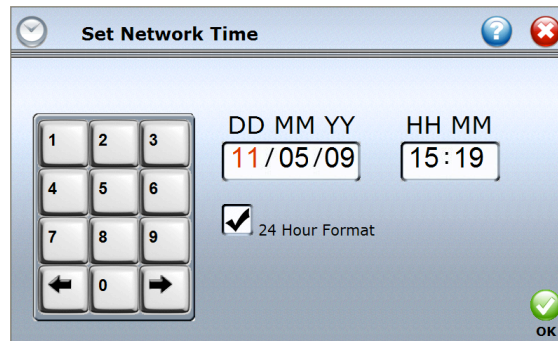
1. Open the HMI Display graphic in HMI Configurator Illustrator.
2. Create an Analog Read/Write object.
3. Right click the object and select Events & Links.
4. In the Data Reference field, create a link to the DEV object date or time property by entering `#.DEV#.Time` or `#.DEV#.Date`



5. Press OK.
Right click the object and select Properties...
6. In the Advanced tab, go to Formatting and ensure that field is blank (not ###.#).



Press the object, and the Set Network Time page displays.



1. Use the number keypad to enter the correct date.
2. Enter the correct time.
3. Press OK.

Using Local HMI Display References in Graphics

The local HMI Display can be referred to in graphics by using %99 in data links instead of the actual address of the HMI Display. For example, if the HMI display is addressed as 100, use %99.AVI.Value instead of 100.AVI.Value. This makes it easy to use the same graphics on many HMI Display devices without updating the data links.

Using Dynamic Device References in Graphics

A remote device can be dynamically referred in graphics by using %98 in data links instead of the actual device address. When converted to an HMI Display graphic, the %98 link will be replaced with the value of a special HMI Display variable, AV998. If AV998 is changed, all links on the graphics that use %98 will automatically reference the new device.

To enable dynamic device reference:

1. Create an AV998 in the HMI Display database, it can be named anything.
2. Create a control on the graphic to allow changing AV998 in the local HMI Display database. For example, use a drop down box: %99.AV998.Value → CurrentValue. A PG could also be set to periodically change AV998.
3. Create other controls on the graphic that will be automatically updated as AV998 is changed. For example text boxes could be linked to %98.All.Value to display the currently selected HMI Display temperature or %98.DEV.Name could display the currently selected device name.



Note: The largest device address that can be dynamically referenced is 999999. AV998 can be maximum of six digits.

Monitoring an IP Security Camera

The HMI Display can display images from a local or remote IP source. A common use is to view updating images served from an IP security camera. The image can update automatically up to a maximum refresh rate of once per second.

Please note the following limitations:

- The IP camera image will not display in Illustrator, only when the graphic is transferred to the HMI Display.
- The IP camera must not require a password to connect.
- The IP camera must serve the latest image in a .jpg or .gif format.
- TCP/IP settings must be enabled in the HMI Display DEV object – Internet tab and the HMI Display must be connected to an IP network.
- The HMI Display must be able to communicate to the http address where the image is served from. If the address is not numeric (www.xxx.yyy.zzz) the HMI Display must be able to reach a DNS server. Typically these settings are automatically configured when the default Dynamic IP is enabled in the HMI Display DEV – Internet tab.

In most cases, if you can enter the image http:// address in a PC web browser without any passwords required, an HMI Display connected to the same hub/switch will also be able to display the image.

To create an HMI Display graphic capable of displaying a refreshing image:

1. Insert a regular Rectangle on a graphic, sized proportional to the IP camera image.
2. In the rectangle property, Advance Tab, set the HelpContext property to `IMG=http://<address>/<image file name> REFRESH=xx` where xx is how often the image will be reloaded in seconds, minimum of 1.

Examples:

`IMG=http://192.168.1.123/camera.jpg REFRESH=1`

`IMG=http://hncam1.hn.psu.edu/axis-cgi/jpg/image.cgi REFRESH = 5`

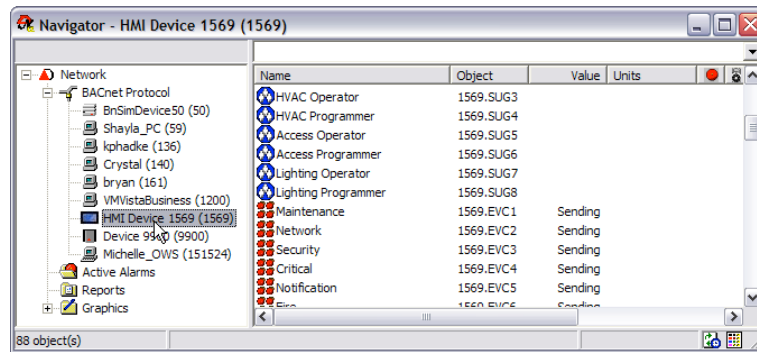
front	
MousePointer	Default
HelpContext	IMG=http://192.168.1.123/camera.jpg REFRESH=1
MethodArrayCount	0
Method	



Note: The maximum refresh speed that should be used depends on a number of factors including bandwidth, server speed, image update rate and image file size.

Transferring Graphics to an HMI Display

Once graphics are created they can be transferred to the HMI Display. The HMI Display must be on the same network as the HMI Configurator OWS and displayed in the Navigator tree (see the following example).



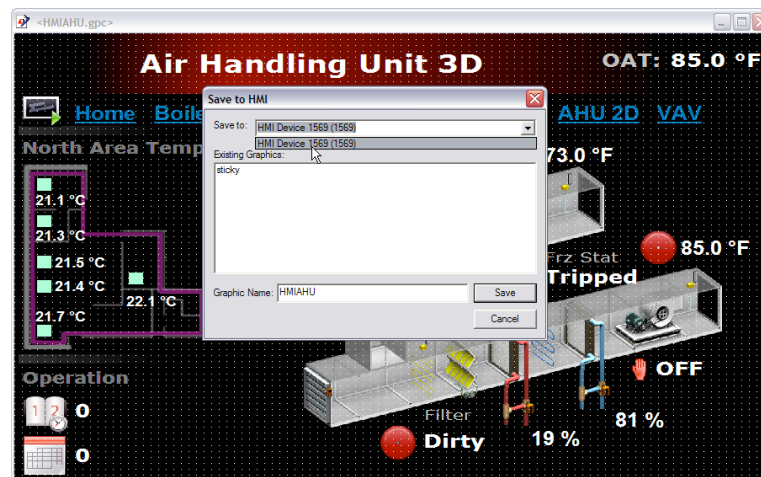
Graphic files and their associated graphics are stored as FIL objects in the HMI Display database when viewed via Navigator. These FIL objects display the same name as the graphic they represent.

Transferring an Individual Graphic

All graphics are automatically resized to fit the HMI Display default resolution.

To transfer an individual graphic to the HMI Display:

1. Open Navigator. From the left pane, click to open the Graphics folder.
2. Click to highlight the .gpc graphic file you want to transfer.
3. Right-click, and then select Save as HMI page...
4. From the Save to HMI dialog select the HMI Display device from the drop-down menu.



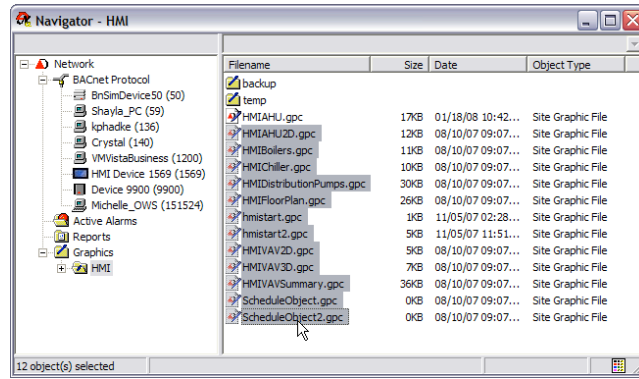
5. Enter a name the Graphic Name field, and click Save.

Transferring Multiple Graphics

When there are multiple graphics to load it can be more efficient to transfer multiple graphic files to the HMI Display.

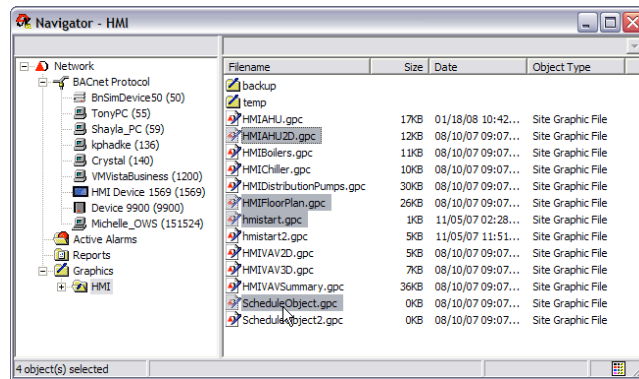
To transfer multiple graphics to the HMI Display:

1. Open Navigator. From the left pane, click to open the Graphics folder.
2. Click to highlight the first file you want to save.
3. Press SHIFT and click the last file in a list



- or -

Press CTRL and click to select multiple files that are not in sequential order.



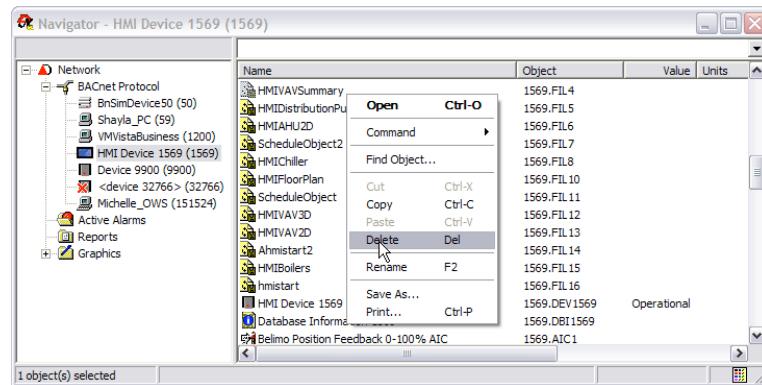
4. Right-click in the area over the highlighted graphics and select Save as HMI page...
5. In the Save to HMI dialog, select the HMI Display from the Output Device dropdown menu.
Use the Add or Remove buttons to change any graphics transferred to the HMI Display.
6. Click OK.

Deleting Graphics From an HMI Display

HMI Display graphic files are deleted from the Navigator window.

To delete a graphic from the HMI Display:

1. Open the Navigator window.
2. From the Navigator left pane, click to the HMI Display device.
3. In the right pane of Navigator, scroll to find the associated HMI Display FIL object.
4. Click to highlight the FIL you want to remove.



5. Right-click in the Navigator pane, and then select Delete.

Adding a Customer Splash Screen

The user can customize the screen displayed when the HMI Display exits power save mode.

To customize the splash screen:

1. Create a new graphic in Illustrator called CustomerSplash.
2. Set the Wallpaper property of this graphic to the image that is used as the customer splash screen.
3. Save the graphic to the HMI Display using the normal procedure.
4. The custom splash screen displays the next time the HMI Display exits power save mode.



Note: Do not add any other controls to this graphic.

Dimmable Display

The brightness of the HMI Display screen can be customized to dim rather than turn off completely. In the right pane of the Navigator window are there objects called Screen Status, Screen Off Brightness Level, and Screen On Bright Level.

Screen Status is used to determine when the Screen switches from On to Off. This can also be changed from the HMI Display Setup, where it is called Backlight Timeout. If the Minimum On Time in the Screen Status Setup tab is set to a time doesn't match the Backlight Timeout drop-down, the drop-down on the HMI Display displays the closest available time.

To set the brightness:

1. Open the Navigator window.
2. In the left pane, click on the HMI Display device.
3. In the Setup of the Screen Off Brightness Level, the Default Value field can be changed to a number between 0 and 100%. The higher the value, the brighter the screen when it is Off.
4. In the Setup of the Screen On Brightness Level, the Default Value field can be changed to a number between 1 and 100%.

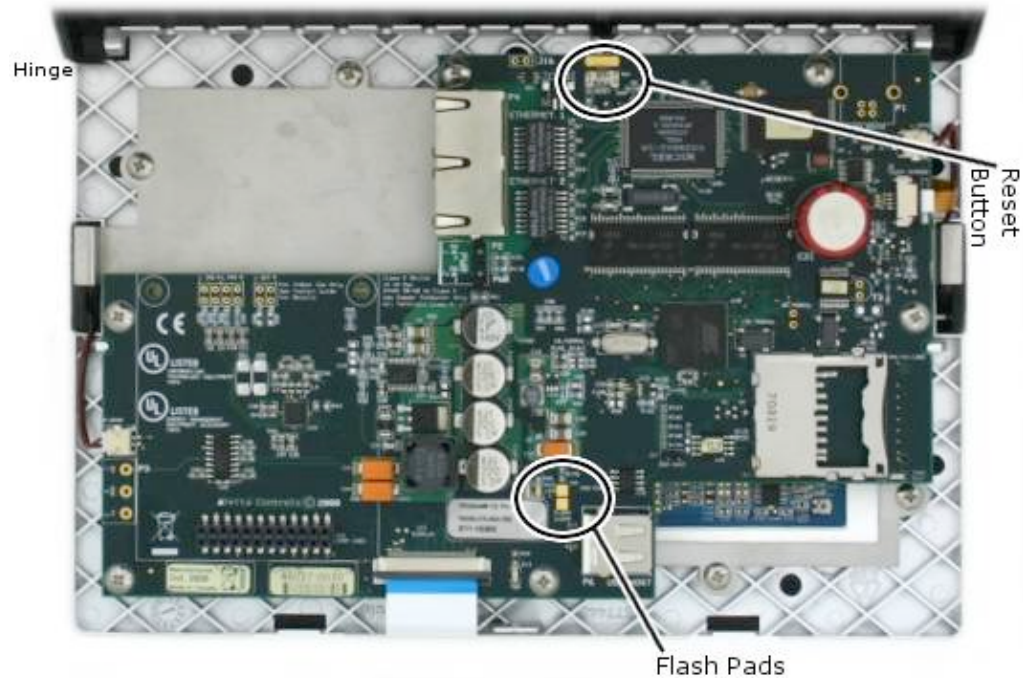
Menu Disable

The arrow in the top left corner of the screen that links to the top menu can be disabled.

1. Open the Navigator Window, and click on the HMI Display device in the left pane.
2. Create a BV99I and name it "User Menu Disable".
3. Set the value to On.
4. To re-enable the menu, set the value to Off.

Clearing the Flash

If you believe the HMI Display has become corrupted, you may need to clear the flash. This will take several minutes.



To clear the flash:

1. Open the HMI Display cover.
2. Connect the two copper flash pads.
3. While the flash pads are connected, hold down the reset button. (If the reset button does not present in your HMI Display hardware version, then cycle the power switch)
4. Continue holding the flash pads for 5 seconds.
5. The screen of the HMI Display displays progress as it clears the flash. This lasts several minutes.
6. After progress reaches 100%, the HMI Display screen will be blank while the HMI Display automatically restarts, which takes about 7 minutes.

USB Upgrades

A USB flash drive can be used to upgrade the firmware and the database. This can be password-protected.

Upgrading the firmware

This can be done while the HMI Display is displaying any screen, and is not affected by whether someone is logged on to the HMI Display at the time. Do not disconnect the HMI Display from the power source until it is finished upgrading.

1. Save the FLS file to the root directory of a USB flash drive. If there are multiple FLS files in the root directory, the HMI Display selects the newest one.
2. Insert the USB drive into the HMI Display.
3. A screen displays asking if you want to upgrade.
 - If you press No, the HMI Display returns to the previous screen and does not ask to upgrade until the USB drive is removed and re-inserted.
4. Press Yes, and the HMI Display begins the upgrade. A progress bar is displayed at the bottom of the screen.
5. After upgrading, the HMI Display asks you to remove the USB key to complete the process.

Password-Protecting

The HMI Display can be password-protected from unauthorized USB upgrades.

1. From the OWS, open the Navigator window.
2. In the left pane, select the HMI Display device.
3. On the Configuration tab, in the Flash Loader Password field, enter a password.
4. In the USB flash drive, create a new text file in the root directory called "DHMI Upgrade.password".
5. In the password file, enter the password.
6. When the USB drive is inserted in the HMI Display, the upgrade proceeds normally. If there is an error in the password file, the HMI Display displays an error message when you select Yes to upgrade.

Upgrading the database

You can upgrade your database at the same you upgrade the firmware. If there are multiple databases in the root directory, the HMI Display selects the most recent one.

1. Save the database to the root directory of the flash drive.
2. When the HMI Display asks you if you want to upgrade, it also acknowledges the database upgrade.
3. The database is automatically upgraded once the flash upgrade is complete.

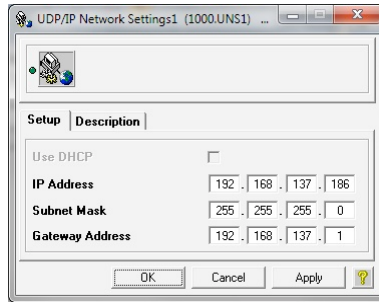
BACnet/IP support

HMI Display firmware version 3.33R4 adds the ability for the HMI Display to communicate BACnet over IP. BACnet/IP support allows the HMI Display to be used as a Regular IP Device, Foreign Device or as a BBMD (optional).

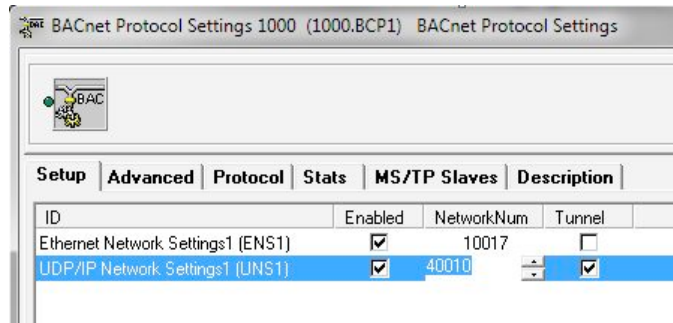
HMI Configurator must be used to configure BACnet/IP. IP settings are configured on the HMI Display similar to a DCU. Refer to the Controller Networks chapter in the HMI Configurator Technical Reference Manual for more information on BACnet/IP and how to configure.

The key differences with setting up the HMI Display are:

1. All BACnet/IP network settings must be followed by a HMI Display reset to apply changes
2. IP settings and DHCP enable are configured in the UNS object and duplicated on the Internet Tab of the DEV object.



If both Ethernet and BACnet/IP are enabled and routing traffic between the BACnet/IP and Ethernets networks is desired, the network numbers must be manually configured in the BCP object. These network numbers need to match the BACnet/IP and Ethernet network number of other controllers the HMI Display is connected to. Double click the value in the NetworkNum column to change:



Emailing Alarms (optional)

The HMI Display can be configured to send email notification when local or remote alarms are received.

Refer to the Events chapter in the HMI Configurator technical reference manual for more information.