

EVR Controls

User Guide



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WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

Disconnect power supply before making wiring connections or working on this equipment. Follow all applicable safety procedures to prevent accidental power up. Failure to do so can result in injury or death from electrical shock or moving parts and may cause equipment damage.

Improper control adjustments and manual mode control can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before making adjustments.

A Note About Custom Designs

AbsolutAire often builds equipment with special features as requested by the customer. This manual only covers standard features and does not include any changes made for special feature requests by the customer.



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Introduction

The Smart-View Human Machine Interface (UI) for the EVR Controls displays the information necessary to set up and operate the evaporative cooling system.

This is connected to the controller via a CAT-5E cable and is mounted on the main electrical panel.



HMI Screen Information

At the top left corner of the display there is a bell symbol. This is the system alarm indicator. If an alarm is present in the unit this indicator will blink. If no alarm is present this indicator will not be visible.

When navigating the menu, the menu title will be displayed at the top right. Across the center of the display is the data with the units of measure. Across the bottom are the snowflake symbol, which indicates cooling is active, and the water drop symbol, which indicates flush mode is active.

Three buttons are available for operation (see cover page). The center button allows you to access the menu and scroll through the menu items. The up/down buttons are used to change values.

HMI Controls

The system will display the current Outside Temperature. The menu is separated into sub-menus for ease of use. When navigating the menu, blinking items are set points that can be changed while non-blinking items are statuses which can be viewed only.



To change set points such as the OA Stat setting or flush mode times, press the center “menu” button until you see “SET POINTS” in the top right of the screen. Press the “up arrow” to enter this sub-menu. Within this sub-menu are the options for setting the flush duration, flush timer and drain timers.

Scrolling through the “STATUS” sub-menu will allow you to view the status of all of the unit sensors and inputs. This is useful for checking unit operation or outdoor conditions.

The “ALARMS” menu will only be displayed if there is a system alarm, as indicated by the blinking alarm bell on the display. When an alarm is present, scrolling through this sub-menu will allow you to view the alarm(s) in “plain English” enumerated text. This is useful for diagnosing the unit in the event of a problem.



Sensor Alarm Display

The “FLUSH SCHEDULE” allows for the setting of a daily or weekly time for an automated flush cycle to keep the media clean and operating as efficiently as possible.

Note that a scheduled or manually activated flush cycle will cause the unit to become active, opening the dampers and running the fan to dry the media, even if the unit is commanded off. As a result, proper lockout/tag-out procedures should be observed when servicing the unit.



Operation

Cooling Operation:

With the unit operating in cooling mode and the outside air temperature above the “OA STAT” set point, the evaporative cooling fill valve (FV) will open and the drain valves (DV1, DV2 & DV3) will close. This allows the evaporative sump to fill. Once the sump is full the float switch (FS1) will close, energizing the pump contactor (C1) and starting the sump pump (P1). The sump pump (P1) will deliver water to the evaporative cooling media until the outside air temperature drops below the “OA STAT” set point, until the unit is taken out of cooling mode or until the unit is commanded off.

Flush Mode Operation:

The flush sequence will operate at the time(s) programmed into the “FLUSH SCHEDULE” or when manually commanded via an optional water quality/conductivity sensor. The flush sequence will only operate when the unit is commanded on, in cooling mode and the outdoor air temperature is above the “OA STAT” set point. Flush mode will run for the “FLUSH DURATION” time, in minutes, set at the HMI.

Flush mode begins by energizing the flush mode relay (CR-9) and disabling the unit supply fan. The water fill valve (FV) will close and drain valves (DV1 & DV2) will open. The flush/fill valve (FFV) and drain valve (DV3) will remain closed. The sump is now being drained and will continue for the “DRAIN TIME” time, in minutes, set at the HMI.

When the “DRAIN TIME” has expired, the flush/fill valve (FFV) is opened. The drain valve (DV3) remains closed and (DV1 & DV2) remain open. During this time water is being washed over the evaporative media and out the drain, cleaning the system. This will continue for the “FLUSH TIME” time, in minutes, set at the HMI.

When the “FLUSH TIME” has expired, the flush/fill valve (FFV) is closed, the fill valve (FV) and drain valve (DV3) are closed, and drain valves (DV1 & DV2) are opened. This allows any remaining water from the media and sump to drain for the remaining “FLUSH DURATION” time.

Drain and flush times may be adjusted at the HMI, but must fit within the “FLUSH DURATION” time.

“FLUSH DURATION” - “DRAIN TIME” - “FLUSH TIME” = “FINAL DRAIN”



Menu Tree

Main Display

OA_Temp – Current outside air temperature.

Settings

OA_STAT - Outside air temperature at which the cooling system is disabled and the sump is drained to prevent freezing.

FLUSH_DURATION - Total programmed time span of the flush cycle.

DRAIN_TIME - Total programmed time span for the flush cycle initial drain.

FLUSH_TIME - Total programmed time span for the flush portion of the flush cycle.

(NOTE) - The final drain time is calculated by subtracting the initial drain time and flush time from the total flush duration time.

(Flush Duration - Drain Time - Flush Time = Final Drain Time)

FAN_RUN_ON_TIME - The amount of time, in minutes, the unit supply fan will continue to run after a cooling cycle or after a flush cycle to dry the evaporative media. This will reduce or eliminate the development of potential mildew and odor.

Status

COOLING_ENABLED - Current ON/OFF status of the cooling.

FLUSH_MODE - Current ON/OFF status of the flush cycle.

OA_TEMP – Current outside air temperature.

Alarms

OA_SENSOR_ALARM - Current normal/open/short status of the sensor for the OA STAT. This will only be visible if there is a problem with the sensor.



Flush Schedule

DAY_OF_WEEK - Selects the day of the week for the automatic flush cycle.

FLUSH_HOUR - The hour of the day, in 24-hour format, for the automated flush cycle.

FLUSH_MINUTE - The minute of the hour for the automated flush cycle.

System Date and Time

To set the system date and time, press and hold the center “menu” button for 5-seconds until the “YEAR” prompt is displayed. Use the UP/DOWN arrows to set the year and press the center button to move to the “DATE” prompt. Use the UP/DOWN arrows to set the month and day, then press the center button to move to the “TIME” prompt. Use the UP/DOWN arrows to set the hour and minute, then press the center button to “BACK”. Press the UP arrow to exit the date and time sub-menu.

YEAR - Use to set the system clock year.

DATE - Use to set the system clock month and day.

TIME - Use to set the system clock hour and minute.

Note that the system date and time needs to be checked and re-set after each power loss or power cycle.



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