

Pulse Modulating and Anti-Sweat Control (PMAC II Solo) Installation and Operation Manual





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Please Note: This manual covers only the PMAC II Solo (*P/N 851-1104*) model. If information is needed on the PMAC II (network version), consult the PMAC II manual (*P/N 026-1501*).

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1 Overview

The PMAC II Solo is a solid state, anti-sweat heater controller designed to dramatically reduce the cost of operating anti-sweat heaters on low-temperature door-type cases found in most supermarkets.

Normally, anti-sweat heaters operate continuously with no controls, even though 100% operation is required only when in-store humidity levels are high. A PMAC II Solo provides a means for pulsing power to the heaters based on environmental conditions, so that heaters will be on for less time during periods where the in-store dewpoint is low. This reduces operating costs by limiting heater operation, and increases heater life by limiting heat cycle fatigue since the heaters are rarely turned off completely.

The PMAC II Solo performs all anti-sweat functions independently of a central Einstein, E2, or REFLECS controller. The PMAC II Solo uses an Intellects UC12PG-R microcontroller mounted within the panel to control of all anti-sweat heaters channels based on dewpoint (calculated from relative humidity and temperature inputs) without need for a central CPC site control system.

The UC12PG-R does not support multiple zone control. All heaters are controlled by the same setpoint and dewpoint inputs.

1.1. Features

- Full Solid-State Control
- Quiet Operation
- Easily added to existing systems
- Controlled by the store environment (humidity and temperature)
- Centrally-located panel
- Easy installation



Figure 1-1 - PMAC II Solo Detail

1.2. Installation

This section of the manual covers wiring and installation for the PMAC II Solo.

1.2.1. Location and Wiring

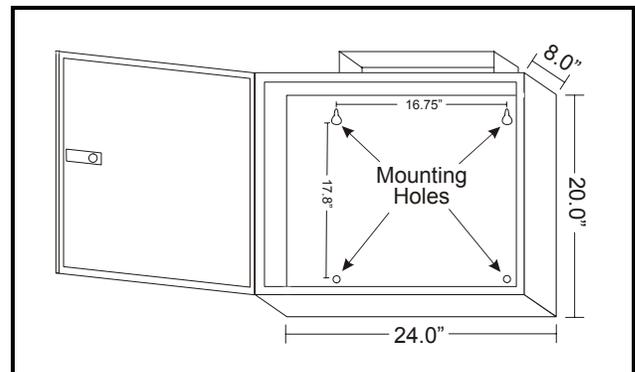


Figure 1-2 - PMAC II Solo Dimensions

1. Mount the PMAC II Solo in a central location such as a motor or electrical room. The panel should be in an area where there is plenty of ventilation (e.g., not in a closet). Keep a 6-12 inch clearance on the top and bottom for proper air flow. The room's ambient temperature should always be below 100° F. See *Figure 1-2* for dimensions.



WARNING: For proper cooling, the door must be closed at times when unit is in operation.

2. Provide 120 VAC (15 amp circuit) to the PMAC II Solo panel through a store circuit breaker. See the layout design in *Figure 1-3*.
3. Provide power to the case heaters from the store circuit breaker panel through the PMAC II Solo panel terminal strip using #10-12 AWG wire, as shown in *Figure 1-4*.

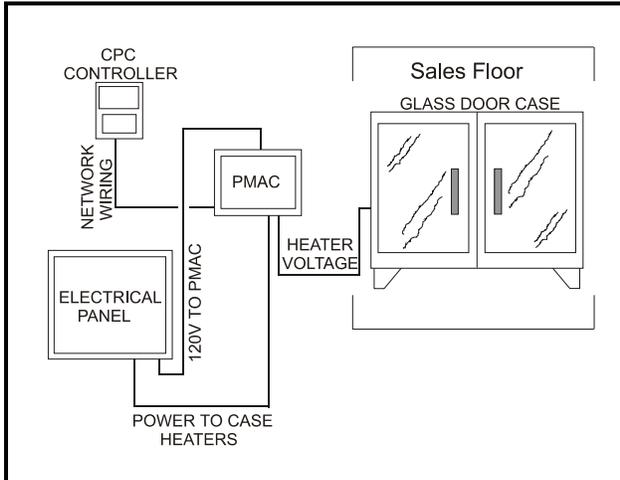


Figure 1-3 - Typical Layout

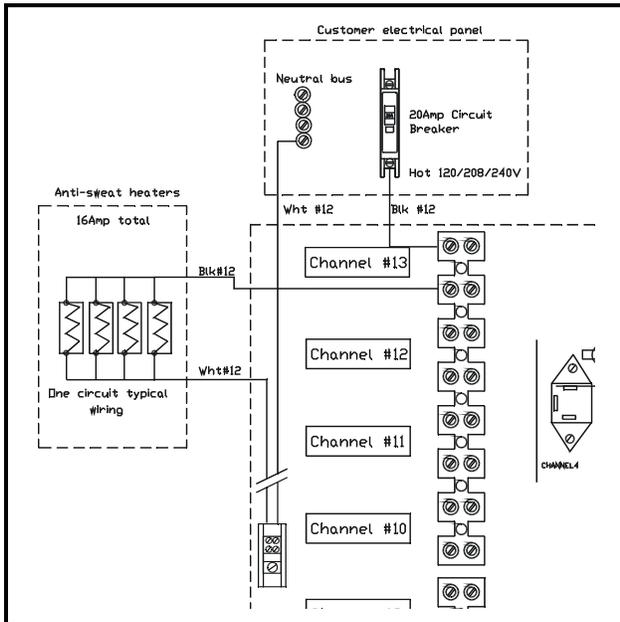


Figure 1-4 - Typical Heater Wiring Layout

Additional setup steps required are:

1. Wire the indoor air temperature sensor and indoor relative humidity sensor to the terminal strip at the bottom of the panel.
2. Program the high and low dewpoint setpoints from the UC12PG-R controller's front panel.

1.3. Sensor Mounting and Wiring

1.3.1. Mounting

The PMAC II Solo comes equipped with a wall-mounted indoor temperature sensor (P/N 809-6580), and a wall-mounted relative humidity sensor (P/N 203-5751).

1.3.1.1. Indoor Temperature Sensor

The indoor temperature sensor should be mounted in a central location—within the zone to be measured—away from doors, windows, vents, heaters, and outside walls that could affect temperature readings. The sensor should be between four and six feet from the floor. In addition, the sensor should not be mounted above other sensors that generate heat during operation (such as relative humidity sensors).

To mount the sensor, use a screwdriver to press in the tab on the left side of the sensor enclosure, and lift the cover off the enclosure. Use the two mounting holes on the back panel to screw the sensor enclosure onto a flat surface (as shown in *Figure 1-5*).

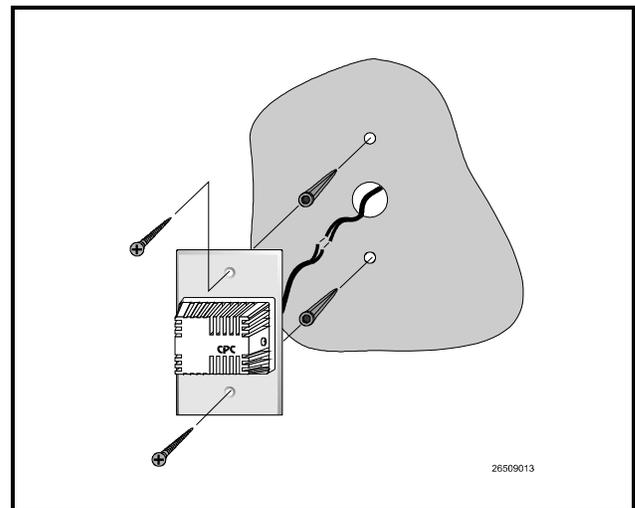


Figure 1-5 - Indoor Temperature Sensor Mounting

1.3.1.2. Indoor Relative Humidity Sensor

The indoor relative humidity (RH) sensor should be mounted in a central location within the zone to be measured, away from doors, windows, vents, heaters, and outside walls that could affect humidity readings. The Sensor should be between four and six feet from the floor. Note that the RH sensor generates a small amount of heat; therefore, do not mount temperature sensors directly above RH sensors.

Mount the RH sensor as follows:

1. With a flat-head screwdriver, push down the middle tab on the top of the sensor case and pop the lid off to expose the circuit board.
2. Insert the flat-head screwdriver into the two slots on either side of the top of the sensor case and twist to separate the back plate from the case.
3. Remove the knock-outs from the back plate before mounting so wires may be threaded through.
4. Mount the back plate to the wall using the two open mounting holes on the top and bottom of the plate.
5. Replace the cover on top of the back plate by lining up the tabs, and snap the lid back into place.

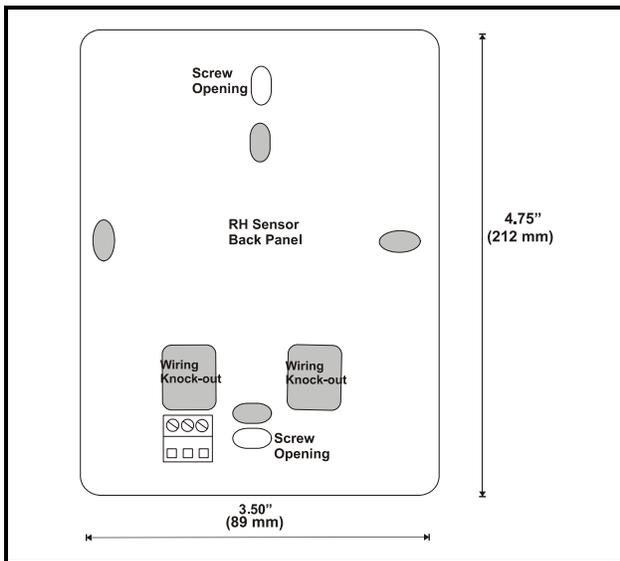


Figure 1-6 - Indoor RH Mounting Dimensions

1.3.2. Wiring

The wall-mounted sensors must be connected to the terminal strip at the bottom of the PMAC II Solo panel. The necessary connections between this terminal strip and the UC12PG-R controller are hard-wired by CPC during manufacturing.

1.3.2.1. Wiring for RH Sensor



NOTE: Before wiring connections are made on the RH sensor, the output select switch must be set to "VOLTS", and the jumper set to "5V" (five volts). See (Figure 1-7).

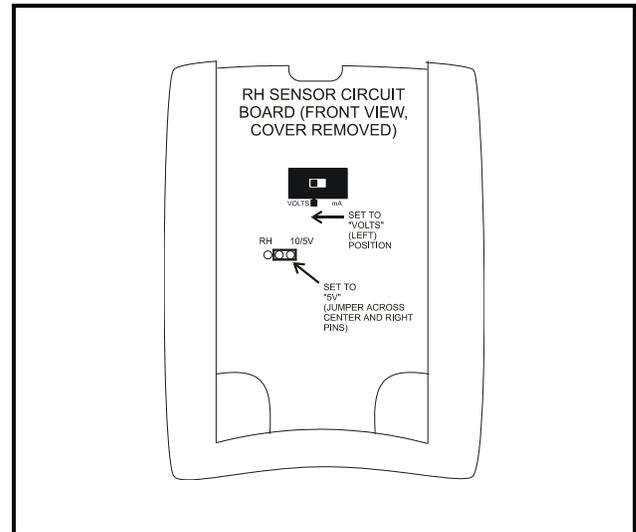


Figure 1-7 - Indoor RH Sensor Board

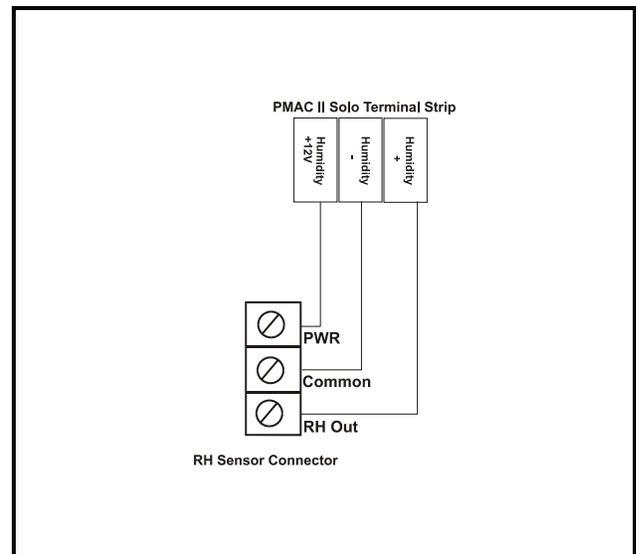


Figure 1-8 - Indoor RH Sensor Wiring

1.3.2.2. Sensor Cable Type

Wire the sensors to the PMAC II Solo terminal strip using Belden #8641 or equivalent for the temperature sensor, and Belden #8771 or equivalent for the humidity sensor.

1.3.2.3. Wire Connections

Figure 1-9 shows how to connect the sensor cables to the terminals on the sensor and the PMAC II Solo terminal strip. Table 1-1 gives the wire colors for the Belden #8771 three-conductor cable and where they must be connected on the sensor and the PMAC II Solo terminal strip. The

temperature sensor is two-wire, non-polarity specific. Refer to **Figure 1-9** for wiring to the PMAC II Solo strip.

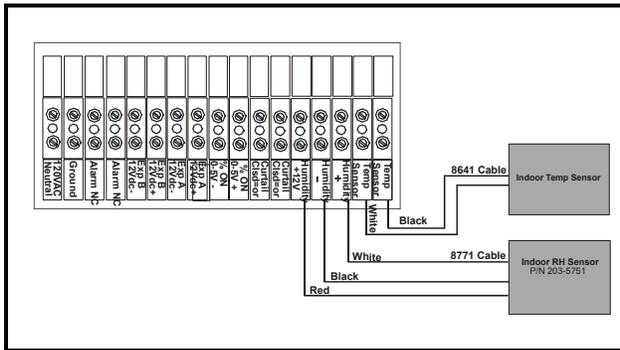


Figure 1-9 - Wiring the Temp & RH Sensor to the PMAC II Solo

RH Sensor		
Wire Color (Belden 8711)	Sensor Terminal Name	PMAC II Solo Terminal Strip
Red	PWR	Humidity +12V
Black	Common	Humidity -
White	RH Out	Humidity +

Table 1-1 - Wire Colors & Connections for RH Sensor

1.4. UC12PG-R Output Mapping

Table 1-2 shows how the 28 channels of the PMAC II Solo are connected to the four UC12PG-R outputs.

UC12PG-R Outputs	Anti-Sweat Channels
1	1 - 7
2	8 - 14
3	15 - 21
4	22 - 28

Table 1-2 - UC12PG-R Outputs to PMAC II Solo Channels

1.5. Programming the UC12PG-R Controller on the PMAC II Solo Panel

With the sensor properly configured, all that remains to set up the PMAC II Solo for humidity control is specifying the minimum and maximum dewpoint setpoints (**Section 1.5.4., Entering/Changing Setpoints**), as well as the mini-

um pulse percentage (**Section 1.5.4.3., Setting Pulse Percentages**).

1.5.1. Keypad

The PMAC II Solo keypad allows the user to navigate through all the status and configuration screens and to adjust setpoints. The keypad has a four-line display and six buttons, and can display up to 20 characters on each line.

To exit a screen without saving or to cancel an operation, press the button. The button allows you to select, enter information, or save changes into the controller.

The , , , and buttons move the cursor and allow you to change configuration parameters.

1.5.2. How the Setpoints Work

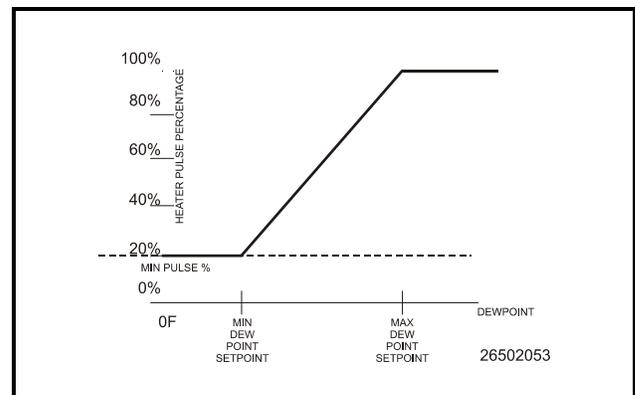


Figure 1-10 - Anti-Sweat Control Strategy for the PMAC II Solo

The PMAC II Solo uses these setpoint values as shown in the graph in **Figure 1-10**. When the dewpoint is at or below the Minimum Dewpoint setpoint, the heaters will operate at the percentage specified in the Minimum Pulse Percentage setpoint. When the dewpoint is between the minimum and maximum setpoint, the PMAC II Solo's pulse percentage varies between the Minimum Pulse Percentage and 100% (the higher the dewpoint, the higher the pulse percentage). Finally, if the dewpoint meets or exceeds the Maximum Dewpoint setpoint, the heaters will operate at 100%.

1.5.3. Logging Into the UC12PG-R

All day-to-day user functions, such as viewing alarms and status screens are performed after being logged into the system. Viewing and changing any configuration parameters, such as setpoints, minimum pulse times, date, time, or password, requires the user to enter a six-digit password.

1. Press the  button once to view the Enter Password screen (*Figure 1-11*).



Figure 1-11 - Enter Password Screen

2. Press the  button six times to enter the password, and the  button once to enter and save. The cursor should appear over each digit of the six-digit password field as they are entered.

1.5.4. Entering/Changing Setpoints

To enter setpoints into the PMAC II's UC12PG-R controller:

1. Log on to the UC12PG-R as instructed in **Section 1.5.3**.
2. The Main Configuration screen should be visible (*Figure 1-12*). Use the  button to move the cursor to **2. SETPOINTS**.

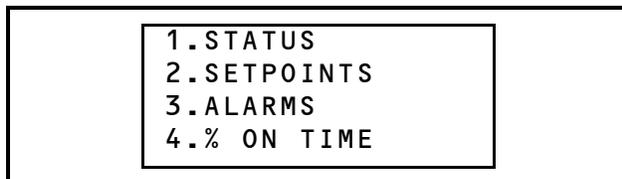


Figure 1-12 - Main Configuration Screen

3. Press the  button to select and open the Setpoints Configuration screen (*Figure 1-13*).

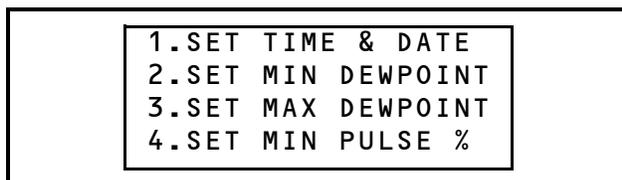


Figure 1-13 - Setpoints Configuration Screen (First Screen)

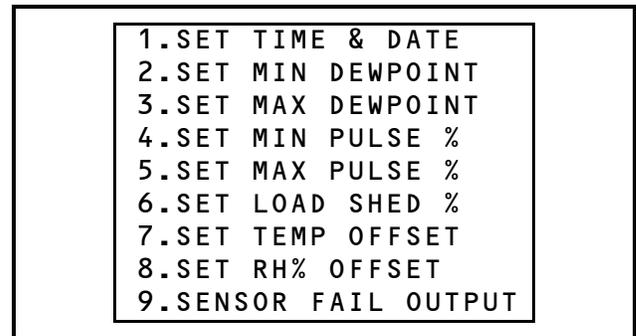


Figure 1-14 - Complete Setpoints Configuration Menu



NOTE: Only four lines at a time are visible through the PMAC II Solo keypad window.

1.5.4.1. Setting Time/Date

To define the time and date from the Setpoints Configuration screen (*Figure 1-13*):

1. Use the  and  buttons to move the cursor to **1. SET TIME AND DATE** and press the  button to select.

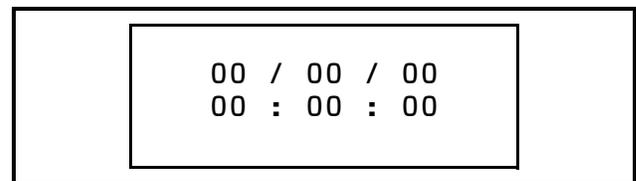


Figure 1-15 - Date and Time Configuration Screen

Use the  or  buttons to access all the date and time values in the Date and Time Configuration screen (*Figure 1-15*).

2. Press the  or  buttons to move the cursor to the "month" field of the current date. Use the  and  buttons to set the month (01 - 12).
3. Press the  or  buttons to move the cursor to the "days" field of the current date. Use the  and  buttons to set the day (01 - 31).

4. Press the  or  buttons to move the cursor to the "years" field of the current date. Use the  and  buttons to set the current year (e.g., 03, 04, 05, etc.).
5. Use the  or  buttons to move the cursor to the "hours" field of the current time. Use the  and  buttons to set the hour (0 - 23).
6. Press the  or  buttons to move the cursor to the "minutes" field of the current time. Use the  and  buttons to set the minutes (00 - 59).
7. Press the  or  buttons to move the cursor to the "seconds" field. Use the  and  buttons to set the seconds (00 - 59).
8. Press the  button to save changes and go back to the Configuration screen to continue adjusting setpoints.

1.5.4.2. Setting Dewpoints

To configure dewpoint levels from the Setpoints Configuration screen (*Figure 1-13*):

9. Use the  or  buttons to move the cursor to **2. SET MIN DEWPOINT** and press the  button to select.
10. Use the  or  buttons to adjust the setpoint to the desired minimum dewpoint level.
11. Press the  button to save changes and go back to the Configuration screen.

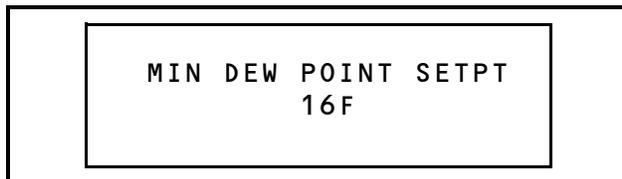


Figure 1-16 - Minimum Dewpoint Screen

12. Use the  or  buttons to select **3. SET MAX DEWPOINT**, and use the  and  buttons to adjust the setpoint to the desired maximum dewpoint level.
13. Press the  button to save changes and go back to the Setpoints Configuration screen (*Figure 1-13*).

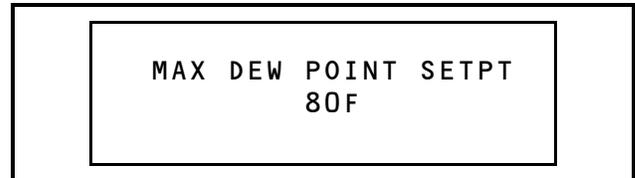


Figure 1-17 - Maximum Dewpoint Screen

1.5.4.3. Setting Pulse Percentages

To configure pulse rate percentages from the Setpoints Configuration screen:

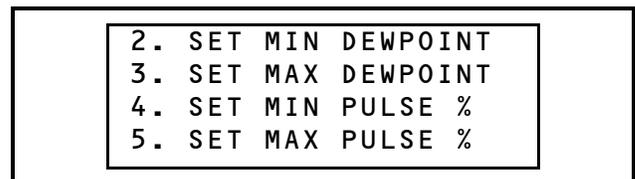


Figure 1-18 - Configuration Screen

14. Use the  button to scroll down the list to **4. SET MIN PULSE %** and press the  button to select. Use the  and  buttons to set the minimum pulse rate generated at the minimum dewpoint setpoint. Press the  button to save changes and go back to the Configuration screen.

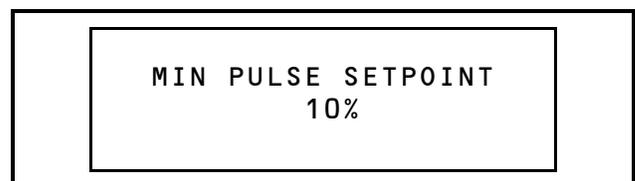


Figure 1-19 - Minimum Pulse Setpoint Screen

- Press the  button to scroll down to **5. SET MAX PULSE %** and press the  button to select. Use the  and  buttons to set the maximum pulse rate generated at the maximum dewpoint setpoint. Press the  button to save changes and go back to the Configuration screen.

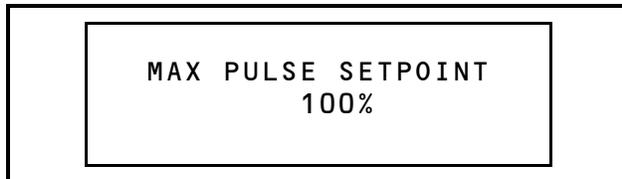


Figure 1-20 - Maximum Pulse Setpoint Screen

1.5.4.4. Setting Load Shed

- From the Configuration screen, press the  button to scroll down the list to **6. SET LOAD SHED** and press the  button to select. Use the  and  buttons to set the load shed pulse rate generated when the load shed input is closed. Press the  button to save changes and go back to the Configuration screen.

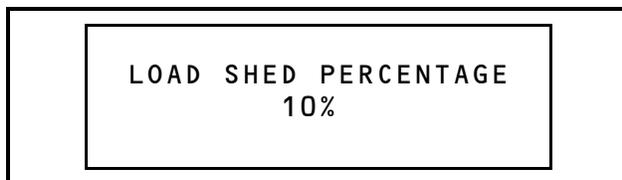


Figure 1-21 - Load Shed Percentage Screen

1.5.4.5. Setting Temperature and RH % Offsets

- To adjust the setpoints for temperature and RH % offsets, press the  button to scroll down the list to **7. SET TEMP OFFSET** and press the  button to select. Use the  and  buttons to add or subtract an offset from the humidity sensor reading. Press the  button to save and go back to the Configuration screen.

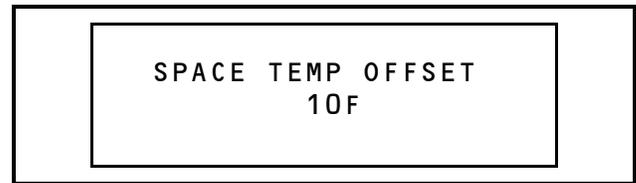


Figure 1-22 - Space Temp Offset Screen

- From the Configuration screen, press the  button to scroll down the list to **8. SET RH% OFFSET** and press the  button to select. Use the  and  buttons to add or subtract an offset from the humidity sensor reading. Press the  button to save and go back to the Configuration screen.

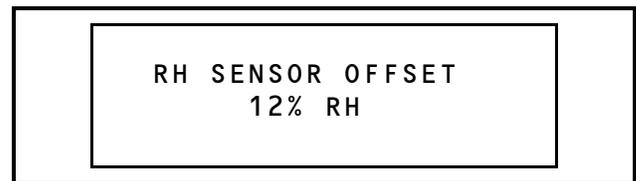


Figure 1-23 - RH Sensor Offset Screen

1.5.4.6. Setting the Sensor Fail Output

Setting the Sensor Fail Output is the last step for entering/changing setpoints.

- From the Configuration screen, press the  button to scroll down the list to **9. SENSOR FAIL OUTPUT** and press the  button to select. Use the  and  buttons to adjust percentage. This setting determines the PMAC II Solo output in the event that the RH or temp sensors are not present or have failed. Press the  button to save and go back to the first Setpoints Configuration screen (*Figure 1-13*).

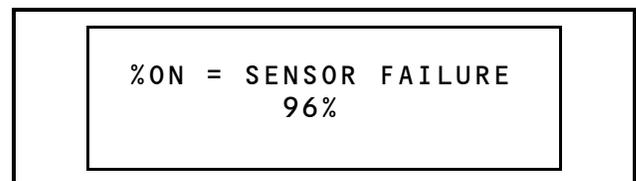


Figure 1-24 - Sensor Failure Percentage Screen

1.5.5. Alarms

The UC12PG-R generates logs and alarms that indicate sensor failures, high enclosure temperatures, and unit reboots. Up to 40 alarms can be displayed in the alarm log list, but an individual alarm must be viewed to see its current alarm status (Active or Cleared). Up to four different alarm types may be listed: (**RH Sensor Error**, **Temp Sensor Fail**, **PMAC High Temp**, and **Normal Power on Reset**.)

1.5.5.1. Navigating the Alarm Screens

1. Log into the UC12PG-R as instructed in **Section 1.5.3., Logging Into the UC12PG-R**.
2. The Main Configuration screen should be visible (**Figure 1-12**). Press the  button to move the cursor to **3. ALARMS**. Press the  button to select and open the Alarm screen.



Figure 1-25 - No Active Alarms Screen

If the **NO ACTIVE ALARMS** message displays, no alarm history has been generated.

A greater-than ">" or less-than "<" sign next to the alarm indicates that the alarm has not been viewed. A single brace "}" or "{" indicates the alarm has been viewed;

however, the alarm may still be active. Use the  or  buttons to scroll sideways to view any text that is not visible on screen.



NOTE: Alarms are logged and listed in descending order, with the newest alarms numbered first in the alarm log.

1.5.5.2. Viewing the Alarm Screens

3. View an alarm by using the  and  buttons to choose an alarm from the alarm log list. Press the  button to select and view.

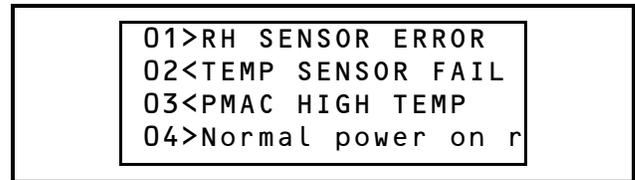


Figure 1-26 - Alarms List with all Possible Types of Alarms

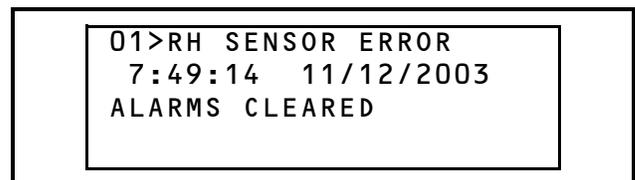


Figure 1-27 - Viewing an RH Sensor Error Alarm (Cleared)

The alarm screen (**Figure 1-27**) shows the number the alarm appears in the log, the name of the alarm, the time and date it was recorded, and the alarm status (Active or Cleared).

4. Once an alarm has been viewed and acknowledged, press the  button to exit the alarm and go back to the alarm log list. Note that the greater-than or less-than sign next to the alarm has now changed to a single brace sign (**Figure 1-28**).

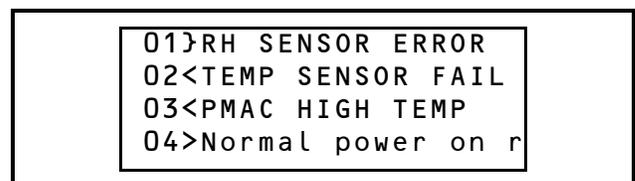


Figure 1-28 - Alarms List After RH Sensor Error was Viewed

1.5.5.3. Alarm Types

RH Sensor Error

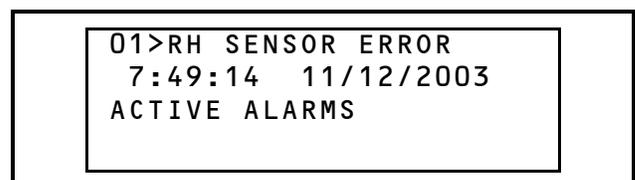


Figure 1-29 - RH Sensor Error Alarm

An RH Sensor Error alarm indicates that an RH Sensor has exceeded alarm conditions. Check for a damaged sensor. The humidity sensor is either shorted, open, or otherwise not returning a valid signal that indicates a properly working sensor. A wire connection may be broken or shorted, or the sensor itself may be faulty.

Temp Sensor Fail

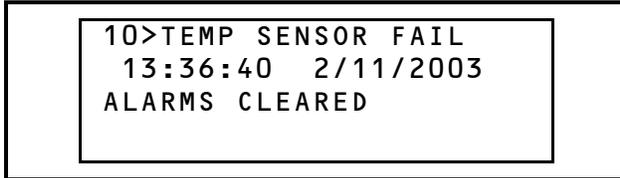


Figure 1-30 - Temp Sensor Fail Alarm

A Temperature Sensor Failure alarm indicates that a temperature sensor has exceeded alarm conditions. Check for a damaged sensor. The temperature sensor is either shorted, open, or otherwise not returning a valid signal that indicates a properly working sensor. A wire connection may be broken or shorted, or the sensor itself may be faulty.

PMAC High Temp

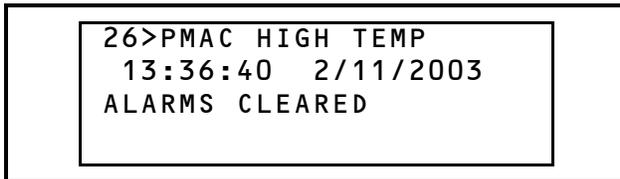


Figure 1-31 - PMAC High Temp Alarm

A PMAC High Temp alarm indicates the temperature within the PMAC II Solo panel has risen above 165 degrees Fahrenheit, indicating the panel may be approaching over-heat shutdown. This usually means the panel's exhaust fan has failed or the door to the PMAC II Solo panel was left open. If the temperature continues to rise in the panel, shutdown will occur. Check for blocked vents, damaged fans, or an open door on the PMAC II Solo.

Normal Power On Reset

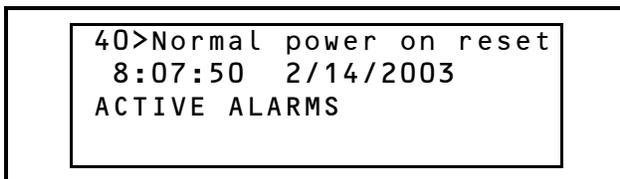


Figure 1-32 - PMAC High Temp Alarm

This alarm indicates a power outage or other condition that caused the UC12PG-R controller to reboot.

1.5.6. Percentage On Times

Percent On Time shows the average duty cycle (on time) that the anti-sweat outputs have been operating at. For example, if the outputs have operated at 0% for half an hour and 100% for the next half hour, the Hour Percent On Time would show 50%. Setting Zero On Time % to Active manually resets all calculations.

1.5.6.1. Viewing the Percentage On Time Screens

1. Log into the UC12PG-R as instructed in **Section 1.5.3., Logging Into the UC12PG-R.**
2. The Main Configuration screen should be visible (**Figure 1-12**). Press the button to move the cursor to **4. % ON TIME**. Press the button to select and open the Percentage On Time screen.

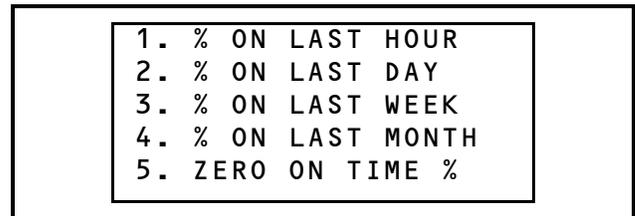


Figure 1-33 - Complete Percentage On Time Menu



NOTE: Only four lines at a time are visible through the PMAC II Solo keypad window.

3. Press the and button to move the cursor to **1. % ON LAST HOUR** and press the button to select and view.

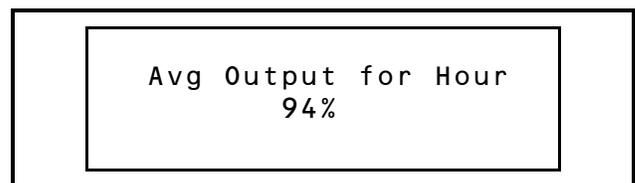


Figure 1-34 - Average Output for Hour Screen

The Average Output for Hour gives the average run-time percentage of the outputs for every 60-minute period. The calculation starts at the beginning of each hour and restarts at the end of each 60-minute period.

- The screen displays the average output percentage for the most recent hour of operation.

Press the  or  button to go back to the Percentage On Time screen.

- From the Percentage on Time screen, press the  button to move the cursor to **2. % ON LAST DAY** and press the  button to select and view.

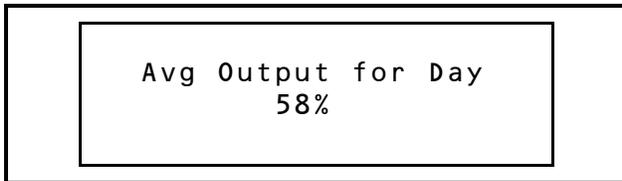


Figure 1-35 - Average Output for Day Screen

The Average Output for Hour gives the average run-time percentage of the outputs for every 24-hour period. The calculation starts at midnight for each day and is reset at midnight at the end of each 24-hour period.

- The screen displays the average output percentage for the most recent day of operation.

Press the  or  button to go back to the Percentage On Time screen.

- From the Percentage On Time screen, press the  button to move the cursor to **3. % ON LAST WEEK** and press the  button to select and view.

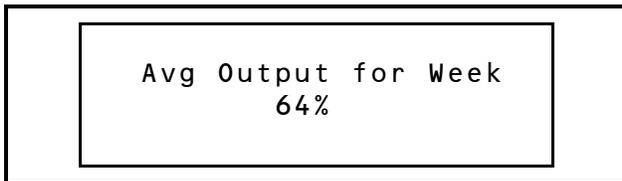


Figure 1-36 - Average Output for Week Screen

The Average Output for Week gives the average run-time percentage of the outputs for every seven-day period. The calculation starts at midnight every Sunday and is reset at midnight at the end of each seven-day period.

- The screen displays the average output percentage for the most recent week of operation. Press the  or  button to go back to the Percentage On Time screen.

- From the Percentage On Time screen, press the  button to move the cursor to **4. % ON LAST MONTH** and press the  button to select and view.

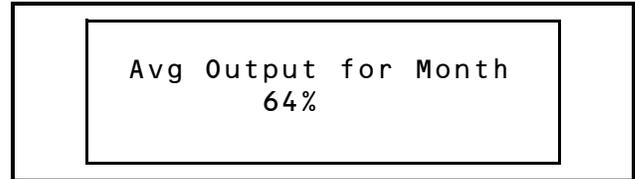


Figure 1-37 - Average Output for Month Screen

The Average Output for Month gives the average run-time percentage of the outputs for every month. The calculation starts at midnight on the first day of each month and is restarted at the beginning of each month.

- The screen displays the average output percentage for the most recent week of operation. Press the  or  button to go back to the Percentage On Time screen.

- From the Percentage On Time screen, press the  button to move the cursor to **5. ZERO ON TIME %** and press the  button to select and view.



Figure 1-38 - Zero On Time Percentage Screen

To zero all On Time Percentages, use the  to toggle the screen option to **ACTIVE**. The screen will reset to **INACTIVE** upon exiting. It will take two minutes after the On Time Percentages have been reset before the new percentages are displayed. During this two minute delay the old percentages will still be visible.

- To reset all Percentage On Time calculations, use the  button to toggle the setting to **ACTIVE**. Press the  button to save and go back to the Percentage On Time screen.

1.5.7. Status Screens

During operation, the UC12PG-R in the PMAC II Solo panel displays real-time status information about the anti-

sweat heaters and input values. The UC12PG-R also averages and logs heater run times, and displays hourly, daily, weekly, and monthly run time averages.

1.5.7.1. Viewing Status Screens

1. Log into the UC12PG-R as instructed in **Section 1.5.3., Logging Into the UC12PG-R.**
2. The Main Configuration screen should be visible (**Figure 1-12**). Use the  and  buttons to move the cursor to **1. STATUS**.

Press the  button to select and open the first Status screen.

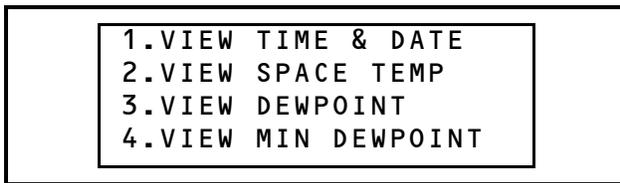


Figure 1-39 - Status View Screen (First Screen)

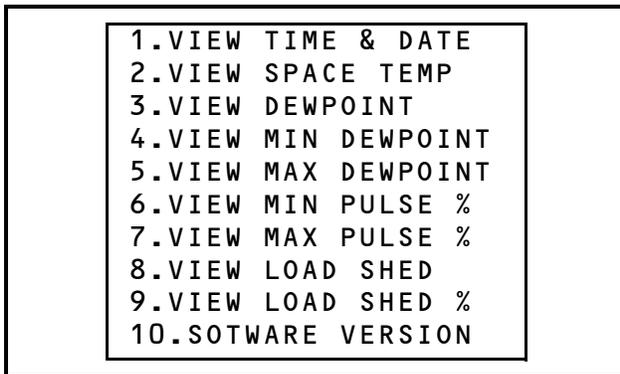


Figure 1-40 - Complete Status View Menu

 **NOTE: Only four lines at a time are visible through the PMAC II Solo keypad window.**

3. From the Status View screen, press the  button to move the cursor to **1. VIEW TIME & DATE** and press the  button to select and view.

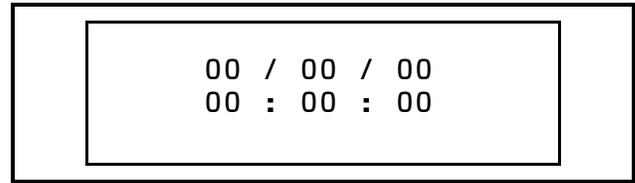


Figure 1-41 - Time and Date Status Screen

This screen displays the current date and time of the controller.

4. Press the  or  button to go back to the Status View screen.
5. From the Status View screen, press the  button to move the cursor to **2. VIEW SPACE TEMP** and press the  button to select and view.

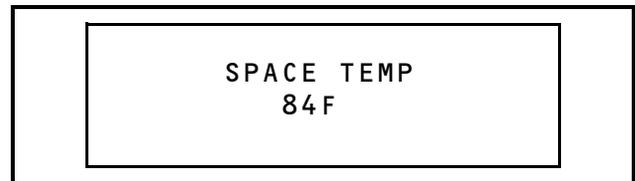


Figure 1-42 - Time and Date Status Screen

This screen displays the current space temperature.

6. Press the  or  button to go back to the Status View screen.
7. From the Status View screen, press the  button to move the cursor to **3. VIEW DEWPOINT** and press the  button to select and view.

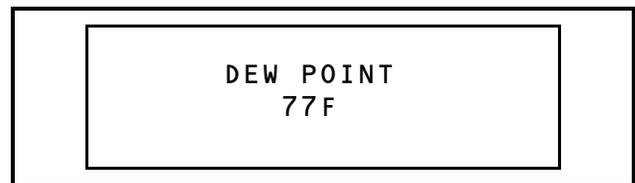


Figure 1-43 - Dewpoint Status Screen

This screen displays the current inside dewpoint temperature.

8. Press the  or  button to go back to the Status View screen.

- From the Status View screen, press the  button to move the cursor to **4. VIEW MIN DEWPOINT** and press the  button to select and view.

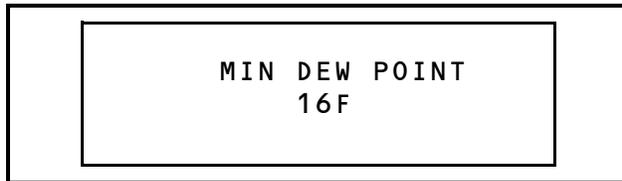


Figure 1-44 - Minimum Dewpoint Status Screen

This screen displays the minimum dewpoint setpoint.

- Press the  or  button to go back to the Status View screen.
- From the Status View screen, press the  button to move the cursor to **5. VIEW MAX DEWPOINT** and press the  button to select and view.

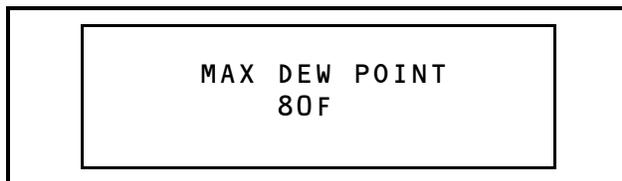


Figure 1-45 - Maximum Dewpoint Status Screen

This screen displays the maximum dewpoint setpoint.

- Press the  or  button to go back to the Status View screen.
- From the Status View screen, press the  button to move the cursor to **6. VIEW MIN PULSE %** and press the  button to select and view.

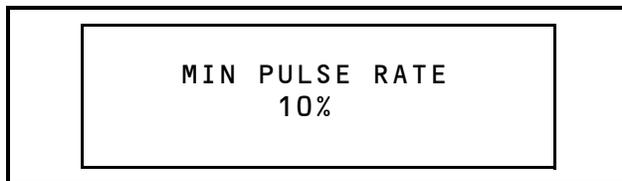


Figure 1-46 - Minimum Pulse Rate Status Screen

This screen displays the minimum pulse rate generated at the minimum dewpoint setpoint.

- Press the  or  button to go back to the Status View screen.

- From the Status View screen, press the  button to move the cursor to **7. VIEW MAX PULSE %** and press the  button to select and view.

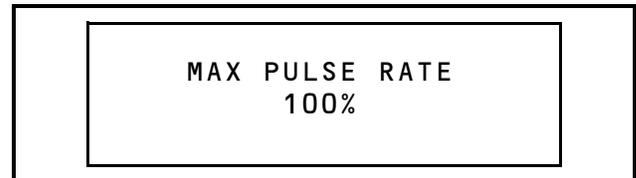


Figure 1-47 - Maximum Pulse Rate Status Screen

This screen displays the maximum pulse rate generated at the maximum dewpoint setpoint.

- Press the  or  button to go back to the Status View screen.
- From the Status View screen, press the  button to move the cursor to **8. VIEW LOAD SHED** and press the  button to select and view.



Figure 1-48 - Load Shed Status Screen

This screen displays the state of the load shed input. The load shed input is active on a closure and inactive when open.

- Press the  or  button to go back to the Status View screen.
- From the Status View screen, press the  button to move the cursor to **9. VIEW LOAD SHED %**. Press the  button to select and view.

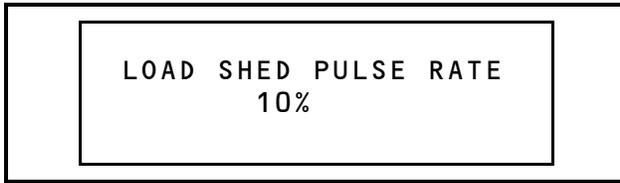


Figure 1-49 - Load Shed Pulse Rate Status Screen

This screen displays the load shed pulse rate generated when the load shed input is closed.

20. Press the  or  button to go back to the Status View screen.
21. From the Status View screen, press the  button to move the cursor to **10. SOFTWARE STATUS** and press the  button to select and view.

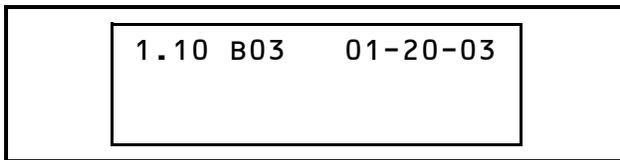


Figure 1-50 - Software Status Screen

This screen displays the version of the software.

22. Press the  button to go back to first Status View screen (**Figure 1-39**) or the  button to go back to the last Status View screen you were on.
23. Press the  button once to go back to the Main Configuration screen (**Figure 1-12**), and twice to go back to the default home screen.

PMAC SOLD SCREEN NAVIGATION

PMAC SOLD DN =100%
HUMIDITY 40Z, RH

Enter Password

1. STATUS
2. SETPOINTS
3. ALARMS
4. ON TIME

1. VIEW TIME & DATE
2. VIEW SPAC TEMP
3. VIEW DEWPOINT
4. VIEW MIN DEWPOINT

5. VIEW MAX DEWPOINT
6. VIEW LOAD SHED %
7. VIEW MAX PULSE %
8. VIEW LOAD SHED

9. VIEW MAX PULSE %
10. VIEW LOAD SHED %
11. VIEW VERSION

To exit a screen press the cancel key.

- VIEW TIME & DATE
Displays the current time of the controller.
- VIEW SPACE TEMP
Displays the current space temperature.
- VIEW DEWPOINT
Displays the current inside dew point.
- VIEW MIN DEWPOINT
Displays the minimum dew point.
- VIEW MAX DEWPOINT
Displays the maximum dew point.
- VIEW MIN PULSE %
Displays the minimum pulse rate generated at the minimum dew point set point.
- VIEW MAX PULSE %
Displays the maximum pulse rate generated at the maximum dew point set point.
- VIEW LOAD SHED %
Displays the percentage of the load shed input. Active on a closure and inactive when open.
- VIEW LOAD SHED %
Displays the percentage of the pulse generated when the load shed input is closed.
- SOFTWARE VERSION
Displays the version of the PMAC controller. This version is VER 1.0F04 B2 07-09-02

OR

1. SET TIME & DATE
2. SET MIN DEWPOINT
3. SET MAX DEWPOINT
4. SET MIN PULSE %

5. SET MAX PULSE %
6. SET TEMP OFFSET
7. SET RHZ OFFSET
8. SET RHZ OFFSET

9. SET LOAD SHED %
10. SET TEMP OFFSET
11. SET RHZ OFFSET
12. SENSORS FAIL OUTPUT

To exit a screen press the cancel key.

- SET TIME & DATE
The user defines date & time of the controller.
- SET MIN DEWPOINT
The user sets the minimum dew point setpoint.
- SET MAX DEWPOINT
The user sets the maximum dew point setpoint.
- SET MIN PULSE %
The user sets the minimum pulse rate generated at the minimum dew point setpoint.
- SET MAX PULSE %
The user sets the maximum pulse rate generated at the maximum dew point setpoint.
- SET LOAD SHED %
The user sets the load shed input to generate when closed.
- SET TEMP OFFSET
Use this setting to add or subtract an offset from the RHZ sensor reading.
- SET RHZ OFFSET
Use this setting to add or subtract an offset from the SENSORS FAIL OUTPUT.
- SENSORS FAIL OUTPUT
Use this setting to determine the PMAC SOLD output in the event that the RH of temp sensors are not present or failed.

OR

>NO ACTIVE ALARMS

01>RH SENSOR ERROR
02>RH SENSOR FAIL
03>TEMP SENSOR FAIL
04>TEMP SENSOR FAIL

05>TEMP SENSOR FAIL
06>PMAC HIGH TEMP
07>Normal Power on r

To exit a screen press the cancel key.

- NO ACTIVE ALARMS
This message appears when no alarm has been generated.
- 01>RH SENSOR ERROR
This record documents the RH sensor returning to normal.
- 02>RH SENSOR ERROR
This record documents the RH sensor returning to normal. Check for a damaged sensor.
- 03>TEMP SENSOR FAIL
This record documents the temp sensor returning to normal.
- 04>TEMP SENSOR FAIL
This record documents the temp sensor exceeding alarm conditions.
- 05>PMAC HIGH TEMP
This record documents the PMAC enclosure temperature returning to normal.
- 06>PMAC HIGH TEMP
This record documents the PMAC heat sink surface temp exceeding the 165 F high limit. Check for open door on PMAC enclosure.
- 07>Normal power on reset
Alarm generated when power is restored to the controller. This indicates a power outage occurred.

OR

1. ON LAST HOUR
2. ON LAST DAY
3. ON LAST WEEK
4. ON LAST MONTH

5. ON LAST WEEK
6. ON LAST DAY
7. ON LAST MONTH
8. ZERO ON TIME %

To exit a screen press the cancel key.

- ON LAST HOUR
Displays the average output % of the recent hour of operation.
- ON LAST DAY
Displays the average output % on the most recent day of operation.
- ON LAST WEEK
Displays the average output % for the most recent week of operation.
- ON LAST MONTH
Displays the average output % of the recent month of operation.
- ZERO ON TIME %
Toggle the screen option to active. Using the up arrow to zero all the percentages. The screen will update on the next keying. It will take two minutes after the on time % has been zeroed before the new percentages are displayed on the keypad. During this two minute period the percentages will still be visible in the keypad status screens.